

# GUHRING

## GM 300

TOOLHOLDERS AND CLAMPING DEVICES



EDITION GM01

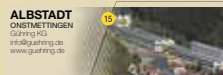
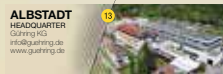
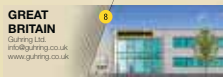
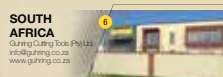
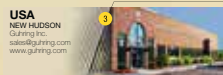
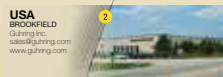
# GM 300

# Everything from one supplier – comprehensive and global

With a global network of manufacturing sites Guhring develops and produces precision tools for every major market. Customers from various industries rely on our innovative cutting tools, manufactured to the highest level of uniform quality standards across the globe.

48  
SUBSIDIARIES

MORE  
THAN 70  
PRODUCTION AND  
SERVICE CENTRES



With innovative technologies Guhring meets specific customer requirements from process proposal to production application of precision tools – flexibly, promptly, globally. To aide in this experience, field experts across the world are available to offer on-site support at customer locations. Production, service and contact persons are available from one supplier world-wide.

Internal carbide production

Internal machine construction

Internal coating plants

Highest quality standards world-wide



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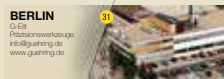
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www.guhring.de



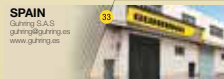
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Pflaumenwerkzeuge  
info@guhring.de  
www.guhring.de



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G&B Guhring GmbH  
info@collidar.guhring.de



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www.guhring.es



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UBERMME**  
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Libermann Guhring Italia s.r.l.  
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www.libermann.it



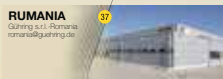
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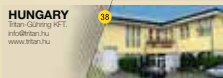
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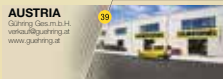
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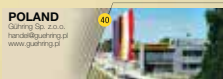
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38  
G&B Guhring KFT.  
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www.gtan.hu



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veits@guhring.at  
www.guhring.at



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www.guhring.pl



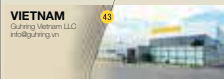
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informa@guhring.cz  
www.guhring.cz



**DENMARK**  
42  
Guhring Aps  
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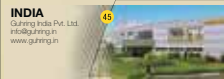
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43  
Guhring Vietnam LLC  
info@guhring.vn



**THAILAND**  
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Guhring Thailand Co., Ltd.  
info.thailand@guhring.de  
www.guhring.com.th



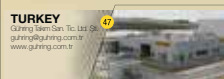
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www.guhring.in



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Guhring China Group  
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www.guhringchina.com



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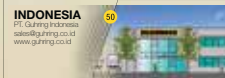
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www.guhring.ru



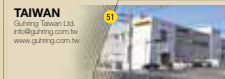
**AUSTRALIA**  
49  
Guhring Pty. Ltd.  
guhring@guhring.com.au  
www.guhring.com.au



**INDONESIA**  
50  
PT. Guhring Indonesia  
sales@guhring.co.id  
www.guhring.co.id



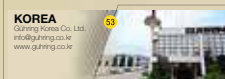
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51  
Guhring Taiwan Ltd.  
info@guhring.com.tw  
www.guhring.com.tw



**JAPAN**  
52  
Guhring Japan Co., Ltd.  
info@guhring.co.jp  
www.guhring.co.jp



**KOREA**  
53  
Guhring Korea Co., Ltd.  
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**GM 3000**

**GUHRING**



**GUHRING**



WE SET  
THE STANDARDS  
FOR THE FUTURE

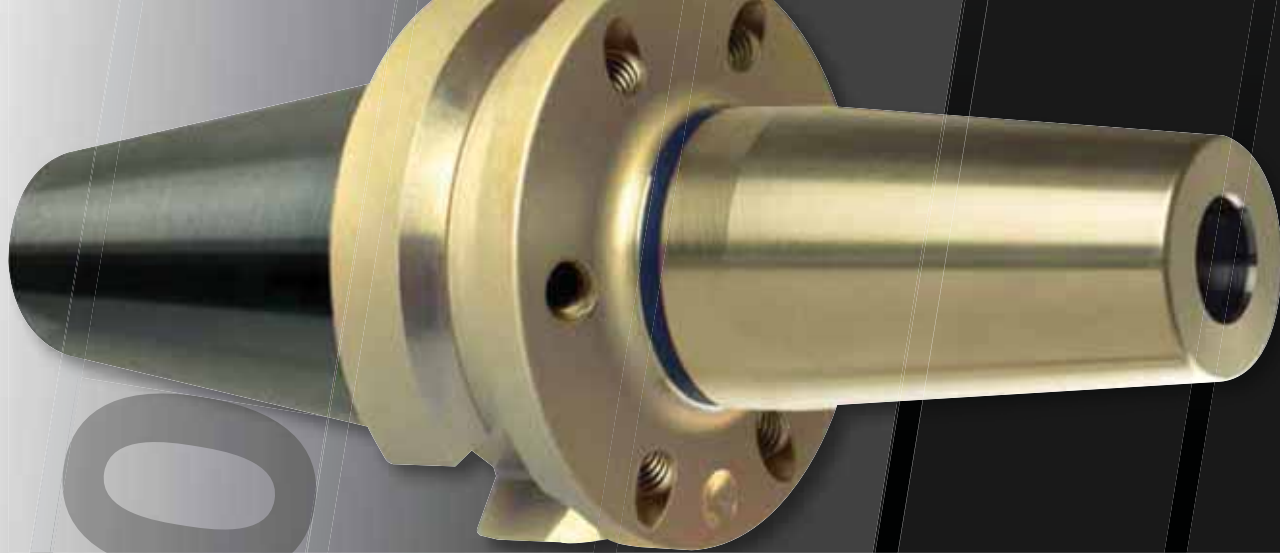


*DEVELOPMENT OF THE  
HSK INTERFACE, PIONEER  
OF FINE MACHINING*



*MQL TECHNOLOGY  
“FROM THE SPINDLE  
TO THE CUTTING EDGE”*

HSK



*HIGH OPERATING SAFETY  
THANKS TO TEMPERATURE  
INDICATOR*



*PVD-COATING FOR LONG  
TOOL LIFE*

**DEVELOPMENTS**  
NEVER  
SEEN BEFORE.



TOOLS FROM Ø 3MM  
DIRECT HYDRAULIC  
CLAMPING



THE ADVANTAGES OF  
HYDRAULIC CHUCK &  
SYNCHRO CHUCK IN  
ONE TOOL HOLDER

HMC 3000

GUHRING SYNCHRO

GUHRING

MQL

# GUHRING MQL SYSTEMS

DELIVERING  
ONLY THE  
REQUIRED AMOUNT



GUHRING

As one of the pioneers of MQL technology we have an extensive knowledge of minimal quantity lubrication. Gühring standard MQL chucks have been supplied a thousand fold throughout the world and are recognized by the automotive industry as ideal MQL solutions as either the one or two channel systems.

Higher cutting speeds and longer tool life are possible thanks to adapted cooling as well as highest surface qualities thanks to the pure lubricant. Workpieces and chips remain dry! Save the cost of de-greasing your workpieces as well as disposal of chips and soluble oil.

## 1 MQL BY GÜHRING

Our products for the MQL 1-channel technology are identified by this symbol.

**Visual feature  
of the 1-channel system**  
is the gold colored MQL  
length setting screw.



## 2 MQL BY GÜHRING

Our products for the MQL 2-channel technology are identified by this symbol.

**Visual feature  
of the 2-channel system**  
is the black colored MQL  
length setting screw.



## HYDRAULIC CHUCKS



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## TOOL HOLDERS

## HOLDERS FOR FINE MACHINING

## HSK CLAMPING TECHNOLOGY

## MEASURING TOOLS AND GENERAL ACCESSORIES

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# HMC 3000 MICRO-PRECISION DRILLS HR 500

## PERFECT CLAMPING

HMC 3000 HYDRAULIC CHUCKS  
TOGETHER WITH SOLID CARBIDE  
MICRO-PRECISION DRILLS OR HR  
500 HIGH-PERFORMANCE REAMERS



- ⇒ direct hydraulic clamping of shanks from  $\text{Ø } 3 \text{ mm}$
- ⇒ quick, simple and accurate length setting
- ⇒ perfect concentricity  $R < 3 \text{ }\mu\text{m}$  with  $10 \times d_1$

HMC 30000



HYDRAULIC CHUCKS

Hydraulic chucks

# HMC 3000

EXTREMELY FAST

EXTREMELY ACCURATE

EXTREMELY SMALL



**DIRECT HYDRAULIC  
CLAMPING OF TOOLS  
FROM Ø 3 MM**



**HIGH-SPEED  
MACHINING**



**PERFECT  
CONCENTRICITY  
 $R < 3 \mu\text{m}$   
WITH  $10 \times D1$**



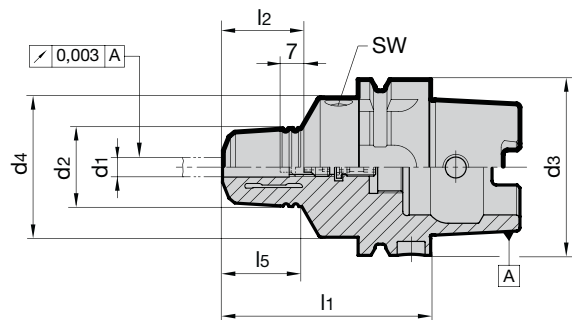
## HSK-A hydraulic chucks HMC 3000 for clamping small diameters

### Product information

- perfect concentricity:  $< 3 \mu\text{m}$  at 10xd1
- balancing quality: G2.5 / 25.000 rev./min or  $U < 1 \text{ gmm}$
- HSK-A to ISO 12164-1/DIN 69893-1
- high clamping force
- quick, simple handling and accurate length setting (only from the front)
- IC and GÜHROJET peripheral cooling ensure optimal chip evacuation and tool lubrication

### Scope of delivery

- incl. length adjustment screw
- incl. hexagon chuck key, Series no. 4912
- order coolant supply set, Series no. 4949, separately
- sealed version available as special option


**GÜHROJET**

 Series no. **4618**

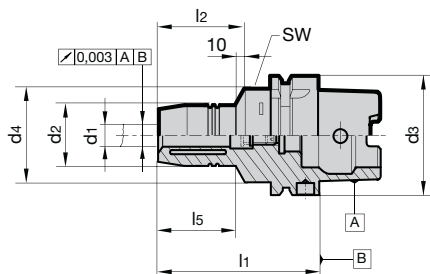
| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | SW | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----|-------------|---------------|
| 32                      | 3  | 28                   | 40.0                 | 84                   | 34                   | 33                   | 4  | 3.032       | 9046180030320 |
| 32                      | 4  | 28                   | 40.0                 | 84                   | 34                   | 33                   | 4  | 4.032       | 9046180040320 |
| 32                      | 5  | 28                   | 40.0                 | 84                   | 34                   | 33                   | 4  | 5.032       | 9046180050320 |
| 40                      | 3  | 28                   | 33.5                 | 74                   | 34                   | 40                   | 4  | 3.040       | 9046180030400 |
| 40                      | 4  | 28                   | 33.5                 | 74                   | 34                   | 40                   | 4  | 4.040       | 9046180040400 |
| 40                      | 5  | 28                   | 33.5                 | 74                   | 34                   | 40                   | 4  | 5.040       | 9046180050400 |
| 50                      | 3  | 28                   | 40                   | 74                   | 34                   | 32                   | 4  | 3.050       | 9046180030500 |
| 50                      | 4  | 28                   | 40                   | 74                   | 34                   | 32                   | 4  | 4.050       | 9046180040500 |
| 50                      | 5  | 28                   | 40                   | 74                   | 34                   | 32                   | 4  | 5.050       | 9046180050500 |
| 63                      | 3  | 28                   | 50                   | 74                   | 34                   | 29.5                 | 5  | 3.063       | 9046180030630 |
| 63                      | 4  | 28                   | 50                   | 74                   | 34                   | 29.5                 | 5  | 4.063       | 9046180040630 |
| 63                      | 5  | 28                   | 50                   | 74                   | 34                   | 29.5                 | 5  | 5.063       | 9046180050630 |
| 100                     | 3  | 28                   | 50                   | 79                   | 34                   | 30                   | 5  | 3.100       | 9046180031000 |
| 100                     | 4  | 28                   | 50                   | 79                   | 34                   | 30                   | 5  | 4.100       | 9046180041000 |
| 100                     | 5  | 28                   | 50                   | 79                   | 34                   | 30                   | 5  | 5.100       | 9046180051000 |
|                         |  |                      |                      |                      |                      |                      |    |             |               |
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|                         |  |                      |                      |                      |                      |                      |    |             |               |
|                         |  |                      |                      |                      |                      |                      |    |             |               |

## Product information

- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- axial length setting
- max. deviation f. concentricity 3 µm
- for tool shank tolerance h6
- to DIN 69882-7
- also available in extra-long lengths  
l1 = 150 / 160 mm (concentricity 5 µm) and 200 mm (concentricity 7 µm)
- HSK-A to ISO 12164-1/DIN 69893-1

## Scope of delivery

- incl. adjustment screw, Series no. 4900
- incl. hexagon chuck key, Series no. 4912
- order coolant supply set, Series no. 4949, separately



| HSK-A<br>d3 | for<br>shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | incl.<br>setting screw<br>4900 ... .. | SW | kg   | Code no. | Series no. | EDP Number    |
|-------------|----------------------------|----------|----------|----------|----------|----------|---------------------------------------|----|------|----------|------------|---------------|
|             |                            |          |          |          |          |          |                                       |    |      |          | 4299       |               |
| 32          | 6                          | 26       | 40.0     | 80       | 37       | 29       | 6.014                                 | 4  | 0.44 | 6.032    |            | 9042990060320 |
| 32          | 8                          | 28       | 40.0     | 80       | 37       | 29       | 8.014                                 | 4  | 0.40 | 8.032    |            | 9042990080320 |
| 32          | 10                         | 30       | 40.0     | 85       | 41       | 35       | 8.014                                 | 4  | 0.40 | 10.032   |            | 9042990100320 |
| 32          | 12                         | 32       | 40.0     | 90       | 46       | 40       | 8.014                                 | 4  | 0.40 | 12.032   |            | 9042990120320 |
| 40          | 6                          | 26       | 33.5     | 70       | 37       | 36       | 6.014                                 | 4  | 0.60 | 6.040    |            | 9042990060400 |
| 40          | 8                          | 28       | 33.5     | 70       | 37       | 36       | 8.014                                 | 4  | 0.60 | 8.040    |            | 9042990080400 |
| 40          | 10                         | 30       | 33.5     | 75       | 41       | 42       | 8.014                                 | 4  | 0.60 | 10.040   |            | 9042990100400 |
| 40          | 12                         | 32       | 33.5     | 80       | 46       | 48       | 8.014                                 | 4  | 0.60 | 12.040   |            | 9042990120400 |
| 50          | 6                          | 26       | 40.0     | 70       | 37       | 28       | 6.014                                 | 4  | 0.80 | 6.050    |            | 9042990060500 |
| 50          | 8                          | 28       | 40.0     | 70       | 37       | 28       | 8.014                                 | 4  | 0.80 | 8.050    |            | 9042990080500 |
| 50          | 10                         | 30       | 40.0     | 75       | 41       | 34       | 10.014                                | 4  | 0.80 | 10.050   |            | 9042990100500 |
| 50          | 12                         | 32       | 40.0     | 85       | 46       | 44       | 12.014                                | 4  | 0.80 | 12.050   |            | 9042990120500 |
| 50          | 14                         | 34       | 40.0     | 85       | 46       | 44       | 12.014                                | 4  | 0.80 | 14.050   |            | 9042990140500 |
| 50          | 16                         | 38       | 53.0     | 90       | 49       | 30       | 16.014                                | 5  | 1.10 | 16.050   |            | 9042990160500 |
| 50          | 18                         | 40       | 57.0     | 90       | 49       | 30       | 16.014                                | 5  | 1.10 | 18.050   |            | 9042990180500 |
| 50          | 20                         | 42       | 60.0     | 90       | 51       | 29       | 20.114                                | 5  | 1.10 | 20.050   |            | 9042990200500 |
| 63          | 6                          | 26       | 50.0     | 70       | 37       | 24.5     | 6.014                                 | 5  | 1.00 | 6.063    |            | 9042990060630 |
| 63          | 8                          | 28       | 50.0     | 70       | 37       | 24.5     | 8.014                                 | 5  | 1.00 | 8.063    |            | 9042990080630 |
| 63          | 10                         | 30       | 50.0     | 80       | 41       | 35.5     | 10.014                                | 5  | 1.00 | 10.063   |            | 9042990100630 |
| 63          | 12                         | 32       | 50.0     | 85       | 46       | 41.5     | 12.014                                | 5  | 1.10 | 12.063   |            | 9042990120630 |
| 63          | 14                         | 34       | 50.0     | 85       | 46       | 41.5     | 12.014                                | 5  | 1.10 | 14.063   |            | 9042990140630 |
| 63          | 16                         | 38       | 50.0     | 90       | 49       | 45.5     | 16.014                                | 5  | 1.20 | 16.063   |            | 9042990160630 |
| 63          | 18                         | 40       | 50.0     | 90       | 49       | 48.5     | 16.014                                | 5  | 1.20 | 18.063   |            | 9042990180630 |
| 63          | 20                         | 42       | 50.0     | 90       | 51       | 47.5     | 20.114                                | 5  | 1.20 | 20.063   |            | 9042990200630 |
| 63          | 25                         | 57       | 63.0     | 120      | 57       | 55.3     | 20.114                                | 6  | 2.10 | 25.063   |            | 9042990250630 |
| 63          | 32                         | 64       | 75.0     | 125      | 61       | 63       | 20.114                                | 6  | 2.40 | 32.063   |            | 9042990320630 |
| 63          | 6                          | 26       | 50.0     | 150      | 37       | 103      | 6.014                                 | 5  | 1.50 | 6.163    |            | 9042990061630 |
| 63          | 8                          | 28       | 50.0     | 150      | 37       | 104      | 8.014                                 | 5  | 1.50 | 8.163    |            | 9042990081630 |
| 63          | 10                         | 30       | 50.0     | 150      | 41       | 104      | 10.014                                | 5  | 1.50 | 10.163   |            | 9042990101630 |
| 63          | 12                         | 32       | 50.0     | 150      | 46       | 105      | 12.014                                | 5  | 1.50 | 12.163   |            | 9042990121630 |
| 63          | 14                         | 34       | 50.0     | 150      | 46       | 105      | 12.014                                | 5  | 1.70 | 14.163   |            | 9042990141630 |
| 63          | 16                         | 38       | 50.0     | 150      | 49       | 106      | 16.014                                | 5  | 1.80 | 16.163   |            | 9042990161630 |
| 63          | 18                         | 40       | 50.0     | 150      | 49       | 107      | 16.014                                | 5  | 1.90 | 18.163   |            | 9042990181630 |
| 63          | 20                         | 42       | 50.0     | 150      | 51       | 108      | 20.114                                | 5  | 1.90 | 20.163   |            | 9042990201630 |

## HSK-A hydraulic chucks with increased clamping force

Series no.

4299

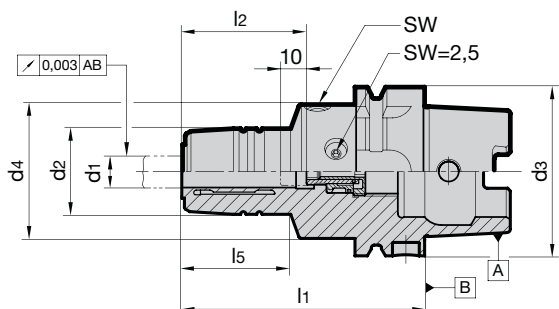
| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl.<br>setting screw<br>4900 ... .. | SW | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------------------------|----|------|----------|---------------|
| 63                      | 6  | 26                   | 50.0                 | 200                  | 37                   | 153                  | 6.014                                 | 5  | 1.70 | 6.263    | 9042990062630 |
| 63                      | 8  | 28                   | 50.0                 | 200                  | 37                   | 154                  | 8.014                                 | 5  | 1.70 | 8.263    | 9042990082630 |
| 63                      | 10   | 30                   | 50.0                 | 200                  | 41                   | 154                  | 10.014                                | 5  | 1.80 | 10.263   | 9042990102630 |
| 63                      | 12   | 32                   | 50.0                 | 200                  | 46                   | 155                  | 12.014                                | 5  | 1.80 | 12.263   | 9042990122630 |
| 63                      | 14   | 34                   | 50.0                 | 200                  | 46                   | 155                  | 12.014                                | 5  | 2.00 | 14.263   | 9042990142630 |
| 63                      | 16   | 38                   | 50.0                 | 200                  | 49                   | 156                  | 16.014                                | 5  | 2.20 | 16.263   | 9042990162630 |
| 63                      | 18   | 40                   | 50.0                 | 200                  | 49                   | 157                  | 16.014                                | 5  | 2.30 | 18.263   | 9042990182630 |
| 63                      | 20   | 42                   | 50.0                 | 200                  | 51                   | 158                  | 20.114                                | 5  | 2.50 | 20.263   | 9042990202630 |
| 80                      | 6  | 26                   | 50.0                 | 70                   | 37                   | 24                   | 6.014                                 | 5  | 1.50 | 6.080    | 9042990060800 |
| 80                      | 8  | 28                   | 50.0                 | 70                   | 37                   | 24                   | 8.014                                 | 5  | 1.50 | 8.080    | 9042990080800 |
| 80                      | 10   | 30                   | 50.0                 | 80                   | 41                   | 35                   | 10.014                                | 5  | 1.50 | 10.080   | 9042990100800 |
| 80                      | 12   | 32                   | 50.0                 | 85                   | 46                   | 40                   | 12.014                                | 5  | 1.60 | 12.080   | 9042990120800 |
| 80                      | 14   | 34                   | 50.0                 | 85                   | 46                   | 40                   | 12.014                                | 5  | 1.60 | 14.080   | 9042990140800 |
| 80                      | 16   | 38                   | 50.0                 | 95                   | 49                   | 51                   | 16.014                                | 5  | 1.70 | 16.080   | 9042990160800 |
| 80                      | 18   | 40                   | 50.0                 | 95                   | 49                   | 51                   | 16.014                                | 5  | 1.80 | 18.080   | 9042990180800 |
| 80                      | 20   | 42                   | 50.0                 | 95                   | 51                   | 52                   | 20.114                                | 5  | 1.80 | 20.080   | 9042990200800 |
| 80                      | 25   | 57                   | 63.0                 | 110                  | 57                   | 65                   | 20.114                                | 6  | 2.60 | 25.080   | 9042990250800 |
| 80                      | 32   | 64                   | 75.0                 | 125                  | 61                   | 63                   | 20.114                                | 6  | 3.20 | 32.080   | 9042990320800 |
| 100                     | 6  | 26                   | 50.0                 | 75                   | 37                   | 26                   | 6.014                                 | 5  | 2.40 | 6.100    | 9042990061000 |
| 100                     | 8  | 28                   | 50.0                 | 75                   | 37                   | 26                   | 8.014                                 | 5  | 2.40 | 8.100    | 9042990081000 |
| 100                     | 10   | 30                   | 50.0                 | 90                   | 41                   | 42                   | 10.014                                | 5  | 2.50 | 10.100   | 9042990101000 |
| 100                     | 12   | 32                   | 50.0                 | 95                   | 46                   | 47                   | 12.014                                | 5  | 2.50 | 12.100   | 9042990121000 |
| 100                     | 14   | 34                   | 50.0                 | 95                   | 46                   | 47                   | 12.014                                | 5  | 2.50 | 14.100   | 9042990141000 |
| 100                     | 16   | 38                   | 50.0                 | 100                  | 49                   | 53                   | 16.014                                | 5  | 2.70 | 16.100   | 9042990161000 |
| 100                     | 18   | 40                   | 50.0                 | 100                  | 49                   | 53                   | 16.014                                | 5  | 2.70 | 18.100   | 9042990181000 |
| 100                     | 20   | 42                   | 50.0                 | 105                  | 51                   | 59                   | 20.114                                | 5  | 3.20 | 20.100   | 9042990201000 |
| 100                     | 25   | 57                   | 63.0                 | 110                  | 57                   | 62                   | 20.114                                | 6  | 3.30 | 25.100   | 9042990251000 |
| 100                     | 32   | 64                   | 75.0                 | 110                  | 61                   | 62                   | 20.114                                | 6  | 3.80 | 32.100   | 9042990321000 |
| 100                     | 6  | 26                   | 50.0                 | 160                  | 37                   | 104                  | 6.014                                 | 5  | 2.80 | 106.100  | 9042991061000 |
| 100                     | 8  | 28                   | 50.0                 | 160                  | 37                   | 104                  | 8.014                                 | 5  | 2.80 | 108.100  | 9042991081000 |
| 100                     | 10   | 30                   | 50.0                 | 160                  | 41                   | 105                  | 10.014                                | 5  | 2.90 | 110.100  | 9042991101000 |
| 100                     | 12   | 32                   | 50.0                 | 160                  | 46                   | 105                  | 12.014                                | 5  | 2.90 | 112.100  | 9042991121000 |
| 100                     | 14   | 34                   | 50.0                 | 160                  | 46                   | 107                  | 12.014                                | 5  | 2.90 | 114.100  | 9042991141000 |
| 100                     | 16   | 38                   | 50.0                 | 160                  | 49                   | 107                  | 16.014                                | 5  | 3.20 | 116.100  | 9042991161000 |
| 100                     | 18   | 40                   | 50.0                 | 160                  | 49                   | 108                  | 16.014                                | 5  | 3.20 | 118.100  | 9042991181000 |
| 100                     | 20   | 42                   | 50.0                 | 160                  | 51                   | 108                  | 20.114                                | 5  | 3.60 | 120.100  | 9042991201000 |
| 100                     | 25   | 57                   | 63.0                 | 160                  | 57                   | 110                  | 20.114                                | 6  | 3.70 | 125.100  | 9042991251000 |
| 100                     | 32   | 64                   | 75.0                 | 160                  | 61                   | 110                  | 20.114                                | 6  | 4.20 | 132.100  | 9042991321000 |
| 100                     | 6  | 26                   | 50.0                 | 200                  | 37                   | 144                  | 6.014                                 | 5  | 3.00 | 206.100  | 9042992061000 |
| 100                     | 8  | 28                   | 50.0                 | 200                  | 37                   | 144                  | 8.014                                 | 5  | 3.00 | 208.100  | 9042992081000 |
| 100                     | 10   | 30                   | 50.0                 | 200                  | 41                   | 145                  | 10.014                                | 5  | 3.10 | 210.100  | 9042992101000 |
| 100                     | 12   | 32                   | 50.0                 | 200                  | 46                   | 145                  | 12.014                                | 5  | 3.10 | 212.100  | 9042992121000 |
| 100                     | 14   | 34                   | 50.0                 | 200                  | 46                   | 147                  | 12.014                                | 5  | 3.10 | 214.100  | 9042992141000 |
| 100                     | 16   | 38                   | 50.0                 | 200                  | 49                   | 147                  | 16.014                                | 5  | 3.40 | 216.100  | 9042992161000 |
| 100                     | 18   | 40                   | 50.0                 | 200                  | 49                   | 148                  | 16.014                                | 5  | 3.40 | 218.100  | 9042992181000 |
| 100                     | 20   | 42                   | 50.0                 | 200                  | 51                   | 148                  | 20.114                                | 5  | 3.80 | 220.100  | 9042992201000 |
| 100                     | 25   | 57                   | 63.0                 | 200                  | 57                   | 150                  | 20.114                                | 6  | 3.90 | 225.100  | 9042992251000 |
| 100                     | 32   | 64                   | 75.0                 | 200                  | 61                   | 150                  | 20.114                                | 6  | 4.40 | 232.100  | 9042992321000 |

## Product information

- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- robust, radially operated length setting
- max. deviation f. concentricity 3 µm
- for tool shank tolerance h6
- to DIN 69882-7
- HSK-A to ISO 12164-1/DIN 69893-1

## Scope of delivery

- incl. hexagon chuck key, Series no. 4912
- incl. hexagon key inserts for radial length setting
- order coolant supply set, Series no. 4949, separately
- MQL design available as an option



|                         |  |                      |                      |                      |                      |                      |    |      |          | Series no.    | 4296 |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----|------|----------|---------------|------|
| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | SW | kg   | Code no. | EDP Number    |      |
| 50                      | 6  | 26                   | 40                   | 80                   | 37                   | 35                   | 4  | 0.80 | 6.050    | 9042960060500 |      |
| 50                      | 8  | 28                   | 40                   | 80                   | 37                   | 36                   | 4  | 0.80 | 8.050    | 9042960080500 |      |
| 50                      | 10   | 30                   | 40                   | 85                   | 41                   | 38                   | 4  | 0.90 | 10.050   | 9042960100500 |      |
| 50                      | 12   | 32                   | 40                   | 90                   | 46                   | 43                   | 4  | 0.90 | 12.050   | 9042960120500 |      |
| 50                      | 14   | 34                   | 40                   | 90                   | 46                   | 46                   | 4  | 1.00 | 14.050   | 9042960140500 |      |
| 50                      | 16   | 38                   | 53                   | 95                   | 49                   | 36.5                 | 5  | 1.20 | 16.050   | 9042960160500 |      |
| 50                      | 18   | 40                   | 57                   | 95                   | 49                   | 36.5                 | 5  | 1.20 | 18.050   | 9042960180500 |      |
| 50                      | 20   | 42                   | 60                   | 100                  | 51                   | 39                   | 5  | 1.30 | 20.050   | 9042960200500 |      |
| 63                      | 6  | 26                   | 50                   | 80                   | 37                   | 33                   | 5  | 1.00 | 6.063    | 9042960060630 |      |
| 63                      | 8  | 28                   | 50                   | 80                   | 37                   | 33                   | 5  | 1.10 | 8.063    | 9042960080630 |      |
| 63                      | 10   | 30                   | 50                   | 85                   | 41                   | 38                   | 5  | 1.10 | 10.063   | 9042960100630 |      |
| 63                      | 12   | 32                   | 50                   | 90                   | 46                   | 40                   | 5  | 1.20 | 12.063   | 9042960120630 |      |
| 63                      | 14   | 34                   | 50                   | 90                   | 46                   | 46                   | 5  | 1.20 | 14.063   | 9042960140630 |      |
| 63                      | 16   | 38                   | 50                   | 95                   | 49                   | 51                   | 5  | 1.30 | 16.063   | 9042960160630 |      |
| 63                      | 18   | 40                   | 50                   | 95                   | 49                   | 52                   | 5  | 1.30 | 18.063   | 9042960180630 |      |
| 63                      | 20   | 42                   | 50                   | 100                  | 51                   | 58                   | 5  | 1.40 | 20.063   | 9042960200630 |      |
| 63                      | 25   | 57                   | 63                   | 120                  | 57                   | 59.5                 | 6  | 2.30 | 25.063   | 9042960250630 |      |
| 63                      | 32   | 64                   | 75                   | 125                  | 61                   | 62.5                 | 6  | 2.30 | 32.063   | 9042960320630 |      |
| 80                      | 6  | 26                   | 50                   | 85                   | 37                   | 35                   | 5  | 1.50 | 6.080    | 9042960060800 |      |
| 80                      | 8  | 28                   | 50                   | 85                   | 37                   | 36                   | 5  | 1.50 | 8.080    | 9042960080800 |      |
| 80                      | 10   | 30                   | 50                   | 90                   | 41                   | 38                   | 5  | 1.50 | 10.080   | 9042960100800 |      |
| 80                      | 12   | 32                   | 50                   | 95                   | 46                   | 46                   | 5  | 1.60 | 12.080   | 9042960120800 |      |
| 80                      | 14   | 34                   | 50                   | 95                   | 46                   | 47                   | 5  | 1.60 | 14.080   | 9042960140800 |      |
| 80                      | 16   | 38                   | 50                   | 100                  | 49                   | 53                   | 5  | 1.60 | 16.080   | 9042960160800 |      |
| 80                      | 18   | 40                   | 50                   | 100                  | 49                   | 54                   | 5  | 1.80 | 18.080   | 9042960180800 |      |
| 80                      | 20   | 42                   | 50                   | 105                  | 51                   | 58                   | 5  | 1.80 | 20.080   | 9042960200800 |      |
| 80                      | 25   | 57                   | 63                   | 115                  | 57                   | 66                   | 6  | 2.60 | 25.080   | 9042960250800 |      |
| 80                      | 32   | 64                   | 75                   | 125                  | 61                   | 63                   | 6  | 2.60 | 32.080   | 9042960320800 |      |
| 100                     | 6  | 26                   | 50                   | 85                   | 37                   | 33                   | 5  | 2.50 | 6.100    | 9042960061000 |      |
| 100                     | 8  | 28                   | 50                   | 85                   | 37                   | 33                   | 5  | 2.70 | 8.100    | 9042960081000 |      |
| 100                     | 10   | 30                   | 50                   | 90                   | 41                   | 36                   | 5  | 2.80 | 10.100   | 9042960101000 |      |
| 100                     | 12   | 32                   | 50                   | 95                   | 46                   | 40                   | 5  | 2.80 | 12.100   | 9042960121000 |      |
| 100                     | 14   | 34                   | 50                   | 95                   | 46                   | 46                   | 5  | 2.70 | 14.100   | 9042960141000 |      |
| 100                     | 16   | 38                   | 50                   | 100                  | 49                   | 51                   | 5  | 2.90 | 16.100   | 9042960161000 |      |
| 100                     | 18   | 40                   | 50                   | 100                  | 49                   | 52                   | 5  | 2.80 | 18.100   | 9042960181000 |      |
| 100                     | 20   | 42                   | 50                   | 105                  | 51                   | 58                   | 5  | 3.20 | 20.100   | 9042960201000 |      |
| 100                     | 25   | 57                   | 63                   | 115                  | 57                   | 60                   | 6  | 3.40 | 25.100   | 9042960251000 |      |
| 100                     | 32   | 64                   | 75                   | 120                  | 61                   | 68                   | 6  | 3.40 | 32.100   | 9042960321000 |      |

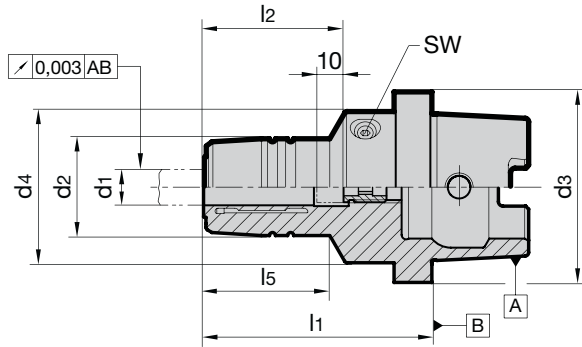
## HSK-C hydraulic chucks with increased clamping force

### Product information

- balancing quality: G2.5 / 25,000 rev./min or U < 1 gmm
- axial length setting
- for tool shank tolerance h6
- HSK-C to ISO 12164-1/DIN 69893-1
- HSK-C32: with gripper groove, tapped hole for coolant supply set and bore for data chip

### Scope of delivery

- incl. adjustment screw, Series no. 4900
- incl. hexagon chuck key, Series no. 4912



Series no. **4267**

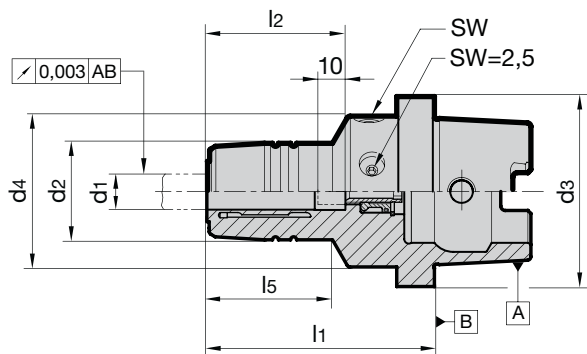
| HSK-C d3 | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | incl. setting screw 4900 ... | SW | kg  | Code no. | EDP Number    |
|----------|----------------------|-------|-------|-------|-------|-------|------------------------------|----|-----|----------|---------------|
| 32       | 6                    | 26    | 32    | 65    | 37.5  | 33    | 6.014                        | 4  | 0.4 | 6.032    | 9042670060320 |
| 32       | 8                    | 28    | 32    | 67    | 37.5  | 34    | 8.014                        | 4  | 0.4 | 8.032    | 9042670080320 |
| 32       | 10                   | 30    | 32    | 72.7  | 42.5  | 39    | 8.014                        | 4  | 0.4 | 10.032   | 9042670100320 |
| 32       | 12                   | 31.5  | 32    | 76    | 46    | 45    | 8.014                        | 4  | 0.4 | 12.032   | 9042670120320 |
| 40       | 6                    | 26    | 40    | 60    | 37    | 35    | 6.014                        | 4  | 0.4 | 6.040    | 9042670060400 |
| 40       | 8                    | 28    | 40    | 60    | 37    | 36    | 8.014                        | 4  | 0.4 | 8.040    | 9042670080400 |
| 40       | 10                   | 30    | 40    | 65    | 41    | 41    | 8.014                        | 4  | 0.5 | 10.040   | 9042670100400 |
| 40       | 12                   | 32    | 40    | 70    | 46    | 47    | 8.014                        | 4  | 0.6 | 12.040   | 9042670120400 |
| 50       | 6                    | 26    | 50    | 60    | 37    | 30    | 6.014                        | 5  | 0.7 | 6.050    | 9042670060500 |
| 50       | 8                    | 28    | 50    | 60    | 37    | 30    | 8.014                        | 5  | 0.7 | 8.050    | 9042670080500 |
| 50       | 10                   | 30    | 50    | 65    | 41    | 35    | 10.014                       | 5  | 0.7 | 10.050   | 9042670100500 |
| 50       | 12                   | 32    | 50    | 75    | 46    | 44    | 12.014                       | 5  | 0.8 | 12.050   | 9042670120500 |
| 50       | 14                   | 34    | 50    | 75    | 46    | 46    | 12.014                       | 5  | 0.7 | 14.050   | 9042670140500 |
| 50       | 16                   | 38    | 50    | 80    | 49    | 51    | 16.014                       | 5  | 0.8 | 16.050   | 9042670160500 |
| 50       | 18                   | 40    | 50    | 80    | 49    | 51    | 16.014                       | 5  | 1.5 | 18.050   | 9042670180500 |
| 50       | 20                   | 42    | 50    | 80    | 51    | 52    | 20.114                       | 5  | 1.2 | 20.050   | 9042670200500 |
| 63       | 6                    | 26    | 50    | 60    | 37    | 25    | 6.014                        | 5  | 1.0 | 6.063    | 9042670060630 |
| 63       | 8                    | 28    | 50    | 60    | 37    | 26    | 8.014                        | 5  | 1.0 | 8.063    | 9042670080630 |
| 63       | 10                   | 30    | 50    | 65    | 41    | 31    | 10.014                       | 5  | 1.0 | 10.063   | 9042670100630 |
| 63       | 12                   | 32    | 50    | 75    | 46    | 41    | 12.014                       | 5  | 1.1 | 12.063   | 9042670120630 |
| 63       | 14                   | 34    | 50    | 75    | 46    | 42    | 12.014                       | 5  | 1.0 | 14.063   | 9042670140630 |
| 63       | 16                   | 38    | 50    | 80    | 49    | 48    | 16.014                       | 5  | 1.1 | 16.063   | 9042670160630 |
| 63       | 18                   | 40    | 50    | 80    | 49    | 48    | 16.014                       | 5  | 1.2 | 18.063   | 9042670180630 |
| 63       | 20                   | 42    | 50    | 80    | 51    | 49    | 20.114                       | 5  | 1.2 | 20.063   | 9042670200630 |
| 63       | 25                   | 57    | 63    | 95    | 57    | 63    | 20.114                       | 6  | 2.0 | 25.063   | 9042670250630 |
| 63       | 32                   | 62.5  | 75    | 100   | 61    | 60.3  | 20.114                       | 6  | 2.0 | 32.063   | 9042670320630 |

### Product information

- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- robust, radially operated length setting
- max. deviation f. concentricity 3 µm
- for tool shank tolerance h6
- to DIN 69882-7
- HSK-C to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. hexagon chuck key, Series no. 4912
- incl. hexagon key inserts for radial length setting



|             |                            |          |          |          |          |          |    |     |          | Series no.    | 4295 |
|-------------|----------------------------|----------|----------|----------|----------|----------|----|-----|----------|---------------|------|
| HSK-C<br>d3 | for<br>shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | SW | kg  | Code no. | EDP Number    |      |
| 40          | 6                          | 26       | 40       | 60       | 37       | 30       | 4  | 0.5 | 6.040    | 9042950060400 |      |
| 40          | 8                          | 28       | 40       | 60       | 37       | 30       | 4  | 0.5 | 8.040    | 9042950080400 |      |
| 40          | 10                         | 30       | 40       | 65       | 41       | 35       | 4  | 0.5 | 10.040   | 9042950100400 |      |
| 40          | 12                         | 32       | 40       | 70       | 46       | 40       | 4  | 0.6 | 12.040   | 9042950120400 |      |
| 50          | 6                          | 26       | 50       | 60       | 37       | 30       | 4  | 0.6 | 6.050    | 9042950060500 |      |
| 50          | 8                          | 28       | 50       | 60       | 37       | 30       | 5  | 0.6 | 8.050    | 9042950080500 |      |
| 50          | 10                         | 30       | 50       | 65       | 41       | 35.5     | 5  | 0.6 | 10.050   | 9042950100500 |      |
| 50          | 12                         | 32       | 50       | 75       | 46       | 45       | 5  | 0.8 | 12.050   | 9042950120500 |      |
| 50          | 14                         | 34       | 50       | 75       | 46       | 45       | 5  | 0.9 | 14.050   | 9042950140500 |      |
| 50          | 16                         | 38       | 50       | 80       | 49       | 50       | 5  | 0.9 | 16.050   | 9042950160500 |      |
| 50          | 18                         | 40       | 50       | 80       | 49       | 50       | 5  | 1.0 | 18.050   | 9042950180500 |      |
| 50          | 20                         | 42       | 50       | 80       | 51       | 50       | 5  | 1.0 | 20.050   | 9042950200500 |      |
| 63          | 6                          | 26       | 50       | 60       | 37       | 26.0     | 5  | 1.0 | 6.063    | 9042950060630 |      |
| 63          | 8                          | 28       | 50       | 60       | 37       | 26.0     | 5  | 1.1 | 8.063    | 9042950080630 |      |
| 63          | 10                         | 30       | 50       | 65       | 41       | 32.0     | 5  | 1.1 | 10.063   | 9042950100630 |      |
| 63          | 12                         | 32       | 50       | 75       | 46       | 42.5     | 5  | 1.1 | 12.063   | 9042950120630 |      |
| 63          | 14                         | 34       | 50       | 75       | 46       | 43.0     | 5  | 1.1 | 14.063   | 9042950140630 |      |
| 63          | 16                         | 38       | 50       | 80       | 49       | 49.0     | 5  | 1.2 | 16.063   | 9042950160630 |      |
| 63          | 18                         | 40       | 50       | 80       | 49       | 50.0     | 5  | 1.2 | 18.063   | 9042950180630 |      |
| 63          | 20                         | 42       | 50       | 80       | 51       | 50.5     | 5  | 1.2 | 20.063   | 9042950200630 |      |
| 63          | 25                         | 50       | 63       | 95       | 57       | 59.5     | 6  | 1.8 | 25.063   | 9042950250630 |      |
| 63          | 32                         | 60       | 63       | 100      | 61       | 60.0     | 6  | 2.3 | 32.063   | 9042950320630 |      |

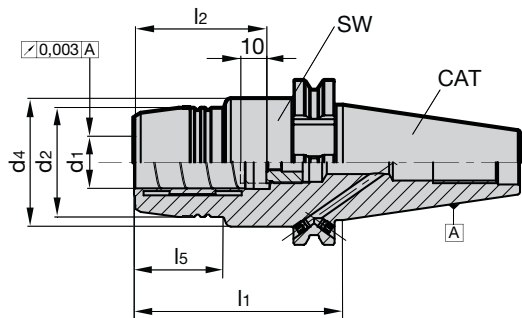
## CAT taper hydraulic chucks

### Product information

- balancing quality: G2.5 / 25,000 rev./min or U < 1gmm
- Taper according to ANSI/ASME B 5.50
- Coolant through center and also through flange (plugged with set screws when supplied)
- Axial length setting
- CAT 40 - 5/8 x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

### Scope of delivery

- Including setting screw, Guhring no. 4900
- Including hex wrench, Guhring no. 4912
- Special dimensions on request



Series no. **4216**

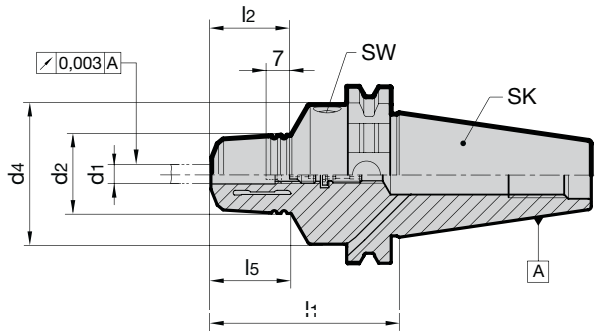
| CAT | for clamping dia. d1 in h6 inch | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | SW | incl. setting screw 4900 ... | Code no. | EDP Number    |
|-----|---------------------------------|-------|-------|-------|-------|-------|----|------------------------------|----------|---------------|
| 40  | 1/4                             | 26    | 44.5  | 64    | 37    | 29.5  | 5  | 9049000060140                | 106.040  | 9042161060400 |
| 40  | 3/8                             | 30    | 44.5  | 64    | 41    | 31    | 5  | 9049000080140                | 109.040  | 9042161090400 |
| 40  | 1/2                             | 32    | 44.5  | 64    | 46    | 31.5  | 5  | 9049000120140                | 112.040  | 9042161120400 |
| 40  | 5/8                             | 38    | 44.5  | 64    | 49    | 33    | 5  | 9049000160140                | 115.040  | 9042161150400 |
| 40  | 3/4                             | 40    | 44.5  | 64    | 49    | 33    | 5  | 9049000160140                | 119.040  | 9042161190400 |
| 40  | 1                               | 49.5  | 44.5  | 81    | 57    | 40    | 6  | 9049000201140                | 125.040  | 9042161250400 |
| 40  | 1 1/4                           | 63    | 80    | 81    | 61    | 25.5  | 6  | 9049000201140                | 131.040  | 9042161310400 |
| 50  | 1/4                             | 26    | 69.9  | 81    | 37    | 29.5  | 5  | 9049000060140                | 106.050  | 9042161060500 |
| 50  | 3/8                             | 30    | 69.9  | 81    | 41    | 31    | 5  | 9049000080140                | 109.050  | 9042161090500 |
| 50  | 1/2                             | 32    | 69.9  | 81    | 46    | 31.5  | 5  | 9049000120140                | 112.050  | 9042161120500 |
| 50  | 5/8                             | 38    | 69.9  | 81    | 49    | 33    | 5  | 9049000160140                | 115.050  | 9042161150500 |
| 50  | 3/4                             | 40    | 69.9  | 81    | 49    | 33    | 5  | 9049000201140                | 119.050  | 9042161190500 |
| 50  | 1                               | 57    | 69.9  | 81    | 57    | 40    | 6  | 9049000201140                | 125.050  | 9042161250500 |
| 50  | 1 1/4                           | 63    | 69.9  | 81    | 61    | 45    | 6  | 9049000201140                | 131.050  | 9042161310500 |
| 40  | 6                               | 26    | 44.5  | 64    | 37    | 29.5  | 5  | 9049000060140                | 6.040    | 9042160060400 |
| 40  | 8                               | 28    | 44.5  | 64    | 37    | 30    | 5  | 9049000080140                | 8.040    | 9042160080400 |
| 40  | 10                              | 30    | 44.5  | 64    | 41    | 31    | 5  | 9049000100140                | 10.040   | 9042160100400 |
| 40  | 12                              | 32    | 44.5  | 64    | 46    | 31.5  | 5  | 9049000120140                | 12.040   | 9042160120400 |
| 40  | 14                              | 34    | 44.5  | 64    | 46    | 31.5  | 5  | 9049000120140                | 14.040   | 9042160140400 |
| 40  | 16                              | 38    | 44.5  | 64    | 49    | 33    | 5  | 9049000160140                | 16.040   | 9042160160400 |
| 40  | 18                              | 40    | 44.5  | 64    | 49    | 33    | 5  | 9049000160140                | 18.040   | 9042160180400 |
| 40  | 20                              | 42    | 44.5  | 64    | 51    | 34    | 5  | 9049000201140                | 20.040   | 9042160200400 |
| 40  | 25                              | 49.5  | 44.5  | 81    | 57    | 40    | 6  | 9049000201140                | 25.040   | 9042160250400 |
| 40  | 32                              | 63    | 80    | 81    | 61    | 25.5  | 6  | 9049000201140                | 32.040   | 9042160320400 |
| 50  | 6                               | 26    | 69.9  | 81    | 37    | 29.5  | 5  | 9049000060140                | 6.050    | 9042160060500 |
| 50  | 8                               | 28    | 69.9  | 81    | 37    | 30    | 5  | 9049000080140                | 8.050    | 9042160080500 |
| 50  | 10                              | 30    | 69.9  | 81    | 41    | 31    | 5  | 9049000100140                | 10.050   | 9042160100500 |
| 50  | 12                              | 32    | 69.9  | 81    | 46    | 31.5  | 5  | 9049000120140                | 12.050   | 9042160120500 |
| 50  | 14                              | 34    | 69.9  | 81    | 46    | 31.5  | 5  | 9049000120140                | 14.050   | 9042160140500 |
| 50  | 16                              | 38    | 69.9  | 81    | 49    | 33    | 5  | 9049000160140                | 16.050   | 9042160160500 |
| 50  | 18                              | 40    | 69.9  | 81    | 49    | 33    | 5  | 9049000160140                | 18.050   | 9042160180500 |
| 50  | 20                              | 42    | 69.9  | 81    | 51    | 34    | 5  | 9049000201140                | 20.050   | 9042160200500 |
| 50  | 25                              | 57    | 69.9  | 81    | 57    | 40    | 6  | 9049000201140                | 25.050   | 9042160250500 |
| 50  | 32                              | 63    | 69.9  | 81    | 61    | 45    | 6  | 9049000201140                | 32.050   | 9042160320500 |

**Product information**

- perfect concentricity: < 3 µm at 10xd1
- balancing quality: G2.5 / 25,000 rev./min or U < 1 gmm
- SK taper FORM AD without coolant supply via flange
- high clamping force
- quick, simple handling and accurate length setting
- IC and GÜHROJET peripheral cooling ensure optimal chip evacuation and tool lubrication
- SK40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. length adjustment screw
- incl. hexagon chuck key, Series no. 4912
- sealed version available as special option



**GÜHROJET**

Series no. **4619**

| SK taper | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | SW | Code no. | EDP Number    |
|----------|----------------------|-------|-------|-------|-------|-------|----|----------|---------------|
| 40       | 3                    | 28.0  | 49.5  | 84.5  | 34.0  | 34.0  | 5  | 3.040    | 9046190030400 |
| 40       | 4                    | 28.0  | 49.5  | 84.5  | 34.0  | 34.0  | 5  | 4.040    | 9046190040400 |
| 40       | 5                    | 28.0  | 49.5  | 84.5  | 34.0  | 34.0  | 5  | 5.040    | 9046190050400 |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |
|          |                      |       |       |       |       |       |    |          |               |

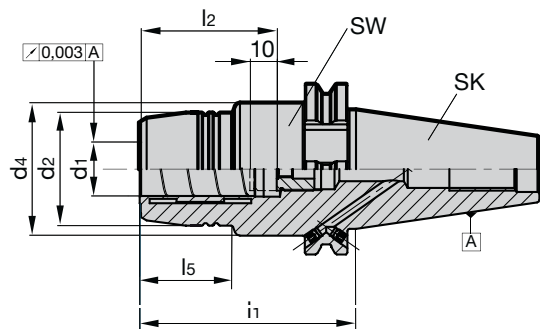
## SK taper hydraulic chucks with increased clamping force

### Product information

- SK taper form AD/B
- Supplied with set screws in bores
- balancing quality: G2.5 / 25,000 rev./min or U < 1 gmm
- axial length setting
- for tool shank tolerance h6
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. adjustment screw, Series no. 4900
- incl. hexagon chuck key, Series no. 4912



Series no. **4213**

| SK taper | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | incl. setting screw 4900 ... | SW | kg  | Code no. | EDP Number    |
|----------|----------------------|-------|-------|-------|-------|-------|------------------------------|----|-----|----------|---------------|
| 40       | 6                    | 26.0  | 49.5  | 80.5  | 37    | 29.5  | 9049000060140                | 5  | 1.5 | 6.040    | 9042130060400 |
| 40       | 8                    | 28.0  | 49.5  | 80.5  | 37    | 30.0  | 9049000080140                | 5  | 1.5 | 8.040    | 9042130080400 |
| 40       | 10                   | 30.0  | 49.5  | 80.5  | 41    | 31.0  | 9049000100140                | 5  | 1.5 | 10.040   | 9042130100400 |
| 40       | 12                   | 32.0  | 49.5  | 80.5  | 46    | 31.5  | 9049000120140                | 5  | 1.5 | 12.040   | 9042130120400 |
| 40       | 14                   | 34.0  | 49.5  | 80.5  | 46    | 31.5  | 9049000120140                | 5  | 1.5 | 14.040   | 9042130140400 |
| 40       | 16                   | 38.0  | 49.5  | 80.5  | 49    | 33.0  | 9049000160140                | 5  | 1.5 | 16.040   | 9042130160400 |
| 40       | 18                   | 40.0  | 49.5  | 80.5  | 49    | 33.0  | 9049000160140                | 5  | 1.5 | 1.040    | 9042130180400 |
| 40       | 20                   | 49.5  | 49.5  | 64.5  | 51    | 34.0  | 9049000201140                | 5  | 1.5 | 20.040   | 9042130200400 |
| 40       | 20                   | 42.0  | 49.5  | 80.5  | 51    | 34.0  | 9049000201140                | 5  | 1.5 | 20.140   | 9042130201400 |
| 40       | 20                   | 42.0  | 49.5  | 110.0 | 51    | 34.0  | 9049000200140                | 5  | 2.0 | 20.240   | 9042130202400 |
| 40       | 25                   | 49.5  | 49.5  | 80.5  | 57    | -     | 9049000200140                | 6  | 2.0 | 25.040   | 9042130250400 |
| 40       | 32                   | 63.0  | 80.0  | 80.5  | 61    | 25.5  | 9049000200140                | 6  | 2.0 | 32.040   | 9042130320400 |
| 50       | 12                   | 32.0  | 49.5  | 80.5  | 46    | 31.5  | 9049000120140                | 5  | 3.5 | 12.050   | 9042130120500 |
| 50       | 20                   | 42.0  | 49.5  | 80.5  | 51    | 34.0  | 9049000201140                | 5  | 4.0 | 20.050   | 9042130200500 |
| 50       | 20                   | 42.0  | 49.5  | 110.0 | 51    | 34.0  | 9049000201140                | 5  | 4.0 | 20.150   | 9042130201500 |
| 50       | 32                   | 72.0  | 72.0  | 81.0  | 61    | -     | 9049000201140                | 6  | 4.0 | 32.050   | 9042130320500 |

**Product information**

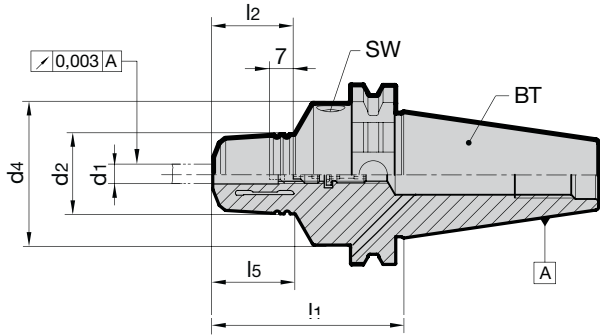
- perfect concentricity:  $< 3 \mu\text{m}$  at 10xd1
- balancing quality: G2.5 / 25,000 rev./min or  $U < 1 \text{ gmm}$
- BT taper FORM AD without coolant supply via flange
- high clamping force
- quick, simple handling and accurate length setting
- IC and GÜHROJET peripheral cooling ensure optimal chip evacuation and tool lubrication
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. length adjustment screw
- incl. hexagon chuck key, Series no. 4912
- sealed version available as special option



**GÜHROJET**



Series no. **4620**

| BT | for shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | SW | Code no. | EDP Number           |
|----|-------------------------|----------|----------|----------|----------|----------|----|----------|----------------------|
| 30 | 3                       | 28.0     | 28.0     | 55.0     | 34       | -        | 4  | 3.030    | <b>9046200030300</b> |
| 30 | 4                       | 28.0     | 28.0     | 55.0     | 34       | -        | 4  | 4.030    | <b>9046200040300</b> |
| 30 | 5                       | 28.0     | 28.0     | 55.0     | 34       | -        | 4  | 5.030    | <b>9046200050300</b> |
|    |                         |          |          |          |          |          |    |          |                      |
| 40 | 3                       | 28.0     | 44.5     | 94.0     | 34       | 48.5     | 5  | 3.040    | <b>9046200030400</b> |
| 40 | 4                       | 28.0     | 44.5     | 94.0     | 34       | 48.5     | 5  | 4.040    | <b>9046200040400</b> |
| 40 | 5                       | 28.0     | 44.5     | 94.0     | 34       | 48.5     | 5  | 5.040    | <b>9046200050400</b> |

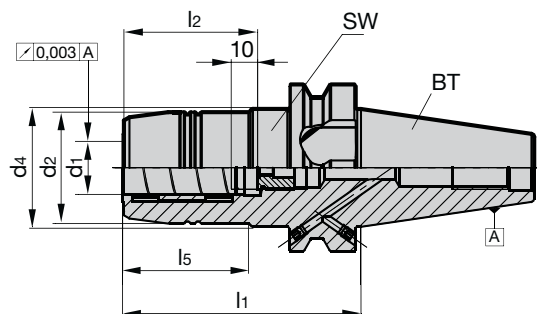
## MAS/BT hydraulic chucks with increased clamping force

## Product information

- balancing quality: G2.5 / 25,000 rev./min or U < 1 gmm
- axial length setting
- max. deviation f. concentricity 3 µm
- for tool shank tolerance h6
- BT taper form AD/B
- (\* Form AD without coolant supply via flange)
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

## Scope of delivery

- incl. adjustment screw, Series no. 4900
- incl. hexagon chuck key, Series no. 4912



Series no. 4221

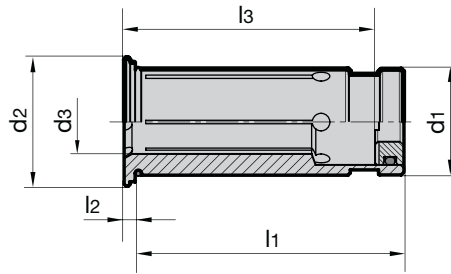
| BT  | for shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | incl. setting screw<br>4900 ... | SW | kg   | Code no. | EDP Number    |
|-----|-------------------------|----------|----------|----------|----------|----------|---------------------------------|----|------|----------|---------------|
| 30* | 6                       | 26.0     | 26.0     | 51.0     | 37       | -        | 9049000060140                   | 4  | 0.6  | 6.030    | 9042210060300 |
| 30* | 8                       | 28.0     | 28.0     | 51.0     | 37       | -        | 9049000080140                   | 4  | 0.6  | 8.030    | 9042210080300 |
| 30* | 10                      | 30.0     | 30.0     | 51.0     | 41       | -        | 9049000100140                   | 4  | 0.6  | 10.030   | 9042210100300 |
| 30* | 12                      | 32.0     | 32.0     | 51.0     | 46       | 19.5     | 9049000120140                   | 4  | 0.6  | 12.030   | 9042210120300 |
| 30* | 16                      | 38.0     | 38.0     | 90.0     | 49       | 50       | 9049000160140                   | 4  | 1.0  | 16.030   | 9042210160300 |
| 30* | 20                      | 42.0     | 42.0     | 90.0     | 51       | 50       | 9049000201140                   | 5  | 1.0  | 20.030   | 9042210200300 |
| 30* | 1/4                     | 26       | -        | 75       | 37       | 52       | 9049000060140                   | 4  | 1.00 | 106.030  | 9042211060300 |
| 30* | 3/8                     | 30       | -        | 80       | 41       | 57       | 9049000080140                   | 4  | 1.00 | 109.030  | 9042211090300 |
| 30* | 1/2                     | 32       | -        | 90       | 46       | 50       | 9049000120140                   | 4  | 1.00 | 112.030  | 9042211120300 |
| 30* | 5/8                     | 38       | -        | 90       | 49       | 50       | 9049000160140                   | 4  | 1.00 | 115.030  | 9042211150300 |
| 30* | 3/4                     | 40       | -        | 90       | 49       | 50       | 9049000201140                   | 5  | 1.00 | 119.030  | 9042211190300 |
| 40  | 6                       | 26.0     | 44.5     | 90.0     | 37       | 43.0     | 9049000060140                   | 5  | 1.5  | 6.040    | 9042210060400 |
| 40  | 8                       | 28.0     | 44.5     | 90.0     | 37       | 44.5     | 9049000080140                   | 5  | 1.5  | 8.040    | 9042210080400 |
| 40  | 10                      | 30.0     | 44.5     | 90.0     | 41       | 44.5     | 9049000100140                   | 5  | 1.5  | 10.040   | 9042210100400 |
| 40  | 12                      | 32.0     | 44.5     | 90.0     | 46       | 44.5     | 9049000120140                   | 5  | 1.5  | 12.040   | 9042210120400 |
| 40  | 14                      | 34.0     | 44.5     | 90.0     | 46       | 44.5     | 9049000120140                   | 5  | 1.5  | 14.040   | 9042210140400 |
| 40  | 16                      | 38.0     | 44.5     | 90.0     | 49       | 47.5     | 9049000160140                   | 5  | 1.5  | 16.040   | 9042210160400 |
| 40  | 18                      | 40.0     | 44.5     | 90.0     | 49       | 47.5     | 9049000160140                   | 5  | 1.5  | 18.040   | 9042210180400 |
| 40  | 20                      | 49.5     | 49.5     | 72.5     | 51       | -        | 9049000201140                   | 5  | 1.5  | 20.040   | 9042210200400 |
| 40  | 20                      | 42.0     | 44.5     | 90.0     | 51       | 47.5     | 9049000201140                   | 5  | 1.5  | 20.140   | 9042210201400 |
| 40  | 25                      | 49.5     | 49.5     | 83.0     | 57       | -        | 9049000201140                   | 6  | 1.8  | 25.040   | 9042210250400 |
| 40  | 32                      | 63.0     | 80.0     | 83.0     | 61       | 25.5     | 9049000201140                   | 6  | 2.0  | 32.040   | 9042210320400 |
| 50  | 12                      | 32.0     | 44.5     | 90.0     | 46       | 34.0     | 9049000120140                   | 5  | 4.0  | 12.050   | 9042210120500 |
| 50  | 20                      | 42.0     | 44.5     | 90.0     | 51       | 34.0     | 9049000201140                   | 5  | 4.0  | 20.050   | 9042210200500 |
| 50  | 32                      | 72.0     | 72.0     | 90.0     | 61       | -        | 9049000201140                   | 6  | 4.0  | 32.050   | 9042210320500 |

### Product information

- for clamping smaller shank-Ø in hydraulic chucks
- clamping-Ø for tool shank tolerance h6
- concentricity  $\leq 2 \mu\text{m}$
- with adjustable limit stop
- the application of reduction sleeves makes it possible to increase the permissible transferable torque by approx. 25% in comparison to direct clamping

### Scope of delivery

- incl. stop element



Series no. **4368**

| d1<br>inch/mm | for<br>shank Ø<br>d3 h6<br>inch/mm | d2<br>mm | l1<br>mm | l2<br>mm | l3<br>mm | Code<br>no. | EDP Number    |
|---------------|------------------------------------|----------|----------|----------|----------|-------------|---------------|
| 1/2           | 1/8                                | 16.5     | 45       | 2        | 26.5     | 3.013       | 9043680030130 |
| 1/2           | 3/16                               | 16.5     | 45       | 2        | 26.5     | 4.013       | 9043680040130 |
| 1/2           | 1/4                                | 16.5     | 45       | 2        | 26.5     | 6.013       | 9043680060130 |
| 1/2           | 5/16                               | 16.5     | 45       | 2        | 26.5     | 8.013       | 9043680080130 |
| 1/2           | 3/8                                | 16.5     | 45       | 2        | 26.5     | 9.013       | 9043680090130 |
| 1/2           | 3/8                                | 16.5     | 45       | 2        | 26.5     | 103.013     | 9043681030130 |
| 1/2           | 4                                  | 16.5     | 45       | 2        | 26.5     | 104.013     | 9043681040130 |
| 1/2           | 5                                  | 16.5     | 45       | 2        | 26.5     | 105.013     | 9043681050130 |
| 1/2           | 6                                  | 16.5     | 45       | 2        | 26.5     | 106.013     | 9043681060130 |
| 1/2           | 8                                  | 16.5     | 45       | 2        | 34.5     | 108.013     | 9043681080130 |
| 3/4           | 1/8                                | 24       | 50.5     | 2        | 28.5     | 3.019       | 9043680030190 |
| 3/4           | 3/16                               | 24       | 50.5     | 2        | 28.5     | 4.019       | 9043680040190 |
| 3/4           | 1/4                                | 24       | 50.5     | 2        | 37.5     | 6.019       | 9043680060190 |
| 3/4           | 5/16                               | 24       | 50.5     | 2        | 37.5     | 8.019       | 9043680080190 |
| 3/4           | 3/8                                | 24       | 50.5     | 2        | 42.5     | 9.019       | 9043680090190 |
| 3/4           | 7/16                               | 24       | 50.5     | 2        | 47.5     | 11.019      | 9043680110190 |
| 3/4           | 1/2                                | 24       | 50.5     | 2        | 47.5     | 13.019      | 9043680130190 |
| 3/4           | 9/16                               | 24       | 50.5     | 2        | 47.5     | 14.019      | 9043680140190 |
| 3/4           | 5/8                                | 24       | 50.5     | 2        | 47.5     | 15.019      | 9043680150190 |
| 3/4           | 3                                  | 24       | 50.5     | 2        | 28.5     | 103.019     | 9043681030190 |
| 3/4           | 4                                  | 24       | 50.5     | 2        | 28.5     | 104.019     | 9043681040190 |
| 3/4           | 5                                  | 24       | 50.5     | 2        | 28.5     | 105.019     | 9043681050190 |
| 3/4           | 6                                  | 24       | 50.5     | 2        | 37.5     | 106.019     | 9043681060190 |
| 3/4           | 8                                  | 24       | 50.5     | 2        | 37.5     | 108.019     | 9043681080190 |
| 3/4           | 10                                 | 24       | 50.5     | 2        | 42.5     | 110.019     | 9043681100190 |
| 3/4           | 12                                 | 24       | 50.5     | 2        | 47.5     | 112.019     | 9043681120190 |
| 3/4           | 14                                 | 24       | 50.5     | 2        | 47.5     | 114.019     | 9043681140190 |
| 1 1/4         | 1/4                                | 35.5     | 60.5     | 2        | 37.5     | 6.031       | 9043680060310 |
| 1 1/4         | 5/16                               | 35.5     | 60.5     | 2        | 37.5     | 8.031       | 9043680080310 |
| 1 1/4         | 3/8                                | 35.5     | 60.5     | 2        | 37.5     | 9.031       | 9043680090310 |
| 1 1/4         | 7/16                               | 35.5     | 60.5     | 2        | 40.5     | 11.031      | 9043680110310 |
| 1 1/4         | 1/2                                | 35.5     | 60.5     | 2        | 44.5     | 13.031      | 9043680130310 |
| 1 1/4         | 9/16                               | 35.5     | 60.5     | 2        | 44.5     | 14.031      | 9043680140310 |
| 1 1/4         | 5/8                                | 35.5     | 60.5     | 2        | 50.5     | 15.031      | 9043680150310 |
| 1 1/4         | 11/16                              | 35.5     | 60.5     | 2        | 50.5     | 17.031      | 9043680170310 |
| 1 1/4         | 3/4                                | 35.5     | 60.5     | 2        | 50.5     | 19.031      | 9043680190310 |
| 1 1/4         | 13/16                              | 35.5     | 60.5     | 2        | 50.5     | 20.031      | 9043680200310 |
| 1 1/4         | 7/8                                | 35.5     | 60.5     | 2        | 50.5     | 22.031      | 9043680220310 |
| 1 1/4         | 15/16                              | 35.5     | 60.5     | 2        | 58.5     | 24.031      | 9043680240310 |
| 1 1/4         | 1                                  | 35.5     | 60.5     | 2        | 58.5     | 25.031      | 9043680250310 |
| 1 1/4         | 8                                  | 35.5     | 60.5     | 2        | 37.5     | 108.031     | 9043681080310 |
| 1 1/4         | 10                                 | 35.5     | 60.5     | 2        | 40.5     | 110.031     | 9043681100310 |
| 1 1/4         | 12                                 | 35.5     | 60.5     | 2        | 44.5     | 112.031     | 9043681120310 |
| 1 1/4         | 14                                 | 35.5     | 60.5     | 2        | 44.5     | 114.031     | 9043681140310 |
| 1 1/4         | 16                                 | 35.5     | 60.5     | 2        | 50.5     | 116.031     | 9043681160310 |
| 1 1/4         | 18                                 | 35.5     | 60.5     | 2        | 50.5     | 118.031     | 9043681180310 |

## Reduction sleeves for hydraulic chucks, sealed

Series no.

4368

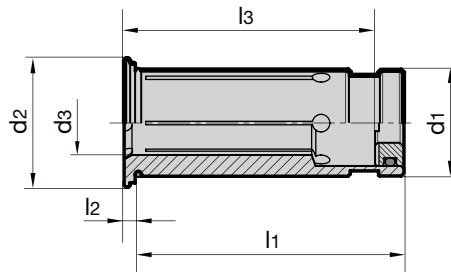
| d <sub>1</sub><br>inch/mm | for<br>shank Ø<br>d <sub>3</sub> h <sub>6</sub> inch/mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | Code<br>no. | EDP Number    |
|---------------------------|---|----------------------|----------------------|----------------------|----------------------|-------------|---------------|
| 1 1/4                     | 20  | 35.5                 | 60.5                 | 2                    | 50.5                 | 120.031     | 9043681200310 |
| 1 1/4                     | 25  | 35.5                 | 60.5                 | 2                    | 58.5                 | 125.031     | 9043681250310 |
| 12                        | 1/8   | 16.5                 | 45                   | 2                    | 26.5                 | 103.012     | 9043681030120 |
| 12                        | 3/16  | 16.5                 | 45                   | 2                    | 26.5                 | 104.012     | 9043681040120 |
| 12                        | 1/4   | 16.5                 | 45                   | 2                    | 34.5                 | 106.012     | 9043681060120 |
| 12                        | 5/16  | 16.5                 | 45                   | 2                    | 34.5                 | 108.012     | 9043681080120 |
| 12                        | 3/8   | 16.5                 | 45                   | 2                    | 34.5                 | 109.012     | 9043681090120 |
| 12                        | 3   | 16.5                 | 45                   | 2                    | 26.5                 | 3.012       | 9043680030120 |
| 12                        | 4   | 16.5                 | 45                   | 2                    | 26.5                 | 4.012       | 9043680040120 |
| 12                        | 5   | 16.5                 | 45                   | 2                    | 26.5                 | 5.012       | 9043680050120 |
| 12                        | 6   | 16.5                 | 45                   | 2                    | 34.5                 | 6.012       | 9043680060120 |
| 12                        | 8   | 16.5                 | 45                   | 2                    | 34.5                 | 8.012       | 9043680080120 |
| 20                        | 1/8   | 24                   | 50.5                 | 2                    | 28.5                 | 103.020     | 9043681030200 |
| 20                        | 3/16  | 24                   | 50.5                 | 2                    | 28.5                 | 104.020     | 9043681040200 |
| 20                        | 1/4   | 24                   | 50.5                 | 2                    | 37.5                 | 106.020     | 9043681060200 |
| 20                        | 5/16  | 24                   | 50.5                 | 2                    | 37.5                 | 108.020     | 9043681080200 |
| 20                        | 3/8   | 24                   | 50.5                 | 2                    | 42.5                 | 109.020     | 9043681090200 |
| 20                        | 7/16  | 24                   | 50.5                 | 2                    | 42.5                 | 111.020     | 9043681110200 |
| 20                        | 1/2   | 24                   | 50.5                 | 2                    | 47.5                 | 113.020     | 9043681130200 |
| 20                        | 9/16  | 24                   | 50.5                 | 2                    | 47.5                 | 114.020     | 9043681140200 |
| 20                        | 5/8   | 24                   | 50.5                 | 2                    | 47.5                 | 115.020     | 9043681150200 |
| 20                        | 3   | 24                   | 50.5                 | 2                    | 28.5                 | 3.020       | 9043680030200 |
| 20                        | 4   | 24                   | 50.5                 | 2                    | 28.5                 | 4.020       | 9043680040200 |
| 20                        | 5   | 24                   | 50.5                 | 2                    | 28.5                 | 5.020       | 9043680050200 |
| 20                        | 6   | 24                   | 50.5                 | 2                    | 37.5                 | 6.020       | 9043680060200 |
| 20                        | 7   | 24                   | 50.5                 | 2                    | 37.5                 | 7.020       | 9043680070200 |
| 20                        | 8   | 24                   | 50.5                 | 2                    | 37.5                 | 8.020       | 9043680080200 |
| 20                        | 9   | 24                   | 50.5                 | 2                    | 42.5                 | 9.020       | 9043680090200 |
| 20                        | 10  | 24                   | 50.5                 | 2                    | 42.5                 | 10.020      | 9043680100200 |
| 20                        | 11  | 24                   | 50.5                 | 2                    | 42.5                 | 11.020      | 9043680110200 |
| 20                        | 12  | 24                   | 50.5                 | 2                    | 47.5                 | 12.020      | 9043680120200 |
| 20                        | 13  | 24                   | 50.5                 | 2                    | 47.5                 | 13.020      | 9043680130200 |
| 20                        | 14  | 24                   | 50.5                 | 2                    | 47.5                 | 14.020      | 9043680140200 |
| 20                        | 15  | 24                   | 50.5                 | 2                    | 47.5                 | 15.020      | 9043680150200 |
| 20                        | 16  | 24                   | 50.5                 | 2                    | 47.5                 | 16.020      | 9043680160200 |
| 32                        | 1/4   | 35.5                 | 60.5                 | 2                    | 37.5                 | 106.032     | 9043681060320 |
| 32                        | 5/16  | 35.5                 | 60.5                 | 2                    | 37.5                 | 108.032     | 9043681080320 |
| 32                        | 3/8   | 35.5                 | 60.5                 | 2                    | 37.5                 | 109.032     | 9043681090320 |
| 32                        | 7/16  | 35.5                 | 60.5                 | 2                    | 40.5                 | 111.032     | 9043681110320 |
| 32                        | 1/2   | 35.5                 | 60.5                 | 2                    | 44.5                 | 113.032     | 9043681130320 |
| 32                        | 9/16  | 35.5                 | 60.5                 | 2                    | 50.5                 | 114.032     | 9043681140320 |
| 32                        | 5/8   | 35.5                 | 60.5                 | 2                    | 50.5                 | 115.032     | 9043681150320 |
| 32                        | 11/16   | 35.5                 | 60.5                 | 2                    | 50.5                 | 117.032     | 9043681170320 |
| 32                        | 3/4   | 35.5                 | 60.5                 | 2                    | 50.5                 | 119.032     | 9043681190320 |
| 32                        | 13/16   | 35.5                 | 60.5                 | 2                    | 50.5                 | 120.032     | 9043681200320 |
| 32                        | 7/8   | 35.5                 | 60.5                 | 2                    | 50.5                 | 122.032     | 9043681220320 |
| 32                        | 15/16   | 35.5                 | 60.5                 | 2                    | 50.5                 | 124.032     | 9043681240320 |
| 32                        | 1   | 35.5                 | 60.5                 | 2                    | 58.5                 | 125.032     | 9043681250320 |
| 32                        | 6   | 35.5                 | 60.5                 | 2                    | 37.5                 | 6.032       | 9043680060320 |
| 32                        | 8   | 35.5                 | 60.5                 | 2                    | 37.5                 | 8.032       | 9043680080320 |
| 32                        | 10  | 35.5                 | 60.5                 | 2                    | 40.5                 | 10.032      | 9043680100320 |
| 32                        | 12  | 35.5                 | 60.5                 | 2                    | 44.5                 | 12.032      | 9043680120320 |
| 32                        | 14  | 35.5                 | 60.5                 | 2                    | 44.5                 | 14.032      | 9043680140320 |
| 32                        | 16  | 35.5                 | 60.5                 | 2                    | 50.5                 | 16.032      | 9043680160320 |
| 32                        | 18  | 35.5                 | 60.5                 | 2                    | 50.5                 | 18.032      | 9043680180320 |
| 32                        | 20  | 35.5                 | 60.5                 | 2                    | 50.5                 | 20.032      | 9043680200320 |
| 32                        | 25  | 35.5                 | 60.5                 | 2                    | 58.5                 | 25.032      | 9043680250320 |

## Product information

- for clamping smaller shank-Ø in hydraulic chucks
- clamping-Ø for tool shank tolerance h6
- with coolant slots for peripheral cooling, therefore process and tool life improvement
- concentricity  $\leq 2 \mu\text{m}$
- with adjustable limit stop
- the application of reduction sleeves makes it possible to increase the permissible transferable torque by approx. 25% in comparison to direct clamping

## Scope of delivery

- incl. stop element



**GÜHROJET**

Series no. **4369**

| $d_1$<br>inch/mm | for<br>shank Ø<br>$d_3$ h6 inch/mm | $d_2$<br>mm | $l_1$<br>mm | $l_2$<br>mm | $l_3$<br>mm | Code<br>no. | EDP Number    |
|------------------|------------------------------------|-------------|-------------|-------------|-------------|-------------|---------------|
| 1/2              | 1/8                                | 16.5        | 45          | 2           | 26.5        | 3.013       | 9043690030130 |
| 1/2              | 3/16                               | 16.5        | 45          | 2           | 26.5        | 4.013       | 9043690040130 |
| 1/2              | 1/4                                | 16.5        | 45          | 2           | 26.5        | 6.013       | 9043690060130 |
| 1/2              | 5/16                               | 16.5        | 45          | 2           | 26.5        | 8.013       | 9043690080130 |
| 1/2              | 3/8                                | 16.5        | 45          | 2           | 26.5        | 9.013       | 9043690090130 |
| 1/2              | 5                                  | 16.5        | 45          | 2           | 26.5        | 105.013     | 9043691050130 |
| 1/2              | 6                                  | 16.5        | 45          | 2           | 26.5        | 106.013     | 9043691060130 |
| 3/4              | 1/8                                | 24          | 50.5        | 2           | 28.5        | 3.019       | 9043690030190 |
| 3/4              | 3/16                               | 24          | 50.5        | 2           | 28.5        | 4.019       | 9043690040190 |
| 3/4              | 1/4                                | 24          | 50.5        | 2           | 37.5        | 6.019       | 9043690060190 |
| 3/4              | 5/16                               | 24          | 50.5        | 2           | 37.5        | 8.019       | 9043690080190 |
| 3/4              | 3/8                                | 24          | 50.5        | 2           | 42.5        | 9.019       | 9043690090190 |
| 3/4              | 7/16                               | 24          | 50.5        | 2           | 42.5        | 11.019      | 9043690110190 |
| 3/4              | 1/2                                | 24          | 50.5        | 2           | 47.5        | 13.019      | 9043690130190 |
| 3/4              | 9/16                               | 24          | 50.5        | 2           | 47.5        | 14.019      | 9043690140190 |
| 3/4              | 5/8                                | 24          | 50.5        | 2           | 47.5        | 15.019      | 9043690150190 |
| 3/4              | 3                                  | 24          | 50.5        | 2           | 28.5        | 103.019     | 9043691030190 |
| 3/4              | 4                                  | 24          | 50.5        | 2           | 28.5        | 104.019     | 9043691040190 |
| 3/4              | 6                                  | 24          | 50.5        | 2           | 37.5        | 106.019     | 9043691060190 |
| 3/4              | 8                                  | 24          | 50.5        | 2           | 37.5        | 108.019     | 9043691080190 |
| 3/4              | 10                                 | 24          | 50.5        | 2           | 42.5        | 110.019     | 9043691100190 |
| 3/4              | 12                                 | 24          | 50.5        | 2           | 47.5        | 112.019     | 9043691120190 |
| 3/4              | 14                                 | 24          | 50.5        | 2           | 47.5        | 114.019     | 9043691140190 |
| 1 1/4            | 1/4                                | 35.5        | 60.5        | 2           | 37.5        | 6.031       | 9043690060310 |
| 1 1/4            | 5/16                               | 35.5        | 60.5        | 2           | 37.5        | 8.031       | 9043690080310 |
| 1 1/4            | 3/8                                | 35.5        | 60.5        | 2           | 37.5        | 9.031       | 9043690090310 |
| 1 1/4            | 1/2                                | 35.5        | 60.5        | 2           | 44.5        | 13.031      | 9043690130310 |
| 1 1/4            | 9/16                               | 35.5        | 60.5        | 2           | 44.5        | 14.031      | 9043690140310 |
| 1 1/4            | 5/8                                | 35.5        | 60.5        | 2           | 50.5        | 15.031      | 9043690150310 |
| 1 1/4            | 11/16                              | 35.5        | 60.5        | 2           | 50.5        | 17.031      | 9043690170310 |
| 1 1/4            | 3/4                                | 35.5        | 60.5        | 2           | 50.5        | 19.031      | 9043690190310 |
| 1 1/4            | 7/8                                | 35.5        | 60.5        | 2           | 50.5        | 22.031      | 9043690220310 |
| 1 1/4            | 1                                  | 35.5        | 60.5        | 2           | 58.5        | 25.031      | 9043690250310 |
| 1 1/4            | 20                                 | 35.5        | 60.5        | 2           | 50.5        | 120.031     | 9043691200310 |
| 1 1/4            | 25                                 | 35.5        | 60.5        | 2           | 58.5        | 125.031     | 9043691250310 |
| 12               | 1/8                                | 16.5        | 45          | 2           | 26.5        | 103.012     | 9043691030120 |
| 12               | 3/16                               | 16.5        | 45          | 2           | 26.5        | 104.012     | 9043691040120 |
| 12               | 1/4                                | 16.5        | 45          | 2           | 34.5        | 106.012     | 9043691060120 |
| 12               | 5/16                               | 16.5        | 45          | 2           | 34.5        | 108.012     | 9043691080120 |
| 12               | 3/8                                | 16.5        | 45          | 2           | 34.5        | 109.012     | 9043691090120 |
| 12               | 3                                  | 16.5        | 45          | 2           | 26.5        | 3.012       | 9043690030120 |
| 12               | 4                                  | 16.5        | 45          | 2           | 26.5        | 4.012       | 9043690040120 |
| 12               | 5                                  | 16.5        | 45          | 2           | 26.5        | 5.012       | 9043690050120 |
| 12               | 6                                  | 16.5        | 45          | 2           | 34.5        | 6.012       | 9043690060120 |
| 12               | 8                                  | 16.5        | 45          | 2           | 34.5        | 8.012       | 9043690080120 |

Series no.

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| d <sub>1</sub><br>inch/mm | for<br>shank Ø<br>d <sub>3</sub> h <sub>6</sub> inch/mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | Code<br>no. | EDP Number    |
|---------------------------|---|----------------------|----------------------|----------------------|----------------------|-------------|---------------|
| 20                        | 1/8   | 24                   | 50.5                 | 2                    | 28.5                 | 103.020     | 9043691030200 |
| 20                        | 3/16  | 24                   | 50.5                 | 2                    | 28.5                 | 104.020     | 9043691040200 |
| 20                        | 1/4   | 24                   | 50.5                 | 2                    | 37.5                 | 106.020     | 9043691060200 |
| 20                        | 5/16  | 24                   | 50.5                 | 2                    | 37.5                 | 108.020     | 9043691080200 |
| 20                        | 3/8   | 24                   | 50.5                 | 2                    | 42.5                 | 109.020     | 9043691090200 |
| 20                        | 7/16  | 24                   | 50.5                 | 2                    | 42.5                 | 111.020     | 9043691110200 |
| 20                        | 1/2   | 24                   | 50.5                 | 2                    | 47.5                 | 113.020     | 9043691130200 |
| 20                        | 9/16  | 24                   | 50.5                 | 2                    | 47.5                 | 114.020     | 9043691140200 |
| 20                        | 5/8   | 24                   | 50.5                 | 2                    | 47.5                 | 115.020     | 9043691150200 |
| 20                        | 3   | 24                   | 50.5                 | 2                    | 28.5                 | 3.020       | 9043690030200 |
| 20                        | 4   | 24                   | 50.5                 | 2                    | 28.5                 | 4.020       | 9043690040200 |
| 20                        | 5   | 24                   | 50.5                 | 2                    | 28.5                 | 5.020       | 9043690050200 |
| 20                        | 6   | 24                   | 50.5                 | 2                    | 37.5                 | 6.020       | 9043690060200 |
| 20                        | 7   | 24                   | 50.5                 | 2                    | 37.5                 | 7.020       | 9043690070200 |
| 20                        | 8   | 24                   | 50.5                 | 2                    | 37.5                 | 8.020       | 9043690080200 |
| 20                        | 9   | 24                   | 50.5                 | 2                    | 42.5                 | 9.020       | 9043690090200 |
| 20                        | 10  | 24                   | 50.5                 | 2                    | 42.5                 | 10.020      | 9043690100200 |
| 20                        | 11  | 24                   | 50.5                 | 2                    | 42.5                 | 11.020      | 9043690110200 |
| 20                        | 12  | 24                   | 50.5                 | 2                    | 47.5                 | 12.020      | 9043690120200 |
| 20                        | 13  | 24                   | 50.5                 | 2                    | 47.5                 | 13.020      | 9043690130200 |
| 20                        | 14  | 24                   | 50.5                 | 2                    | 47.5                 | 14.020      | 9043690140200 |
| 20                        | 15  | 24                   | 50.5                 | 2                    | 47.5                 | 15.020      | 9043690150200 |
| 20                        | 16  | 24                   | 50.5                 | 2                    | 47.5                 | 16.020      | 9043690160200 |
| 32                        | 1/2   | 35.5                 | 60.5                 | 2                    | 44.5                 | 113.032     | 9043691130320 |
| 32                        | 5/8   | 35.5                 | 60.5                 | 2                    | 50.5                 | 115.032     | 9043691150320 |
| 32                        | 3/4   | 35.5                 | 60.5                 | 2                    | 50.5                 | 119.032     | 9043691190320 |
| 32                        | 7/8   | 35.5                 | 60.5                 | 2                    | 50.5                 | 122.032     | 9043691220320 |
| 32                        | 1   | 35.5                 | 60.5                 | 2                    | 58.5                 | 125.032     | 9043691250320 |
| 32                        | 6   | 35.5                 | 60.5                 | 2                    | 37.5                 | 6.032       | 9043690060320 |
| 32                        | 8   | 35.5                 | 60.5                 | 2                    | 37.5                 | 8.032       | 9043690080320 |
| 32                        | 10  | 35.5                 | 60.5                 | 2                    | 40.5                 | 10.032      | 9043690100320 |
| 32                        | 12  | 35.5                 | 60.5                 | 2                    | 44.5                 | 12.032      | 9043690120320 |
| 32                        | 14  | 35.5                 | 60.5                 | 2                    | 44.5                 | 14.032      | 9043690140320 |
| 32                        | 16  | 35.5                 | 60.5                 | 2                    | 50.5                 | 16.032      | 9043690160320 |
| 32                        | 18  | 35.5                 | 60.5                 | 2                    | 50.5                 | 18.032      | 9043690180320 |
| 32                        | 20  | 35.5                 | 60.5                 | 2                    | 50.5                 | 20.032      | 9043690200320 |
| 32                        | 25  | 35.5                 | 60.5                 | 2                    | 58.5                 | 25.032      | 9043690250320 |

**Product information**

- for Series no. 4368 and 4369
- for the simple removal of reduction bushes



|   |                   |                      |
|---|-------------------|----------------------|
|   | <b>Series no.</b> | <b>4099</b>          |
| for<br>reduction bushes<br>d <sub>1</sub> |                   | <b>EDP Number</b>    |
| 12 to 32                                  |                   | <b>9040990010000</b> |

Senso 3000

**Product information**

- accurate, quick and simple measuring of the clamping force of hydraulic chucks
- mobility allows measuring within machines and fixtures
- determines clamping force via a pressure sensitive plug gauge
- display of absolute measuring value or percentage clamping force in relation to reference value

**Scope of delivery**

- incl. type CR 2430 battery
- incl. sturdy case
- Inch dimensions upon request



|                         |                   |                      |
|-------------------------|-------------------|----------------------|
|                         | <b>Series no.</b> | <b>4038</b>          |
| clamping diameter<br>mm | kg                | <b>EDP Number</b>    |
| 6.0                     | 1.1               | <b>9040380060000</b> |
| 8.0                     | 1.1               | <b>9040380080000</b> |
| 10.0                    | 1.3               | <b>9040380100000</b> |
| 12.0                    | 1.3               | <b>9040380120000</b> |
| 14.0                    | 1.3               | <b>9040380140000</b> |
| 16.0                    | 1.3               | <b>9040380160000</b> |
| 18.0                    | 1.5               | <b>9040380180000</b> |
| 20.0                    | 1.5               | <b>9040380200000</b> |
| 25.0                    | 2.0               | <b>9040380250000</b> |
| 32.0                    | 2.5               | <b>9040380320000</b> |

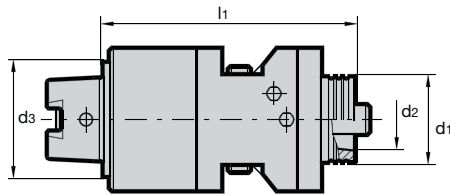
## Universal HSK length pre-setting adaptors

### Product information

- for application with pre-setting facilities for the accurate length pre-setting of axially adjustable chucks.
- thanks to precise clamping also suitable for measuring and setting the diameter.
- HSK to ISO 12164-1/DIN 69893-1

### Scope of delivery

- order plug insert, Series no. 4993, separately



Series no. **4316**

| HSK-C<br>d <sub>3</sub> | for<br>HSK-A/C/E<br>d <sub>1</sub> | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | EDP Number    |
|-------------------------|------------------------------------|----------------------|----------------------|---------------|
| 63                      | 50                                 | 38                   | 104.6                | 9043160630500 |
| 63                      | 63                                 | 48                   | 111.6                | 9043160630630 |
|                         |                                    |                      |                      |               |
|                         |                                    |                      |                      |               |
|                         |                                    |                      |                      |               |

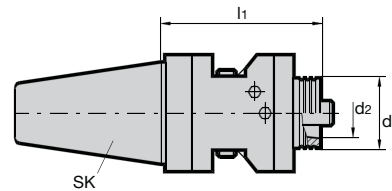
## Universal SK taper length pre-setting adaptors

### Product information

- for application with pre-setting facilities for the accurate length pre-setting of axially adjustable chucks.
- thanks to precise clamping also suitable for measuring and setting the diameter.

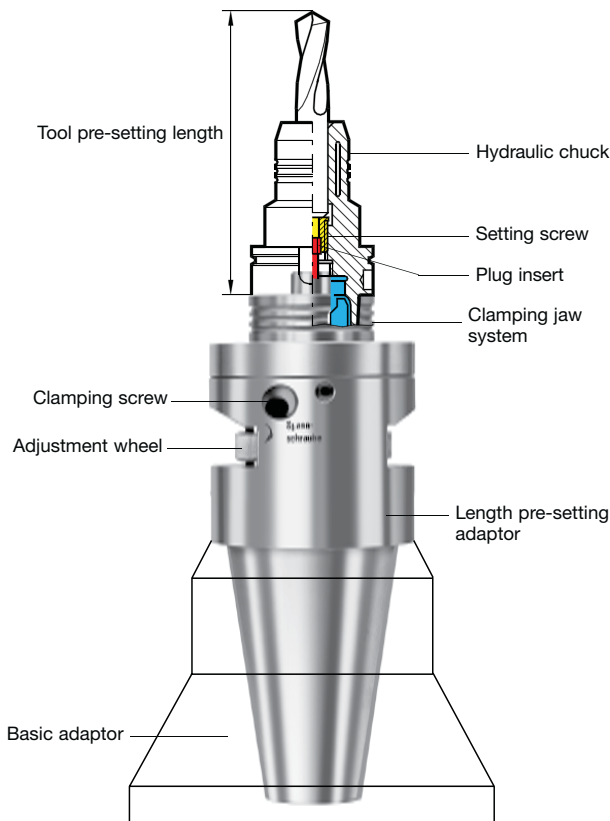
### Scope of delivery

- order plug insert, Series no. 4993, separately



Series no. **4319**

| SK | for<br>HSK-A/C/E<br>d <sub>1</sub> | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | EDP Number    |
|----|------------------------------------|----------------------|----------------------|---------------|
| 40 | 50                                 | 38                   | 99.3                 | 9043190400500 |
| 40 | 63                                 | 48                   | 106.3                | 9043190400630 |
| 50 | 32                                 | 24                   | 90.5                 | 9043190500320 |
| 50 | 40                                 | 30                   | 93.8                 | 9043190500400 |
| 50 | 50                                 | 38                   | 99.3                 | 9043190500500 |
| 50 | 63                                 | 48                   | 106.3                | 9043190500630 |
| 50 | 100                                | 75                   | 128.3                | 9043190501000 |



### Design features of the universal length pre-setting adaptor

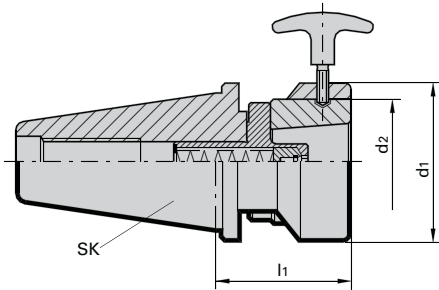
- tool length pre-setting via an external adjustment wheel
- tool length optimally pre-set in the universal length pre-setting adaptor via HSK clamping system similar to a tool spindle.
- controlling concentricity of cutting edges and simultaneous axial length pre-setting possible on pre-setting adaptor.
- applicable are tool holders such as hydraulic chucks, collet holders, side lock holders DIN 1835 E
- access hole in taper not required, all HSK forms from HSK-A to HSK-F can be applied.
- axial length pre-setting via plug insert set, Series no. 4993.
- if a radial rotation of your pre-setting equipment is not possible, a rotatable version of the universal length pre-setting adaptor is available (on request).
- cannot be applied for cutting operations.
- not necessary to remove coolant supply.

### Product information

- application without removal of coolant supply
- simple design with radial clamping for measuring tool length
- for the application on pre-setting equipment for precise length pre-setting of axially adjustable chucks

### Scope of delivery

- incl. taper insert, Series no. 4992
- order separately: plug inserts, Series no. 4993

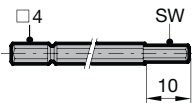


| Series no. 4315 |               |                   |                   |                   |               |
|-----------------|---------------|-------------------|-------------------|-------------------|---------------|
| SK taper        | for HSK-A/C/E | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | EDP Number    |
| 40              | 32            | 80                | 63                | 68.2              | 9043150400320 |
| 40              | 40            | 80                | 63                | 68.2              | 9043150400400 |
| 40              | 50            | 80                | 63                | 68.2              | 9043150400500 |
| 40              | 63            | 80                | 63                | 68.2              | 9043150400630 |
| 50              | 25            | 80                | 63                | 68.2              | 9043150500250 |
| 50              | 32            | 80                | 63                | 68.2              | 9043150500320 |
| 50              | 40            | 80                | 63                | 68.2              | 9043150500400 |
| 50              | 50            | 80                | 63                | 68.2              | 9043150500500 |
| 50              | 63            | 80                | 63                | 68.2              | 9043150500630 |
| 50              | 80            | 120               | 100               | 88.2              | 9043150500800 |
| 50              | 100           | 120               | 100               | 88.2              | 9043150501000 |

### Plug inserts

#### Product information

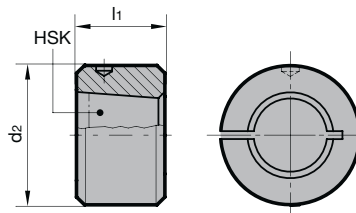
- for length pre-setting adaptors, art. no. 4316, 4319 and 4315



### Taper inserts

#### Product information

- for length pre-setting adaptor, Series no. 4315



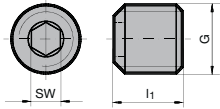
| Series no. 4993 |                    |               |
|-----------------|--------------------|---------------|
| for HSK         | Set with key sizes | EDP Number    |
| C               | 2.5/3/4/5/6        | 9049931000000 |
| A/E             | 2.5/3/4/5/6        | 9049932000000 |
| A (for MQL)     | 3/4/5              | 9049933000000 |
|                 |                    |               |
|                 |                    |               |

| Series no. 4992 |                   |                   |               |
|-----------------|-------------------|-------------------|---------------|
| for HSK-A/C/E   | d <sub>2</sub> mm | l <sub>1</sub> mm | EDP Number    |
| 25              | 63                | 40                | 9049920250000 |
| 32              | 63                | 40                | 9049920320000 |
| 40              | 63                | 40                | 9049920400000 |
| 50              | 63                | 40                | 9049920500000 |
| 63              | 63                | 40                | 9049920630000 |
| 80              | 100               | 55                | 9049920800000 |
| 100             | 100               | 55                | 9049921000000 |

## Clamping screws for hydraulic chucks and hydraulic synchro tapping chucks

## Product information

- replacement clamping screws for hydraulic chucks and hydraulic synchro tapping chucks
- activation screw spec. for hydraulic chucks to suit hex. key size
- torque max.10 Nm

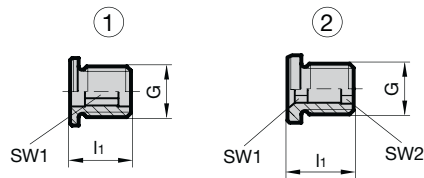
Series no. **4241**

| G   | l <sub>1</sub><br>mm | SW  | EDP Number    |
|-----|----------------------|-----|---------------|
| M8  | 8.5                  | 4.0 | 9042410080010 |
| M8  | 10.0                 | 4.0 | 9042410080000 |
| M10 | 9.0                  | 5.0 | 9042410100030 |
| M10 | 10.5                 | 5.0 | 9042410100010 |
| M10 | 12.0                 | 5.0 | 9042410100020 |
| M12 | 12.0                 | 6.0 | 9042410120000 |

## Adjustment screws

## Product information

- for hydraulic chucks
- for conventional internal cooling
- with facing stop for standard shank ends
- for HSK 32/40 with clamping-Ø 10.0 and 12.0 mm use EDP # 8.014

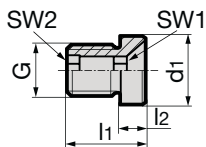
Series no. **4900**

| for<br>clamping-Ø | l <sub>1</sub><br>mm | G     | SW1 | SW2 | figure | EDP Number    |
|-------------------|----------------------|-------|-----|-----|--------|---------------|
| 6                 | 14                   | M5    | 2.5 | -   | 1      | 9049000060140 |
| 8                 | 14                   | M6    | 3.0 | -   | 1      | 9049000080140 |
| 10                | 14                   | M8x1  | 4.0 | -   | 1      | 9049000100140 |
| 12/14             | 14                   | M10x1 | 5.0 | -   | 1      | 9049000120140 |
| 16/18             | 14                   | M12x1 | 6.0 | -   | 1      | 9049000160140 |
| 20/25/32          | 14                   | M16x1 | 6.0 | -   | 1      | 9049000200140 |
| 20/25/32          | 14                   | M16x1 | 8.0 | 6.0 | 2      | 9049000201140 |

## MQL length pre-setting screws for the conversion

### Product information

- for hydraulic chucks and shrink fit chucks
- optimised for MQL with special geometry
- with tapered stop for MQL conical shank ends



Series no. **4919**

| d1<br>mm | l1<br>mm | l2<br>mm | G     | SW1 | SW2 | EDP Number    |
|----------|----------|----------|-------|-----|-----|---------------|
| 6        | 14.8     | 2.3      | M5    | 2.5 | 2.5 | 9049190060000 |
| 8        | 15.6     | 3.0      | M6    | 3.0 | 3.0 | 9049190080000 |
| 10       | 16.1     | 3.5      | M8x1  | 4.0 | 4.0 | 9049190100000 |
| 10       | 16.6     | 4.1      | M8x1  | 3.0 | 3.0 | 9049190100400 |
| 10       | 16.6     | 4.1      | M6    | 3.0 | 3.0 | 9049190100320 |
| 12       | 16.6     | 4.1      | M10x1 | 5.0 | 5.0 | 9049190120000 |
| 12       | 17.6     | 5.1      | M6    | 3.0 | 3.0 | 9049190120320 |
| 14       | 17.6     | 5.1      | M10x1 | 5.0 | 5.0 | 9049190140000 |
| 14       | 18.6     | 6.1      | M6    | 3.0 | 3.0 | 9049190140400 |
| 16       | 18.6     | 6.1      | M12x1 | 5.0 | 5.0 | 9049190160000 |
| 16       | 19.6     | 7.1      | M6    | 3.0 | 3.0 | 9049190160400 |
| 18       | 19.6     | 7.1      | M12x1 | 5.0 | 5.0 | 9049190180000 |
| 20       | 20.6     | 8.1      | M16x1 | 5.0 | 5.0 | 9049190200000 |
| 25       | 22.6     | 10.1     | M16x1 | 8.0 | 6.0 | 9049190250000 |
| 32       | 26.1     | 13.6     | M16x1 | 8.0 | 6.0 | 9049190320000 |

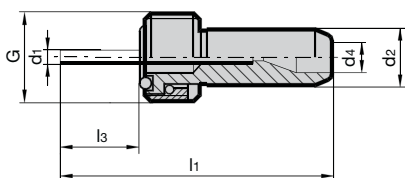
## MQL coolant supply units HSK-A for the conversion

### Product information

- replace conventional coolant supply sets, art. no. 4949, when applying MQL
- for hydraulic chucks to DIN 69882-7
- Attention: not suitable for application on machines with supply collar to DIN 69090-2

### Scope of delivery

- complete MQL coolant supply set consisting of :  
coolant pipe, cap nut  
MQL tube and O-rings



Series no. **4924**

| for<br>HSK-A | clamping-Ø<br>mm | d1<br>mm | d2<br>mm | d4<br>mm | l1<br>mm | l3<br>mm | G     | EDP Number    |
|--------------|------------------|----------|----------|----------|----------|----------|-------|---------------|
| 32           | 6                | 2.5      | 6        | 3.5      | 54.2     | 28.0     | M10x1 | 9049240320100 |
| 32           | 8                | 3.0      | 6        | 3.5      | 54.3     | 28.1     | M10x1 | 9049240320300 |
| 32           | 10               | 3.0      | 6        | 3.5      | 55.8     | 29.6     | M10x1 | 9049240320500 |
| 32           | 12               | 3.0      | 6        | 3.5      | 56.6     | 30.4     | M10x1 | 9049240320700 |
| 40           | 6                | 2.5      | 8        | 4.0      | 45.1     | 16.0     | M12x1 | 9049240400100 |
| 40           | 8                | 3.0      | 8        | 4.0      | 56.2     | 15.8     | M12x1 | 9049240400300 |
| 40           | 10               | 3.0      | 8        | 4.0      | 46.3     | 17.1     | M12x1 | 9049240400500 |
| 40           | 12               | 3.0      | 8        | 4.0      | 46.7     | 17.5     | M12x1 | 9049240400700 |
| 50           | 6                | 2.5      | 10       | 4.0      | 44.6     | 11.9     | M16x1 | 9049240500100 |
| 50           | 8                | 3.0      | 10       | 4.0      | 46.1     | 13.4     | M16x1 | 9049240500300 |
| 50           | 10               | 4.0      | 10       | 4.0      | 45.7     | 13.0     | M16x1 | 9049240500500 |
| 50           | 12               | 5.0      | 10       | 4.0      | 46.1     | 13.4     | M16x1 | 9049240500700 |
| 50           | 14               | 5.0      | 10       | 4.0      | 51.5     | 18.8     | M16x1 | 9049240500900 |
| 50           | 16               | 5.0      | 10       | 4.0      | 52.8     | 20.1     | M16x1 | 9049240501100 |
| 50           | 18               | 5.0      | 10       | 4.0      | 53.2     | 20.5     | M16x1 | 9049240501300 |
| 50           | 20               | 5.0      | 10       | 4.0      | 51.5     | 18.8     | M16x1 | 9049240501500 |

|           |               |                   |                   |                   |                   |                   |         | Series no.    | 4924 |
|-----------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|---------------|------|
| for HSK-A | clamping-Ø mm | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>3</sub> mm | G       | EDP Number    |      |
| 63        | 6             | 2.5               | 12                | 4.0               | 45.7              | 9.5               | M18x1   | 9049240630100 |      |
| 63        | 6             | 2.5               | 12                | 4.0               | 126.9             | 90.6              | M18x1   | 9049240630110 |      |
| 63        | 6             | 2.5               | 12                | 4.0               | 176.9             | 140.6             | M18x1   | 9049240630120 |      |
| 63        | 8             | 3.0               | 12                | 4.0               | 46.0              | 9.8               | M18x1   | 9049240630300 |      |
| 63        | 8             | 3.0               | 12                | 4.0               | 126.1             | 89.9              | M18x1   | 9049240630310 |      |
| 63        | 8             | 3.0               | 12                | 4.0               | 176.2             | 139.9             | M18x1   | 9049240630320 |      |
| 63        | 10            | 4.0               | 12                | 4.0               | 51.7              | 15.5              | M18x1   | 9049240630500 |      |
| 63        | 10            | 4.0               | 12                | 4.0               | 122.2             | 86.0              | M18x1   | 9049240630510 |      |
| 63        | 10            | 4.0               | 12                | 4.0               | 172.2             | 135.9             | M18x1   | 9049240630520 |      |
| 63        | 12/14/20      | 5.0               | 12                | 4.0               | 52.1              | 15.9              | M18x1   | 9049240630700 |      |
| 63        | 16/18         | 5.0               | 12                | 4.0               | 53.8              | 17.6              | M18x1   | 9049240630900 |      |
| 63        | 12/14         | 5.0               | 12                | 4.0               | 117.6             | 81.4              | M18x1   | 9049240630910 |      |
| 63        | 12/14         | 5.0               | 12                | 4.0               | 167.6             | 131.3             | M18x1   | 9049240630920 |      |
| 63        | 16            | 5.0               | 12                | 4.0               | 114.3             | 78.0              | M18x1   | 9049240631110 |      |
| 63        | 25/32         | 6.0               | 12                | 4.0               | 77.0              | 40.8              | M18x1   | 9049240631200 |      |
| 63        | 18            | 5.0               | 12                | 4.0               | 114.6             | 78.3              | M18x1   | 9049240631310 |      |
| 63        | 16/18         | 5.0               | 12                | 4.0               | 164.6             | 128.3             | M18x1   | 9049240631320 |      |
| 63        | 20            | 5.0               | 12                | 4.0               | 112.9             | 76.6              | M18x1   | 9049240631510 |      |
| 63        | 20            | 5.0               | 12                | 4.0               | 162.9             | 126.6             | M18x1   | 9049240631520 |      |
| 80        | 6             | 2.5               | 14                | 4.0               | 44.8              | 5.5               | M20x1.5 | 9049240800100 |      |
| 80        | 8             | 3.0               | 14                | 4.0               | 44.9              | 5.6               | M20x1.5 | 9049240800300 |      |
| 80        | 10            | 4.0               | 14                | 4.0               | 50.9              | 11.6              | M20x1.5 | 9049240800500 |      |
| 80        | 12            | 5.0               | 14                | 4.0               | 51.3              | 12.0              | M20x1.5 | 9049240800700 |      |
| 80        | 14            | 5.0               | 14                | 4.0               | 51.6              | 12.3              | M20x1.5 | 9049240800900 |      |
| 80        | 16            | 5.0               | 14                | 4.0               | 57.9              | 18.6              | M20x1.5 | 9049240801100 |      |
| 80        | 18            | 5.0               | 14                | 4.0               | 58.3              | 19.0              | M20x1.5 | 9049240801300 |      |
| 80        | 20            | 5.0               | 14                | 4.0               | 56.6              | 17.3              | M20x1.5 | 9049240801500 |      |
| 80        | 25            | 6.0               | 14                | 4.0               | 53.1              | 13.8              | M20x1.5 | 9049240801700 |      |
| 80        | 32            | 6.0               | 14                | 4.0               | 77.2              | 37.9              | M20x1.5 | 9049240801900 |      |
| 100       | 6             | 2.5               | 16                | 4.0               | 53.0              | 9.2               | M24x1.5 | 9049241000100 |      |
| 100       | 8             | 3.0               | 16                | 4.0               | 53.7              | 9.9               | M24x1.5 | 9049241000300 |      |
| 100       | 10            | 4.0               | 16                | 4.0               | 63.3              | 19.5              | M24x1.5 | 9049241000500 |      |
| 100       | 12            | 5.0               | 16                | 4.0               | 63.8              | 20.0              | M24x1.5 | 9049241000700 |      |
| 100       | 14            | 5.0               | 16                | 4.0               | 64.2              | 20.4              | M24x1.5 | 9049241000900 |      |
| 100       | 16            | 5.0               | 16                | 4.0               | 65.4              | 21.6              | M24x1.5 | 9049241001100 |      |
| 100       | 18            | 5.0               | 16                | 4.0               | 65.8              | 22.0              | M24x1.5 | 9049241001300 |      |
| 100       | 20            | 5.0               | 16                | 4.0               | 69.2              | 25.4              | M24x1.5 | 9049241001500 |      |
| 100       | 25            | 6.0               | 16                | 4.0               | 68.6              | 24.8              | M24x1.5 | 9049241001700 |      |
| 100       | 32            | 6.0               | 16                | 4.0               | 64.6              | 20.8              | M24x1.5 | 9049241001900 |      |

TSG 3000



SHRINK FIT TECHNOLOGY

Shrink fit technology

# TSG 3000

THE SAFEST

SHRINK FIT CHUCK!



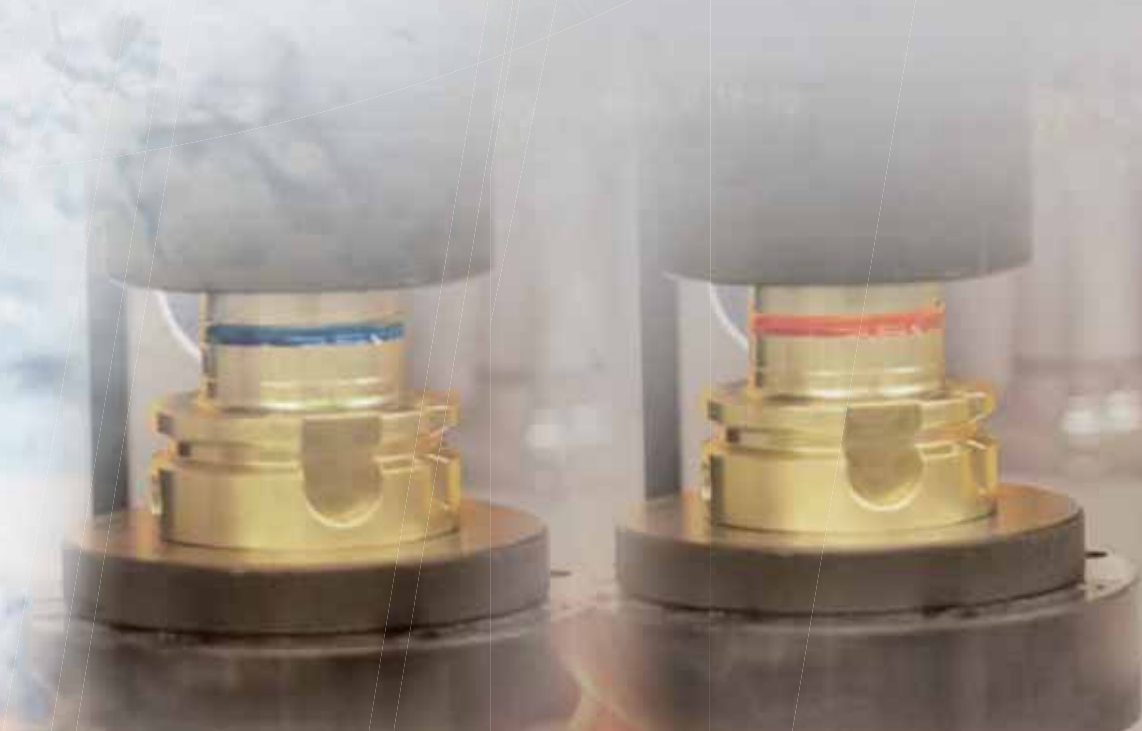
**HIGHEST OPERATIONAL  
SAFETY THANKS  
TO TEMPERATURE  
INDICATOR**



**PVD-COATING FOR  
LONG TOOL LIFE**



**LENGTH SETTING  
SCREW WITH AXIAL  
DAMPING**

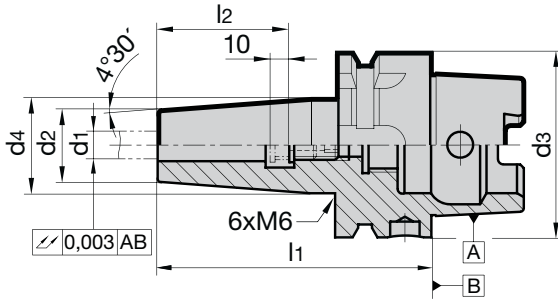


**Product information**

- coating for protection against oxidation, cleanliness and longevity
- safety colour ring for maximum operator safety
- with axial damping screw for optimal concentricity
- max. deviation f. concentricity 3 µm
- for tool shank tolerance h6
- to DIN 69882-8
- balancing quality: G2.5 / 25,000 rev./min or U < 1 gmm
- designed with 6xM6 balancing screws for the highest accuracy
- HSK-A to ISO 12164-1/DIN 69893-1

**Scope of delivery**

- incl. length setting screw with axial force damping Series no. 4941 for conventional cooling
- for conventional cooling order coolant supply set, Series no. 4949, separately
- for MQL application order as special tool holder
- special dimensions and extra lengths on request



Series no. **4726**

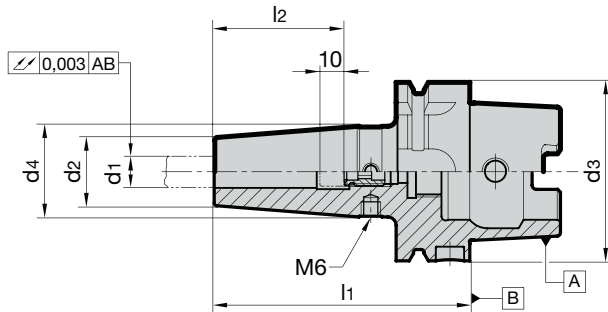
| HSK-A d <sub>3</sub> | for shank Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. setting screw art. no. 4941 ... | kg   | Code no. | EDP Number    |
|----------------------|--|-------------------|-------------------|-------------------|-------------------|---------------------------------------|------|----------|---------------|
| 63                   | 6  | 21                | 27                | 80                | 36                | 6.100                                 | 1.00 | 6.063    | 9047260060630 |
| 63                   | 8  | 21                | 27                | 80                | 36                | 8.100                                 | 1.00 | 8.063    | 9047260080630 |
| 63                   | 10   | 24                | 32                | 85                | 41                | 10.100                                | 1.00 | 10.063   | 9047260100630 |
| 63                   | 12   | 24                | 32                | 90                | 46                | 12.100                                | 1.00 | 12.063   | 9047260120630 |
| 63                   | 14   | 27                | 34                | 90                | 46                | 14.100                                | 1.00 | 14.063   | 9047260140630 |
| 63                   | 16   | 27                | 34                | 95                | 49                | 16.100                                | 1.00 | 16.063   | 9047260160630 |
| 63                   | 18   | 33                | 42                | 95                | 49                | 18.100                                | 1.00 | 18.063   | 9047260180630 |
| 63                   | 20   | 33                | 42                | 100               | 51                | 20.100                                | 1.00 | 20.063   | 9047260200630 |
| 63                   | 25   | 44                | 53                | 115               | 57                | 25.100                                | 2.00 | 25.063   | 9047260250630 |
| 63                   | 32   | 44                | 53                | 120               | 61                | 32.100                                | 2.00 | 32.063   | 9047260320630 |
| 100                  | 6  | 21                | 27                | 85                | 36                | 6.100                                 | 2.00 | 6.100    | 9047260061000 |
| 100                  | 8  | 21                | 27                | 85                | 36                | 8.100                                 | 2.00 | 8.100    | 9047260081000 |
| 100                  | 10   | 24                | 32                | 90                | 41                | 10.100                                | 2.00 | 10.100   | 9047260101000 |
| 100                  | 12   | 24                | 32                | 95                | 46                | 12.100                                | 2.00 | 12.100   | 9047260121000 |
| 100                  | 14   | 27                | 34                | 95                | 46                | 14.100                                | 2.00 | 14.100   | 9047260141000 |
| 100                  | 16   | 27                | 34                | 100               | 49                | 16.100                                | 2.00 | 16.100   | 9047260161000 |
| 100                  | 18   | 33                | 42                | 100               | 49                | 18.100                                | 2.50 | 18.100   | 9047260181000 |
| 100                  | 20   | 33                | 42                | 105               | 51                | 20.100                                | 2.50 | 20.100   | 9047260201000 |
| 100                  | 25   | 44                | 53                | 115               | 57                | 25.100                                | 3.00 | 25.100   | 9047260251000 |
| 100                  | 32   | 44                | 53                | 120               | 61                | 32.100                                | 3.00 | 32.100   | 9047260321000 |

## Product information

- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- incl. balancing thread 4xM6/6xM6
- to DIN 69882-8
- for tool shank tolerance h6
- also available in the lengths  
l1 = 120 mm (concentricity 4 µm),  
160 mm (concentricity 5 µm)  
and 200 mm (concentricity 7 µm)
- HSK-A to ISO12164-1/ DIN 69893-1

## Scope of delivery

- incl. setting screw, Series no. 4977 or 4904
- for conventional cooling order coolant supply set, Series no. 4949, separately
- special dimensions on request



Series no. **4736**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>art. no. 4941 ... | kg   | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|---|------|-------------|---------------|
| 32                      | 6  | 21                   | 26                   | 70                   | 36                   | 9049770060140                               | 0.30 | 6.032       | 9047360060320 |
| 32                      | 8  | 21                   | 26                   | 70                   | 36                   | 9049770080140                               | 0.30 | 8.032       | 9047360080320 |
| 32                      | 10   | 24                   | 30                   | 75                   | 41                   | 9049770100140                               | 0.30 | 10.032      | 9047360100320 |
| 32                      | 12   | 24                   | 30                   | 80                   | 46                   | 9049770120140                               | 0.30 | 12.032      | 9047360120320 |
| 40                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049770060140                               | 0.40 | 6.040       | 9047360060400 |
| 40                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049770080140                               | 0.40 | 8.040       | 9047360080400 |
| 40                      | 10   | 24                   | 32                   | 80                   | 41                   | 9049770100140                               | 0.50 | 10.040      | 9047360100400 |
| 40                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049770120140                               | 0.50 | 12.040      | 9047360120400 |
| 40                      | 14   | 27                   | 34                   | 90                   | 46                   | 9049770120140                               | 0.60 | 14.040      | 9047360140400 |
| 40                      | 16   | 27                   | 34                   | 90                   | 49                   | 9049770160140                               | 0.50 | 16.040      | 9047360160400 |
| 40                      | 18   | 33                   | 42                   | 95                   | 49                   | 9049770160140                               | 0.90 | 18.040      | 9047360180400 |
| 40                      | 20   | 33                   | 42                   | 100                  | 51                   | 9049770201140                               | 0.90 | 20.040      | 9047360200400 |
| 50                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049770060140                               | 0.60 | 6.050       | 9047360060500 |
| 50                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049770080140                               | 0.60 | 8.050       | 9047360080500 |
| 50                      | 10   | 24                   | 32                   | 85                   | 41                   | 9049770100140                               | 0.70 | 10.050      | 9047360100500 |
| 50                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049770120140                               | 0.70 | 12.050      | 9047360120500 |
| 50                      | 14   | 27                   | 34                   | 90                   | 46                   | 9049770120140                               | 0.70 | 14.050      | 9047360140500 |
| 50                      | 16   | 27                   | 34                   | 95                   | 49                   | 9049770160140                               | 1.00 | 16.050      | 9047360160500 |
| 50                      | 18   | 33                   | 42                   | 95                   | 49                   | 9049770160140                               | 0.90 | 18.050      | 9047360180500 |
| 50                      | 20   | 33                   | 42                   | 100                  | 51                   | 9049770201140                               | 0.90 | 20.050      | 9047360200500 |
| 63                      | 1/8  | 10                   | 18                   | 80                   | 36                   | 9049040050160                               | 0.70 | 903.063     | 9047369030630 |
| 63                      | 3/16   | 10                   | 18                   | 80                   | 40                   | 9049040080180                               | 0.70 | 904.063     | 9047369040630 |
| 63                      | 1/4  | 20                   | 27                   | 80                   | 36                   | 9049770060140                               | 0.80 | 906.063     | 9047369060630 |
| 63                      | 5/16   | 21                   | 27                   | 80                   | 36                   | 9049770080140                               | 0.80 | 907.063     | 9047369070630 |
| 63                      | 3/8  | 24                   | 32                   | 85                   | 41                   | 9049770080140                               | 0.80 | 909.063     | 9047369090630 |
| 63                      | 1/2  | 24                   | 32                   | 90                   | 46                   | 9049770120140                               | 0.90 | 912.063     | 9047369120630 |
| 63                      | 5/8  | 27                   | 34                   | 95                   | 49                   | 9049770120140                               | 1.00 | 915.063     | 9047369150630 |
| 63                      | 3/4  | 33                   | 42                   | 100                  | 49                   | 9049770160140                               | 1.20 | 919.063     | 9047369190630 |
| 63                      | 1  | 44                   | 53                   | 115                  | 57                   | 9049770201140                               | 1.80 | 925.063     | 9047369250630 |
| 63                      | 3  | 10                   | 18                   | 80                   | 30                   | 9049040050160                               | 0.70 | 3.063       | 9047360030630 |
| 63                      | 4  | 10                   | 18                   | 80                   | 35                   | 9049040060160                               | 0.70 | 4.063       | 9047360040630 |
| 63                      | 5  | 10                   | 18                   | 80                   | 40                   | 9049040080180                               | 0.70 | 5.063       | 9047360050630 |
| 63                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049770060140                               | 0.80 | 6.063       | 9047360060630 |
| 63                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049770080140                               | 0.80 | 8.063       | 9047360080630 |
| 63                      | 10   | 24                   | 32                   | 85                   | 41                   | 9049770100140                               | 0.90 | 10.063      | 9047360100630 |

Series no. **4736**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>art. no. 4941 ... | kg   | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|---|------|-------------|---------------|
| 63                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049770120140                               | 0.90 | 12.063      | 9047360120630 |
| 63                      | 14   | 27                   | 34                   | 90                   | 46                   | 9049770120140                               | 1.00 | 14.063      | 9047360140630 |
| 63                      | 16   | 27                   | 34                   | 95                   | 49                   | 9049770160140                               | 1.00 | 16.063      | 9047360160630 |
| 63                      | 18   | 33                   | 42                   | 95                   | 49                   | 9049770160140                               | 1.20 | 18.063      | 9047360180630 |
| 63                      | 20   | 33                   | 42                   | 100                  | 51                   | 9049770201140                               | 1.20 | 20.063      | 9047360200630 |
| 63                      | 25   | 44                   | 53                   | 115                  | 57                   | 9049770201140                               | 1.80 | 25.063      | 9047360250630 |
| 63                      | 32   | 44                   | 53                   | 120                  | 61                   | 9049770201140                               | 1.70 | 32.063      | 9047360320630 |
| 63                      | 3  | 10                   | 25                   | 120                  | 30                   | 9049040050160                               | 0.80 | 203.063     | 9047362030630 |
| 63                      | 4  | 10                   | 25                   | 120                  | 35                   | 9049040060160                               | 0.80 | 204.063     | 9047362040630 |
| 63                      | 5  | 10                   | 25                   | 120                  | 40                   | 9049040080180                               | 0.80 | 205.063     | 9047362050630 |
| 63                      | 6  | 21                   | 27                   | 120                  | 36                   | 9049770060140                               | 0.90 | 206.063     | 9047362060630 |
| 63                      | 8  | 21                   | 27                   | 120                  | 36                   | 9049770080140                               | 1.00 | 208.063     | 9047362080630 |
| 63                      | 10   | 24                   | 32                   | 120                  | 41                   | 9049770100140                               | 1.10 | 210.063     | 9047362100630 |
| 63                      | 12   | 24                   | 32                   | 120                  | 46                   | 9049770120140                               | 1.20 | 212.063     | 9047362120630 |
| 63                      | 14   | 27                   | 34                   | 120                  | 46                   | 9049770120140                               | 1.20 | 214.063     | 9047362140630 |
| 63                      | 16   | 27                   | 34                   | 120                  | 49                   | 9049770160140                               | 1.20 | 216.063     | 9047362160630 |
| 63                      | 18   | 33                   | 42                   | 120                  | 49                   | 9049770160140                               | 1.40 | 218.063     | 9047362180630 |
| 63                      | 20   | 33                   | 42                   | 120                  | 51                   | 9049770200140                               | 1.40 | 220.063     | 9047362200630 |
| 63                      | 3  | 10                   | 31                   | 160                  | 30                   | 9049040050160                               | 0.90 | 103.063     | 9047361030630 |
| 63                      | 4  | 10                   | 31                   | 160                  | 35                   | 9049040060160                               | 0.90 | 104.063     | 9047361040630 |
| 63                      | 5  | 10                   | 31                   | 160                  | 40                   | 9049040080180                               | 0.90 | 105.063     | 9047361050630 |
| 63                      | 6  | 21                   | 27                   | 160                  | 36                   | 9049770060140                               | 1.10 | 106.063     | 9047361060630 |
| 63                      | 8  | 21                   | 27                   | 160                  | 36                   | 9049770080140                               | 1.10 | 108.063     | 9047361080630 |
| 63                      | 10   | 24                   | 32                   | 160                  | 41                   | 9049770100140                               | 1.30 | 110.063     | 9047361100630 |
| 63                      | 12   | 24                   | 32                   | 160                  | 46                   | 9049770120140                               | 1.30 | 112.063     | 9047361120630 |
| 63                      | 14   | 27                   | 34                   | 160                  | 46                   | 9049770120140                               | 1.40 | 114.063     | 9047361140630 |
| 63                      | 16   | 27                   | 34                   | 160                  | 49                   | 9049770160140                               | 1.40 | 116.063     | 9047361160630 |
| 63                      | 18   | 33                   | 42                   | 160                  | 49                   | 9049770160140                               | 1.60 | 118.063     | 9047361180630 |
| 63                      | 20   | 33                   | 42                   | 160                  | 51                   | 9049770201140                               | 1.60 | 120.063     | 9047361200630 |
| 63                      | 25   | 44                   | 53                   | 160                  | 57                   | 9049770201140                               | 1.80 | 125.063     | 9047361250630 |
| 63                      | 32   | 44                   | 53                   | 160                  | 61                   | 9049770201140                               | 1.70 | 132.063     | 9047361320630 |
| 63                      | 6  | 21                   | 27                   | 200                  | 36                   | 9049770060140                               | 1.30 | 306.063     | 9047363060630 |
| 63                      | 8  | 21                   | 27                   | 200                  | 36                   | 9049770080140                               | 1.30 | 308.063     | 9047363080630 |
| 63                      | 10   | 24                   | 32                   | 200                  | 41                   | 9049770100140                               | 1.50 | 310.063     | 9047363100630 |
| 63                      | 12   | 24                   | 32                   | 200                  | 46                   | 9049770120140                               | 1.50 | 312.063     | 9047363120630 |
| 63                      | 14   | 27                   | 34                   | 200                  | 46                   | 9049770120140                               | 1.70 | 314.063     | 9047363140630 |
| 63                      | 16   | 27                   | 34                   | 200                  | 49                   | 9049770160140                               | 1.70 | 316.063     | 9047363160630 |
| 63                      | 18   | 33                   | 42                   | 200                  | 49                   | 9049770160140                               | 1.80 | 318.063     | 9047363180630 |
| 63                      | 20   | 33                   | 42                   | 200                  | 51                   | 9049770201140                               | 1.80 | 320.063     | 9047363200630 |
| 63                      | 25   | 44                   | 53                   | 200                  | 57                   | 9049770201140                               | 2.00 | 325.063     | 9047363250630 |
| 63                      | 32   | 44                   | 53                   | 200                  | 61                   | 9049770201140                               | 1.90 | 332.063     | 9047363320630 |
| 80                      | 6  | 21                   | 27                   | 85                   | 36                   | 9049770060140                               | 1.30 | 6.080       | 9047360060800 |
| 80                      | 8  | 21                   | 27                   | 85                   | 36                   | 9049770080140                               | 1.30 | 8.080       | 9047360080800 |
| 80                      | 10   | 24                   | 32                   | 90                   | 41                   | 9049770100140                               | 1.40 | 10.080      | 9047360100800 |
| 80                      | 12   | 24                   | 32                   | 95                   | 46                   | 9049770120140                               | 1.40 | 12.080      | 9047360120800 |
| 80                      | 14   | 27                   | 34                   | 95                   | 46                   | 9049770120140                               | 1.50 | 14.080      | 9047360140800 |
| 80                      | 16   | 27                   | 34                   | 100                  | 49                   | 9049770160140                               | 1.50 | 16.080      | 9047360160800 |
| 80                      | 18   | 33                   | 42                   | 100                  | 49                   | 9049770160140                               | 1.70 | 18.080      | 9047360180800 |
| 80                      | 20   | 33                   | 42                   | 105                  | 51                   | 9049770201140                               | 1.70 | 20.080      | 9047360200800 |
| 80                      | 25   | 44                   | 53                   | 115                  | 57                   | 9049770201140                               | 2.20 | 25.080      | 9047360250800 |
| 80                      | 32   | 44                   | 53                   | 120                  | 61                   | 9049770201140                               | 2.10 | 32.080      | 9047360320800 |
| 80                      | 6  | 21                   | 27                   | 160                  | 36                   | 9049770060140                               | 1.60 | 106.080     | 9047361060800 |
| 80                      | 8  | 21                   | 27                   | 160                  | 36                   | 9049770080140                               | 1.60 | 108.080     | 9047361080800 |
| 80                      | 10   | 24                   | 32                   | 160                  | 41                   | 9049770100140                               | 1.80 | 110.080     | 9047361100800 |
| 80                      | 12   | 24                   | 32                   | 160                  | 46                   | 9049770120140                               | 1.80 | 112.080     | 9047361120800 |
| 80                      | 14   | 27                   | 34                   | 160                  | 46                   | 9049770120140                               | 1.90 | 114.080     | 9047361140800 |
| 80                      | 16   | 27                   | 34                   | 160                  | 49                   | 9049770160140                               | 1.90 | 116.080     | 9047361160800 |
| 80                      | 18   | 33                   | 42                   | 160                  | 49                   | 9049770160140                               | 2.30 | 118.080     | 9047361180800 |
| 80                      | 20   | 33                   | 42                   | 160                  | 51                   | 9049770201140                               | 2.30 | 120.080     | 9047361200800 |
| 80                      | 25   | 44                   | 53                   | 160                  | 57                   | 9049770201140                               | 3.00 | 125.080     | 9047361250800 |
| 80                      | 32   | 44                   | 53                   | 160                  | 61                   | 9049770201140                               | 2.80 | 132.080     | 9047361320800 |

Series no. 4736

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>art. no. 4941 ... | kg   | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|---|------|-------------|---------------|
| 100                     | 1/4  | 21                   | 27                   | 85                   | 36                   | 9049770060140                               | 2.20 | 906.100     | 9047369061000 |
| 100                     | 3/8  | 24                   | 32                   | 90                   | 41                   | 9049770080140                               | 2.20 | 909.100     | 9047369091000 |
| 100                     | 1/2  | 24                   | 32                   | 95                   | 46                   | 9049770120140                               | 2.30 | 912.100     | 9047369121000 |
| 100                     | 5/8  | 27                   | 34                   | 100                  | 49                   | 9049770120140                               | 2.30 | 915.100     | 9047369151000 |
| 100                     | 3/4  | 33                   | 42                   | 105                  | 49                   | 9049770160140                               | 2.30 | 919.100     | 9047369191000 |
| 100                     | 1  | 44                   | 53                   | 115                  | 75                   | 9049770201140                               | 3.00 | 925.100     | 9047369251000 |
| 100                     | 6  | 21                   | 27                   | 85                   | 36                   | 9049770060140                               | 2.20 | 6.100       | 9047360061000 |
| 100                     | 8  | 21                   | 27                   | 85                   | 36                   | 9049770080140                               | 2.20 | 8.100       | 9047360081000 |
| 100                     | 10   | 24                   | 32                   | 90                   | 41                   | 9049770100140                               | 2.30 | 10.100      | 9047360101000 |
| 100                     | 12   | 24                   | 32                   | 95                   | 46                   | 9049770120140                               | 2.30 | 12.100      | 9047360121000 |
| 100                     | 14   | 27                   | 34                   | 95                   | 46                   | 9049770120140                               | 2.30 | 14.100      | 9047360141000 |
| 100                     | 16   | 27                   | 34                   | 100                  | 49                   | 9049770160140                               | 2.30 | 16.100      | 9047360161000 |
| 100                     | 18   | 33                   | 42                   | 100                  | 49                   | 9049770160140                               | 2.50 | 18.100      | 9047360181000 |
| 100                     | 20   | 33                   | 42                   | 105                  | 51                   | 9049770201140                               | 2.50 | 20.100      | 9047360201000 |
| 100                     | 25   | 44                   | 53                   | 115                  | 57                   | 9049770201140                               | 3.00 | 25.100      | 9047360251000 |
| 100                     | 32   | 44                   | 53                   | 120                  | 61                   | 9049770201140                               | 3.00 | 32.100      | 9047360321000 |
| 100                     | 6  | 21                   | 27                   | 160                  | 36                   | 9049770060140                               | 2.60 | 106.100     | 9047361061000 |
| 100                     | 8  | 21                   | 27                   | 160                  | 36                   | 9049770080140                               | 2.50 | 108.100     | 9047361081000 |
| 100                     | 10   | 24                   | 32                   | 160                  | 41                   | 9049770100140                               | 2.70 | 110.100     | 9047361101000 |
| 100                     | 12   | 24                   | 32                   | 160                  | 46                   | 9049770120140                               | 2.70 | 112.100     | 9047361121000 |
| 100                     | 14   | 27                   | 34                   | 160                  | 46                   | 9049770120140                               | 2.80 | 114.100     | 9047361141000 |
| 100                     | 16   | 27                   | 34                   | 160                  | 49                   | 9049770160140                               | 2.80 | 116.100     | 9047361161000 |
| 100                     | 18   | 33                   | 42                   | 160                  | 49                   | 9049770160140                               | 3.20 | 118.100     | 9047361181000 |
| 100                     | 20   | 33                   | 42                   | 160                  | 51                   | 9049770201140                               | 3.10 | 120.100     | 9047361201000 |
| 100                     | 25   | 44                   | 53                   | 160                  | 57                   | 9049770201140                               | 3.90 | 125.100     | 9047361251000 |
| 100                     | 32   | 44                   | 53                   | 160                  | 61                   | 9049770201140                               | 3.70 | 132.100     | 9047361321000 |
| 100                     | 6  | 21                   | 27                   | 200                  | 36                   | 9049770060140                               | 2.80 | 306.100     | 9047363061000 |
| 100                     | 8  | 21                   | 27                   | 200                  | 36                   | 9049770080140                               | 2.80 | 308.100     | 9047363081000 |
| 100                     | 10   | 24                   | 32                   | 200                  | 41                   | 9049770100140                               | 2.90 | 310.100     | 9047363101000 |
| 100                     | 12   | 24                   | 32                   | 200                  | 46                   | 9049770120140                               | 2.90 | 312.100     | 9047363121000 |
| 100                     | 14   | 27                   | 34                   | 200                  | 46                   | 9049770120140                               | 3.00 | 314.100     | 9047363141000 |
| 100                     | 16   | 27                   | 34                   | 200                  | 49                   | 9049770160140                               | 3.00 | 316.100     | 9047363161000 |
| 100                     | 18   | 33                   | 42                   | 200                  | 49                   | 9049770160140                               | 3.40 | 318.100     | 9047363181000 |
| 100                     | 20   | 33                   | 42                   | 200                  | 51                   | 9049770201140                               | 3.30 | 320.100     | 9047363201000 |
| 100                     | 25   | 44                   | 53                   | 200                  | 57                   | 9049770201140                               | 4.00 | 325.100     | 9047363251000 |
| 100                     | 32   | 44                   | 53                   | 200                  | 61                   | 9049770201140                               | 3.90 | 332.100     | 9047363321000 |

## Product information

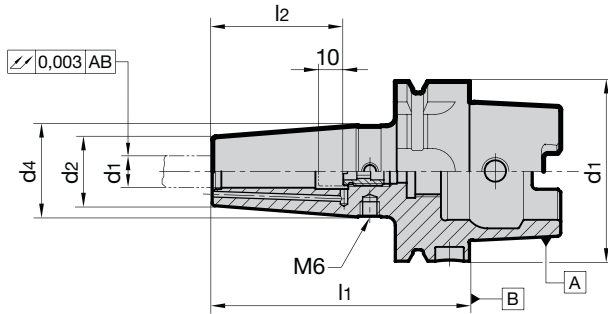
- balancing quality: G2.5 / 25,000 rev./min or U< 1gmm
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- to DIN 69882-8
- optimized cooling for tools without internal coolant ducts
- good chip evacuation and increased process reliability

## Scope of delivery

- incl. setting screw Guhring no. 4938
- for conventional cooling order coolant delivery set, Guhring no. 4949, separately
- special dimensions on request



**GÜHROJET**



Series no. **4755**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>Guh. no. 4938 ... | kg   | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|---|------|-------------|---------------|
| 40                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049380060000                               | 0.50 | 6.040       | 9047550060400 |
| 40                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049380080000                               | 0.50 | 8.040       | 9047550080400 |
| 40                      | 10   | 24                   | 32                   | 80                   | 41                   | 9049380100000                               | 0.50 | 10.040      | 9047550100400 |
| 40                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049380120000                               | 0.50 | 12.040      | 9047550120400 |
| 40                      | 14   | 27                   | 33.5                 | 90                   | 46                   | 9049380120000                               | 0.50 | 14.040      | 9047550140400 |
| 40                      | 16   | 27                   | 33.5                 | 90                   | 49                   | 9049380160000                               | 0.50 | 16.040      | 9047550160400 |
| 50                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049380060000                               | 0.60 | 6.050       | 9047550060500 |
| 50                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049380080000                               | 0.60 | 8.050       | 9047550080500 |
| 50                      | 10   | 24                   | 32                   | 85                   | 41                   | 9049380100000                               | 0.60 | 10.050      | 9047550100500 |
| 50                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049380120000                               | 0.70 | 12.050      | 9047550120500 |
| 50                      | 14   | 27                   | 34                   | 90                   | 46                   | 9049380120000                               | 0.70 | 14.050      | 9047550140500 |
| 50                      | 16   | 27                   | 34                   | 95                   | 49                   | 9049380160000                               | 0.70 | 16.050      | 9047550160500 |
| 50                      | 18   | 33                   | 41.5                 | 95                   | 49                   | 9049380160000                               | 0.90 | 18.050      | 9047550180500 |
| 50                      | 20   | 33                   | 41.5                 | 100                  | 51                   | 9049380200000                               | 0.90 | 20.050      | 9047550200500 |
| 63                      | 6  | 21                   | 27                   | 80                   | 36                   | 9049380060000                               | 0.80 | 6.063       | 9047550060630 |
| 63                      | 8  | 21                   | 27                   | 80                   | 36                   | 9049380080000                               | 0.80 | 8.063       | 9047550080630 |
| 63                      | 10   | 24                   | 32                   | 85                   | 41                   | 9049380100000                               | 0.90 | 10.063      | 9047550100630 |
| 63                      | 12   | 24                   | 32                   | 90                   | 46                   | 9049380120000                               | 0.90 | 12.063      | 9047550120630 |
| 63                      | 14   | 27                   | 34                   | 90                   | 46                   | 9049380120000                               | 1.00 | 14.063      | 9047550140630 |
| 63                      | 16   | 27                   | 34                   | 95                   | 49                   | 9049380160000                               | 1.00 | 16.063      | 9047550160630 |
| 63                      | 18   | 33                   | 42                   | 95                   | 49                   | 9049380160000                               | 1.20 | 18.063      | 9047550180630 |
| 63                      | 20   | 33                   | 42                   | 100                  | 51                   | 9049380200000                               | 1.20 | 20.063      | 9047550200630 |
| 63                      | 6  | 21                   | 27                   | 120                  | 36                   | 9049380060000                               | 0.90 | 206.063     | 9047552060630 |
| 63                      | 8  | 21                   | 27                   | 120                  | 36                   | 9049380080000                               | 0.90 | 208.063     | 9047552080630 |
| 63                      | 10   | 24                   | 32                   | 120                  | 41                   | 9049380100000                               | 1.10 | 210.063     | 9047552100630 |
| 63                      | 12   | 24                   | 32                   | 120                  | 46                   | 9049380120000                               | 1.20 | 212.063     | 9047552120630 |
| 63                      | 14   | 27                   | 34                   | 120                  | 46                   | 9049380120000                               | 1.20 | 214.063     | 9047552140630 |
| 63                      | 16   | 27                   | 34                   | 120                  | 49                   | 9049380160000                               | 1.20 | 216.063     | 9047552160630 |
| 63                      | 18   | 33                   | 42                   | 120                  | 49                   | 9049380160000                               | 1.20 | 218.063     | 9047552180630 |
| 63                      | 20   | 33                   | 42                   | 120                  | 51                   | 9049380200000                               | 1.40 | 220.063     | 9047552200630 |
| 100                     | 6  | 21                   | 27                   | 85                   | 36                   | 9049380060000                               | 2.20 | 6.100       | 9047550061000 |
| 100                     | 8  | 21                   | 27                   | 85                   | 36                   | 9049380080000                               | 2.20 | 8.100       | 9047550081000 |
| 100                     | 10   | 24                   | 32                   | 90                   | 41                   | 9049380100000                               | 2.30 | 10.100      | 9047550101000 |
| 100                     | 12   | 24                   | 32                   | 95                   | 46                   | 9049380120000                               | 2.30 | 12.100      | 9047550121000 |
| 100                     | 14   | 27                   | 34                   | 95                   | 46                   | 9049380120000                               | 2.30 | 14.100      | 9047550141000 |
| 100                     | 16   | 27                   | 34                   | 100                  | 49                   | 9049380160000                               | 2.30 | 16.100      | 9047550161000 |
| 100                     | 18   | 33                   | 42                   | 100                  | 49                   | 9049380160000                               | 2.50 | 18.100      | 9047550181000 |
| 100                     | 20   | 33                   | 42                   | 105                  | 51                   | 9049380200000                               | 2.50 | 20.100      | 9047550201000 |
| 100                     | 25   | 44                   | 53                   | 115                  | 57                   | 9049380200000                               | 3.00 | 25.100      | 9047550251000 |
| 100                     | 32   | 44                   | 53                   | 120                  | 61                   | 9049380200000                               | 3.00 | 32.100      | 9047550321000 |

## Product information

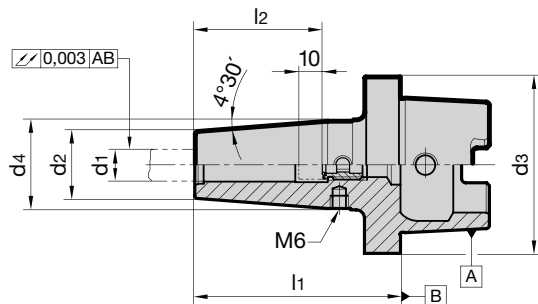
- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- to DIN 69882-8
- HSK-C to ISO 12164-1/DIN 69893-1

## Scope of delivery

- incl. setting screw, Series no. 4977
- special dimensions on request



Shrink fit technology



Series no. **4758**

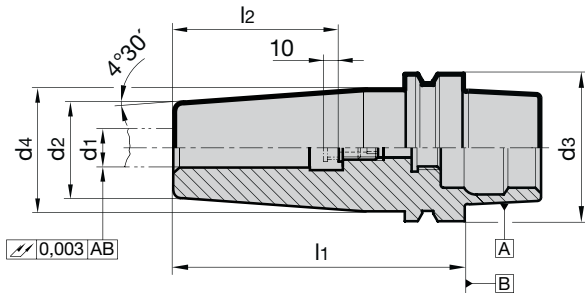
| HSK-C<br>d <sub>3</sub> | for<br>clamping-Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>Guhring no. 4977 | kg   | Code<br>no. | EDP Number    |
|-------------------------|---|----------------------|----------------------|----------------------|----------------------|--|------|-------------|---------------|
| 32                      | 6   | 21                   | 26                   | 65                   | 36                   | 9049770060140                              | 0.30 | 6.032       | 9047580060320 |
| 32                      | 8   | 21                   | 26                   | 65                   | 36                   | 9049770080140                              | 0.30 | 8.032       | 9047580080320 |
| 32                      | 10  | 24                   | 30                   | 65                   | 41                   | 9049770100140                              | 0.30 | 10.032      | 9047580100320 |
| 32                      | 12  | 24                   | 32                   | 75                   | 46                   | 9049770120140                              | 0.40 | 12.032      | 9047580120320 |
| 40                      | 6   | 21                   | 30                   | 70                   | 36                   | 9049770060140                              | 0.50 | 6.040       | 9047580060400 |
| 40                      | 8   | 21                   | 30                   | 70                   | 36                   | 9049770080140                              | 0.30 | 8.040       | 9047580080400 |
| 40                      | 10  | 24                   | 34                   | 70                   | 41                   | 9049770100140                              | 0.40 | 10.040      | 9047580100400 |
| 40                      | 12  | 24                   | 35                   | 80                   | 46                   | 9049770120140                              | 0.40 | 12.040      | 9047580120400 |
| 40                      | 14  | 27                   | 38                   | 80                   | 46                   | 9049770120140                              | 0.50 | 14.040      | 9047580140400 |
| 40                      | 16  | 27                   | 38                   | 80                   | 49                   | 9049770160140                              | 0.50 | 16.040      | 9047580160400 |
| 50                      | 6   | 21                   | 30                   | 70                   | 36                   | 9049770060140                              | 0.50 | 6.050       | 9047580060500 |
| 50                      | 8   | 21                   | 30                   | 70                   | 36                   | 9049770080140                              | 0.40 | 8.050       | 9047580080500 |
| 50                      | 10  | 24                   | 33                   | 75                   | 41                   | 9049770100140                              | 0.50 | 10.050      | 9047580100500 |
| 50                      | 12  | 24                   | 34                   | 80                   | 46                   | 9049770120140                              | 0.50 | 12.050      | 9047580120500 |
| 50                      | 14  | 27                   | 37                   | 80                   | 46                   | 9049770120140                              | 0.60 | 14.050      | 9047580140500 |
| 50                      | 16  | 27                   | 39                   | 85                   | 49                   | 9049770160140                              | 0.60 | 16.050      | 9047580160500 |
| 50                      | 18  | 33                   | 45                   | 85                   | 49                   | 9049770160140                              | 0.80 | 18.050      | 9047580180500 |
| 50                      | 20  | 33                   | 45                   | 90                   | 51                   | 9049770201140                              | 0.80 | 20.050      | 9047580200500 |
| 63                      | 6   | 21                   | 30                   | 70                   | 36                   | 9049770060140                              | 0.60 | 6.063       | 9047580060630 |
| 63                      | 8   | 21                   | 30                   | 70                   | 36                   | 9049770080140                              | 0.60 | 8.063       | 9047580080630 |
| 63                      | 10  | 24                   | 34                   | 75                   | 41                   | 9049770100140                              | 0.70 | 10.063      | 9047580100630 |
| 63                      | 12  | 24                   | 34                   | 80                   | 46                   | 9049770120140                              | 0.70 | 12.063      | 9047580120630 |
| 63                      | 14  | 27                   | 36                   | 80                   | 46                   | 9049770120140                              | 0.80 | 14.063      | 9047580140630 |
| 63                      | 16  | 27                   | 36                   | 85                   | 49                   | 9049770160140                              | 0.80 | 16.063      | 9047580160630 |
| 63                      | 18  | 33                   | 44                   | 85                   | 49                   | 9049770160140                              | 1.00 | 18.063      | 9047580180630 |
| 63                      | 20  | 33                   | 45                   | 90                   | 51                   | 9049770201140                              | 1.00 | 20.063      | 9047580200630 |
| 63                      | 25  | 44                   | 53                   | 100                  | 57                   | 9049770201140                              | 1.50 | 25.063      | 9047580250630 |
| 63                      | 32  | 44                   | 53                   | 110                  | 61                   | 9049770201140                              | 3.90 | 32.063      | 9047580320630 |

**Product information**

- balancing quality G2.5 / 25,000 rev./min or U < 1 gmm
- for tool shank tolerance h6
- HSK-E to ISO 12164-1 / DIN 69893-5 with access hole

**Scope of delivery**

- incl. setting screw, Series no. 4977 or 4904
- for conventional cooling order coolant supply set, Series no. 4949, separately
- special dimensions on request


**Series no. 4737**

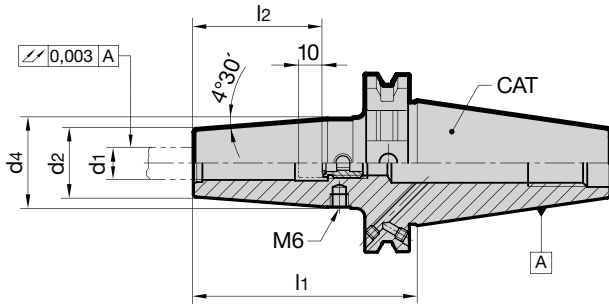
| HSK-E d <sub>3</sub> | for shank Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. setting screw Guh. no. Code no. | kg   | Code no. | EDP Number    |
|----------------------|--|-------------------|-------------------|-------------------|-------------------|---------------------------------------|------|----------|---------------|
| 32                   | 3  | 10                | 16                | 60                | –                 | –                                     | 0.16 | 3.032    | 9047370030320 |
| 32                   | 4  | 10                | 16                | 60                | –                 | –                                     | 0.16 | 4.032    | 9047370040320 |
| 32                   | 5  | 10                | 16                | 60                | –                 | –                                     | 0.16 | 5.032    | 9047370050320 |
| 32                   | 6  | 21                | 26                | 70                | 36                | 9049770060140                         | 0.18 | 6.032    | 9047370060320 |
| 32                   | 8  | 21                | 26                | 70                | 36                | 9049770080140                         | 0.20 | 8.032    | 9047370080320 |
| 32                   | 10   | 24                | 29                | 75                | 41                | 9049770100140                         | 0.25 | 10.032   | 9047370100320 |
| 32                   | 12   | 24                | 29                | 80                | 46                | 9049770120140                         | 0.25 | 12.032   | 9047370120320 |
| 40                   | 3  | 10                | 19                | 80                | –                 | –                                     | 0.28 | 3.040    | 9047370030400 |
| 40                   | 4  | 10                | 19                | 80                | –                 | –                                     | 0.28 | 4.040    | 9047370040400 |
| 40                   | 5  | 10                | 19                | 80                | –                 | –                                     | 0.27 | 5.040    | 9047370050400 |
| 40                   | 6  | 21                | 27                | 80                | 36                | 9049770060140                         | 0.41 | 6.040    | 9047370060400 |
| 40                   | 8  | 21                | 27                | 80                | 36                | 9049770080140                         | 0.41 | 8.040    | 9047370080400 |
| 40                   | 10   | 24                | 32                | 80                | 41                | 9049770100140                         | 0.48 | 10.040   | 9047370100400 |
| 40                   | 12   | 24                | 32                | 90                | 46                | 9049770120140                         | 0.52 | 12.040   | 9047370120400 |
| 40                   | 14   | 27                | 34                | 90                | 46                | 9049770120140                         | 0.57 | 14.040   | 9047370140400 |
| 40                   | 16   | 27                | 34                | 90                | 49                | 9049770160140                         | 0.55 | 16.040   | 9047370160400 |
| 50                   | 3  | 10                | 18                | 80                | 30                | 9049040050160                         | 0.49 | 3.050    | 9047370030500 |
| 50                   | 4  | 10                | 18                | 80                | 35                | 9049040060160                         | 0.49 | 4.050    | 9047370040500 |
| 50                   | 5  | 10                | 18                | 80                | –                 | –                                     | 0.49 | 5.050    | 9047370050500 |
| 50                   | 6  | 21                | 27                | 80                | 36                | 9049770060140                         | 0.59 | 6.050    | 9047370060500 |
| 50                   | 8  | 21                | 27                | 80                | 36                | 9049770080140                         | 0.58 | 8.050    | 9047370080500 |
| 50                   | 10   | 24                | 32                | 85                | 41                | 9049770100140                         | 0.57 | 10.050   | 9047370100500 |
| 50                   | 12   | 24                | 32                | 90                | 46                | 9049770120140                         | 0.69 | 12.050   | 9047370120500 |
| 50                   | 14   | 27                | 34                | 90                | 46                | 9049770120140                         | 0.74 | 14.050   | 9047370140500 |
| 50                   | 16   | 27                | 34                | 95                | 49                | 9049770160140                         | 0.75 | 16.050   | 9047370160500 |
| 50                   | 18   | 33                | 42                | 95                | 49                | 9049770160140                         | 0.92 | 18.050   | 9047370180500 |
| 50                   | 20   | 33                | 42                | 100               | 51                | 9049770201140                         | 0.94 | 20.050   | 9047370200500 |
| 63                   | 6  | 21                | 27                | 80                | 36                | 9049770060140                         | 0.86 | 6.063    | 9047370060630 |
| 63                   | 8  | 21                | 27                | 80                | 36                | 9049770080140                         | 0.85 | 8.063    | 9047370080630 |
| 63                   | 10   | 24                | 32                | 85                | 41                | 9049770100140                         | 0.94 | 10.063   | 9047370100630 |
| 63                   | 12   | 24                | 32                | 90                | 46                | 9049770120140                         | 0.96 | 12.063   | 9047370120630 |
| 63                   | 14   | 27                | 34                | 90                | 46                | 9049770120140                         | 1.01 | 14.063   | 9047370140630 |
| 63                   | 16   | 27                | 34                | 95                | 49                | 9049770160140                         | 1.02 | 16.063   | 9047370160630 |
| 63                   | 18   | 33                | 42                | 95                | 49                | 9049770160140                         | 1.19 | 18.063   | 9047370180630 |
| 63                   | 20   | 33                | 42                | 100               | 51                | 9049770201140                         | 1.21 | 20.063   | 9047370200630 |
| 63                   | 25   | 44                | 53                | 115               | 57                | 9049770201140                         | 1.80 | 25.063   | 9047370250630 |
| 63                   | 32   | 44                | 53                | 120               | 61                | 9049770201140                         | 1.73 | 32.063   | 9047370320630 |

## Product information

- balancing quality: G2.5 / 25,000 rev./min or U< 1gmm
- Including balancing threads 4x M6 / 6xM6
- CAT taper form AD/B
- Coolant through center and also through flange (plugged with set screws when supplied)
- CAT 40 - 5/8 x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

## Scope of delivery

- Including setting screw, Guhring no. 4977 with axial force dampening for perfect runout accuracy
- Special dimensions on request



Shrink fit technology

Series no. **4764**

| CAT | clamping dia. d1 in h6 inch/mm | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw Guh. no. Code no. | Code no. | EDP Number    |
|-----|--------------------------------|-------|-------|-------|-------|---------------------------------------|----------|---------------|
| 40  | 1/4                            | 21    | 27    | 80    | 36    | 9049770060140                         | 106.040  | 9047641060400 |
| 40  | 3/8                            | 24    | 32    | 80    | 41    | 9049770080140                         | 109.040  | 9047641090400 |
| 40  | 1/2                            | 24    | 32    | 80    | 46    | 9049770120140                         | 112.040  | 9047641120400 |
| 40  | 5/8                            | 27    | 34    | 80    | 49    | 9049770160140                         | 115.040  | 9047641150400 |
| 40  | 3/4                            | 33    | 42    | 80    | 49    | 9049770160140                         | 119.040  | 9047641190400 |
| 40  | 1                              | 44    | 53    | 100   | 57    | 9049770201140                         | 125.040  | 9047641250400 |
| 40  | 1 1/4                          | 44    | 53    | 100   | 61    | 9049770201140                         | 131.040  | 9047641310400 |
| 40  | 6                              | 21    | 27    | 80    | 36    | 9049770060140                         | 6.040    | 9047640060400 |
| 40  | 8                              | 21    | 27    | 80    | 36    | 9049770080140                         | 8.040    | 9047640080400 |
| 40  | 10                             | 24    | 32    | 80    | 41    | 9049770100140                         | 10.040   | 9047640100400 |
| 40  | 12                             | 24    | 32    | 80    | 46    | 9049770120140                         | 12.040   | 9047640120400 |
| 40  | 14                             | 27    | 34    | 80    | 46    | 9049770120140                         | 14.040   | 9047640140400 |
| 40  | 16                             | 27    | 34    | 80    | 49    | 9049770160140                         | 16.040   | 9047640160400 |
| 40  | 18                             | 33    | 42    | 80    | 49    | 9049770160140                         | 18.040   | 9047640180400 |
| 40  | 20                             | 33    | 42    | 80    | 51    | 9049770201140                         | 20.040   | 9047640200400 |
| 40  | 25                             | 44    | 53    | 100   | 57    | 9049770201140                         | 25.040   | 9047640250400 |
| 40  | 32                             | 44    | 53    | 100   | 61    | 9049770201140                         | 32.040   | 9047640320400 |
| 50  | 1/4                            | 21    | 27    | 80    | 36    | 9049770060140                         | 106.050  | 9047641060500 |
| 50  | 3/8                            | 24    | 32    | 80    | 41    | 9049770080140                         | 109.050  | 9047641090500 |
| 50  | 1/2                            | 24    | 32    | 80    | 46    | 9049770120140                         | 112.050  | 9047641120500 |
| 50  | 5/8                            | 27    | 34    | 80    | 49    | 9049770160140                         | 115.050  | 9047641150500 |
| 50  | 3/4                            | 33    | 42    | 80    | 49    | 9049770160140                         | 119.050  | 9047641190500 |
| 50  | 1                              | 44    | 53    | 100   | 57    | 9049770201140                         | 125.050  | 9047641250500 |
| 50  | 1 1/4                          | 44    | 53    | 100   | 61    | 9049770201140                         | 131.050  | 9047641310500 |
| 50  | 6                              | 21    | 27    | 80    | 36    | 9049770060140                         | 6.050    | 9047640060500 |
| 50  | 8                              | 21    | 27    | 80    | 36    | 9049770080140                         | 8.050    | 9047640080500 |
| 50  | 10                             | 24    | 32    | 80    | 41    | 9049770100140                         | 10.050   | 9047640100500 |
| 50  | 12                             | 24    | 32    | 80    | 46    | 9049770120140                         | 12.050   | 9047640120500 |
| 50  | 14                             | 27    | 34    | 80    | 46    | 9049770120140                         | 14.050   | 9047640140500 |
| 50  | 16                             | 27    | 34    | 80    | 49    | 9049770160140                         | 16.050   | 9047640160500 |
| 50  | 18                             | 33    | 42    | 80    | 49    | 9049770160140                         | 18.050   | 9047640180500 |
| 50  | 20                             | 33    | 42    | 80    | 51    | 9049770201140                         | 20.050   | 9047640200500 |
| 50  | 25                             | 44    | 53    | 100   | 57    | 9049770201140                         | 25.050   | 9047640250500 |
| 50  | 32                             | 44    | 53    | 100   | 61    | 9049770201140                         | 32.050   | 9047640320500 |

**Product information**

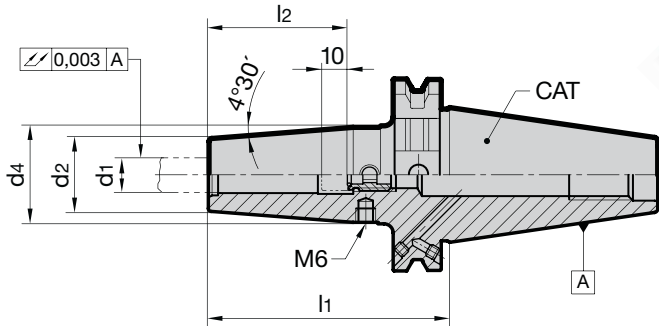
- Optimized cooling for tools without internal coolant ducts
- Good chip evacuation and increased process reliability
- balancing quality: G2.5 / 25,000 rev./min or U< 1gmm
- Including balancing threads 4x M6 / 6xM6
- CAT taper form AD/B
- Coolant through center and also through flange (plugged with set screws when supplied)
- CAT 40 - 5/8 x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

**Scope of delivery**

- Including setting screw, Guhring no. 4938 with slots for coolant supply
- Special dimensions on request



**GUHROJET**



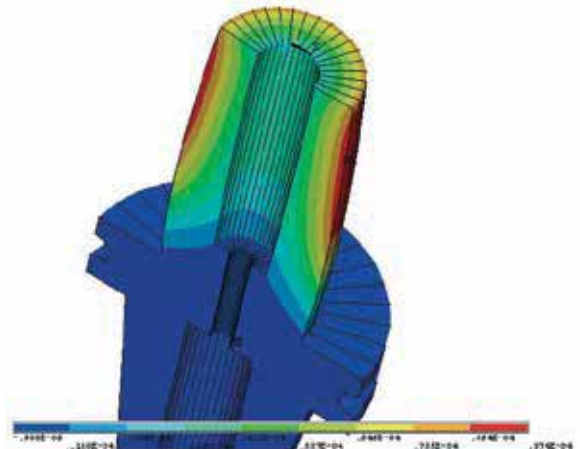
Series no. **4765**

| CAT | clamping dia. d1 in h6 inch | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw Guh. no. Code no. | Code no. | EDP Number           |
|-----|-----------------------------|-------|-------|-------|-------|---------------------------------------|----------|----------------------|
| 40  | 1/4                         | 21    | 27    | 80    | 36    | <b>9049770060140</b>                  | 106.040  | <b>9047651060400</b> |
| 40  | 3/8                         | 24    | 32    | 80    | 41    | <b>9049770080140</b>                  | 109.040  | <b>9047651090400</b> |
| 40  | 1/2                         | 24    | 32    | 80    | 46    | <b>9049770120140</b>                  | 112.040  | <b>9047651120400</b> |
| 40  | 5/8                         | 27    | 34    | 80    | 49    | <b>9049770160140</b>                  | 115.040  | <b>9047651150400</b> |
| 40  | 3/4                         | 33    | 42    | 80    | 49    | <b>9049770160140</b>                  | 119.040  | <b>9047651190400</b> |
| 50  | 3/8                         | 24    | 32    | 80    | 41    | <b>9049770080140</b>                  | 109.050  | <b>9047651090500</b> |
| 50  | 1/2                         | 24    | 32    | 80    | 46    | <b>9049770120140</b>                  | 112.050  | <b>9047651120500</b> |
| 50  | 3/4                         | 33    | 42    | 80    | 49    | <b>9049770160140</b>                  | 119.050  | <b>9047651190500</b> |
| 50  | 1                           | 44    | 53    | 100   | 57    | <b>9049770201140</b>                  | 125.050  | <b>9047651250500</b> |

**A gripping principle**

When shrink fitting tools into shrink fit chucks, the decisive factors for ensuring the safe clamping of the tool in the tool holder are solely the heating and cooling of the tool holder. The heating process expands the shrink fit chuck enabling a tool to be inserted or withdrawn respectively. During the cooling process it contracts again and clamps the inserted tool with maximum clamping force.

Because the shrink fit chucks can become extremely hot in localized areas during the heating process and the tools shrink fitted for insertion or withdrawal respectively possess very sharp cutting edges, it is important that the operator wears Kevlar® gloves during the shrink fit operation to prevent burns and cuts to the hands.



**Product information**

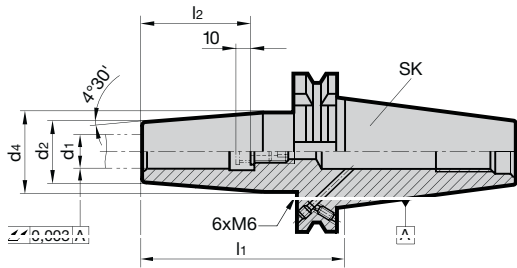
- coating for protection against oxidation, cleanliness and longevity
- safety color ring for maximum operator safety
- with axial damping screw for optimal concentricity
- max. deviation for concentricity 3 µm
- for h6 tool shank tolerance
- SK taper form AD/B
- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- designed with 6xM6 balancing screws for the highest accuracy
- SK40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. length setting screw with axial force damping, Series no. 4941, for conventional cooling
- special dimensions on request
- for MQL application order as special tool holder



Shrink fit technology



Series no. **4727**

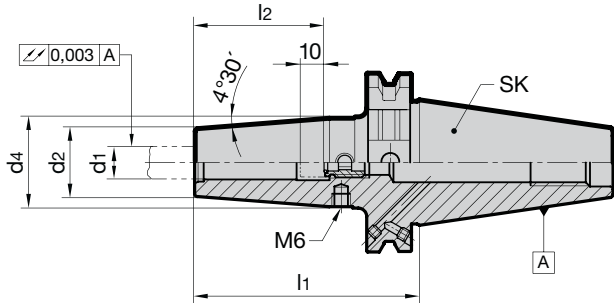
| SK taper | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw art. no. 4941 ... | kg   | Code no. | EDP Number    |
|----------|----------------------|-------|-------|-------|-------|---------------------------------------|------|----------|---------------|
| 40       | 6                    | 21    | 27    | 80    | 36    | 6.041                                 | 1.00 | 6.040    | 9047270060400 |
| 40       | 8                    | 21    | 27    | 80    | 36    | 8.040                                 | 1.00 | 8.040    | 9047270080400 |
| 40       | 10                   | 24    | 32    | 80    | 41    | 10.050                                | 1.00 | 10.040   | 9047270100400 |
| 40       | 12                   | 24    | 32    | 80    | 46    | 12.100                                | 1.00 | 12.040   | 9047270120400 |
| 40       | 14                   | 27    | 34    | 80    | 46    | 14.100                                | 1.00 | 14.040   | 9047270140400 |
| 40       | 16                   | 27    | 34    | 80    | 49    | 16.100                                | 1.00 | 16.040   | 9047270160400 |
| 40       | 18                   | 33    | 42    | 80    | 49    | 18.100                                | 1.00 | 18.040   | 9047270180400 |
| 40       | 20                   | 33    | 42    | 80    | 51    | 20.100                                | 1.50 | 20.040   | 9047270200400 |
| 40       | 25                   | 44    | 53    | 100   | 57    | 25.100                                | 1.50 | 25.040   | 9047270250400 |
| 40       | 32                   | 44    | 53    | 100   | 61    | 32.100                                | 1.50 | 32.040   | 9047270320400 |

### Product information

- balancing quality G2.5 / 25,000 rev./min or U < 1 gmm
- incl. balancing thread 4xM6/6xM6
- SK taper form AD/B
- for tool shank tolerance h6
- also available in the lengths  
l<sub>1</sub> = 120 mm (concentricity 4 µm),  
160 mm (concentricity 5 µm) and 200 mm (concentricity 7 µm)
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. setting screw, Series no. 4977 or 4904
- special dimensions on request



**Series no. 4738**

| SK taper | for shank Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. setting screw art. no. EDP # | kg   | Code no. | EDP Number    |
|----------|--|-------------------|-------------------|-------------------|-------------------|------------------------------------|------|----------|---------------|
| 40       | 3  | 10                | 18                | 80                | 30                | 9049040050160                      | 0.90 | 3.040    | 9047380030400 |
| 40       | 4  | 10                | 18                | 80                | 35                | 9049040060160                      | 0.90 | 4.040    | 9047380040400 |
| 40       | 5  | 10                | 18                | 80                | 40                | 9049040080180                      | 0.90 | 5.040    | 9047380050400 |
| 40       | 6  | 21                | 27                | 80                | 36                | 9049770060140                      | 1.00 | 6.040    | 9047380060400 |
| 40       | 8  | 21                | 27                | 80                | 36                | 9049770080140                      | 1.00 | 8.040    | 9047380080400 |
| 40       | 10   | 24                | 32                | 80                | 41                | 9049770100140                      | 1.10 | 10.040   | 9047380100400 |
| 40       | 12   | 24                | 32                | 80                | 46                | 9049770120140                      | 1.00 | 12.040   | 9047380120400 |
| 40       | 14   | 27                | 34                | 80                | 46                | 9049770120140                      | 1.10 | 14.040   | 9047380140400 |
| 40       | 16   | 27                | 34                | 80                | 49                | 9049770160140                      | 1.10 | 16.040   | 9047380160400 |
| 40       | 18   | 33                | 42                | 80                | 49                | 9049770160140                      | 1.20 | 18.040   | 9047380180400 |
| 40       | 20   | 33                | 42                | 80                | 51                | 9049770201140                      | 1.50 | 20.040   | 9047380200400 |
| 40       | 25   | 44                | 53                | 100               | 57                | 9049770201140                      | 1.50 | 25.040   | 9047380250400 |
| 40       | 32   | 44                | 53                | 100               | 61                | 9049770201140                      | 1.50 | 32.040   | 9047380320400 |
| 40       | 3  | 10                | 24                | 120               | 30                | 9049040050160                      | 1.00 | 203.040  | 9047382030400 |
| 40       | 4  | 10                | 24                | 120               | 35                | 9049040060160                      | 1.00 | 204.040  | 9047382040400 |
| 40       | 5  | 10                | 24                | 120               | 40                | 9049040080180                      | 1.00 | 205.040  | 9047382050400 |
| 40       | 6  | 21                | 27                | 120               | 36                | 9049770060140                      | 1.10 | 206.040  | 9047382060400 |
| 40       | 8  | 21                | 27                | 120               | 36                | 9049770080140                      | 1.10 | 208.040  | 9047382080400 |
| 40       | 10   | 24                | 32                | 120               | 41                | 9049770100140                      | 1.20 | 210.040  | 9047382100400 |
| 40       | 12   | 24                | 32                | 120               | 46                | 9049770120140                      | 1.20 | 212.040  | 9047382120400 |
| 40       | 14   | 27                | 34                | 120               | 46                | 9049770120140                      | 1.40 | 214.040  | 9047382140400 |
| 40       | 16   | 27                | 34                | 120               | 49                | 9049770160140                      | 1.40 | 216.040  | 9047382160400 |
| 40       | 18   | 33                | 42                | 120               | 49                | 9049770160140                      | 1.50 | 218.040  | 9047382180400 |
| 40       | 20   | 33                | 42                | 120               | 51                | 9049770201140                      | 1.50 | 220.040  | 9047382200400 |
| 40       | 3  | 10                | 31                | 160               | 30                | 9049040050160                      | 1.10 | 103.040  | 9047381030400 |
| 40       | 4  | 10                | 31                | 160               | 35                | 9049040060160                      | 1.10 | 104.040  | 9047381040400 |
| 40       | 5  | 10                | 31                | 160               | 40                | 9049040080180                      | 1.10 | 105.040  | 9047381050400 |
| 40       | 6  | 21                | 27                | 160               | 36                | 9049770060140                      | 1.30 | 106.040  | 9047381060400 |
| 40       | 8  | 21                | 27                | 160               | 36                | 9049770080140                      | 1.30 | 108.040  | 9047381080400 |
| 40       | 10   | 24                | 32                | 160               | 41                | 9049770100140                      | 1.50 | 110.040  | 9047381100400 |
| 40       | 12   | 24                | 32                | 160               | 46                | 9049770120140                      | 1.50 | 112.040  | 9047381120400 |
| 40       | 14   | 27                | 34                | 160               | 46                | 9049770120140                      | 1.70 | 114.040  | 9047381140400 |
| 40       | 16   | 27                | 34                | 160               | 49                | 9049770160140                      | 1.70 | 116.040  | 9047381160400 |
| 40       | 18   | 33                | 42                | 160               | 49                | 9049770160140                      | 1.90 | 118.040  | 9047381180400 |
| 40       | 20   | 33                | 42                | 160               | 51                | 9049770201140                      | 1.90 | 120.040  | 9047381200400 |
| 40       | 25   | 44                | 53                | 160               | 57                | 9049770201140                      | 2.20 | 125.040  | 9047381250400 |

SK taper shrink fit chucks

| SK taper | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw art. no. EDP # | kg   | Series no. | EDP Number    |
|----------|----------------------|-------|-------|-------|-------|------------------------------------|------|------------|---------------|
|          |                      |       |       |       |       |                                    |      | 4738       |               |
| 40       | 6                    | 21    | 27    | 200   | 36    | 9049770060140                      | 1.60 | 306.040    | 9047383060400 |
| 40       | 8                    | 21    | 27    | 200   | 36    | 9049770080140                      | 1.60 | 308.040    | 9047383080400 |
| 40       | 10                   | 24    | 32    | 200   | 41    | 9049770100140                      | 1.80 | 310.040    | 9047383100400 |
| 40       | 12                   | 24    | 32    | 200   | 46    | 9049770120140                      | 1.80 | 312.040    | 9047383120400 |
| 40       | 14                   | 27    | 34    | 200   | 46    | 9049770120140                      | 2.10 | 314.040    | 9047383140400 |
| 40       | 16                   | 27    | 34    | 200   | 49    | 9049770160140                      | 2.10 | 316.040    | 9047383160400 |
| 40       | 18                   | 33    | 42    | 200   | 49    | 9049770160140                      | 2.30 | 318.040    | 9047383180400 |
| 40       | 20                   | 33    | 42    | 200   | 51    | 9049770201140                      | 2.30 | 320.040    | 9047383200400 |
| 40       | 25                   | 44    | 53    | 200   | 58    | 9049770201140                      | 2.60 | 325.040    | 9047383250400 |
| 40       | 32                   | 44    | 53    | 200   | 61    | 9049770201140                      | 2.50 | 332.040    | 9047383320400 |
|          |                      |       |       |       |       |                                    |      |            |               |
| 50       | 3                    | 10    | 18    | 80    | 30    | 9049040050160                      | 2.60 | 3.050      | 9047380030500 |
| 50       | 4                    | 10    | 18    | 80    | 35    | 9049040060160                      | 2.60 | 4.050      | 9047380040500 |
| 50       | 5                    | 10    | 18    | 80    | 40    | 9049040080180                      | 2.60 | 5.050      | 9047380050500 |
| 50       | 6                    | 21    | 27    | 80    | 36    | 9049770060140                      | 2.90 | 6.050      | 9047380060500 |
| 50       | 8                    | 21    | 27    | 80    | 36    | 9049770080140                      | 2.90 | 8.050      | 9047380080500 |
| 50       | 10                   | 24    | 32    | 80    | 41    | 9049770100140                      | 2.90 | 10.050     | 9047380100500 |
| 50       | 12                   | 24    | 32    | 80    | 46    | 9049770120140                      | 2.90 | 12.050     | 9047380120500 |
| 50       | 14                   | 27    | 34    | 80    | 46    | 9049770120140                      | 3.00 | 14.050     | 9047380140500 |
| 50       | 16                   | 27    | 34    | 80    | 49    | 9049770160140                      | 3.00 | 16.050     | 9047380160500 |
| 50       | 18                   | 33    | 42    | 80    | 49    | 9049770160140                      | 3.00 | 18.050     | 9047380180500 |
| 50       | 20                   | 33    | 42    | 80    | 51    | 9049770201140                      | 3.00 | 20.050     | 9047380200500 |
| 50       | 25                   | 44    | 53    | 100   | 57    | 9049770201140                      | 3.60 | 25.050     | 9047380250500 |
| 50       | 32                   | 44    | 53    | 100   | 61    | 9049770201140                      | 3.50 | 32.050     | 9047380320500 |
|          |                      |       |       |       |       |                                    |      |            |               |
| 50       | 6                    | 21    | 27    | 160   | 36    | 9049770060140                      | 3.10 | 106.050    | 9047381060500 |
| 50       | 8                    | 21    | 27    | 160   | 36    | 9049770080140                      | 3.10 | 108.050    | 9047381080500 |
| 50       | 10                   | 24    | 32    | 160   | 41    | 9049770100140                      | 3.40 | 110.050    | 9047381100500 |
| 50       | 12                   | 24    | 32    | 160   | 46    | 9049770120140                      | 3.40 | 112.050    | 9047381120500 |
| 50       | 14                   | 27    | 34    | 160   | 46    | 9049770120140                      | 3.70 | 114.050    | 9047381140500 |
| 50       | 16                   | 27    | 34    | 160   | 49    | 9049770160140                      | 3.70 | 116.050    | 9047381160500 |
| 50       | 18                   | 33    | 42    | 160   | 49    | 9049770160140                      | 4.10 | 118.050    | 9047381180500 |
| 50       | 20                   | 33    | 42    | 160   | 51    | 9049770201140                      | 4.10 | 120.050    | 9047381200500 |
| 50       | 25                   | 44    | 53    | 160   | 57    | 9049770201140                      | 4.70 | 125.050    | 9047381250500 |
| 50       | 32                   | 44    | 53    | 160   | 61    | 9049770201140                      | 4.60 | 132.050    | 9047381320500 |
|          |                      |       |       |       |       |                                    |      |            |               |
| 50       | 6                    | 21    | 27    | 200   | 36    | 9049770060140                      | 3.40 | 306.050    | 9047383060500 |
| 50       | 8                    | 21    | 27    | 200   | 36    | 9049770080140                      | 3.40 | 308.050    | 9047383080500 |
| 50       | 10                   | 24    | 32    | 200   | 41    | 9049770100140                      | 3.70 | 310.050    | 9047383100500 |
| 50       | 12                   | 24    | 32    | 200   | 46    | 9049770120140                      | 3.70 | 312.050    | 9047383120500 |
| 50       | 14                   | 27    | 34    | 200   | 46    | 9049770120140                      | 4.00 | 314.050    | 9047383140500 |
| 50       | 16                   | 27    | 34    | 200   | 49    | 9049770160140                      | 4.00 | 316.050    | 9047383160500 |
| 50       | 18                   | 33    | 42    | 200   | 49    | 9049770160140                      | 4.40 | 318.050    | 9047383180500 |
| 50       | 20                   | 33    | 42    | 200   | 51    | 9049770201140                      | 4.40 | 320.050    | 9047383200500 |
| 50       | 25                   | 44    | 53    | 200   | 57    | 9049770201140                      | 5.00 | 325.050    | 9047383250500 |
| 50       | 32                   | 44    | 53    | 200   | 61    | 9049770201140                      | 4.90 | 332.050    | 9047383320500 |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |
|          |                      |       |       |       |       |                                    |      |            |               |

Shrink fit technology

### Product information

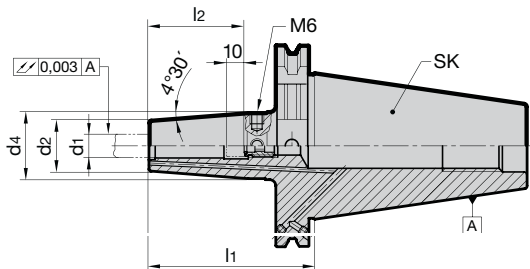
- balancing quality G2.5 / 25,000 rev./min or U < 1 gmm
- incl. balancing thread 4xM6/6xM6
- SK taper form AD/B
- for tool shank tolerance h6
- optimised cooling for tools without internal coolant ducts
- good chip evacuation and increased process reliability
- Coolant ducts:
  - d<sub>1</sub> = 6 - 10 mm with two coolant ducts
  - d<sub>1</sub> = 12 - 32 mm with four coolant ducts
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. setting screw, Series no. 4977
- special dimensions on request



**GÜHROJET**



Series no. **4729**

| SK taper | for shank Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. setting screw art. no. EDP # | kg   | Code no. | EDP Number    |
|----------|--|-------------------|-------------------|-------------------|-------------------|------------------------------------|------|----------|---------------|
| 40       | 6  | 21                | 27                | 80                | 36                | 9049770060140                      | 1.00 | 6.040    | 9047290060400 |
| 40       | 8  | 21                | 27                | 80                | 36                | 9049770080140                      | 1.00 | 8.040    | 9047290080400 |
| 40       | 10   | 24                | 32                | 80                | 41                | 9049770100140                      | 1.10 | 10.040   | 9047290100400 |
| 40       | 12   | 24                | 32                | 80                | 46                | 9049770120140                      | 1.00 | 12.040   | 9047290120400 |
| 40       | 14   | 27                | 34                | 80                | 46                | 9049770120140                      | 1.10 | 14.040   | 9047290140400 |
| 40       | 16   | 27                | 34                | 80                | 49                | 9049770160140                      | 1.10 | 16.040   | 9047290160400 |
| 40       | 18   | 33                | 42                | 80                | 49                | 9049770160140                      | 1.20 | 18.040   | 9047290180400 |
| 40       | 20   | 33                | 42                | 80                | 51                | 9049770201140                      | 1.50 | 20.040   | 9047290200400 |
| 50       | 6  | 21                | 27                | 80                | 36                | 9049770060140                      | 2.80 | 6.050    | 9047290060500 |
| 50       | 8  | 21                | 27                | 80                | 36                | 9049770080140                      | 2.80 | 8.050    | 9047290080500 |
| 50       | 10   | 24                | 32                | 80                | 41                | 9049770100140                      | 2.80 | 10.050   | 9047290100500 |
| 50       | 12   | 24                | 32                | 80                | 46                | 9049770120140                      | 2.80 | 12.050   | 9047290120500 |
| 50       | 14   | 27                | 34                | 80                | 46                | 9049770120140                      | 2.80 | 14.050   | 9047290140500 |
| 50       | 16   | 27                | 34                | 80                | 49                | 9049770160140                      | 2.80 | 16.050   | 9047290160500 |
| 50       | 18   | 33                | 42                | 80                | 49                | 9049770160140                      | 3.00 | 18.050   | 9047290180500 |
| 50       | 20   | 33                | 42                | 80                | 51                | 9049770201140                      | 3.00 | 20.050   | 9047290200500 |
| 50       | 25   | 44                | 53                | 100               | 57                | 9049770201140                      | 3.50 | 25.050   | 9047290250500 |
| 50       | 32   | 44                | 53                | 100               | 61                | 9049770201140                      | 3.30 | 32.050   | 9047290320500 |

**Product information**

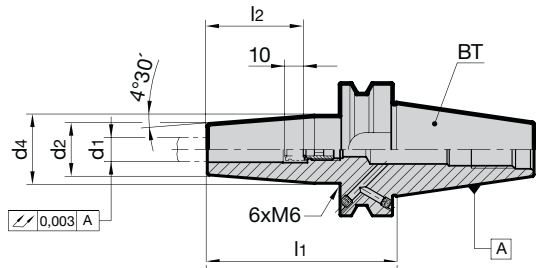
- balancing quality: G2.5 / 25,000 rev./min or U< 1 gmm
- Design for 6xM6 balancing screws for maximum accuracy
- Coating for oxidation protection, cleanliness and longevity
- Safety colour ring for maximum operator safety
- with axial dampening screw for optimal concentricity
- max. 3 µm deviation from concentricity
- for tool shank tolerance h6
- BT taper form AD/B
- BT40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. length setting screw with axial force damping, Series no. 4941, for conventional cooling
- special dimensions on request
- MAS/BT 50 on request
- for MQL application order as special tool holder



Shrink fit technology



Series no. **4728**

| MAS/BT | for shank Ø d1 h6 mm | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw art. no. 4941 ... | kg   | Code no. | EDP Number    |
|--------|----------------------|-------|-------|-------|-------|---------------------------------------|------|----------|---------------|
| 40     | 6                    | 21    | 27    | 90    | 36    | 6.041                                 | 1.00 | 6.040    | 9047280060400 |
| 40     | 8                    | 21    | 27    | 90    | 36    | 8.040                                 | 1.00 | 8.040    | 9047280080400 |
| 40     | 10                   | 24    | 32    | 90    | 41    | 10.050                                | 1.00 | 10.040   | 9047280100400 |
| 40     | 12                   | 24    | 32    | 90    | 46    | 12.100                                | 1.00 | 12.040   | 9047280120400 |
| 40     | 14                   | 27    | 34    | 90    | 46    | 14.100                                | 1.50 | 14.040   | 9047280140400 |
| 40     | 16                   | 27    | 34    | 90    | 49    | 16.100                                | 1.50 | 16.040   | 9047280160400 |
| 40     | 18                   | 33    | 42    | 90    | 49    | 18.100                                | 2.00 | 18.040   | 9047280180400 |
| 40     | 20                   | 33    | 42    | 90    | 51    | 20.100                                | 2.00 | 20.040   | 9047280200400 |
| 40     | 25                   | 44    | 53    | 100   | 57    | 25.100                                | 2.00 | 25.040   | 9047280250400 |
| 40     | 32                   | 44    | 53    | 100   | 57    | 32.100                                | 2.00 | 32.040   | 9047280320400 |



# GUHRING

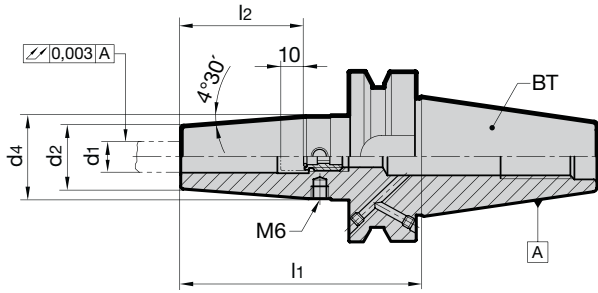
The perfect combination from one reliable supplier:  
 high performance milling cutters  
 and GÜHROJET shrink fit chucks  
 made by Gühring

**Product information**

- balancing quality G2.5 / 25,000 rev./min or U < 1 gmm
- incl. balancing thread 4xM6/6xM6
- BT taper form AD/B
- BT30 design JD without coolant supply via collar  
(\*: version AD without coolant supply over collar)
- for tool shank tolerance h6
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

**Scope of delivery**

- incl. setting screw, Series no. 4977 or 4904
- special dimensions on request



Series no. **4739**

| MAS/BT | for shank Ø<br>d1 h6 mm/inch | d2 mm | d4 mm | l1 mm | l2 mm | incl. setting screw<br>Guh. no. Code no. | kg   | Code no. | EDP Number    |
|--------|------------------------------|-------|-------|-------|-------|--|------|----------|---------------|
| 30*    | 1/8                          | 10    | 18    | 80    | 34    | 9049040050160                            | 0.60 | 103.030  | 9047391030300 |
| 30*    | 3/16                         | 10    | 18    | 80    | 34    | 9049040080180                            | 0.60 | 104.030  | 9047391040300 |
| 30*    | 1/4                          | 21    | 27    | 80    | 36    | 9049770060140                            | 0.60 | 106.030  | 9047391060300 |
| 30*    | 5/16                         | 21    | 27    | 80    | 36    | 9049770080140                            | 0.70 | 107.030  | 9047391070300 |
| 30*    | 3/8                          | 24    | 32    | 80    | 41    | 9049770080140                            |      | 109.030  | 9047391090300 |
| 30*    | 1/2                          | 24    | 34    | 80    | 46    | 9049770120140                            | 0.70 | 112.030  | 9047391120300 |
| 30*    | 5/8                          | 27    | 34    | 80    | 49    | 9049770160140                            | 0.80 | 115.030  | 9047391150300 |
| 30*    | 3/4                          | 33    | 42    | 90    | 51    | 9049770160140                            | 0.90 | 119.030  | 9047391190300 |
| 30*    | 3                            | 10    | 18    | 80    | 30    | 9049040050160                            | 0.60 | 3.030    | 9047390030300 |
| 30*    | 4                            | 10    | 18    | 80    | 35    | 9049040060160                            | 0.60 | 4.030    | 9047390040300 |
| 30*    | 5                            | 10    | 18    | 80    | 40    | 9049040080180                            | 0.6  | 5.030    | 9047390050300 |
| 30*    | 6                            | 21    | 27    | 80    | 36    | 9049770060140                            | 0.70 | 6.030    | 9047390060300 |
| 30*    | 8                            | 21    | 27    | 80    | 36    | 9049770080140                            | 0.70 | 8.030    | 9047390080300 |
| 30*    | 10                           | 24    | 32    | 80    | 41    | 9049770100140                            | 0.80 | 10.030   | 9047390100300 |
| 30*    | 12                           | 24    | 32    | 80    | 46    | 9049770120140                            | 0.80 | 12.030   | 9047390120300 |
| 30*    | 14                           | 27    | 34    | 80    | 46    | 9049770120140                            | 0.80 | 14.030   | 9047390140300 |
| 30*    | 16                           | 27    | 34    | 80    | 49    | 9049770160140                            | 0.80 | 16.030   | 9047390160300 |
| 30*    | 18                           | 33    | 42    | 90    | 49    | 9049770160140                            | 0.90 | 18.030   | 9047390180300 |
| 30*    | 20                           | 33    | 42    | 90    | 51    | 9049770201140                            | 0.90 | 20.030   | 9047390200300 |
| 40     | 3                            | 10    | 18    | 85    | 30    | 9049040050160                            | 1.00 | 3.040    | 9047390030400 |
| 40     | 4                            | 10    | 18    | 85    | 35    | 9049040060160                            | 1.00 | 4.040    | 9047390040400 |
| 40     | 5                            | 10    | 18    | 85    | 40    | 9049040080180                            | 1.00 | 5.040    | 9047390050400 |
| 40     | 6                            | 21    | 27    | 90    | 36    | 9049770060140                            | 1.20 | 6.040    | 9047390060400 |
| 40     | 8                            | 21    | 27    | 90    | 36    | 9049770080140                            | 1.20 | 8.040    | 9047390080400 |
| 40     | 10                           | 24    | 32    | 90    | 41    | 9049770100140                            | 1.30 | 10.040   | 9047390100400 |
| 40     | 12                           | 24    | 32    | 90    | 46    | 9049770120140                            | 1.30 | 12.040   | 9047390120400 |
| 40     | 14                           | 27    | 34    | 90    | 46    | 9049770120140                            | 1.40 | 14.040   | 9047390140400 |
| 40     | 16                           | 27    | 34    | 90    | 49    | 9049770160140                            | 1.40 | 16.040   | 9047390160400 |
| 40     | 18                           | 33    | 42    | 90    | 49    | 9049770160140                            | 1.40 | 18.040   | 9047390180400 |
| 40     | 20                           | 33    | 42    | 90    | 51    | 9049770201140                            | 1.70 | 20.040   | 9047390200400 |
| 40     | 25                           | 44    | 53    | 100   | 57    | 9049770201140                            | 1.80 | 25.040   | 9047390250400 |
| 40     | 32                           | 44    | 53    | 100   | 61    | 9049770201140                            | 1.70 | 32.040   | 9047390320400 |
| 40     | 6                            | 21    | 27    | 130   | 36    | 9049770060140                            | 1.30 | 6.140    | 9047390061400 |
| 40     | 8                            | 24    | 32    | 130   | 41    | 9049770080140                            | 1.30 | 8.140    | 9047390081400 |
| 40     | 10                           | 24    | 32    | 130   | 46    | 9049770100140                            | 1.40 | 10.140   | 9047390101400 |
| 40     | 12                           | 27    | 34    | 130   | 46    | 9049770120140                            | 1.40 | 12.140   | 9047390121400 |
| 40     | 14                           | 27    | 34    | 130   | 49    | 9049770120140                            | 1.40 | 14.140   | 9047390141400 |
| 40     | 16                           | 33    | 42    | 130   | 49    | 9049770160140                            | 1.50 | 16.140   | 9047390161400 |

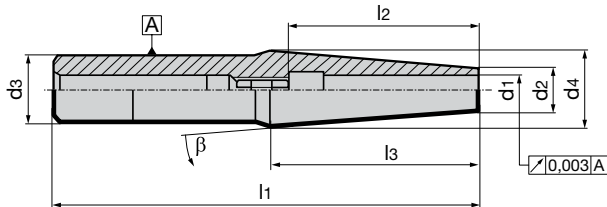
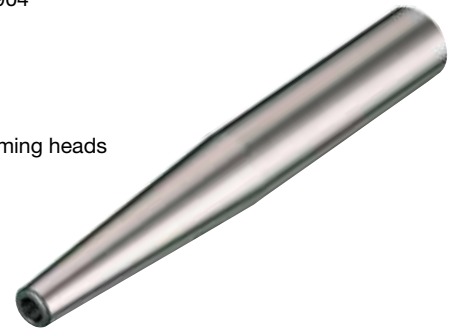
|        |  |                      |                      |                      |                      |   |      |             | Series no.           | 4739 |
|--------|--|----------------------|----------------------|----------------------|----------------------|---|------|-------------|----------------------|------|
| MAS/BT | for shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm/inch | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl.<br>setting screw<br>Guh. no. Code no. | kg   | Code<br>no. | EDP Number           |      |
| 40     | 18   | 33                   | 42                   | 130                  | 51                   | <b>9049770160140</b>                        | 1.50 | 18.140      | <b>9047390181400</b> |      |
| 40     | 20   | 44                   | 53                   | 130                  | 57                   | <b>9049770201140</b>                        | 1.80 | 20.140      | <b>9047390201400</b> |      |
| 40     | 25   | 44                   | 53                   | 130                  | 58                   | <b>9049770201140</b>                        | 2.00 | 25.140      | <b>9047390251400</b> |      |
| 40     | 32   | 44                   | 53                   | 130                  | 61                   | <b>9049770201140</b>                        | 1.90 | 32.140      | <b>9047390321400</b> |      |
| 50     | 6  | 21                   | 27                   | 100                  | 36                   | <b>9049770060140</b>                        | 2.90 | 6.050       | <b>9047390060500</b> |      |
| 50     | 8  | 21                   | 27                   | 100                  | 36                   | <b>9049770080140</b>                        | 2.90 | 8.050       | <b>9047390080500</b> |      |
| 50     | 10   | 24                   | 32                   | 100                  | 41                   | <b>9049770100140</b>                        | 2.90 | 10.050      | <b>9047390100500</b> |      |
| 50     | 12   | 24                   | 32                   | 100                  | 46                   | <b>9049770120140</b>                        | 2.90 | 12.050      | <b>9047390120500</b> |      |
| 50     | 14   | 27                   | 34                   | 100                  | 46                   | <b>9049770120140</b>                        | 3.00 | 14.050      | <b>9047390140500</b> |      |
| 50     | 16   | 27                   | 34                   | 100                  | 49                   | <b>9049770160140</b>                        | 3.00 | 16.050      | <b>9047390160500</b> |      |
| 50     | 18   | 33                   | 42                   | 100                  | 49                   | <b>9049770160140</b>                        | 1.90 | 18.050      | <b>9047390180500</b> |      |
| 50     | 20   | 33                   | 42                   | 100                  | 51                   | <b>9049770201140</b>                        | 1.90 | 20.050      | <b>9047390200500</b> |      |
| 50     | 25   | 44                   | 53                   | 110                  | 57                   | <b>9049770201140</b>                        | 2.20 | 25.050      | <b>9047390250500</b> |      |
| 50     | 32   | 44                   | 53                   | 110                  | 61                   | <b>9049770201140</b>                        | 2.20 | 32.050      | <b>9047390320500</b> |      |

## Product information

- for clamping in hydraulic chucks or shrink fit chucks
- suitable for internal cooling
- we recommend the use of special cooling adaptors Series no. 4419
- for carbide tool shanks in tolerance h6 (from d1 14 mm also HSS possible)
- concentricity  
up to l1 125 mm < 0,003 mm  
up to l1 200 mm < 0,005 mm  
up to l1 250 mm < 0,007 mm

## Scope of delivery

- incl. setting screw, Series no. 4977 or 4904
- special dimensions on request
- \* Type „HR“ designed for HR 500 T Reaming heads



|                         |             |          |          |          |          |          |  |    |   |      |             | Series no.    | 4719 |
|-------------------------|-------------|----------|----------|----------|----------|----------|--|----|---|------|-------------|---------------|------|
| for shank Ø<br>d1 h6 mm | d3 h6<br>mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l3<br>mm | incl.<br>setting screw<br>art. no. EDP # | kg | β | type | Code<br>no. | EDP Number    |      |
| 3                       | 16          | 7        | 16       | 115      | 30       | –        | 9049040050160                            | 4  | – | –    | 3.016       | 9047190030160 |      |
| 4                       | 16          | 7        | 16       | 115      | 35       | –        | 9049040060160                            | 4  | – | –    | 4.016       | 9047190040160 |      |
| 5                       | 16          | 8        | 16       | 115      | 40       | –        | 9049040080180                            | 4  | – | –    | 5.016       | 9047190050160 |      |
| 6                       | 16          | 10       | 16       | 115      | 36       | –        | 9049770060140                            | 4  | – | –    | 6.016       | 9047190060160 |      |
| 8                       | 16          | 12       | 16       | 115      | 36       | –        | 9049770080140                            | 4  | – | –    | 8.016       | 9047190080160 |      |
| 10                      | 16          | 14       | 16       | 115      | 41       | –        | 9049770100140                            | 4  | – | –    | 10.016      | 9047190100160 |      |
| 12                      | 16          | 16       | 23.2     | 115      | 46       | –        | 9049770120140                            | 4  | – | –    | 12.016      | 9047190120160 |      |
|                         |             |          |          |          |          |          |  |    |   |      |             |               |      |
| 3                       | 20          | 7        | 16.1     | 115      | 30       | –        | 9049040050160                            | 4  | – | –    | 3.020       | 9047190030200 |      |
| 4                       | 20          | 8        | 17.1     | 115      | 35       | –        | 9049040060160                            | 4  | – | –    | 4.020       | 9047190040200 |      |
| 5                       | 20          | 9        | 18.1     | 115      | 40       | –        | 9049040080180                            | 4  | – | –    | 5.020       | 9047190050200 |      |
| 6                       | 20          | 10       | 19.1     | 115      | 36       | –        | 9049770060140                            | 4  | – | –    | 6.020       | 9047190060200 |      |
| 8                       | 20          | 12       | 20       | 115      | 36       | –        | 9049770080140                            | 4  | – | –    | 8.020       | 9047190080200 |      |
| 10                      | 20          | 14       | 20       | 115      | 41       | –        | 9049770100140                            | 4  | – | –    | 10.020      | 9047190100200 |      |
| 12                      | 20          | 16       | 20       | 115      | 46       | –        | 9049770120140                            | 4  | – | –    | 12.020      | 9047190120200 |      |
| 14                      | 20          | 20       | 28.8     | 150      | 46       | –        | 9049770120140                            | 4  | – | –    | 14.020      | 9047190140200 |      |
|                         |             |          |          |          |          |          |  |    |   |      |             |               |      |
| 3                       | 20          | 10       | 20       | 160      | 30       | –        | 9049040050160                            | 4  | – | –    | 3.120       | 9047190031200 |      |
| 4                       | 20          | 10       | 20       | 160      | 35       | –        | 9049040060160                            | 4  | – | –    | 4.120       | 9047190041200 |      |
| 5                       | 20          | 10       | 20       | 160      | 40       | –        | 9049040080180                            | 4  | – | –    | 5.120       | 9047190051200 |      |
| 6                       | 20          | 14       | 20       | 160      | 36       | –        | 9049770060140                            | 4  | – | –    | 6.120       | 9047190061200 |      |
| 8                       | 20          | 14       | 20       | 160      | 36       | –        | 9049770080140                            | 4  | – | –    | 8.120       | 9047190081200 |      |
| 10                      | 25          | 20       | 25       | 160      | 41       | –        | 9049770100140                            | 4  | – | –    | 10.125      | 9047190101250 |      |
| 12                      | 25          | 20       | 25       | 160      | 46       | –        | 9049770120140                            | 4  | – | –    | 12.125      | 9047190121250 |      |
| 14                      | 25          | 20       | 28.8     | 150      | 46       | –        | 9049770120140                            | 4  | – | –    | 14.025      | 9047190140250 |      |
| 14                      | 25          | 20       | 29       | 160      | 46       | –        | 9049770120140                            | 4  | – | –    | 14.125      | 9047190141250 |      |
| 16                      | 25          | 24       | 33       | 160      | 49       | –        | 9049770160140                            | 4  | – | –    | 16.125      | 9047190161250 |      |
| 16                      | 25          | 22       | 33       | 150      | 49       | –        | 9049770160140                            | 4  | – | –    | 16.125      | 9047190160250 |      |
| 18                      | 32          | 27       | 32       | 160      | 49       | –        | 9049770160140                            | 4  | – | –    | 18.132      | 9047190181320 |      |
| 20                      | 32          | 27       | 32       | 160      | 51       | –        | 9049770201140                            | 4  | – | –    | 20.132      | 9047190201320 |      |

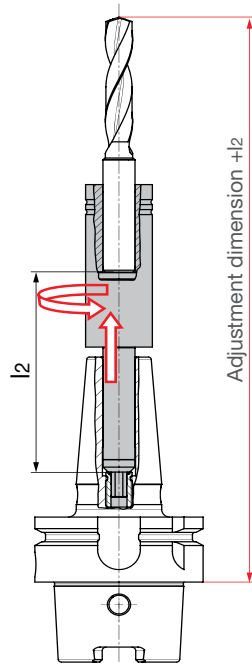
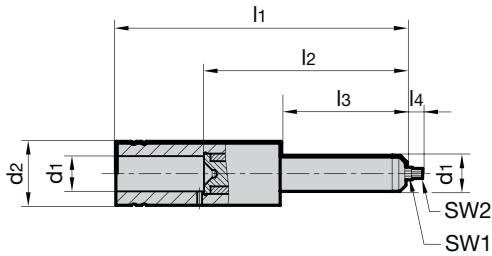
Continued on next page

|   |                                     |                      |                      |                      |                      |                      |  |    |    |      | Series no.  | 4719          |
|---|-------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|----|----|------|-------------|---------------|
| for shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>3</sub> h <sub>6</sub><br>mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | incl.<br>setting screw<br>art. no. EDP # | kg | β  | type | Code<br>no. | EDP Number    |
| 3   | 20                                  | 10                   | 20                   | 200                  | 30                   | -                    | 9049040050160                            | 4  | -  | -    | 3.220       | 9047190032200 |
| 4   | 20                                  | 10                   | 20                   | 200                  | 35                   | -                    | 9049040060160                            | 4  | -  | -    | 4.220       | 9047190042200 |
| 5   | 20                                  | 10                   | 20                   | 200                  | 40                   | -                    | 9049040080180                            | 4  | -  | -    | 5.220       | 9047190052200 |
| 6   | 20                                  | 14                   | 20                   | 200                  | 36                   | -                    | 9049770060140                            | 4  | -  | -    | 6.220       | 9047190062200 |
| 8   | 20                                  | 14                   | 20                   | 200                  | 36                   | -                    | 9049770080140                            | 4  | -  | -    | 8.220       | 9047190082200 |
| 10  | 25                                  | 20                   | 25                   | 200                  | 41                   | -                    | 9049770100140                            | 4  | -  | -    | 10.225      | 9047190102250 |
| 12  | 25                                  | 20                   | 25                   | 200                  | 46                   | -                    | 9049770120140                            | 4  | -  | -    | 12.225      | 9047190122250 |
| 14  | 32                                  | 20                   | 32                   | 200                  | 46                   | -                    | 9049770160140                            | 4  | -  | -    | 14.232      | 9047190142320 |
| 16  | 32                                  | 24                   | 32                   | 200                  | 49                   | -                    | 9049770160140                            | 4  | -  | -    | 16.232      | 9047190162320 |
| 18  | 32                                  | 27                   | 32                   | 200                  | 49                   | -                    | 9049770200140                            | 4  | -  | -    | 18.232      | 9047190182320 |
| 20  | 32                                  | 27                   | 32                   | 200                  | 51                   | -                    | 9049770201140                            | 4  | -  | -    | 20.232      | 9047190202320 |
| 6   | 12                                  | 10                   | 12                   | 125                  | 38                   | -                    | -  | 3  | HR | HR   | 6.012       | 9047190060120 |
| 8   | 14                                  | 12                   | 14                   | 125                  | 38                   | -                    | -  | 3  | HR | HR   | 8.014       | 9047190080140 |
| 10  | 16                                  | 14                   | 16                   | 160                  | 42                   | -                    | -  | 3  | HR | HR   | 10.116      | 9047190101160 |
| 12  | 20                                  | 16                   | 20                   | 160                  | 47                   | -                    | -  | 3  | HR | HR   | 12.120      | 9047190121200 |
| 16  | 25                                  | 22                   | 25                   | 160                  | 50                   | -                    | -  | 3  | HR | HR   | 16.225      | 9047190162250 |
| 20  | 32                                  | 27                   | 32                   | 160                  | 52                   | -                    | -  | 3  | HR | HR   | 20.332      | 9047190203320 |
| 6   | 12                                  | 10                   | 12.2                 | 200                  | 38                   | 47                   | -  | 3  | HR | HR   | 6.312       | 9047190063120 |
| 8   | 14                                  | 12                   | 14.2                 | 200                  | 38                   | 47                   | -  | 3  | HR | HR   | 8.314       | 9047190083140 |
| 10  | 16                                  | 14                   | 16.2                 | 250                  | 42                   | 50                   | -  | 3  | HR | HR   | 10.316      | 9047190103160 |
| 12  | 20                                  | 16                   | 20.2                 | 250                  | 47                   | 52                   | -  | 3  | HR | HR   | 12.320      | 9047190123200 |
| 16  | 25                                  | 22                   | 25.2                 | 250                  | 50                   | 58                   | -  | 3  | HR | HR   | 16.325      | 9047190163250 |
| 20  | 32                                  | 27                   | 32.2                 | 250                  | 52                   | 62                   | -  | 3  | HR | HR   | 20.342      | 9047190203420 |

Type "HR" designed for HR 500 T Reaming heads

## Product information

- for shrink fit and hydraulic chucks
- for length pre-setting of the setting screw with the cutting tool (less difference dimension  $l_2$ , see sketch)
- flexibly mounted hexagonal key SW1/SW2
- with standard screws suitable for wet application Series no. 4900, 4941, 4977
- suitable with MQL setting screws Series no. 4621, 4919, 4937



Series no.

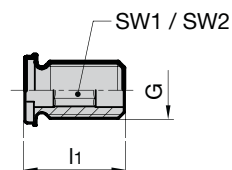
4718

| $d_1$<br>mm | $d_2$<br>mm | $l_1$<br>mm | $l_2$<br>mm | $l_3$<br>mm | $l_4$<br>mm | SW design | SW1 | SW2 | EDP Number    |
|-------------|-------------|-------------|-------------|-------------|-------------|-----------|-----|-----|---------------|
| 6           | 25          | 115         | 80          | 50          | 10          | flexible  | 2.0 | 1.5 | 9047180060010 |
| 6           | 25          | 115         | 80          | 50          | 10          | flexible  | 3.0 | 2.5 | 9047180060000 |
| 6           | 25          | 115         | 80          | 50          | 8           | rigid     | 4.0 | -   | 9047180060020 |
| 8           | 25          | 115         | 80          | 50          | 10          | flexible  | 2.0 | 1.5 | 9047180060010 |
| 8           | 25          | 115         | 80          | 50          | 10          | flexible  | 3.0 | -   | 9047180060000 |
| 8           | 25          | 115         | 80          | 50          | 8           | rigid     | 4.0 | -   | 9047180060020 |
| 10          | 25          | 115         | 80          | 50          | 10          | flexible  | 2.0 | 1.5 | 9047180100010 |
| 10          | 25          | 115         | 80          | 50          | 10          | flexible  | 4.0 | 3.0 | 9047180100000 |
| 12          | 25          | 115         | 80          | 50          | 10          | flexible  | 2.0 | 1.5 | 9047180120010 |
| 12          | 25          | 115         | 80          | 50          | 10          | flexible  | 5.0 | -   | 9047180120000 |
| 12          | 25          | 115         | 80          | 50          | 10          | flexible  | 4.0 | 3.0 | 9047180120020 |
| 14          | 25          | 115         | 80          | 50          | 10          | flexible  | 2.0 | 1.5 | 9047180140010 |
| 14          | 25          | 115         | 80          | 50          | 10          | flexible  | 5.0 | -   | 9047180140000 |
| 14          | 25          | 115         | 80          | 50          | 10          | flexible  | 4.0 | 3.0 | 9047180140020 |
| 16          | 25          | 120         | 85          | 55          | 10          | flexible  | 2.0 | 1.5 | 9047180160010 |
| 16          | 25          | 120         | 85          | 55          | 10          | flexible  | 6.0 | 5.0 | 9047180160000 |
| 16          | 25          | 120         | 85          | 55          | 10          | flexible  | 4.0 | 3.0 | 9047180160020 |
| 18          | 30          | 120         | 85          | 55          | 10          | flexible  | 2.0 | 1.5 | 9047180180010 |
| 18          | 30          | 120         | 85          | 55          | 10          | flexible  | 6.0 | 5.0 | 9047180180000 |
| 18          | 30          | 120         | 85          | 55          | 10          | flexible  | 4.0 | 3.0 | 9047180180020 |
| 20          | 30          | 135         | 90          | 65          | 10          | flexible  | 3.0 | 2.0 | 9047180200010 |
| 20          | 30          | 135         | 90          | 65          | 10          | flexible  | 8.0 | 5.0 | 9047180200000 |
| 20          | 30          | 135         | 90          | 65          | 10          | flexible  | 4.0 | -   | 9047180200020 |
| 25          | 35          | 140         | 100         | 70          | 10          | flexible  | 3.0 | 2.0 | 9047180250010 |
| 25          | 35          | 140         | 100         | 70          | 10          | flexible  | 8.0 | 5.0 | 9047180250000 |
| 25          | 35          | 140         | 100         | 70          | 10          | flexible  | 4.0 | -   | 9047180250020 |
| 32          | 45          | 150         | 100         | 70          | 10          | flexible  | 3.0 | 2.0 | 9047180320010 |
| 32          | 45          | 150         | 100         | 70          | 10          | flexible  | 8.0 | 5.0 | 9047180320000 |
| 32          | 45          | 150         | 100         | 70          | 10          | flexible  | 4.0 | -   | 9047180320020 |

# Setting screws for GÜHROJET shrink fit chucks

## Product information

- setting screws for GÜHROJET-shrink fit chucks  
Series no. 4755
- slotted for reliable coolant supply for conventional internal cooling



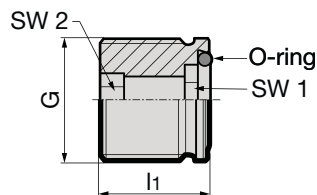
Series no. **4938**

| for clamping-Ø | l <sub>1</sub> mm | G     | SW1 | SW2 | EDP Number    |
|----------------|-------------------|-------|-----|-----|---------------|
| 6              | 14                | M5    | 2.5 | 2.5 | 9049380060000 |
| 8              | 14                | M6    | 3.0 | 3.0 | 9049380080000 |
| 10             | 14                | M8x1  | 4.0 | 4.0 | 9049380100000 |
| 12/14          | 14                | M10x1 | 5.0 | 5.0 | 9049380120000 |
| 16/18          | 14                | M12x1 | 6.0 | 6.0 | 9049380160000 |
| 20/25/32       | 14                | M16x1 | 8.0 | 6.0 | 9049380200000 |
|                |                   |       |     |     |               |
|                |                   |       |     |     |               |
|                |                   |       |     |     |               |
|                |                   |       |     |     |               |

# Shrink fit chuck length setting screw with axial force damping

## Product information

- for shrink fit chucks
- for conventional internal cooling
- with facing stop for standard shank ends
- with patented axial force damping.  
O-ring reduces the concentricity error when shrink fitting on the setting screw



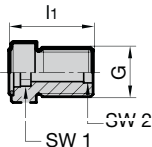
Series no. **4977**

| for clamping-Ø | l <sub>1</sub> mm | G     | SW1 | SW2 | O-ring  | EDP Number    |
|----------------|-------------------|-------|-----|-----|---------|---------------|
| 6              | 14                | M5    | 2.5 | 2.5 | 3x1     | 9049770060140 |
| 8              | 14                | M6    | 3.0 | 3.0 | 3.5x1   | 9049770080140 |
| 10             | 14                | M8x1  | 4.0 | 4.0 | 6x1     | 9049770100140 |
| 12/14          | 14                | M10x1 | 5.0 | 5.0 | 6x1     | 9049770120140 |
| 16/18          | 14                | M12x1 | 6.0 | 6.0 | 7.5x1.5 | 9049770160140 |
| 20/25/32       | 14                | M16x1 | 8.0 | 6.0 | 10x1.5  | 9049770201140 |
| 20/25          | 14                | M16x1 | 6.0 | 6.0 | 12x1.5  | 9049770200140 |
|                |                   |       |     |     |         |               |
|                |                   |       |     |     |         |               |
|                |                   |       |     |     |         |               |
|                |                   |       |     |     |         |               |

## Product information

- To adapt MQL tool holders to meet the requirements of conventional wet machining. For plain end shanks. The height of screw head compensates the height of MQL taper.

- for MQL HSK-A shrink fit chucks hydraulic chucks
- for use with shank according to DIN 6535 with plain shank end for conventional cooling
- The patented face orientated o-ring provides axial force clamping which eliminates concentricity errors



Series no. **4941**

| for HSK-A          | per clamping-<br>Ø | G     | l <sub>1</sub><br>mm | SW1 | SW2 | EDP Number    |
|--------------------|--------------------|-------|----------------------|-----|-----|---------------|
| 32/40              | 6                  | M5    | 14.9                 | 2.5 | 2.5 | 9049410060410 |
| 40                 | 6                  | M7x1  | 15.0                 | 2.5 | 2.5 | 9049410060400 |
| 32/40              | 8                  | M7x1  | 16.2                 | 3   | 3   | 9049410080400 |
| 50                 | 6                  | M8x1  | 14.0                 | 2.5 | 2.5 | 9049410060500 |
| 50                 | 8                  | M8x1  | 18.0                 | 3   | 3   | 9049410080500 |
| 32/40/50           | 10                 | M8x1  | 16.2                 | 4   | 4   | 9049410100500 |
| 63/80/100          | 6                  | M10x1 | 17.0                 | 2.5 | 2.5 | 9049410061000 |
| 63/80/100          | 8                  | M10x1 | 17.0                 | 3   | 3   | 9049410081000 |
| 63/80/100          | 10                 | M10x1 | 16.2                 | 4   | 4   | 9049410101000 |
| 32/40/50/63/80/100 | 12                 | M10x1 | 16.0                 | 5   | 5   | 9049410121000 |
| 40/50/63/80/100    | 14                 | M10x1 | 17.2                 | 5   | 5   | 9049410141000 |
| 50/63/80/100       | 16                 | M12x1 | 18.2                 | 6   | 6   | 9049410161000 |
| 50/63/80/100       | 18                 | M12x1 | 19.2                 | 6   | 6   | 9049410181000 |
| 50/63/80/100       | 20                 | M16x1 | 19.2                 | 6   | 8   | 9049410201000 |
| 63/80/100          | 25                 | M16x1 | 22.7                 | 6   | 8   | 9049410251000 |
| 63/80/100          | 32                 | M16x1 | 26.7                 | 6   | 8   | 9049410321000 |

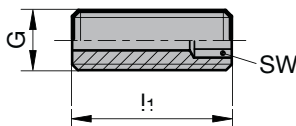
## Setting screws

### Product information

- for HSK-A side lock holders with bore to DIN 1835-2, form E, shrink fit chuck and shrink fit extensions

### Scope of delivery

- minimum order quantity 5



Series no. **4904**

| G   | l <sub>1</sub><br>mm | SW1 | EDP Number    |
|-----|----------------------|-----|---------------|
| M5  | 16                   | 2.5 | 9049040050160 |
| M5  | 20                   | 2.5 | 9049040050200 |
| M6  | 16                   | 3.0 | 9049040060160 |
| M6  | 20                   | 3.0 | 9049040060200 |
| M8  | 12                   | 3.0 | 9049040080120 |
| M8  | 18                   | 4.0 | 9049040080180 |
| M10 | 17                   | 3.0 | 9049040100170 |
| M10 | 20                   | 5.0 | 9049040100200 |
| M12 | 14                   | 3.0 | 9049040120140 |
| M12 | 20                   | 5.0 | 9049040120200 |
| M16 | 25                   | 5.0 | 9049040160250 |
| M20 | 25                   | 6.0 | 9049040200250 |

SHRINK FIT TECHNOLOGY  
RF 100

# MILLING AT THE HIGHEST LEVEL

TSG 3000 shrink fit chucks and  
Ratio end mills RF 100

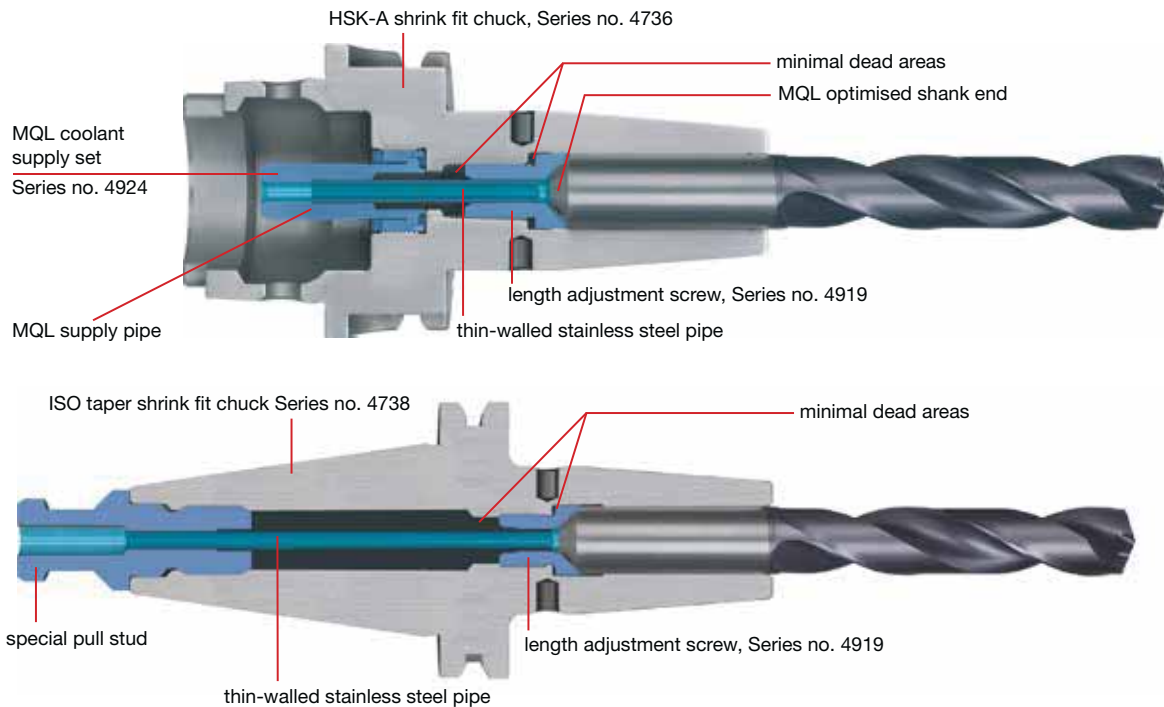


- ⇒ secure tool clamping
- ⇒ perfect concentricity
- ⇒ vibration-free operation
- ⇒ optimal surface finish
- ⇒ long tool life

Please request  
our catalog  
"Milling Tools".

## MQL conversion of tool holders for conventional cooling

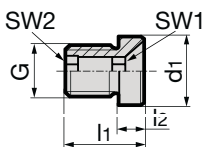
With the assistance of Guhring's MQL length adjustment screw, Series no. 4919, and MQL coolant supply set, Series no. 4924, tool holders such as shrink fit chucks, Series no. 4736, from Guhring's GM 300 program can be converted for application under MQL conditions and automatic tool clamping. This combination is suitable for 2-channel MQL systems (not suitable for application on machines with supply collar to DIN 69090-2). The insertion depth is reduced by the length of the cone on the MQL shank and does not correspond with our Guhring standard. Special solutions for SK/BT are available on request.



## MQL length setting screws to convert

### Product information

- for hydraulic chucks and shrink fit chucks
- with special geometry optimised for MQL
- with conical end for tapered MQL shank ends



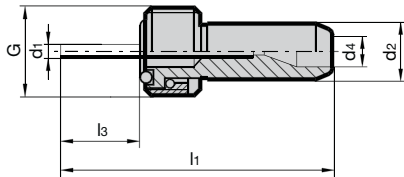
|             |             |       |     |     | Series no.    | 4919 |
|-------------|-------------|-------|-----|-----|---------------|------|
| $d_1$<br>mm | $l_1$<br>mm | G     | SW1 | SW2 | EDP #         |      |
| 6           | 14.8        | M5    | 2.5 | 2.5 | 9049190060000 |      |
| 8           | 15.6        | M6    | 3.0 | 3.0 | 9049190080000 |      |
| 10          | 16.1        | M8x1  | 4.0 | 4.0 | 9049190100000 |      |
| 10          | 16.6        | M8x1  | 3.0 | 3.0 | 9049190100400 |      |
| 10          | 16.6        | M6    | 3.0 | 3.0 | 9049190100320 |      |
| 12          | 16.6        | M10x1 | 5.0 | 5.0 | 9049190120000 |      |
| 12          | 17.6        | M6    | 3.0 | 3.0 | 9049190120320 |      |
| 14          | 17.6        | M10x1 | 5.0 | 5.0 | 9049190140000 |      |
| 14          | 18.6        | M6    | 3.0 | 3.0 | 9049190140400 |      |
| 16          | 18.6        | M12x1 | 5.0 | 5.0 | 9049190160000 |      |
| 16          | 19.6        | M6    | 3.0 | 3.0 | 9049190160400 |      |
| 18          | 19.6        | M12x1 | 5.0 | 5.0 | 9049190180000 |      |
| 20          | 20.6        | M16x1 | 5.0 | 5.0 | 9049190200000 |      |
| 25          | 22.6        | M16x1 | 8.0 | 6.0 | 9049190250000 |      |
| 32          | 26.1        | M16x1 | 8.0 | 6.0 | 9049190320000 |      |

**Product information**

- replace conventional coolant supply sets, Series no. 4949, when applying MQL
- for shrink fit chucks to DIN 69882-8
- Attention:  
Not suitable for application on machines with supply collar to DIN 69090-2

**Scope of delivery**

- complete MQL coolant supply sets



Shrink fit technology

Series no. **4924**

| for HSK-A | clamping-Ø mm | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>3</sub> mm | G       | EDP Number    |
|-----------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|---------------|
| 32        | 6             | 2.5               | 6                 | 3.5               | 45.1              | 18.9              | M10x1   | 9049240320200 |
| 32        | 10            | 3.0               | 6                 | 3.5               | 45.7              | 19.5              | M10x1   | 9049240320600 |
| 32        | 8/12          | 3.0               | 6                 | 3.5               | 45.2              | 19.0              | M10x1   | 9049240320800 |
| 40        | 6             | 2.5               | 8                 | 4.0               | 56.0              | 26.9              | M12x1   | 9049240400200 |
| 40        | 8             | 3.0               | 8                 | 4.0               | 56.2              | 27.0              | M12x1   | 9049240400400 |
| 40        | 10            | 3.0               | 8                 | 4.0               | 51.7              | 22.5              | M12x1   | 9049240400600 |
| 40        | 12/14         | 3.0               | 8                 | 4.0               | 57.2              | 28.0              | M12x1   | 9049240401000 |
| 40        | 16            | 3.0               | 8                 | 4.0               | 54.2              | 25.0              | M12x1   | 9049240401200 |
| 50        | 6             | 2.5               | 10                | 4.0               | 55.4              | 22.7              | M16x1   | 9049240500200 |
| 50        | 8             | 3.0               | 10                | 4.0               | 46.5              | 13.8              | M16x1   | 9049240500400 |
| 50        | 10            | 4.0               | 10                | 4.0               | 46.1              | 13.4              | M16x1   | 9049240500600 |
| 50        | 12            | 5.0               | 10                | 4.0               | 55.7              | 23.0              | M16x1   | 9049240500800 |
| 50        | 14            | 5.0               | 10                | 4.0               | 55.7              | 22.9              | M16x1   | 9049240501000 |
| 50        | 16/18         | 5.0               | 10                | 4.0               | 57.7              | 25.0              | M16x1   | 9049240501400 |
| 50        | 20            | 5.0               | 10                | 4.0               | 60.7              | 28.0              | M16x1   | 9049240501600 |
| 63        | 6             | 2.5               | 12                | 4.0               | 56.7              | 20.5              | M18x1   | 9049240630200 |
| 63        | 6             | 2.5               | 12                | 4.0               | 137.7             | 101.4             | M18x1   | 9049240630210 |
| 63        | 8             | 3.0               | 12                | 4.0               | 57.0              | 20.8              | M18x1   | 9049240630400 |
| 63        | 8             | 3.0               | 12                | 4.0               | 137.0             | 100.7             | M18x1   | 9049240630410 |
| 63        | 10            | 4.0               | 12                | 4.0               | 55.7              | 19.5              | M18x1   | 9049240630600 |
| 63        | 10            | 4.0               | 12                | 4.0               | 132.2             | 95.9              | M18x1   | 9049240630610 |
| 63        | 12/14         | 5.0               | 12                | 4.0               | 55.7              | 19.5              | M18x1   | 9049240630800 |
| 63        | 12/14         | 5.0               | 12                | 4.0               | 127.1             | 90.8              | M18x1   | 9049240630810 |
| 63        | 16/18         | 5.0               | 12                | 4.0               | 57.5              | 21.3              | M18x1   | 9049240631000 |
| 63        | 16/18         | 5.0               | 12                | 4.0               | 124.3             | 88.0              | M18x1   | 9049240631410 |
| 63        | 20            | 5.0               | 12                | 4.0               | 60.7              | 24.5              | M18x1   | 9049240631100 |
| 63        | 20            | 5.0               | 12                | 4.0               | 122.1             | 85.8              | M18x1   | 9049240631610 |
| 63        | 25            | 6.0               | 12                | 4.0               | 69.0              | 32.8              | M18x1   | 9049240631300 |
| 63        | 25            | 6.0               | 12                | 4.0               | 116.2             | 79.9              | M18x1   | 9049240631810 |
| 63        | 32            | 6.0               | 12                | 4.0               | 70.7              | 34.5              | M18x1   | 9049240631400 |
| 63        | 32            | 6.0               | 12                | 4.0               | 112.2             | 75.9              | M18x1   | 9049240632010 |
| 80        | 6             | 2.5               | 14                | 4.0               | 61.2              | 21.9              | M20x1.5 | 9049240800200 |
| 80        | 8             | 3.0               | 14                | 4.0               | 61.3              | 22.0              | M20x1.5 | 9049240800400 |
| 80        | 10            | 4.0               | 14                | 4.0               | 61.3              | 22.0              | M20x1.5 | 9049240800600 |
| 80        | 12/14         | 5.0               | 14                | 4.0               | 61.3              | 22.0              | M20x1.5 | 9049240801000 |
| 80        | 16/18         | 5.0               | 14                | 4.0               | 63.3              | 24.0              | M20x1.5 | 9049240801400 |
| 80        | 20            | 5.0               | 14                | 4.0               | 66.3              | 27.0              | M20x1.5 | 9049240801600 |
| 80        | 25            | 6.0               | 14                | 4.0               | 70.3              | 31.0              | M20x1.5 | 9049240801800 |
| 80        | 32            | 6.0               | 14                | 4.0               | 71.3              | 32.0              | M20x1.5 | 9049240802000 |
| 100       | 6             | 2.5               | 16                | 4.0               | 63.9              | 20.1              | M24x1.5 | 9049241000200 |
| 100       | 8             | 3.0               | 16                | 4.0               | 64.6              | 20.8              | M24x1.5 | 9049241000400 |
| 100       | 10            | 4.0               | 16                | 4.0               | 63.3              | 19.5              | M24x1.5 | 9049241000600 |
| 100       | 12/14         | 5.0               | 16                | 4.0               | 63.3              | 19.5              | M24x1.5 | 9049241001000 |
| 100       | 16/18         | 5.0               | 16                | 4.0               | 65.3              | 21.5              | M24x1.5 | 9049241001400 |
| 100       | 20            | 5.0               | 16                | 4.0               | 68.3              | 24.5              | M24x1.5 | 9049241001600 |
| 100       | 25            | 6.0               | 16                | 4.0               | 72.3              | 28.5              | M24x1.5 | 9049241001800 |
| 100       | 32            | 6.0               | 16                | 4.0               | 73.3              | 29.5              | M24x1.5 | 9049241002000 |

# GSS

# 2000

## Simple operation

The movement of the spindle and its heating is a single handed operation.

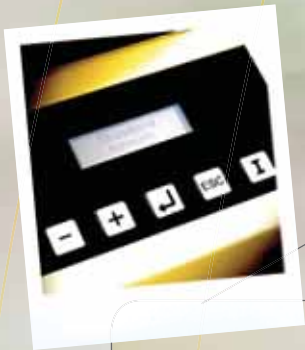
**Tool clamping cannot be simpler and quicker!**

## Quick cooling

The water-cooled cooling elements cool down the shrink fit chuck quickly and safely. The shrink fit chuck remains clean and dry, **so that it can be applied again without drying and without rusting.** Hot spots remain safely screened during the cooling process in order to prevent burns.

## Safe shrink fitting

The minimal heating of the shrink fit chuck ensures **maximum operating safety** on the one hand, on the other the controlled heating ensures the **long life** of the shrink fit chuck.



## The control panel

The clear control panel with display makes the operation of the GSS 2000 **very user-friendly.**



# Benefit from the advantages of GSS 2000

GSS  
2000

## Efficient operation

The turntable allows simultaneous preparation, heating and cooling of the shrink fit chucks. **Subsequently, there is no waiting time, tool clamping is seamless and with maximum efficiency.**



## All under control

Practical locations and compartments provide room for accessories such as stop discs or gloves in close proximity to the equipment. **Thus all the necessary components are always at hand.**

- > **high-performance spindle**, hence quick change time
- > **overheating protection** for holder
- > **automatic mode** possible (equipment automatically selects the correct heating program)
- > **error detection** choosing wrong chuck/program
- > **heating programs** for standard/reinforced and very small holder/shrink fit extensions
- > **maximum rigidity**
- > **highest cutting rates**

**Product information**

- 3-station system with turntable

**Scope of delivery**

- incl. base system with turntable
- incl. induction coil Series no. 4743 / version 2008
- incl. 1 limit stop collar set Series no. 4769 / version 2008
- incl. SpeedCooler Series no. 4747
- incl. 1 pair of gloves Series no. 4750
- with integrated SpeedCooler-Manager
  
- order HSK-/ISO-holders article nos. 4745, 4744 separately!



|  |               |
|--|---------------|
| Series no.   | 4742          |
| EDP Number   | 9047420200000 |
| US version 50/60 Hz / 400-480 V, SpeedCooler 115 V |               |

GSS 2000 HSK holders

**Product information**

- for GSS 2000 Comfort Plus Series no. 4742
- holder (spider) for turn-table to hold max. 3 shrink fit chucks



| Series no.    | 4745          |
|---------------|---------------|
| for HSK-A/C/E | EDP Number    |
| 32            | 9047450320000 |
| 40            | 9047450400000 |
| 50            | 9047450500000 |
| 63            | 9047450630000 |
| 80            | 9047450800000 |
| 100           | 9047451000000 |
|               |               |
|               |               |

GSS 2000 SK taper holders

**Product information**

- for GSS 2000 Comfort Plus Series no. 4742
- also suitable for MAS-BT
- holder (spider) for turn-table to hold max. 3 shrink fit chucks



| Series no.          | 4744          |
|---------------------|---------------|
| for SK taper and BT | EDP Number    |
| 30                  | 9047440300000 |
| 40                  | 9047440400000 |
| 50                  | 9047440500000 |
|                     |               |
|                     |               |

## System cart

### Product information

- for GSS 2000
- for mobile and stationary application
- systematic storage of cooler and accessories



Shrink fit technology

|             |                   |                      |
|-------------|-------------------|----------------------|
|             | <b>Series no.</b> | <b>4748</b>          |
|             |                   | <b>EDP Number</b>    |
| System cart |                   | <b>9047480010000</b> |
|             |                   |                      |
|             |                   |                      |

## Swivel compartments for GSS 2000

### Product information

- for the clean storage of GSS shrink fit system accessories, i.e. limit stop washers, gloves, measuring instruments etc.
- suitable for GSS 2000 Comfort Plus and ECO Plus  
Series no. 4742 and 4752

### Scope of delivery

- swivel compartment does not include accessories shown



|  |                   |                      |
|--|-------------------|----------------------|
|  | <b>Series no.</b> | <b>4763</b>          |
|  |                   | <b>EDP Number</b>    |
| Swivel compartments for GSS 2000 accessories |                   | <b>9047630010000</b> |
|  |                   |                      |
|  |                   |                      |
|  |                   |                      |
|  |                   |                      |

## Tongs

### Product information

- for the safe handling of hot tools



|       |                   |                      |
|-------|-------------------|----------------------|
|       | <b>Series no.</b> | <b>4749</b>          |
|       |                   | <b>EDP Number</b>    |
| Tongs |                   | <b>9047490010000</b> |
|       |                   |                      |
|       |                   |                      |
|       |                   |                      |
|       |                   |                      |

## Cooling adaptor set, complete

### Product information

- cooling adaptor set for shrink fit system GSS 2000 Comfort Plus and ECO Plus Series no. 4742 and 4752
- for inserting in the cooling adaptor Ø 14-16, in order to effectively and safely cool the small shrink fit holders with clamping diameter Ø 3-5



Series no. **4419**

| for cooling adaptor | for shank Ø | EDP Number           |
|---------------------|-------------|----------------------|
| Ø14-16              | Ø 3-5       | <b>9044190050000</b> |

## Protective gloves

### Product information

- Kevlar gloves providing protection against sharp cutting edges and high temperatures
- as specified for all shrink fit applications



Series no. **4750**

|                   | EDP Number           |
|-------------------|----------------------|
| Protective gloves | <b>9047500010000</b> |

## GSS 2000 Basic

### Product information

- 1-place system

### Scope of delivery

- incl. base system
- incl. 1 limit stop collar set Series no. 4769 / version 2008
- incl. 1 pair of gloves Series no. 4750
- order HSK-/ISO-holders article nos. 4761, 4762 separately!



Series no. **4730**

|                              | EDP Number           |
|------------------------------|----------------------|
| Version 50/60 Hz / 400-480 V | <b>9047300100000</b> |

**Product information**

- 1-place system

**Scope of delivery**

- incl. base system
- incl. induction coil Series no. 4743 / version 2008
- incl. 1 limit stop collar set Series no. 4769 / version 2008
- incl. SpeedCooler Series no. 4747
- incl. 1 pair of gloves Series no. 4750
- with integrated SpeedCooler-Manager
  
- order HSK-/ISO-holders article nos. 4761, 4762 separately!



Shrink fit technology

|  |                   |                      |
|--|-------------------|----------------------|
|  | <b>Series no.</b> | <b>4752</b>          |
|  |                   | <b>EDP Number</b>    |
| US version 50/60 Hz / 400-480 V, SpeedCooler 115 V |                   | <b>9047520200000</b> |

HSK holder carriers GSS 2000

**Product information**

- for GSS 2000 Basic and ECO Plus  
Series no. 4730 and 4752
- holder carriers for HSK shrink fit chucks



SK taper holder carriers GSS 2000

**Product information**

- for GSS 2000 Basic and ECO Plus  
Series no. 4730 and 4752
- also suitable for MAS-BT
- holder carriers for SK or MAS/BT shrink fit chucks



|                | <b>Series no.</b> | <b>4761</b>          |
|----------------|-------------------|----------------------|
| for HSK- A/C/E |                   | EDP Number           |
| 32             |                   | <b>9047610320000</b> |
| 40             |                   | <b>9047610400000</b> |
| 50             |                   | <b>9047610500000</b> |
| 63             |                   | <b>9047610630000</b> |
| 80             |                   | <b>9047610800000</b> |
| 100            |                   | <b>9047611000000</b> |
|                |                   |                      |
|                |                   |                      |

|                     | <b>Series no.</b> | <b>4762</b>          |
|---------------------|-------------------|----------------------|
| for SK taper and BT |                   | EDP Number           |
| 30                  |                   | <b>9047620300000</b> |
| 40                  |                   | <b>9047620400000</b> |
| 50                  |                   | <b>9047620500000</b> |
|                     |                   |                      |
|                     |                   |                      |

## SpeedCooler Cooling system

### Product information

- for GSS 2000 Comfort Version and Eco-Plus



Series no. **4747**

|                            | EDP Number           |
|----------------------------|----------------------|
| US version 50/60 Hz, 115 V | <b>9047470020000</b> |
|                            |                      |
|                            |                      |
|                            |                      |

## SpeedCooler Manager

### Product information

- for automatic switch on and off of the SpeedCooler
- preserves the cooling system and reduce the service intervals



Series no. **4759**

|                            | EDP Number           |
|----------------------------|----------------------|
| US version 50/60 Hz, 115 V | <b>9047590020000</b> |
|                            |                      |
|                            |                      |
|                            |                      |

## Induction coil

### Product information

- for GSS 2000 / version 2008
- HSS for  $\varnothing$  6...32 mm, carbide for  $\varnothing$  3...32 mm



Series no. **4743**

| $\varnothing$ range mm | EDP Number           |
|------------------------|----------------------|
| 3...32                 | <b>9047430320000</b> |
|                        |                      |
|                        |                      |
|                        |                      |
|                        |                      |

## Limit stop collars

### Product information

- for induction coil
- suitable for all GSS systems
- for extra short standard shrink fit chucks with EDP # .....,100



Series no. **4769**

| for tool shank diameter | EDP Number           |
|-------------------------|----------------------|
| 3 - 5 mm                | <b>9047690050000</b> |
| 6 - 12 mm               | <b>9047690120000</b> |
| 14 - 16 mm              | <b>9047690160000</b> |
| 18 - 20 mm              | <b>9047690200000</b> |
| 25 - 32 mm              | <b>9047690320000</b> |
| 6 - 12 mm               | <b>9047690121000</b> |
| 14 - 20 mm              | <b>9047690201000</b> |
| 25 - 32 mm              | <b>9047690321000</b> |

# GSS

# 3001

Work easily, quickly and efficiently ...

## The advantages of shrink fit technology:

- **Perfect 360° tool clamping provides extreme clamping force and rigidity**
- **High repeatability**
- **Minimal imbalance thanks to rotational symmetry**
- **Excellent concentricity for symmetrical cutting edge loading – therefore longer tool life**
- **Reduced components, therefore lower costs for purchasing, storage and administration**

## You benefit from:

- **High economic efficiency thanks to effective mode of operation**
- **Full transparency due to process analysis**
- **Absolutely user-friendly**

... with each application!



### User-friendly software

**Intuitive menu navigation** similar to the well-established Gühring TM-Software GTMS via touch-screen monitor (for details see page 67).

### Safe shrink fitting

The minimal heating of the shrink fit chuck ensures **maximum operating safety** on the one hand, on the other the controlled heating ensures the **long life** of the shrink fit chuck.

## Fume extraction

Vapours produced during the shrink fit process are **removed and filtered under controlled conditions** by the fume extraction system.

## Length setting

During the shrink fit process the tool is pre-set to the **required length** with the assistance of an adjustment rod.

## Quick cooling

The water-cooled cooling elements cool down the shrink fit chuck quickly and safely. The shrink fit chuck remains clean and dry, **so that it can be applied again without drying and without rusting**. Hot spots remain safely screened during the cooling process in order to prevent burns.

## Tool identification Codier-Chip

The read and write function of the Codier-Chip art. no. 4955 simplifies **tool identification**. Tool life can be managed.

## Label printer

Print data such as Series no., current setting dimension, date, operator etc. on an **adhesive label** for your pre-set tool.



# GSS

# 3001

## Important features:

- > Setting, shrink fitting and measuring with one system
- > Operating system WIN 7
- > Stable Beckhoff control system with touch-screen and foil keyboard
- > Compact, workshop suited and robust design
- > Ergonomic arrangement of all operating elements for comfortable handling
- > Label printer for providing pre-set tools with information such as Series no., setting dimension, barcode, and much more...
- > Setting and measuring accuracy 0.02 mm

## “Everything has its place”

Stop plates for every diameter are accessibly stored directly on the guide column.

## “Good accessibility”

Good accessibility to all machine components provides excellent conditions for cleaning and maintenance purposes, i.e. re-filling coolant by simple opening of drawer. Economic: the Speedcooler switches off automatically when not in use for a longer period of time.



The logo consists of a yellow rectangle with the text 'GSS' in black, and a black rectangle below it with the text '5000' in white.

GSS

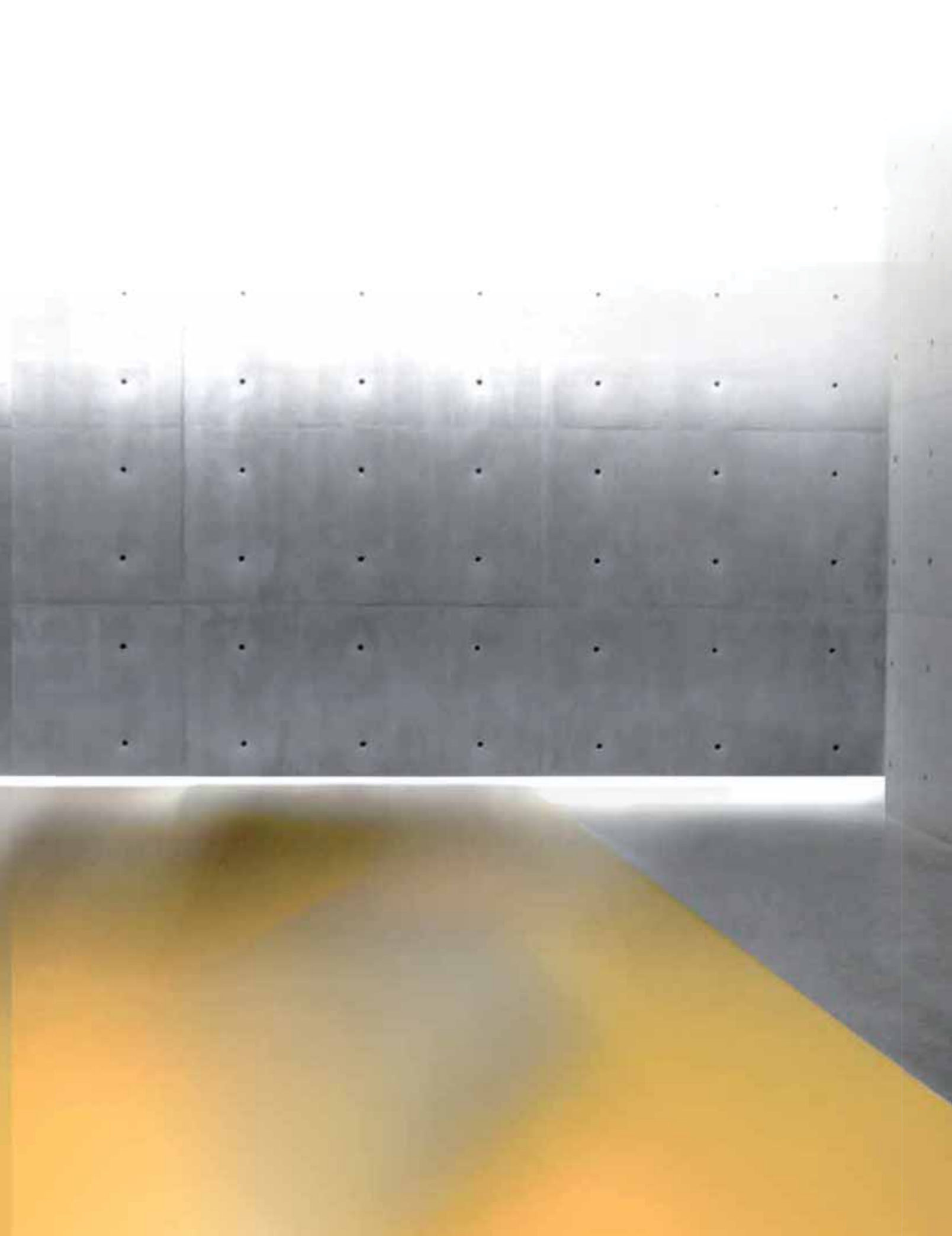
5000

# GSS 5000

## **You can't get more into a system!**

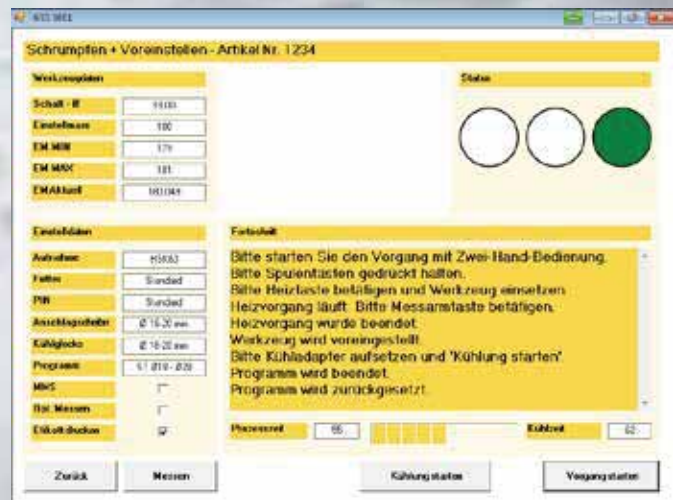
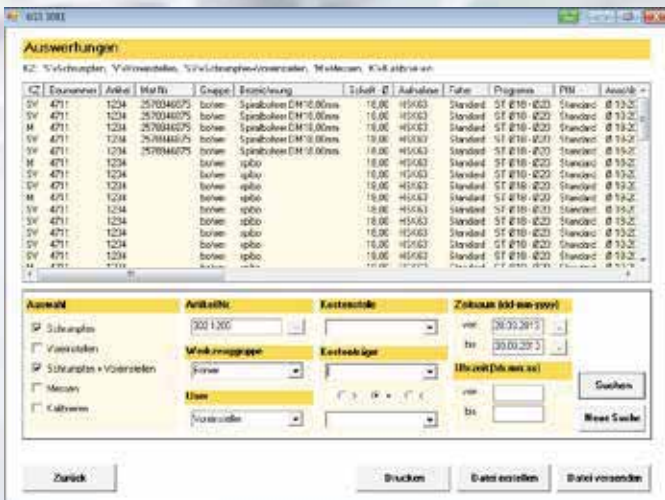
In addition to the functions pre-setting, shrink fitting and measuring GSS 5000 also offers the possibility of a fully automatic cutting edge form recognition and length pre-setting. Depending on the configuration a measuring range up to 800 mm and a measuring diameter up to 600 mm can be covered.

GSS 5000 can be adapted to customer requirements.



# GSS Software performance features:

- > Intuitive and user-friendly operation thanks to 12" touch-screen and Barcode scanner
- > Comprehensive management possibilities for your tool, holder and shrink fit data as well as the associated parameters
- > Analysis of all processes carried out by system (component, cost centre or user related; setting up to 5 cost centres possible) to optimise your production and for maximum transparency possible
- > Software available in different languages



# GÜHRO Sync



TAPPING CHUCKS

# GÜHROSYNC

THE EASY WAY  
TO THE PERFECT THREAD

Metalic spring for axial suspension

Torsional damper

Hydraulic chuck

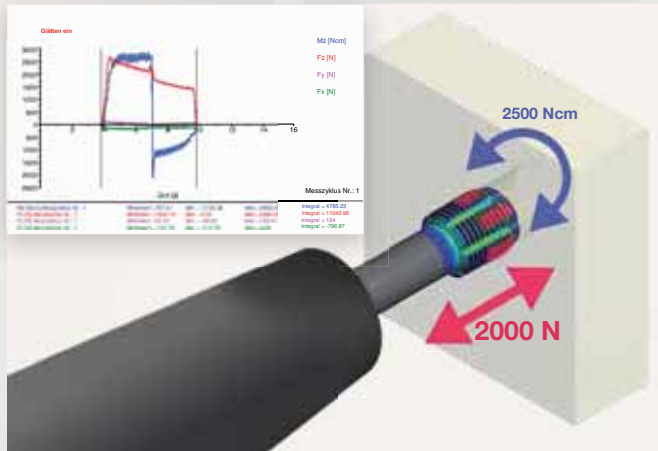
Polymer ring for axial damping

Reduction sleeve

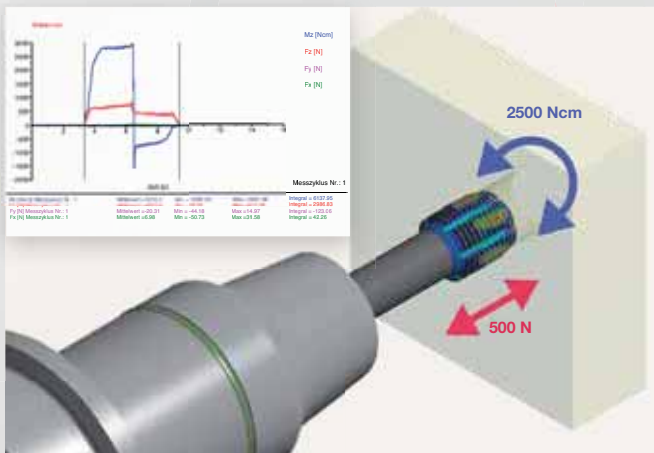
**Intelligent design:**

as well as the suspension and damping elements in the slender GÜHROSync chucks (for the reduction of axial and radial forces during the tapping process) there is also room for the supply set for MQL or conventional cooling lubrication and the length setting screw.

The optimal combination of long-life metal spring and polymer damping elements considerably reduces axial and radial forces



Rigid chuck

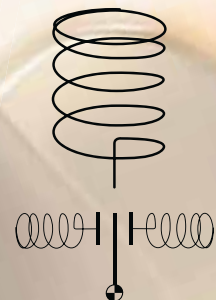


GÜHROSyc

➔ **IMPROVED  
TOOL LIFE**

➔ **IMPROVED THREAD  
QUALITY**

➔ **GREATER PROCESS  
RELIABILITY**



**GUHRING**

**Made visible:**  
The spring symbol on the GÜHROSyc displays the effect of axial and radial force.

# GÜHROSync

Hydraulic synchro tapping chucks with increased clamping force

Shrink fit chucks

**4736** HSK-A

**4726** TSG 3000 HSK-A

**4758** HSK-C

**4738** SK taper

**4221** MAS-BT

**4299** HSK-A

**4267** HSK-C

**4213** SK taper

**4949** Coolant supply set HSK-A for conventional cooling



Hydraulic synchro tapping chucks

**4601** HSK-A

Hydraulic synchro tapping chucks

**4576** SK taper

Hydraulic synchro tapping chucks

**4577** MAS-BT



**4525**

Hydro-Ø 12/Ø 20  
Cylindrical hydraulic synchro tapping chucks Ø 20 with internal cooling



**4364**

Setting screws "face" synchro tapping chucks, with conventional int. cooling



**4605**

Reduction bush sealed

**4606**

GÜHROJET reduction bush



Threading tool:  
shank diameter x square

# Configuration of synchro tapping chucks for conventional cooling

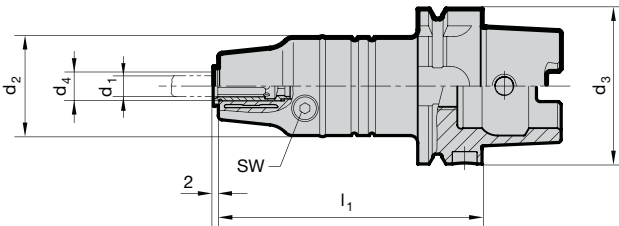


### Product information

- HSK-A to ISO 12164-1/DIN 69893-1
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction sleeves with active drive
- length-setting screw allows 3 mm readjustment
- suitable for internal cooling identifiable by black colored ring
- coolant pressure up to max. 80 bar
- balancing quality: G6,3 / 15,000 rev./min

### Scope of delivery

- incl. hexagon clamping key Series no. 4912
- incl. adjustment key for adjustment screws
- order setting screw “face” Series no. 4364 separately
- order reduction sleeves Series no. 4605 or 4606 separately
- for conventional cooling order coolant supply set Series no. 4949 separately



**GÜHROSync**

Series no. **4601**

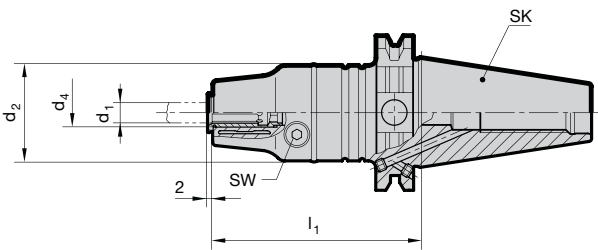
| HSK-A          | d <sub>4</sub> | for                  | for      | d <sub>2</sub> | l <sub>1</sub> | Mt max. | SW | kg  | Code   | EDP Number    |
|----------------|----------------|----------------------|----------|----------------|----------------|---------|----|-----|--------|---------------|
| d <sub>3</sub> | mm             | shank Ø              | thread   | mm             | mm             |         |    |     | no.    |               |
|                |                | d <sub>1</sub> x VKT |          |                |                |         |    |     |        |               |
| 63             | 12.00          | 2.8-10               | M2-M12   | 40             | 106.5          | 26 Nm   | 4  | 1.5 | 12.063 | 9046010120630 |
| 63             | 20.00          | 6-16                 | M4.5-M20 | 40             | 120.5          | 90 Nm   | 5  | 1.6 | 20.063 | 9046010200630 |
| 100            | 12.00          | 2.8-10               | M2-M12   | 40             | 113.0          | 26 Nm   | 4  | 2.8 | 12.100 | 9046010121000 |
| 100            | 20.00          | 6-16                 | M4.5-M20 | 40             | 127.0          | 90 Nm   | 5  | 2.9 | 20.100 | 9046010201000 |
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**Product information**

- SK30 to DIN ISO 7388-1 form AD without coolant supply over collar
- SK40 to DIN ISO 7388-1 form AD/AF (AD/B)
- form AF supplied with set screws in bores
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation ± 0,3 mm in tension and compression
- direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction sleeves with active drive
- length-setting screw allows 3 mm readjustment
- suitable for internal cooling identifiable by black colored ring
- coolant pressure up to max. 80 bar
- balancing quality: G6,3 / 15.000 rev./min
- SK30 - M12 x 1.75 retention knob
- SK40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. hexagon clamping key Series no. 4912
- incl. adjustment key for adjustment screws
- order setting screw "face"  
Series no. 4364 separately
- order reduction sleeves  
Series no. 4605 or 4606 separately



Tapping chucks

| SK | d <sub>4</sub> mm | for shank Ø d <sub>1</sub> | for thread | d <sub>2</sub> mm | l <sub>1</sub> mm | Mt max. | SW | kg  | Code no.        | EDP Number    |
|----|-------------------|----------------------------|------------|-------------------|-------------------|---------|----|-----|-----------------|---------------|
|    |                   |                            |            |                   |                   |         |    |     | Series no. 4576 |               |
| 30 | 12.00             | 2.8-10                     | M2-M12     | 40                | 81                | 26 Nm   | 4  | 0.8 | 12.030          | 9045760120300 |
| 30 | 20.00             | 6-16                       | M4.5-M20   | 40                | 95                | 90 Nm   | 5  | 0.9 | 20.030          | 9045760200300 |
| 40 | 12.00             | 2.8-10                     | M2-M12     | 40                | 85                | 26 Nm   | 4  | 1.3 | 12.040          | 9045760120400 |
| 40 | 20.00             | 6-16                       | M4.5-M20   | 40                | 99                | 90 Nm   | 5  | 1.4 | 20.040          | 9045760200400 |

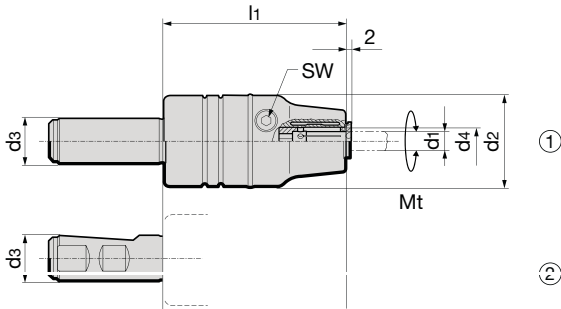
**Product information**

- compensates synchronisation errors
- guarantees best thread quality and optimal life
- minimal length compensation ± 0,3 mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction sleeves with active drive
- length-setting screw allows 3 mm readjustment
- Type 1: straight shank for precision clamping chucks (hydraulic chucks or precision power chucks, shrink fit chucks for single application)  
Type 2: combination shank similar to DIN 1835 for side lock holders
- suitable for internal cooling identifiable by black colored ring
- coolant pressure up to max. 80 bar

**Scope of delivery**

- incl. hexagon clamping key Series no. 4912
- incl. adjustment key for adjustment screws
- order setting screw "face" Series no. 4364 separately
- order reduction sleeves Series no. 4605 or 4606 separately

Tapping chucks



**GÜHROSync**

Series no. **4525**

|          |       |      |                |            |       |       |         |    |     |          | EDP Number    |
|----------|-------|------|----------------|------------|-------|-------|---------|----|-----|----------|---------------|
| d3 h6 mm | d4 mm | type | for shank Ø d1 | for thread | d2 mm | l1 mm | Mt max. | SW | kg  | Code no. |               |
| 20       | 12.00 | 1    | 2.8-10         | M2-M12     | 40    | 80    | 26 Nm   | 4  | 0.7 | 12.020   | 9045250120200 |
| 20       | 20.00 | 1    | 6-16           | M4.5-M20   | 40    | 94    | 90 Nm   | 5  | 0.8 | 20.020   | 9045250200200 |
| 25       | 12.00 | 2    | 2.8-10         | M2-M12     | 40    | 80    | 26 Nm   | 4  | 0.7 | 12.025   | 9045250120250 |
| 25       | 20.00 | 2    | 6-16           | M4.5-M20   | 40    | 94    | 90 Nm   | 5  | 0.8 | 20.025   | 9045250200250 |
|          |       |      |                |            |       |       |         |    |     |          |               |
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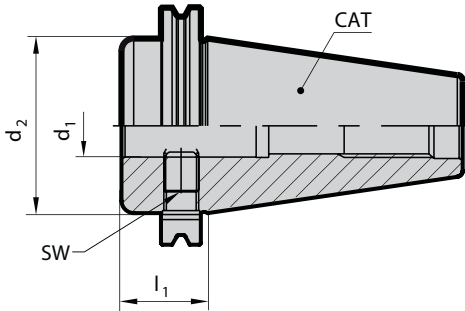
# CAT taper side lock holder extra short

**Product information**

- balancing quality G6.3 / 15.000 rev./min.
- CAT Taper Form AD without coolant supply via flange
- Coolant through center
- CAT 40 - 5/8 x 11 retention knob thread
- CAT 50 - 1" x 8 retention knob thread

**Scope of delivery**

- incl. clamping screw Guhring no. 4903



**EXCLUSIVELY for**  
**GUHROSycn**

Tapping chucks

|     |                                    |                      |                      |     |     | Series no.  | 4087          |
|-----|------------------------------------|----------------------|----------------------|-----|-----|-------------|---------------|
| CAT | clamping-Ø<br>d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | SW  | kg  | Code<br>no. | EDP Number    |
| 40  | 25                                 | 44.5                 | 35                   | 6.0 | 0.8 | 25.040      | 9040870250400 |
| 50  | 25                                 | 70.0                 | 35                   | 6.0 | 2.8 | 25.050      | 9040870250500 |
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**Product information**

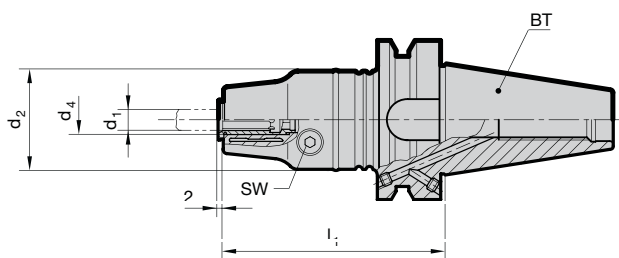
- BT30 to DIN ISO 7388-1 form AD without coolant supply over collar
- MAS/BT40 to DIN ISO 7388-2 form AD/B
- form B supplied with set screws in bores
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation ± 0,3 mm in tension and compression direction balances tiny pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction sleeves with active drive
- length-setting screw allows 3 mm readjustment
- suitable for internal cooling identifiable by black colored ring
- coolant pressure up to max. 80 bar
- balancing quality: G6,3 / 15.000 rev./min
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob

**Scope of delivery**

- incl. hexagon clamping key Series no. 4912
- incl. adjustment key for adjustment screws
- order setting screw “face” Series no. 4364 separately
- order reduction sleeves Series no. 4605 or 4606 separately



**GÜHRO**Sync



Series no. **4577**

| BT | d <sub>4</sub> mm | for shank Ø d <sub>1</sub> | for thread | d <sub>2</sub> mm | l <sub>1</sub> mm | Mt max. | SW | kg  | Code no. | EDP Number    |
|----|-------------------|----------------------------|------------|-------------------|-------------------|---------|----|-----|----------|---------------|
| 30 | 12.00             | 2.8-10                     | M2-M12     | 40                | 81                | 26 Nm   | 4  | 0.8 | 12.030   | 9045770120300 |
| 30 | 20.00             | 6-16                       | M4.5-M20   | 40                | 95                | 90 Nm   | 5  | 0.9 | 20.030   | 9045770200300 |
| 40 | 12.00             | 2.8-10                     | M2-M12     | 40                | 85                | 26 Nm   | 4  | 1.3 | 12.040   | 9045770120400 |
| 40 | 20.00             | 6-16                       | M4.5-M20   | 40                | 99                | 90 Nm   | 5  | 1.4 | 20.040   | 9045770200400 |
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|    |                   |                            |            |                   |                   |         |    |     |          |               |

Tapping chucks

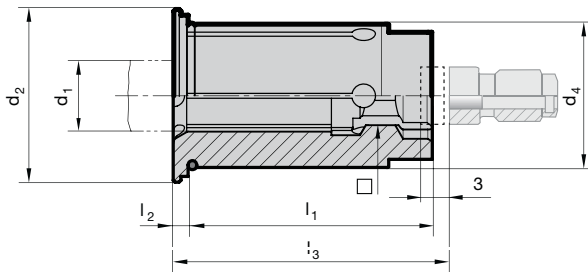
# Sealed reduction sleeve for hydraulic synchro tapping chucks

## Product information

- for clamping taps with square shank in GÜHROSync synchro tapping chucks
- clamping-Ø for tool shank tolerance h6-h9
- face side closed, therefore coolant leak-proof for threading tools with IC
- positive drive
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment

## Scope of delivery

- order setting screw "face" Series no. 4364 separately
- order MQL setting screws Series no. 4305 separately



Series no. **4605**

| d <sub>3</sub><br>mm | d <sub>1</sub><br>mm | □<br>mm | Standard  | d <sub>1</sub><br>inch | □<br>inch | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | for<br>adjustment<br>screw | for<br>thread     | Code no. | EDP Number    |
|----------------------|----------------------|---------|-----------|------------------------|-----------|----------------------|----------------------|----------------------|----------------------|----------------------------|-------------------|----------|---------------|
| 12.00                | 2.800                | 2.100   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M2/M2.2/M2.5/M4   | 2.812    | 9046050028120 |
| 12.00                | 3.500                | 2.700   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M3 / M4.5 / M5    | 3.512    | 9046050035120 |
| 12.00                | 4.000                | 3.200   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M3 / M3.5         | 4.012    | 9046050040120 |
| 12.00                | 4.500                | 3.400   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M4 / M6           | 4.512    | 9046050045120 |
| 12.00                | 4.928                | 3.861   | ANSI      | 0.194                  | 0.152     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | 10-24 & 10-32     | 4.912    | 9046050049120 |
| 12.00                | 5.000                | 4.000   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M4 / M4.5 / M5    | 5.012    | 9046050050120 |
| 12.00                | 5.500                | 4.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M5                | 5.512    | 9046050055120 |
| 12.00                | 5.588                | 4.191   | ANSI      | 0.220                  | 0.165     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | 12-24 & 12-28     | 15.512   | 9046050155120 |
| 12.00                | 6.000                | 4.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M6                | 16.012   | 9046050160120 |
| 12.00                | 6.000                | 4.900   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M4.5/M5/M6/M7/M8  | 6.012    | 9046050060120 |
| 12.00                | 6.200                | 5.000   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M7 / M8           | 6.212    | 9046050062120 |
| 12.00                | 6.477                | 4.851   | ANSI      | 0.255                  | 0.191     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | 1/4-20 & 1/4-28   | 6.412    | 9046050064120 |
| 12.00                | 7.000                | 5.500   | DIN / JIS | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 7.020                 | M7 / M9 / M10     | 7.012    | 9046050070120 |
| 12.00                | 7.938                | 5.944   | ANSI      | 0.3125                 | 0.234     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 1/16-27 / 1/8-27  | 7.912    | 9046050079120 |
| 12.00                | 8.000                | 6.200   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M8 / M11          | 8.012    | 9046050080120 |
| 12.00                | 8.000                | 6.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M11               | 18.012   | 9046050180120 |
| 12.00                | 8.077                | 6.045   | ANSI      | 0.318                  | 0.238     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 5/16-18 & 5/16-24 | 28.012   | 9046050280120 |
| 12.00                | 8.204                | 6.147   | ANSI      | 0.323                  | 0.242     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 7/16-14 & 7/16-20 | 8.212    | 9046050082120 |
| 12.00                | 8.500                | 6.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M12               | 8.512    | 9046050085120 |
| 12.00                | 9.000                | 7.000   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 32.00                | 4364 9.020                 | M9 / M12          | 9.012    | 9046050090120 |
| 12.00                | 9.322                | 6.985   | ANSI      | 0.367                  | 0.275     | 16.50                | 29.00                | 2.00                 | 32.00                | 4364 9.020                 | 1/2-13 & 1/2-20   | 9.312    | 9046050093120 |
| 12.00                | 9.677                | 7.264   | ANSI      | 0.381                  | 0.286     | 16.50                | 29.00                | 2.00                 | 33.00                | 4364 9.020                 | 3/8-16 & 3/8-24   | 9.612    | 9046050096120 |
| 12.00                | 10.000               | 8.000   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 36.00                | 4364 10.020                | M10               | 10.012   | 9046050100120 |

# Sealed reduction sleeve for hydraulic synchro tapping chucks

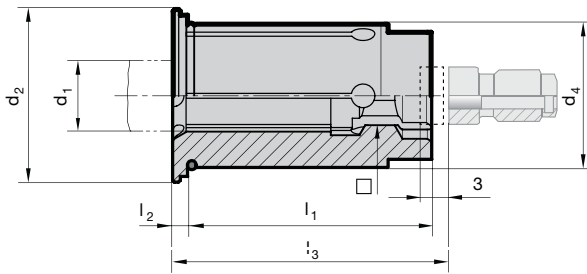
## Product information

- for clamping taps with square shank in GÜHROSync synchro tapping chucks
- clamping-Ø for tool shank tolerance h6-h9
- face side closed, therefore coolant leak-proof for threading tools with IC
- positive drive
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment

## Scope of delivery

- order setting screw "face" Series no. 4364 separately
- order MQL setting screws Series no. 4305 separately

Tapping chucks



Series no. **4605**

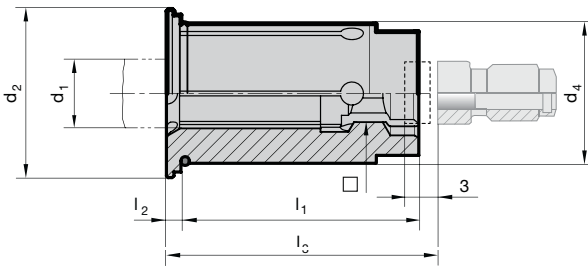
| d <sub>3</sub><br>mm | d <sub>1</sub><br>mm | □<br>mm | Standard  | d <sub>1</sub><br>inch | □<br>inch | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | for<br>adjustment<br>screw | for<br>thread     | Code<br>no. | EDP Number    |
|----------------------|----------------------|---------|-----------|------------------------|-----------|----------------------|----------------------|----------------------|----------------------|----------------------------|-------------------|-------------|---------------|
| 20.00                | 6.000                | 4.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M6                | 26.020      | 9046050260200 |
| 20.00                | 6.000                | 4.900   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M4.5/M5/M6/M7/M8  | 6.020       | 9046050060200 |
| 20.00                | 6.200                | 5.000   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M7 / M8           | 6.220       | 9046050062200 |
| 20.00                | 6.477                | 4.851   | ANSI      | 0.255                  | 0.191     | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | 1/4-20 & 1/4-28   | 6.420       | 9046050064200 |
| 20.00                | 7.000                | 5.500   | DIN / JIS | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 7.032                 | M7 / M9 / M10     | 7.020       | 9046050070200 |
| 20.00                | 7.938                | 5.944   | ANSI      | 0.3125                 | 0.234     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 1/16-27 / 1/8-27  | 7.920       | 9046050079200 |
| 20.00                | 8.000                | 6.200   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M8 / M11          | 8.020       | 9046050080200 |
| 20.00                | 8.000                | 6.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M11               | 18.020      | 9046050180200 |
| 20.00                | 8.077                | 6.045   | ANSI      | 0.318                  | 0.238     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 5/16-18 & 5/16-24 | 28.020      | 9046050280200 |
| 20.00                | 8.204                | 6.147   | ANSI      | 0.323                  | 0.242     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 7/16-14 & 7/16-20 | 8.220       | 9046050082200 |
| 20.00                | 8.500                | 6.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M12               | 8.520       | 9046050085200 |
| 20.00                | 9.000                | 7.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 32.00                | 4364 9.032                 | M9 / M12          | 9.020       | 9046050090200 |
| 20.00                | 9.322                | 6.985   | ANSI      | 0.367                  | 0.275     | 24.10                | 34.00                | 2.00                 | 32.00                | 4364 9.032                 | 1/2-13 & 1/2-20   | 9.320       | 9046050093200 |
| 20.00                | 9.677                | 7.264   | ANSI      | 0.381                  | 0.286     | 24.10                | 34.00                | 2.00                 | 33.00                | 4364 9.032                 | 3/8-16 & 3/8-24   | 9.620       | 9046050096200 |
| 20.00                | 10.000               | 8.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 10.032                | M10               | 10.020      | 9046050100200 |
| 20.00                | 10.500               | 8.000   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 10.032                | M14               | 10.520      | 9046050105200 |
| 20.00                | 10.897               | 8.179   | ANSI      | 0.429                  | 0.322     | 24.10                | 34.00                | 2.00                 | 35.00                | 4364 10.032                | 9/16-12 & 9/16-18 | 10.820      | 9046050108200 |
| 20.00                | 11.000               | 9.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 37.00                | 4364 11.032                | M14               | 11.020      | 9046050110200 |
| 20.00                | 12.000               | 9.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 37.00                | 4364 11.032                | M16               | 12.020      | 9046050120200 |
| 20.00                | 12.192               | 9.144   | ANSI      | 0.480                  | 0.360     | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 11.032                | 5/8-11 & 5/8-18   | 12.120      | 9046050121200 |
| 20.00                | 12.500               | 10.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 11.032                | M16               | 12.520      | 9046050125200 |
| 20.00                | 13.000               | 10.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 11.032                | M17               | 13.020      | 9046050130200 |
| 20.00                | 14.000               | 11.000  | DIN / JIS | -                      | -         | 24.10                | 34.00                | 2.00                 | 39.00                | 4364 14.032                | M18               | 14.020      | 9046050140200 |
| 20.00                | 14.288               | 10.693  | ANSI      | 0.5625                 | 0.421     | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 14.032                | 1/4-18            | 14.220      | 9046050142200 |
| 20.00                | 14.986               | 11.227  | ANSI      | 0.590                  | 0.442     | 24.10                | 34.00                | 2.00                 | 39.00                | 4364 14.032                | 3/4-10 & 3/4-16   | 14.920      | 9046050149200 |
| 20.00                | 15.000               | 12.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 40.00                | 4364 16.032                | M20               | 15.020      | 9046050150200 |
| 20.00                | 16.000               | 12.000  | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 41.00                | 4364 16.032                | M20               | 16.020      | 9046050160200 |

## Product information

- for clamping taps with square shank in GÜHROSync synchro tapping chucks
- clamping-Ø for tool shank tolerance h6-h9
- positive drive of reduction bush in Gührosync synchro chuck
- with coolant slots for peripheral cooling, therefore process and tool life improvement
- coiled swarf is consistently washed away
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment

## Scope of delivery

- order MQL setting screws Series no. 4305 separately
- order setting screw "face" Series no. 4364 separately



**GÜHROJET**

Tapping chucks

Series no.

4606

| d <sub>3</sub><br>mm | d <sub>1</sub><br>mm | □<br>mm | Standard  | d <sub>1</sub><br>inch | □<br>inch | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | for<br>adjustment<br>screw | for<br>thread      | Code<br>no. | EDP Number    |
|----------------------|----------------------|---------|-----------|------------------------|-----------|----------------------|----------------------|----------------------|----------------------|----------------------------|--------------------|-------------|---------------|
| 12.00                | 2.800                | 2.100   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M2/M2.2/M2.5/M4    | 2.812       | 9046060028120 |
| 12.00                | 3.500                | 2.700   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M3 / M4.5 / M5     | 3.512       | 9046060035120 |
| 12.00                | 3.581                | 2.794   | ANSI      | 0.141                  | 0.110     | 16.50                | 29.00                | 2.00                 | -                    | -                          | 2-56, 4-40, & 6-32 | 3.612       | 9046060036120 |
| 12.00                | 4.000                | 3.200   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | -                    | -                          | M3 / M3.5          | 4.012       | 9046060040120 |
| 12.00                | 4.267                | 3.327   | ANSI      | 0.168                  | 0.131     | 16.50                | 29.00                | 2.00                 | -                    | -                          | 8-32 & 8-36        | 4.312       | 9046060043120 |
| 12.00                | 4.500                | 3.400   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M4 / M6            | 4.512       | 9046060045120 |
| 12.00                | 4.928                | 3.861   | ANSI      | 0.194                  | 0.152     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | 10-24 & 10-32      | 4.912       | 9046060049120 |
| 12.00                | 5.000                | 4.000   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M4 / M4.5 / M5     | 5.012       | 9046060050120 |
| 12.00                | 5.500                | 4.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | M5                 | 5.512       | 9046060055120 |
| 12.00                | 5.588                | 4.191   | ANSI      | 0.220                  | 0.165     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 5.020                 | 12-24 & 12-28      | 15.512      | 9046060155120 |
| 12.00                | 6.000                | 4.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M6                 | 16.012      | 9046060160120 |
| 12.00                | 6.000                | 4.900   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M4.5/M5/M6/M7/M8   | 6.012       | 9046060060120 |
| 12.00                | 6.200                | 5.000   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | M7 / M8            | 6.212       | 9046060062120 |
| 12.00                | 6.477                | 4.851   | ANSI      | 0.255                  | 0.191     | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 6.020                 | 1/4-20 & 1/4-28    | 6.412       | 9046060064120 |
| 12.00                | 7.000                | 5.500   | DIN / JIS | -                      | -         | 16.50                | 29.00                | 2.00                 | 26.00                | 4364 7.020                 | M7 / M9 / M10      | 7.012       | 9046060070120 |
| 12.00                | 7.938                | 5.944   | ANSI      | 0.3125                 | 0.234     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 1/16-27 / 1/8-27   | 7.912       | 9046060079120 |
| 12.00                | 8.000                | 6.200   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M8 / M11           | 8.012       | 9046060080120 |
| 12.00                | 8.000                | 6.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M11                | 18.012      | 9046060180120 |
| 12.00                | 8.077                | 6.045   | ANSI      | 0.318                  | 0.238     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 5/16-18 & 5/16-24  | 28.012      | 9046060280120 |
| 12.00                | 8.204                | 6.147   | ANSI      | 0.323                  | 0.242     | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | 7/16-14 & 7/16-20  | 8.212       | 9046060082120 |
| 12.00                | 8.500                | 6.500   | JIS       | -                      | -         | 16.50                | 29.00                | 2.00                 | 31.00                | 4364 8.020                 | M12                | 8.512       | 9046060085120 |
| 12.00                | 9.000                | 7.000   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 32.00                | 4364 9.020                 | M9 / M12           | 9.012       | 9046060090120 |
| 12.00                | 9.322                | 6.985   | ANSI      | 0.367                  | 0.275     | 16.50                | 29.00                | 2.00                 | 32.00                | 4364 9.020                 | 1/2-13 & 1/2-20    | 9.312       | 9046060093120 |
| 12.00                | 9.677                | 7.264   | ANSI      | 0.381                  | 0.286     | 16.50                | 29.00                | 2.00                 | 33.00                | 4364 9.020                 | 3/8-16 & 3/8-24    | 9.612       | 9046060096120 |
| 12.00                | 10.000               | 8.000   | DIN       | -                      | -         | 16.50                | 29.00                | 2.00                 | 36.00                | 4364 10.020                | M10                | 10.012      | 9046060100120 |

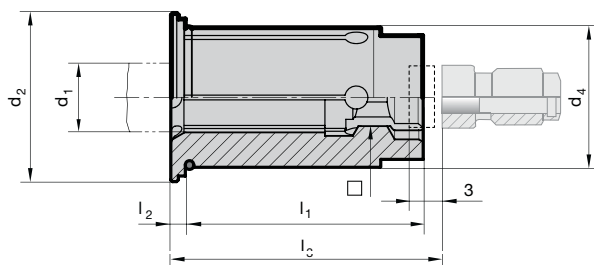
## Product information

- for clamping taps with square shank in GÜHROSync synchro tapping chucks
- clamping-Ø for tool shank tolerance h6-h9
- positive drive of reduction bush in Gührosync synchro chuck
- with coolant slots for peripheral cooling, therefore process and tool life improvement
- coiled swarf is consistently washed away
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment

## Scope of delivery

- order MQL setting screws Series no. 4305 separately
- order setting screw "face" Series no. 4364 separately

Tapping chucks



**GÜHROJET**

Series no. **4606**

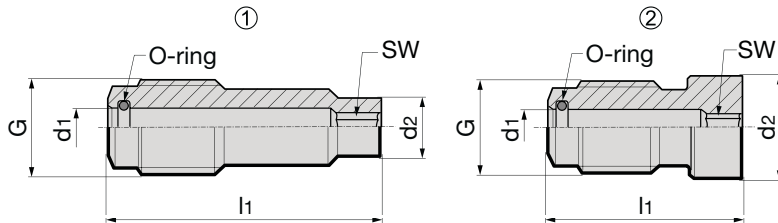
| d <sub>3</sub><br>mm | d <sub>1</sub><br>mm | □<br>mm | Standard  | d <sub>1</sub><br>inch | □<br>inch | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | for<br>adjustment<br>screw | for<br>thread     | Code<br>no. | EDP Number    |
|----------------------|----------------------|---------|-----------|------------------------|-----------|----------------------|----------------------|----------------------|----------------------|----------------------------|-------------------|-------------|---------------|
| 20.00                | 6.000                | 4.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M6                | 26.020      | 9046060260200 |
| 20.00                | 6.000                | 4.900   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M4.5/M5/M6/M7/M8  | 6.020       | 9046060060200 |
| 20.00                | 6.200                | 5.000   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | M7 / M8           | 6.220       | 9046060062200 |
| 20.00                | 6.477                | 4.851   | ANSI      | 0.255                  | 0.191     | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 6.032                 | 1/4-20 & 1/4-28   | 6.420       | 9046060064200 |
| 20.00                | 7.000                | 5.500   | DIN / JIS | -                      | -         | 24.10                | 34.00                | 2.00                 | 26.00                | 4364 7.032                 | M7 / M9 / M10     | 7.020       | 9046060070200 |
| 20.00                | 7.938                | 5.944   | ANSI      | 0.3125                 | 0.234     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 1/16-27/ 1/8-27   | 7.920       | 9046060079200 |
| 20.00                | 8.000                | 6.200   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M8 / M11          | 8.020       | 9046060080200 |
| 20.00                | 8.000                | 6.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M11               | 18.020      | 9046060180200 |
| 20.00                | 8.077                | 6.045   | ANSI      | 0.318                  | 0.238     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 5/16-18 & 5/16-24 | 28.020      | 9046060280200 |
| 20.00                | 8.204                | 6.147   | ANSI      | 0.323                  | 0.242     | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | 7/16-14 & 7/16-20 | 8.220       | 9046060082200 |
| 20.00                | 8.500                | 6.500   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 31.00                | 4364 8.032                 | M12               | 8.520       | 9046060085200 |
| 20.00                | 9.000                | 7.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 32.00                | 4364 9.032                 | M9 / M12          | 9.020       | 9046060090200 |
| 20.00                | 9.322                | 6.985   | ANSI      | 0.367                  | 0.275     | 24.10                | 34.00                | 2.00                 | 32.00                | 4364 9.032                 | 1/2-13 & 1/2-20   | 9.320       | 9046060093200 |
| 20.00                | 9.677                | 7.264   | ANSI      | 0.381                  | 0.286     | 24.10                | 34.00                | 2.00                 | 33.00                | 4364 9.032                 | 3/8-16 & 3/8-24   | 9.620       | 9046060096200 |
| 20.00                | 10.000               | 8.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 10.032                | M10               | 10.020      | 9046060100200 |
| 20.00                | 10.500               | 8.000   | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 10.032                | M14               | 10.520      | 9046060105200 |
| 20.00                | 10.897               | 8.179   | ANSI      | 0.429                  | 0.322     | 24.10                | 34.00                | 2.00                 | 35.00                | 4364 10.032                | 9/16-12 & 9/16-18 | 10.820      | 9046060108200 |
| 20.00                | 11.000               | 9.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 37.00                | 4364 11.032                | M14               | 11.020      | 9046060110200 |
| 20.00                | 12.000               | 9.000   | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 37.00                | 4364 11.032                | M16               | 12.020      | 9046060120200 |
| 20.00                | 12.192               | 9.144   | ANSI      | 0.480                  | 0.360     | 24.10                | 34.00                | 2.00                 | 36.00                | 4364 11.032                | 5/8-11 & 5/8-18   | 12.120      | 9046060121200 |
| 20.00                | 12.500               | 10.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 11.032                | M16               | 12.520      | 9046060125200 |
| 20.00                | 13.000               | 10.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 11.032                | M17               | 13.020      | 9046060130200 |
| 20.00                | 14.000               | 11.000  | DIN / JIS | -                      | -         | 24.10                | 34.00                | 2.00                 | 39.00                | 4364 14.032                | M18               | 14.020      | 9046060140200 |
| 20.00                | 14.288               | 10.693  | ANSI      | 0.5625                 | 0.421     | 24.10                | 34.00                | 2.00                 | 38.00                | 4364 14.032                | 1/4-18            | 14.220      | 9046060142200 |
| 20.00                | 14.986               | 11.227  | ANSI      | 0.590                  | 0.442     | 24.10                | 34.00                | 2.00                 | 39.00                | 4364 14.032                | 3/4-10 & 3/4-16   | 14.920      | 9046060149200 |
| 20.00                | 15.000               | 12.000  | JIS       | -                      | -         | 24.10                | 34.00                | 2.00                 | 40.00                | 4364 16.032                | M20               | 15.020      | 9046060150200 |
| 20.00                | 16.000               | 12.000  | DIN       | -                      | -         | 24.10                | 34.00                | 2.00                 | 41.00                | 4364 16.032                | M20               | 16.020      | 9046060160200 |

## Product information

- for hydro-synchro tapping chucks  
Series no. 4601, 4576, 4577 and 4525
- for synchro tapping chucks  
Series no. 4326 and 4327
- for conventional internal cooling
- with facing stop for standard shank ends
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment with hexagonal spanner Series no. 4912, type „B“

## Scope of delivery

- with O-ring for secure seal



Series no. **4364**

| for nominal size | for tap shank-Ø x □ | G     | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | SW  | O-ring | type | EDP Number    |
|------------------|---------------------|-------|-------------------|-------------------|-------------------|-----|--------|------|---------------|
| ER20 / Hydro12   | < Ø6                | M8x1  | 3.6               | 3.3               | 23.7              | 2.0 | 3.5x1  | 1    | 9043640050200 |
| ER20 / Hydro12   | 6x4,9               | M8x1  | 3.6               | 4.8               | 23.7              | 2.5 | 3.5x1  | 1    | 9043640060200 |
| ER20 / Hydro12   | 7x5,5               | M8x1  | 3.6               | 5.4               | 23.7              | 2.5 | 3.5x1  | 1    | 9043640070200 |
| ER20 / Hydro12   | 8x6,2               | M8x1  | 3.6               | 5.8               | 18.7              | 2.5 | 3.5x1  | 1    | 9043640080200 |
| ER20 / Hydro12   | 9x7                 | M8x1  | 3.6               | 6.9               | 17.7              | 2.5 | 3.5x1  | 1    | 9043640090200 |
| ER20 / Hydro12   | 10x8                | M8x1  | 3.6               | 7.8               | 13.7              | 2.5 | 3.5x1  | 2    | 9043640100200 |
| ER20 / Hydro12   | 11x9                | M8x1  | 3.6               | 8.8               | 14.8              | 2.5 | 3.5x1  | 2    | 9043640110200 |
| ER32 / Hydro20   | < Ø6                | M10x1 | 4.1               | 3.3               | 33.0              | 2.0 | 4x1    | 1    | 9043640050320 |
| ER32 / Hydro20   | 6x4,9               | M10x1 | 4.1               | 4.8               | 34.0              | 3.0 | 4x1    | 1    | 9043640060320 |
| ER32 / Hydro20   | 7x5,5               | M10x1 | 4.1               | 5.4               | 33.8              | 3.0 | 4x1    | 1    | 9043640070320 |
| ER32 / Hydro20   | 8x6,2               | M10x1 | 4.1               | 6.1               | 28.8              | 3.0 | 4x1    | 1    | 9043640080320 |
| ER32 / Hydro20   | 9x7                 | M10x1 | 4.1               | 6.9               | 28.3              | 3.0 | 4x1    | 1    | 9043640090320 |
| ER32 / Hydro20   | 10x8                | M10x1 | 4.1               | 7.8               | 23.8              | 3.0 | 4x1    | 1    | 9043640100320 |
| ER32 / Hydro20   | 11x9 & 12x9         | M10x1 | 4.1               | 8.8               | 22.9              | 3.0 | 4x1    | 1    | 9043640110320 |
| ER32 / Hydro20   | 14x11               | M10x1 | 4.1               | 10.8              | 20.7              | 3.0 | 4x1    | 2    | 9043640140320 |
| ER32 / Hydro20   | 16x12               | M10x1 | 4.1               | 11.8              | 19.7              | 3.0 | 4x1    | 2    | 9043640160320 |
| ER32 / Hydro20   | 18x14.5 & 20x16     | M10x1 | 4.1               | 14.3              | 18.0              | 3.0 | 4x1    | 2    | 9043640180320 |
|                  |                     |       |                   |                   |                   |     |        |      |               |
|                  |                     |       |                   |                   |                   |     |        |      |               |
|                  |                     |       |                   |                   |                   |     |        |      |               |
|                  |                     |       |                   |                   |                   |     |        |      |               |
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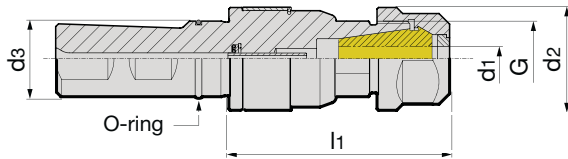
## Synchro tapping chucks with straight shank

### Product information

- compensate synchronisation errors
- minimal length compensation  $\pm 0,15$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap, which can cause high frictional forces on the thread flanks
- length-setting screw allows 2 to 3 mm readjustment
- suitable for internal cooling
- max. coolant pressure up to 50 bar
- combination shank similar to DIN 1835 for side lock holders

### Scope of delivery

- incl. sealed IC/ER clamping nut  
Series no. 4306 (\*see torque)
- incl. adjustment key for adjustment screws
- order adjustment screws „plan“  
Series no. 4364, tapping collet,  
Series no. 4308, sealing washer,  
Series no. 4335 and clamping key,  
Series no. 4913 separately



Series no. **4326**

| $d_3$<br>~DIN 1835<br>mm | nom. size | for<br>thread | $d_1$<br>mm | $d_2$<br>mm | $l_1$<br>mm | torque*<br>Nm | G       | kg   | Code no. | EDP Number    |
|--------------------------|-----------|---------------|-------------|-------------|-------------|---------------|---------|------|----------|---------------|
| 25                       | ER20      | M4-M14        | 4-11.0      | 34          | 73          | 35            | M25x1.5 | 0.50 | 20.025   | 9043260200250 |
| 25                       | ER32      | M4-M30        | 4-20.0      | 50          | 87.5        | 136           | M40x1.5 | 1.30 | 32.025   | 9043260320250 |

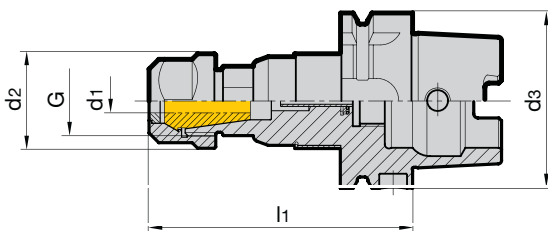
## HSK-A synchro tapping chucks

### Product information

- compensate synchronisation errors
- guarantee high thread quality and optimal tool life with conventional taps
- minimal length compensation  $\pm 0,15$  mm in tension and compression direction between synchronous spindle and tap reduces excessive thread flank friction
- reduces a possible increase in axial forces during the cutting cycle to a minimum
- length-setting screw allows 2 to 3 mm readjustment
- suitable for internal cooling
- max. coolant pressure up to 50 bar
- HSK-A to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. sealed IC/ER clamping nut  
Series no. 4306 (\*see torque)
- incl. adjustment key for adjustment screws
- order adjustment screws „plan“  
Series no. 4364, tapping collet,  
Series no. 4308, sealing washer,  
Series no. 4325 and clamping key,  
Series no. 4913 separately
- for conventional cooling order coolant supply set  
Series no. 4949 separately



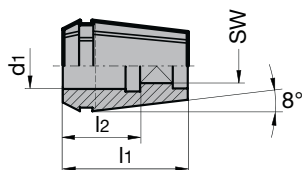
Series no. **4327**

| $d_3$<br>~DIN 1835<br>mm | nom. size | for<br>thread | $d_1$<br>mm | $d_2$<br>mm | $l_1$<br>mm | torque*<br>Nm | G       | kg   | Code no. | EDP Number    |
|--------------------------|-----------|---------------|-------------|-------------|-------------|---------------|---------|------|----------|---------------|
| 63                       | ER20      | M4-M14        | 4.5-11.2    | 34          | 95.5        | 35            | M25x1.5 | 1.00 | 20.063   | 9043270200630 |
| 63                       | ER20      | M4-M14        | 4.5-11.2    | 34          | 160.0       | 35            | M25x1.5 | 1.50 | 20.163   | 9043270201630 |
| 63                       | ER32      | M4-M30        | 4.5-18.0    | 50          | 109.0       | 136           | M40x1.5 | 1.70 | 32.063   | 9043270320630 |
| 100                      | ER20      | M4-M14        | 4.5-11.2    | 34          | 102.0       | 35            | M25x1.5 | 2.50 | 20.100   | 9043270201000 |
| 100                      | ER32      | M4-M30        | 4.5-18.0    | 50          | 115.5       | 136           | M40x1.5 | 2.70 | 32.100   | 9043270321000 |

## Product information

- for clamping taps with square shank in synchro tapping chucks or collet holders
- smaller Ø4mm are clamped with collet, Series no. 4307 without sq. drive
- tightening torque see clamping nuts Series no. 4306

Clamping range:  
 ER16: Ø 4.5 - Ø 8.0  
 ER20: Ø 4.0 - Ø 11.0  
 ER25: Ø 4.5 - Ø 12.0  
 ER32: Ø 4.0 - Ø 20.0  
 ER40: Ø 7.0 - Ø 22.0



Series no. **4308**

| nominal size | for shank Ø d <sub>1</sub> mm | square SW | l <sub>1</sub> mm | l <sub>2</sub> mm | Code no. | EDP Number    |
|--------------|-------------------------------|-----------|-------------------|-------------------|----------|---------------|
| ER16         | 4.5                           | 3.4       | 27.5              | 15                | 4.516    | 9043080045160 |
| ER16         | 5.5                           | 4.3       | 27.5              | 18                | 5.516    | 9043080055160 |
| ER16         | 6.0                           | 4.9       | 27.5              | 18                | 6.016    | 9043080060160 |
| ER16         | 7.0                           | 5.5       | 27.5              | 18                | 7.016    | 9043080070160 |
| ER16         | 8.0                           | 6.2/6.3   | 27.5              | 22                | 8.016    | 9043080080160 |
| ER20         | 4.0                           | 3.2       | 31.5              | 15                | 4.020    | 9043080040200 |
| ER20         | 4.5                           | 3.4       | 31.5              | 15                | 4.520    | 9043080045200 |
| ER20         | 5.5                           | 4.3       | 31.5              | 18                | 5.520    | 9043080055200 |
| ER20         | 6.0                           | 4.9       | 31.5              | 18                | 6.020    | 9043080060200 |
| ER20         | 7.0                           | 5.5       | 31.5              | 18                | 7.020    | 9043080070200 |
| ER20         | 8.0                           | 6.2/6.3   | 31.5              | 22                | 8.020    | 9043080080200 |
| ER20         | 9.0                           | 7.0/7.1   | 31.5              | 22                | 9.020    | 9043080090200 |
| ER20         | 10.0                          | 8.0       | 31.5              | 25                | 10.020   | 9043080100200 |
| ER20         | 11.0                          | 9.0       | 31.5              | 25                | 11.020   | 9043080110200 |
| ER25         | 4.5                           | 3.4       | 34.0              | 15                | 4.525    | 9043080045250 |
| ER25         | 5.5                           | 4.3       | 34.0              | 18                | 5.525    | 9043080055250 |
| ER25         | 6.0                           | 4.9       | 34.0              | 18                | 6.025    | 9043080060250 |
| ER25         | 7.0                           | 5.5       | 34.0              | 18                | 7.025    | 9043080070250 |
| ER25         | 8.0                           | 6.2/6.3   | 34.0              | 22                | 8.025    | 9043080080250 |
| ER25         | 9.0                           | 7.0/7.1   | 34.0              | 22                | 9.025    | 9043080090250 |
| ER25         | 10.0                          | 8.0       | 34.0              | 25                | 10.025   | 9043080100250 |
| ER25         | 11.0                          | 9.0       | 34.0              | 25                | 11.025   | 9043080110250 |
| ER25         | 12.0                          | 9.0       | 34.0              | 25                | 12.025   | 9043080120250 |
| ER32         | 4.0                           | 3.15/3.2  | 40.0              | 15                | 4.032    | 9043080040320 |
| ER32         | 4.5                           | 3.4       | 40.0              | 15                | 4.532    | 9043080045320 |
| ER32         | 5.5                           | 4.3       | 40.0              | 18                | 5.532    | 9043080055320 |
| ER32         | 6.0                           | 4.9       | 40.0              | 18                | 6.032    | 9043080060320 |
| ER32         | 7.0                           | 5.5       | 40.0              | 18                | 7.032    | 9043080070320 |
| ER32         | 8.0                           | 6.2/6.3   | 40.0              | 22                | 8.032    | 9043080080320 |
| ER32         | 9.0                           | 7.0/7.1   | 40.0              | 22                | 9.032    | 9043080090320 |
| ER32         | 10.0                          | 8.0       | 40.0              | 25                | 10.032   | 9043080100320 |
| ER32         | 11.0                          | 9.0       | 40.0              | 25                | 11.032   | 9043080110320 |
| ER32         | 12.0                          | 9.0       | 40.0              | 25                | 12.032   | 9043080120320 |
| ER32         | 14.0                          | 11.0/11.2 | 40.0              | 25                | 14.032   | 9043080140320 |
| ER32         | 16.0                          | 12.0/12.5 | 40.0              | 25                | 16.032   | 9043080160320 |
| ER32         | 18.0                          | 14.5      | 40.0              | 25                | 18.032   | 9043080180320 |
| ER32         | 20.0                          | 16.0      | 40.0              | 28                | 20.032   | 9043080200320 |
| ER40         | 7.0                           | 5.5       | 46.0              | 18                | 7.040    | 9043080070400 |
| ER40         | 8.0                           | 6.2/6.3   | 46.0              | 22                | 8.040    | 9043080080400 |
| ER40         | 9.0                           | 7.0/7.1   | 46.0              | 22                | 9.040    | 9043080090400 |
| ER40         | 10.0                          | 8.0       | 46.0              | 25                | 10.040   | 9043080100400 |
| ER40         | 11.0                          | 9.0       | 46.0              | 25                | 11.040   | 9043080110400 |
| ER40         | 12.0                          | 9.0       | 46.0              | 25                | 12.040   | 9043080120400 |
| ER40         | 14.0                          | 11.0/11.2 | 46.0              | 25                | 14.040   | 9043080140400 |
| ER40         | 16.0                          | 12.0/12.5 | 46.0              | 25                | 16.040   | 9043080160400 |
| ER40         | 18.0                          | 14.5      | 46.0              | 25                | 18.040   | 9043080180400 |
| ER40         | 20.0                          | 16.0      | 46.0              | 28                | 20.040   | 9043080200400 |
| ER40         | 22.0                          | 18.0      | 46.0              | 28                | 22.040   | 9043080220400 |

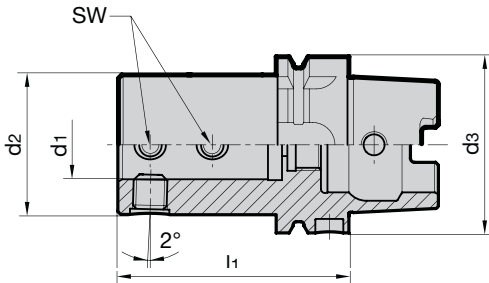
## HSK-A adaptors for tapping chucks

### Product information

- for quick change chucks and synchro tapping chucks with straight shank
- HSK-A to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. clamping screws Series no. 4903, EDP # 16,001
- order coolant supply set Series no. 4949 separately



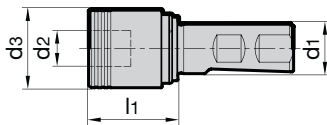
Series no. **4343**

| HSK-A<br>d <sub>3</sub> | d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | SW | kg   | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------|----------------------|----|------|----------|---------------|
| 50                      | 25                   | 50                   | 80                   | 6  | 0.89 | 25.050   | 9043430250500 |
| 63                      | 25                   | 50                   | 82                   | 6  | 1.26 | 25.063   | 9043430250630 |
| 80                      | 25                   | 50                   | 87                   | 6  | 3.10 | 25.080   | 9043430250800 |
| 100                     | 25                   | 50                   | 89                   | 6  | 4.08 | 25.100   | 9043430251000 |

## Quick change tapping chucks without internal cooling

### Product information

- quick change tapping chucks are provided with a ball guided length compensator that compensates any length difference between spindle feed and pitch of tap thread
- combination shank similar to DIN 1835 for side lock holders



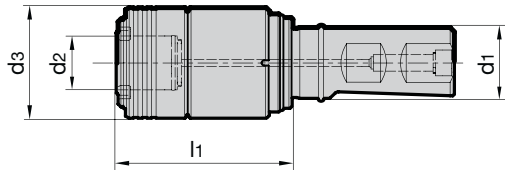
Series no. **4340**

| for<br>thread | d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | tension/<br>compression<br>± mm | kg   | Code no. | EDP Number    |
|---------------|----------------------|----------------------|----------------------|----------------------|---------------------------------|------|----------|---------------|
| M3-M12        | 25                   | 19                   | 39                   | 45                   | 7.5                             | 0.45 | 19.025   | 9043400190250 |
| M8-M20        | 25                   | 31                   | 60                   | 68                   | 10.0                            | 1.10 | 31.025   | 9043400310250 |

## Quick change tapping chucks with internal cooling

### Product information

- quick change tapping chucks are provided with a ball guided length compensator that compensates any length difference between spindle feed and pitch of tap thread
- provided with internal coolant supply feeding the coolant through the chuck and adaptor into the shank of the tap.
- All functional elements are sealed
- max. coolant pressure up to 50 bar
- combination shank similar to DIN 1835 for side lock holders



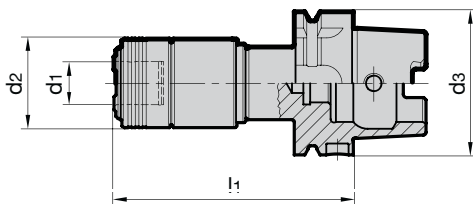
Series no. **4342**

| for thread | d1 mm | d2 mm | d3 mm | l1 mm | l2 mm | tension/compression ± mm | kg  | Code no. | EDP Number    |
|------------|-------|-------|-------|-------|-------|--------------------------|-----|----------|---------------|
| M3-M12     | 25    | 19    | 39    | 62    | 57    | 7.5                      | 0.6 | 19.025   | 9043420190250 |
| M8-M20     | 25    | 31    | 60    | 98    | 57    | 10.0                     | 1.6 | 31.025   | 9043420310250 |

## HSK-A quick change tapping chucks with internal cooling

### Product information

- quick change tapping chucks are provided with a ball guided length compensator that compensates any length difference between spindle feed and pitch of tap thread
- guarantee high thread quality and optimal tool life with conventional taps
- max. coolant pressure up to 50 bar.
- HSK-A to ISO 12164-1/DIN 69893-1

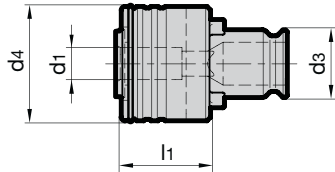


Series no. **4328**

| HSK-A d3 mm | for thread | d1 mm | d2 mm | l1 mm | tension/compression ± mm | kg   | Code no. | EDP Number    |
|-------------|------------|-------|-------|-------|--------------------------|------|----------|---------------|
| 63          | M3-M12     | 19    | 39    | 105   | 7.5                      | 1.13 | 19.063   | 9043280190630 |
| 63          | M8-M20     | 31    | 60    | 140   | 10.0                     | 2.28 | 31.063   | 9043280310630 |

**Product information**

- with safety clutch
- suitable for HSS taps
- for solid carbide taps a clamping groove is required on the shank to provide additional drive.
- suitable for central coolant supply max. 50 bar.



Tapping chucks

**Series no. 4206**

| for thread | shank $\text{Ø} \times \text{sq.}$<br>$d_1$<br>mm | $d_3$<br>mm | Mt max.<br>Nm | $d_4$<br>mm | $l_1$<br>mm | Code no. | EDP Number    |
|------------|---|-------------|---------------|-------------|-------------|----------|---------------|
| M3-M12     | 2.2   | 19          | 30            | 32          | 25          | 19.022   | 9042060190220 |
| M3-M12     | 2.5 x 2.1   | 19          | 30            | 32          | 25          | 19.025   | 9042060190250 |
| M3-M12     | 2.8 x 2.1   | 19          | 30            | 32          | 25          | 19.028   | 9042060190280 |
| M3-M12     | 3.5 x 2.7   | 19          | 30            | 32          | 25          | 19.035   | 9042060190350 |
| M3-M12     | 4 x 3   | 19          | 30            | 32          | 25          | 19.040   | 9042060190400 |
| M3-M12     | 4.5 x 3.4   | 19          | 30            | 32          | 25          | 19.045   | 9042060190450 |
| M3-M12     | 5.5 x 4.5   | 19          | 30            | 32          | 25          | 19.055   | 9042060190550 |
| M3-M12     | 6 x 4.9   | 19          | 30            | 32          | 25          | 19.060   | 9042060190600 |
| M3-M12     | 7 x 5.5   | 19          | 30            | 32          | 25          | 19.070   | 9042060190700 |
| M3-M12     | 8 x 6.2   | 19          | 30            | 32          | 25          | 19.080   | 9042060190800 |
| M3-M12     | 9 x 7   | 19          | 30            | 32          | 25          | 19.090   | 9042060190900 |
| M3-M12     | 10 x 8  | 19          | 30            | 32          | 25          | 19.100   | 9042060191000 |
| M8-M20     | 6 x 4.9   | 31          | 120           | 50          | 34          | 31.060   | 9042060310600 |
| M8-M20     | 7 x 5.5   | 31          | 120           | 50          | 34          | 31.070   | 9042060310700 |
| M8-M20     | 8 x 6.2   | 31          | 120           | 50          | 34          | 31.080   | 9042060310800 |
| M8-M20     | 9 x 7   | 31          | 120           | 50          | 34          | 31.090   | 9042060310900 |
| M8-M20     | 10 x 8  | 31          | 120           | 50          | 34          | 31.100   | 9042060311000 |
| M8-M20     | 11 x 9  | 31          | 120           | 50          | 34          | 31.110   | 9042060311100 |
| M8-M20     | 12 x 9  | 31          | 120           | 50          | 34          | 31.120   | 9042060311200 |
| M8-M20     | 14 x 11   | 31          | 120           | 50          | 34          | 31.140   | 9042060311400 |
| M8-M20     | 16 x 12   | 31          | 120           | 50          | 34          | 31.160   | 9042060311600 |

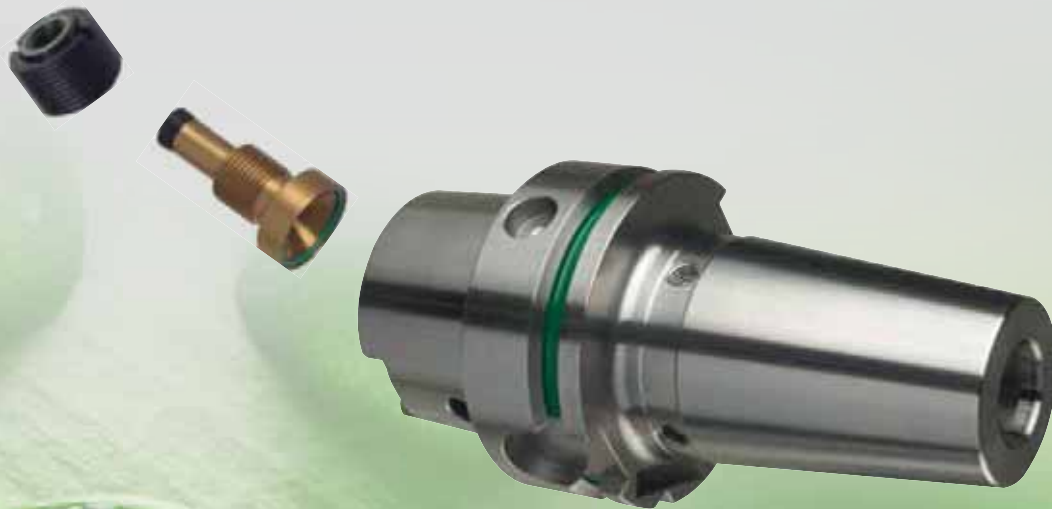
# MQL



MQL-TECHNOLOGY

# MQL

## BY GÜHRING



### 1 MQL

BY GÜHRING

Our products for the MQL 1-channel technology are identified by this symbol.

**Visual feature of the 1-channel system** is the gold colored MQL length setting screw.



### 2 MQL

BY GÜHRING

Our products for the MQL 2-channel technology are identified by this symbol.

**Visual feature of the 2-channel system** is the black colored MQL length setting screw.

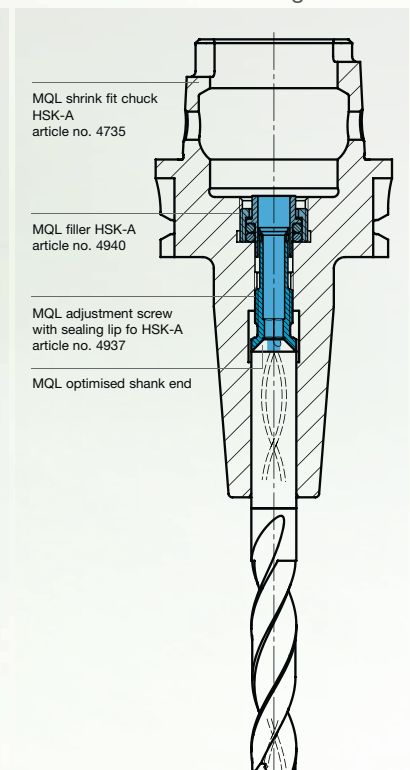
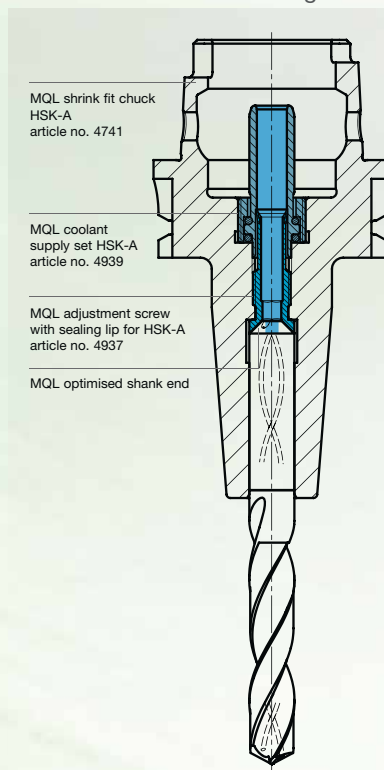


# MQL SYSTEM FINDER





|  |                                  |   | HSK-A<br>for automatic tool change | HSK-C<br>for manual tool change |
|--|----------------------------------|---|------------------------------------|---------------------------------|
|   | Hydraulic chucks                 |    | 4210, p. 105                       | 4209, p. 104                    |
|  | Shrink fit chucks                |    | 4741, p. 108                       | 4735, p. 106                    |
|  | Guhrosync synchro tapping chucks |    | 4602, p.116                        | 4604, p. 115                    |
|  | Synchro-chucks                   |    | 4330, p. 118                       | 4298, p. 118                    |
|  | Hydraulic chucks                 |    | 4612, p. 124                       | 4611, p. 121                    |
|  | Shrink fit chucks                |    | 4614, p. 131                       | 4613, p. 127                    |
|  | Guhrosync synchro tapping chucks |   | 4603, p.142                        | 4604, p.141                     |
|  | Synchro-chucks                   |  | 4341, p. 145                       | 4298, p. 144                    |

automatic tool change





manual tool change




MQL shrink fit chucks  
HSK-A  
auto. tool change


- 4741**  MQL
- 4614**  MQL
- 4735**  MQL
- 4613**  MQL

MQL hydraulic tapping chucks  
HSK-A  
auto. tool change



- 4210**  MQL
- 4612**  MQL
- 4209**  MQL
- 4611**  MQL

**4508**  MQL  
MQL coolant supply set  
for single channel  
HSK-A



**4511**  MQL  
MQL coolant supply set  
for 2 channel systems  
HSK-A



**4513**  MQL  
 MQL  
MQL coolant supply set  
HSK-A (filler)



MQL HSK-A hydraulic  
synchro tapping chucks for  
single channel  
auto. tool change

**4602**  MQL

MQL HSK-A hydraulic  
synchro tapping chucks for  
2 channel systems  
auto. tool change

**4603**  MQL

MQL HSK-A hydraulic  
synchro tapping chucks  
man. tool change

**4604**  MQL  
 MQL



**4524**  MQL  MQL  
MQL Hydro-Ø 12 / Ø 20  
synchro tapping chucks with internal cooling Ø 20



**4305**  
MQL setting screws with internal cone  
for MQL synchro tapping chucks

**4605**  
Reduction bushes, sealed

**4606**  
GÜHROJET reduction bushes

Threading tool with MQL shank:  
shank diameter x square

MQL 1-channel

# Configuration of MQL synchro tapping chucks

**4508** 

Coolant supply set  
for automatic tool change

**4511** 

MQL coolant supply set  
for automatic tool change

**4513**


MQL coolant supply set  
for manual tool change



**4330**

HSK-A synchro  
tapping chucks  
for MQL single  
channel systems  
for automatic tool  
change



**4341**

HSK-A synchro  
tapping chucks  
for MQL double  
channel systems  
for automatic tool  
change



**4298**

HSK-A synchro  
tapping chucks  
for manual tool  
change  
for MQL single  
and  
double channel  
systems



**4305**

MQL setting screw with internal taper  
for MQL synchro tapping chucks



**4308**

tap collet



**4335**

sealing washer  
for retaining nuts



tap

MQL 1-channel



# MQL

TECHNOLOGY AND  
ADVANTAGES

- ⇒ Cost reduction due to reduced cleaning
- ⇒ Environment & health protection
- ⇒ Less cooling lubrication requirement – high coolant effect
- ⇒ Low process temperatures
- ⇒ Lower working temperature at tool point
- ⇒ Uninterrupted cooling lubricant supply
- ⇒ Direct response without losses
- ⇒ High compatibility

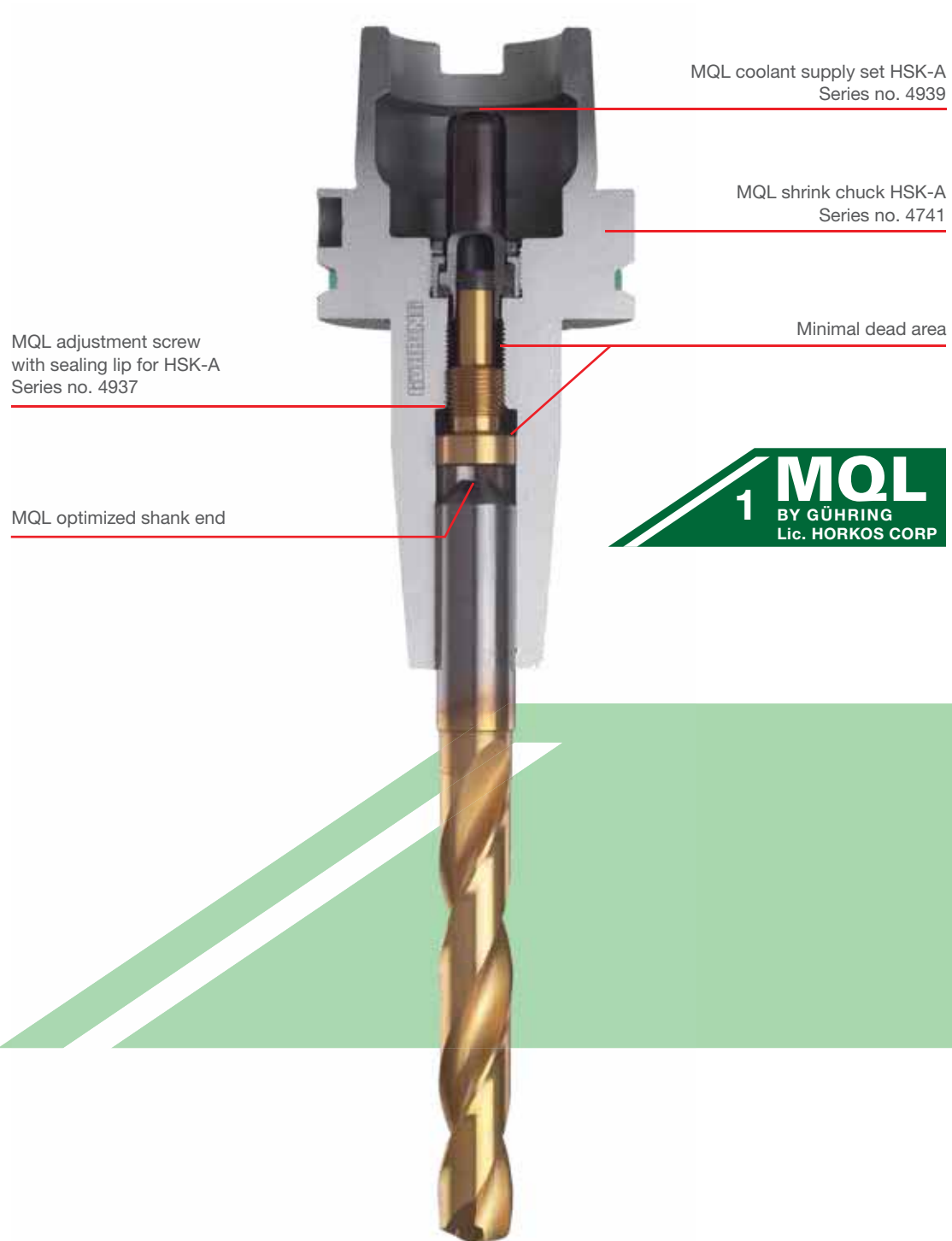
# MQL

BY GUHRING



Our products for the MQL 1-channel technology are identified by this symbol.

**Visual feature of the 1-channel system** is the gold colored MQL length setting screw.



MQL coolant supply set HSK-A  
Series no. 4939

MQL shrink chuck HSK-A  
Series no. 4741

MQL adjustment screw  
with sealing lip for HSK-A  
Series no. 4937

Minimal dead area

MQL optimized shank end



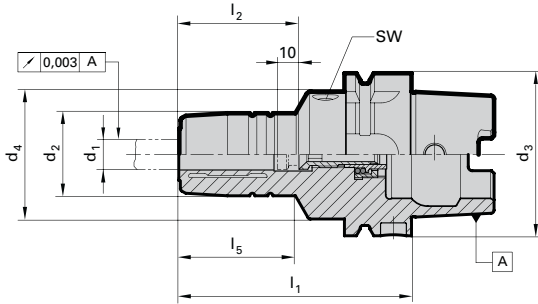
# MQL 1-channel-hydraulic chucks HSK-A for manual tool change

## Product information

- to Gühring MQL standard
- for 1-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- axial length setting

## Scope of delivery

- incl. MQL adjustment screw with sealing lip  
Series no. 4937 and MQL coolant supply set  
Series no. 4940 (filler)
- incl. hexagon chuck key Series no. 4912
- special dimensions on request



Series no. **4209**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl. setting<br>screw<br>no. 4937 ... | SW | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|----|------|----------|---------------|
| 32                      | 6  | 26                   | 40                   | 80                   | 36                   | 29                   | 6.032                                  | 4  | 0.40 | 6.032    | 9042090060320 |
| 32                      | 8  | 28                   | 40                   | 80                   | 36                   | 29                   | 8.032                                  | 4  | 0.42 | 8.032    | 9042090080320 |
| 32                      | 10   | 30                   | 40                   | 85                   | 40                   | 35                   | 10.032                                 | 4  | 0.45 | 10.032   | 9042090100320 |
| 32                      | 12   | 32                   | 40                   | 90                   | 45                   | 40                   | 12.032                                 | 4  | 0.49 | 12.032   | 9042090120320 |
| 40                      | 6  | 26                   | 33.5                 | 80                   | 36                   | 46                   | 6.040                                  | 4  | 0.44 | 6.040    | 9042090060400 |
| 40                      | 8  | 28                   | 33.5                 | 80                   | 36                   | 46                   | 8.040                                  | 4  | 0.47 | 8.040    | 9042090080400 |
| 40                      | 10   | 30                   | 33.5                 | 80                   | 40                   | 46                   | 10.040                                 | 4  | 0.49 | 10.040   | 9042090100400 |
| 40                      | 12   | 32                   | 33.5                 | 90                   | 45                   | 56                   | 12.040                                 | 4  | 0.46 | 12.040   | 9042090120400 |
| 50                      | 6  | 26                   | 40                   | 80                   | 36                   | 38.0                 | 6.050                                  | 4  | 0.95 | 6.050    | 9042090060500 |
| 50                      | 8  | 28                   | 40                   | 80                   | 36                   | 38.0                 | 8.050                                  | 4  | 0.95 | 8.050    | 9042090080500 |
| 50                      | 10   | 30                   | 40                   | 85                   | 40                   | 44.0                 | 10.050                                 | 4  | 0.95 | 10.050   | 9042090100500 |
| 50                      | 12   | 32                   | 40                   | 90                   | 45                   | 49.0                 | 12.050                                 | 4  | 0.95 | 12.050   | 9042090120500 |
| 50                      | 14   | 34                   | 40                   | 90                   | 45                   | 49.0                 | 14.050                                 | 4  | 0.95 | 14.050   | 9042090140500 |
| 50                      | 16   | 38                   | 53                   | 95                   | 48                   | 36.0                 | 16.050                                 | 5  | 1.25 | 16.050   | 9042090160500 |
| 50                      | 18   | 40                   | 57                   | 95                   | 48                   | 36.0                 | 18.050                                 | 5  | 1.25 | 18.050   | 9042090180500 |
| 50                      | 20   | 42                   | 60                   | 100                  | 50                   | 39.0                 | 20.050                                 | 5  | 1.25 | 20.050   | 9042090200500 |
| 63                      | 6  | 26                   | 50                   | 80                   | 36                   | 34.5                 | 6.100                                  | 5  | 1.25 | 6.063    | 9042090060630 |
| 63                      | 8  | 28                   | 50                   | 80                   | 36                   | 35.5                 | 8.100                                  | 5  | 1.25 | 8.063    | 9042090080630 |
| 63                      | 10   | 30                   | 50                   | 85                   | 40                   | 39.0                 | 10.100                                 | 5  | 1.25 | 10.063   | 9042090100630 |
| 63                      | 12   | 32                   | 50                   | 90                   | 45                   | 45.0                 | 12.100                                 | 5  | 1.35 | 12.063   | 9042090120630 |
| 63                      | 14   | 34                   | 50                   | 90                   | 45                   | 46.0                 | 14.100                                 | 5  | 1.35 | 14.063   | 9042090140630 |
| 63                      | 16   | 38                   | 50                   | 95                   | 48                   | 51.0                 | 16.100                                 | 5  | 1.45 | 16.063   | 9042090160630 |
| 63                      | 18   | 40                   | 50                   | 95                   | 48                   | 52.0                 | 18.100                                 | 5  | 1.45 | 18.063   | 9042090180630 |
| 63                      | 20   | 42                   | 50                   | 100                  | 50                   | 58.0                 | 20.100                                 | 5  | 1.45 | 20.063   | 9042090200630 |
| 63                      | 25   | 57                   | 63                   | 115                  | 56                   | 50.0                 | 25.100                                 | 6  | 2.45 | 25.063   | 9042090250630 |
| 63                      | 32   | 64                   | 75                   | 120                  | 60                   | 58.0                 | 32.100                                 | 6  | 3.10 | 32.063   | 9042090320630 |
| 80                      | 6  | 26                   | 50                   | 85                   | 36                   | 39                   | 6.100                                  | 5  | 1.50 | 6.080    | 9042090060800 |
| 80                      | 8  | 28                   | 50                   | 85                   | 36                   | 39                   | 8.100                                  | 5  | 1.52 | 8.080    | 9042090080800 |
| 80                      | 10   | 30                   | 50                   | 90                   | 40                   | 45                   | 10.100                                 | 5  | 1.56 | 10.080   | 9042090100800 |
| 80                      | 12   | 32                   | 50                   | 95                   | 45                   | 50                   | 12.100                                 | 5  | 1.61 | 12.080   | 9042090120800 |
| 80                      | 14   | 34                   | 50                   | 95                   | 45                   | 50                   | 14.100                                 | 5  | 1.64 | 14.080   | 9042090140800 |
| 80                      | 16   | 38                   | 50                   | 100                  | 48                   | 56                   | 16.100                                 | 5  | 1.72 | 16.080   | 9042090160800 |
| 80                      | 18   | 40                   | 50                   | 100                  | 48                   | 56                   | 18.100                                 | 5  | 1.76 | 18.080   | 9042090180800 |
| 80                      | 20   | 42                   | 50                   | 105                  | 50                   | 62                   | 20.100                                 | 5  | 1.82 | 20.080   | 9042090200800 |
| 80                      | 25   | 57                   | 63                   | 115                  | 56                   | 70                   | 25.100                                 | 6  | 2.60 | 25.080   | 9042090250800 |
| 80                      | 32   | 64                   | 75                   | 120                  | 60                   | 58                   | 32.100                                 | 6  | 3.11 | 32.080   | 9042090320800 |
| 100                     | 6  | 26                   | 50                   | 85                   | 36                   | 36.0                 | 6.100                                  | 5  | 2.60 | 6.100    | 9042090061000 |
| 100                     | 8  | 28                   | 50                   | 85                   | 36                   | 36.0                 | 8.100                                  | 5  | 2.60 | 8.100    | 9042090081000 |
| 100                     | 10   | 30                   | 50                   | 90                   | 40                   | 42.0                 | 10.100                                 | 5  | 2.60 | 10.100   | 9042090101000 |
| 100                     | 12   | 32                   | 50                   | 95                   | 45                   | 47.0                 | 12.100                                 | 5  | 2.65 | 12.100   | 9042090121000 |
| 100                     | 14   | 34                   | 50                   | 95                   | 45                   | 47.0                 | 14.100                                 | 5  | 2.65 | 14.100   | 9042090141000 |
| 100                     | 16   | 38                   | 50                   | 100                  | 48                   | 53.0                 | 16.100                                 | 5  | 2.85 | 16.100   | 9042090161000 |
| 100                     | 18   | 40                   | 50                   | 100                  | 48                   | 53.0                 | 18.100                                 | 5  | 2.85 | 18.100   | 9042090181000 |
| 100                     | 20   | 42                   | 50                   | 105                  | 50                   | 59.0                 | 20.100                                 | 5  | 3.35 | 20.100   | 9042090201000 |
| 100                     | 25   | 57                   | 63                   | 115                  | 56                   | 67.0                 | 25.100                                 | 6  | 3.50 | 25.100   | 9042090251000 |
| 100                     | 32   | 64                   | 75                   | 120                  | 60                   | 72.0                 | 32.100                                 | 6  | 3.95 | 32.100   | 9042090321000 |

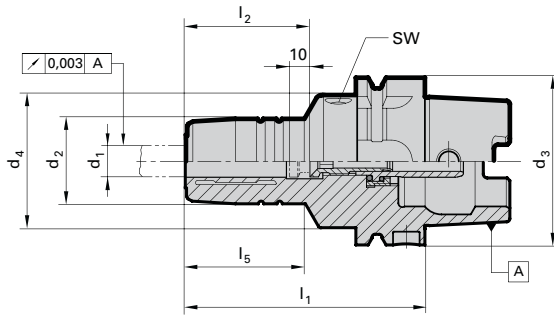
# MQL 1-channel-hydraulic chucks HSK-A for automatic tool change

## Product information

- to Gühring MQL standard
- for 1-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- axial length setting

## Scope of delivery

- incl. MQL adjustment screw with sealing lip  
Series no. 4937 and MQL coolant supply set  
Series no. 4939
- incl. hexagon chuck key Series no. 4912
- special dimensions on request



Series no. **4210**

| HSK-A<br>d3 | for<br>shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | incl. setting<br>screw<br>no. 4937 ... | SW | kg   | Code no. | EDP Number    |
|-------------|----------------------------|----------|----------|----------|----------|----------|--|----|------|----------|---------------|
| 32          | 6                          | 26       | 40       | 80       | 36       | 29       | 6.032                                  | 4  | 0.40 | 6.032    | 9042100060320 |
| 32          | 8                          | 28       | 40       | 80       | 36       | 29       | 8.032                                  | 4  | 0.42 | 8.032    | 9042100080320 |
| 32          | 10                         | 30       | 40       | 85       | 40       | 35       | 10.032                                 | 4  | 0.45 | 10.032   | 9042100100320 |
| 32          | 12                         | 32       | 40       | 90       | 45       | 40       | 12.032                                 | 4  | 0.49 | 12.032   | 9042100120320 |
| 40          | 6                          | 26       | 33.5     | 80       | 36       | 46       | 6.040                                  | 4  | 0.44 | 6.04     | 9042100060400 |
| 40          | 8                          | 28       | 33.5     | 80       | 36       | 46       | 8.040                                  | 4  | 0.47 | 8.04     | 9042100080400 |
| 40          | 10                         | 30       | 33.5     | 80       | 40       | 46       | 10.040                                 | 4  | 0.49 | 10.04    | 9042100100400 |
| 40          | 12                         | 32       | 33.5     | 90       | 45       | 56       | 12.040                                 | 4  | 0.56 | 12.04    | 9042100120400 |
| 50          | 6                          | 26       | 40       | 80       | 36       | 38.0     | 6.050                                  | 4  | 0.95 | 6.05     | 9042100060500 |
| 50          | 8                          | 28       | 40       | 80       | 36       | 38.0     | 8.050                                  | 4  | 0.95 | 8.05     | 9042100080500 |
| 50          | 10                         | 30       | 40       | 85       | 40       | 44.0     | 10.050                                 | 4  | 0.95 | 10.05    | 9042100100500 |
| 50          | 12                         | 32       | 40       | 90       | 45       | 49.0     | 12.050                                 | 4  | 0.95 | 12.05    | 9042100120500 |
| 50          | 14                         | 34       | 40       | 90       | 45       | 49.0     | 14.050                                 | 4  | 0.95 | 14.05    | 9042100140500 |
| 50          | 16                         | 38       | 53       | 95       | 48       | 36.0     | 16.050                                 | 5  | 1.25 | 16.05    | 9042100160500 |
| 50          | 18                         | 40       | 57       | 95       | 48       | 36.0     | 18.050                                 | 5  | 1.25 | 18.05    | 9042100180500 |
| 50          | 20                         | 42       | 60       | 100      | 50       | 39.0     | 20.050                                 | 5  | 1.25 | 20.05    | 9042100200500 |
| 63          | 6                          | 26       | 50       | 80       | 36       | 34.5     | 6.100                                  | 5  | 1.25 | 6.063    | 9042100060630 |
| 63          | 8                          | 28       | 50       | 80       | 36       | 35.5     | 8.100                                  | 5  | 1.25 | 8.063    | 9042100080630 |
| 63          | 10                         | 30       | 50       | 85       | 40       | 39.0     | 10.100                                 | 5  | 1.25 | 10.063   | 9042100100630 |
| 63          | 12                         | 32       | 50       | 90       | 45       | 45.0     | 12.100                                 | 5  | 1.35 | 12.063   | 9042100120630 |
| 63          | 14                         | 34       | 50       | 90       | 45       | 46.0     | 14.100                                 | 5  | 1.35 | 14.063   | 9042100140630 |
| 63          | 16                         | 38       | 50       | 95       | 48       | 51.0     | 16.100                                 | 5  | 1.45 | 16.063   | 9042100160630 |
| 63          | 18                         | 40       | 50       | 95       | 48       | 52.0     | 18.100                                 | 5  | 1.45 | 18.063   | 9042100180630 |
| 63          | 20                         | 42       | 50       | 100      | 50       | 58.0     | 20.100                                 | 5  | 1.45 | 20.063   | 9042100200630 |
| 63          | 25                         | 57       | 63       | 115      | 56       | 50.0     | 25.100                                 | 6  | 2.45 | 25.063   | 9042100250630 |
| 63          | 32                         | 64       | 75       | 120      | 60       | 58.0     | 32.100                                 | 6  | 3.10 | 32.063   | 9042100320630 |
| 80          | 6                          | 26       | 50       | 85       | 36       | 39       | 6.100                                  | 5  | 1.50 | 6.08     | 9042100060800 |
| 80          | 8                          | 28       | 50       | 85       | 36       | 39       | 8.100                                  | 5  | 1.52 | 8.08     | 9042100080800 |
| 80          | 10                         | 30       | 50       | 90       | 40       | 45       | 10.100                                 | 5  | 1.56 | 10.08    | 9042100100800 |
| 80          | 12                         | 32       | 50       | 95       | 45       | 50       | 12.100                                 | 5  | 1.61 | 12.08    | 9042100120800 |
| 80          | 14                         | 34       | 50       | 95       | 45       | 50       | 14.100                                 | 5  | 1.64 | 14.08    | 9042100140800 |
| 80          | 16                         | 38       | 50       | 100      | 48       | 56       | 16.100                                 | 5  | 1.72 | 16.08    | 9042100160800 |
| 80          | 18                         | 40       | 50       | 100      | 48       | 56       | 18.100                                 | 5  | 1.76 | 18.08    | 9042100180800 |
| 80          | 20                         | 42       | 50       | 105      | 50       | 62       | 20.100                                 | 5  | 1.82 | 20.08    | 9042100200800 |
| 80          | 25                         | 57       | 63       | 115      | 56       | 70       | 25.100                                 | 6  | 2.60 | 25.08    | 9042100250800 |
| 80          | 32                         | 64       | 75       | 120      | 60       | 58       | 32.100                                 | 6  | 3.11 | 32.08    | 9042100320800 |
| 100         | 6                          | 26       | 50       | 85       | 36       | 36.0     | 6.100                                  | 5  | 2.60 | 6.100    | 9042100061000 |
| 100         | 8                          | 28       | 50       | 85       | 36       | 36.0     | 8.100                                  | 5  | 2.60 | 8.100    | 9042100081000 |
| 100         | 10                         | 30       | 50       | 90       | 40       | 42.0     | 10.100                                 | 5  | 2.60 | 10.100   | 9042100101000 |
| 100         | 12                         | 32       | 50       | 95       | 45       | 47.0     | 12.100                                 | 5  | 2.65 | 12.100   | 9042100121000 |
| 100         | 14                         | 34       | 50       | 95       | 45       | 47.0     | 14.100                                 | 5  | 2.65 | 14.100   | 9042100141000 |
| 100         | 16                         | 38       | 50       | 100      | 48       | 53.0     | 16.100                                 | 5  | 2.85 | 16.100   | 9042100161000 |
| 100         | 18                         | 40       | 50       | 100      | 48       | 53.0     | 18.100                                 | 5  | 2.85 | 18.100   | 9042100181000 |
| 100         | 20                         | 42       | 50       | 105      | 50       | 59.0     | 20.100                                 | 5  | 3.35 | 20.100   | 9042100201000 |
| 100         | 25                         | 57       | 63       | 115      | 56       | 67.0     | 25.100                                 | 6  | 3.50 | 25.100   | 9042100251000 |
| 100         | 32                         | 64       | 75       | 120      | 60       | 72.0     | 32.100                                 | 6  | 3.95 | 32.100   | 9042100321000 |

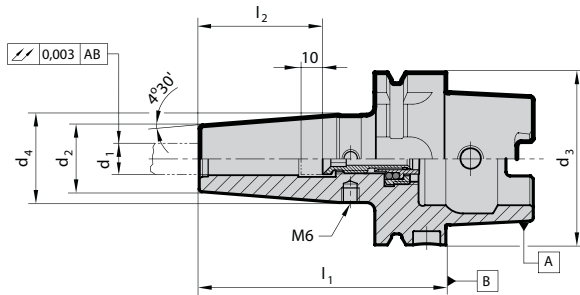
MQL 1-channel

**Product information**

- to Gühring MQL standard
- for 1-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- also available in the lengths  
l1 = 120 mm (concentricity 4 µm)  
and 160 mm (concentricity 5 µm)

**Scope of delivery**

- incl. MQL adjustment screw with sealing lip  
Series no. 4937 and MQL coolant supply set  
Series no. 4940
- special dimensions on request



Series no. 4735

| HSK-A<br>d3 | for<br>shank Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | incl. setting<br>screw<br>no. 4937 ... | kg   | Code no. | EDP Number    |
|-------------|----------------------------|----------|----------|----------|----------|--|------|----------|---------------|
| 32          | 6                          | 21       | 25.5     | 80       | 36       | 6.032                                  | 0.30 | 6.032    | 9047350060320 |
| 32          | 8                          | 21       | 25.5     | 80       | 36       | 8.032                                  | 0.30 | 8.032    | 9047350080320 |
| 32          | 10                         | 24       | 31.7     | 85       | 40       | 10.032                                 | 0.30 | 10.032   | 9047350100320 |
| 32          | 12                         | 24       | 32.3     | 90       | 45       | 12.032                                 | 0.30 | 12.032   | 9047350120320 |
| 40          | 6                          | 21       | 27       | 80       | 36       | 6.040                                  | 0.40 | 6.040    | 9047350060400 |
| 40          | 8                          | 21       | 27       | 80       | 36       | 8.040                                  | 0.40 | 8.040    | 9047350080400 |
| 40          | 10                         | 24       | 32       | 80       | 40       | 10.040                                 | 0.50 | 10.040   | 9047350100400 |
| 40          | 12                         | 24       | 32       | 90       | 45       | 12.040                                 | 0.50 | 12.040   | 9047350120400 |
| 40          | 14                         | 27       | 33.5     | 90       | 45       | 14.040                                 | 0.60 | 14.040   | 9047350140400 |
| 40          | 16                         | 27       | 33.5     | 90       | 48       | 16.040                                 | 0.50 | 16.040   | 9047350160400 |
| 50          | 6                          | 21       | 27       | 80       | 36       | 6.050                                  | 0.60 | 6.050    | 9047350060500 |
| 50          | 8                          | 21       | 27       | 80       | 36       | 8.050                                  | 0.60 | 8.050    | 9047350080500 |
| 50          | 10                         | 24       | 32       | 85       | 40       | 10.050                                 | 0.70 | 10.050   | 9047350100500 |
| 50          | 12                         | 24       | 32       | 90       | 45       | 12.050                                 | 0.70 | 12.050   | 9047350120500 |
| 50          | 14                         | 27       | 34       | 90       | 45       | 14.050                                 | 0.70 | 14.050   | 9047350140500 |
| 50          | 16                         | 27       | 34       | 95       | 48       | 16.050                                 | 0.70 | 16.050   | 9047350160500 |
| 50          | 18                         | 33       | 41.5     | 95       | 48       | 18.050                                 | 0.90 | 18.050   | 9047350180500 |
| 50          | 20                         | 33       | 41.5     | 100      | 50       | 20.050                                 | 0.90 | 20.050   | 9047350200500 |
| 63          | 6                          | 21       | 27       | 80       | 36       | 6.100                                  | 0.70 | 6.063    | 9047350060630 |
| 63          | 8                          | 21       | 27       | 80       | 36       | 8.100                                  | 0.70 | 8.063    | 9047350080630 |
| 63          | 10                         | 24       | 32       | 85       | 40       | 10.100                                 | 0.70 | 10.063   | 9047350100630 |
| 63          | 12                         | 24       | 32       | 90       | 45       | 12.100                                 | 0.80 | 12.063   | 9047350120630 |
| 63          | 14                         | 27       | 34       | 90       | 45       | 14.100                                 | 0.80 | 14.063   | 9047350140630 |
| 63          | 16                         | 27       | 34       | 95       | 48       | 16.100                                 | 0.90 | 16.063   | 9047350160630 |
| 63          | 18                         | 33       | 42       | 95       | 48       | 18.100                                 | 0.90 | 18.063   | 9047350180630 |
| 63          | 20                         | 33       | 42       | 100      | 50       | 20.100                                 | 1.00 | 20.063   | 9047350200630 |
| 63          | 25                         | 44       | 52.5     | 115      | 56       | 25.100                                 | 1.00 | 25.063   | 9047350250630 |
| 63          | 32                         | 44       | 52.5     | 120      | 60       | 32.100                                 | 1.10 | 32.063   | 9047350320630 |
| 63          | 6                          | 21       | 27       | 120      | 36       | 6.032                                  | 0.90 | 806.063  | 9047358060630 |
| 63          | 8                          | 21       | 27       | 120      | 36       | 8.040                                  | 1.00 | 808.063  | 9047358080630 |
| 63          | 10                         | 24       | 32       | 120      | 40       | 10.050                                 | 1.10 | 810.063  | 9047358100630 |
| 63          | 12                         | 24       | 32       | 120      | 45       | 12.100                                 | 1.20 | 212.063  | 9047352120630 |
| 63          | 14                         | 27       | 34       | 120      | 45       | 14.100                                 | 1.40 | 214.063  | 9047352140630 |
| 63          | 16                         | 27       | 34       | 120      | 48       | 16.100                                 | 1.40 | 216.063  | 9047352160630 |
| 63          | 18                         | 33       | 42       | 120      | 48       | 18.100                                 | 1.60 | 218.063  | 9047352180630 |
| 63          | 20                         | 33       | 42       | 120      | 50       | 20.100                                 | 1.60 | 220.063  | 9047352200630 |

ML 1-channel shrink fit chucks HSK-A for manual tool change

|                         |  |                      |                      |                      |                      |  |      |          | Series no.    | 4735 |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|--|------|----------|---------------|------|
| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4937 ... | kg   | Code no. | EDP Number    |      |
| 63                      | 6  | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 0.80 | 906.063  | 9047359060630 |      |
| 63                      | 8  | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 0.80 | 908.063  | 9047359080630 |      |
| 63                      | 10   | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 0.90 | 910.063  | 9047359100630 |      |
| 63                      | 12   | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 0.90 | 112.063  | 9047351120630 |      |
| 63                      | 14   | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 1.00 | 114.063  | 9047351140630 |      |
| 63                      | 16   | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 1.00 | 116.063  | 9047351160630 |      |
| 63                      | 18   | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 1.20 | 118.063  | 9047351180630 |      |
| 63                      | 20   | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 1.20 | 120.063  | 9047351200630 |      |
| 63                      | 25   | 44                   | 52.5                 | 160                  | 56                   | 25.100                                 | 1.80 | 125.063  | 9047351250630 |      |
| 63                      | 32   | 44                   | 52.5                 | 160                  | 60                   | 32.100                                 | 1.70 | 132.063  | 9047351320630 |      |
| 80                      | 6  | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 1.30 | 6.080    | 9047350060800 |      |
| 80                      | 8  | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 1.30 | 8.080    | 9047350080800 |      |
| 80                      | 10   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 1.40 | 10.080   | 9047350100800 |      |
| 80                      | 12   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 1.40 | 12.080   | 9047350120800 |      |
| 80                      | 14   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 1.50 | 14.080   | 9047350140800 |      |
| 80                      | 16   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 1.50 | 16.080   | 9047350160800 |      |
| 80                      | 18   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 1.70 | 18.080   | 9047350180800 |      |
| 80                      | 20   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 1.70 | 20.080   | 9047350200800 |      |
| 80                      | 25   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 2.20 | 25.080   | 9047350250800 |      |
| 80                      | 32   | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 2.10 | 32.080   | 9047350320800 |      |
| 100                     | 6  | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 2.10 | 6.100    | 9047350061000 |      |
| 100                     | 8  | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 2.20 | 8.100    | 9047350081000 |      |
| 100                     | 10   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 2.30 | 10.100   | 9047350101000 |      |
| 100                     | 12   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 2.30 | 12.100   | 9047350121000 |      |
| 100                     | 14   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 2.30 | 14.100   | 9047350141000 |      |
| 100                     | 16   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 2.30 | 16.100   | 9047350161000 |      |
| 100                     | 18   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 2.50 | 18.100   | 9047350181000 |      |
| 100                     | 20   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 2.50 | 20.100   | 9047350201000 |      |
| 100                     | 25   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 3.00 | 25.100   | 9047350251000 |      |
| 100                     | 32   | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 3.00 | 32.100   | 9047350321000 |      |
| 100                     | 6  | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 2.60 | 106.100  | 9047351061000 |      |
| 100                     | 8  | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 2.50 | 108.100  | 9047351081000 |      |
| 100                     | 10   | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 2.70 | 110.100  | 9047351101000 |      |
| 100                     | 12   | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 2.70 | 112.100  | 9047351121000 |      |
| 100                     | 14   | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 2.80 | 114.100  | 9047351141000 |      |
| 100                     | 16   | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 2.80 | 116.100  | 9047351161000 |      |
| 100                     | 18   | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 3.20 | 118.100  | 9047351181000 |      |
| 100                     | 20   | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 3.10 | 120.100  | 9047351201000 |      |
| 100                     | 25   | 44                   | 53                   | 160                  | 56                   | 25.100                                 | 3.90 | 125.100  | 9047351251000 |      |
| 100                     | 32   | 44                   | 53                   | 160                  | 60                   | 32.100                                 | 3.70 | 132.100  | 9047351321000 |      |

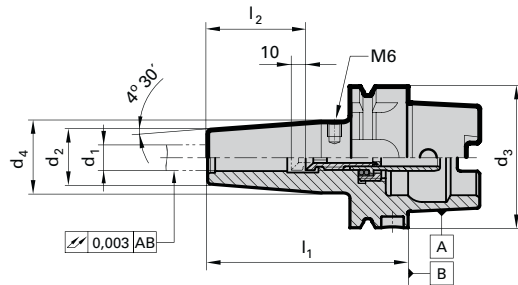
ML 1-channel

## Product information

- to Gühring MQL standard
- for 1-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- max. deviation f. concentricity 3 µm
- also available in the lengths  
l1 = 120 mm (concentricity 4 µm)  
and 160 mm (concentricity 5 µm)

## Scope of delivery

- incl. MQL adjustment screw with sealing lip  
Series no. 4937 and MQL coolant supply set  
Series no. 4939
- special dimensions on request



Series no. 4741

| HSK-A d <sub>3</sub> | for shank Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. setting screw no. 4937 ... | kg   | Code no. | EDP Number    |
|----------------------|--|-------------------|-------------------|-------------------|-------------------|----------------------------------|------|----------|---------------|
| 32                   | 6  | 21                | 25.5              | 80                | 36                | 6.032                            | 0.30 | 6.032    | 9047410060320 |
| 32                   | 8  | 21                | 25.5              | 80                | 36                | 8.032                            | 0.30 | 8.032    | 9047410080320 |
| 32                   | 10   | 24                | 31.7              | 85                | 40                | 10.032                           | 0.30 | 10.032   | 9047410100320 |
| 32                   | 12   | 24                | 32.3              | 90                | 45                | 12.032                           | 0.30 | 12.032   | 9047410120320 |
| 40                   | 6  | 21                | 27                | 80                | 36                | 6.040                            | 0.40 | 6.040    | 9047410060400 |
| 40                   | 8  | 21                | 27                | 80                | 36                | 8.040                            | 0.40 | 8.040    | 9047410080400 |
| 40                   | 10   | 24                | 32                | 80                | 40                | 10.040                           | 0.50 | 10.040   | 9047410100400 |
| 40                   | 12   | 24                | 32                | 90                | 45                | 12.040                           | 0.50 | 12.040   | 9047410120400 |
| 40                   | 14   | 27                | 33.5              | 90                | 45                | 14.040                           | 0.60 | 14.040   | 9047410140400 |
| 40                   | 16   | 27                | 33.5              | 90                | 48                | 16.040                           | 0.50 | 16.040   | 9047410160400 |
| 50                   | 6  | 21                | 27                | 80                | 36                | 6.050                            | 0.60 | 6.050    | 9047410060500 |
| 50                   | 8  | 21                | 27                | 80                | 36                | 8.050                            | 0.60 | 8.050    | 9047410080500 |
| 50                   | 10   | 24                | 32                | 85                | 40                | 10.050                           | 0.70 | 10.050   | 9047410100500 |
| 50                   | 12   | 24                | 32                | 90                | 45                | 12.050                           | 0.70 | 12.050   | 9047410120500 |
| 50                   | 14   | 27                | 34                | 90                | 45                | 14.050                           | 0.70 | 14.050   | 9047410140500 |
| 50                   | 16   | 27                | 34                | 95                | 48                | 16.050                           | 0.70 | 16.050   | 9047410160500 |
| 50                   | 18   | 33                | 41.5              | 95                | 48                | 18.050                           | 0.90 | 18.050   | 9047410180500 |
| 50                   | 20   | 33                | 41.5              | 100               | 50                | 20.050                           | 0.90 | 20.050   | 9047410200500 |
| 63                   | 6  | 21                | 27                | 80                | 36                | 6.100                            | 0.70 | 6.063    | 9047410060630 |
| 63                   | 8  | 21                | 27                | 80                | 36                | 8.100                            | 0.70 | 8.063    | 9047410080630 |
| 63                   | 10   | 24                | 32                | 85                | 40                | 10.100                           | 0.70 | 10.063   | 9047410100630 |
| 63                   | 12   | 24                | 32                | 90                | 45                | 12.100                           | 0.80 | 12.063   | 9047410120630 |
| 63                   | 14   | 27                | 34                | 90                | 45                | 14.100                           | 0.80 | 14.063   | 9047410140630 |
| 63                   | 16   | 27                | 34                | 95                | 48                | 16.100                           | 0.90 | 16.063   | 9047410160630 |
| 63                   | 18   | 33                | 42                | 95                | 48                | 18.100                           | 0.90 | 18.063   | 9047410180630 |
| 63                   | 20   | 33                | 42                | 100               | 50                | 20.100                           | 1.00 | 20.063   | 9047410200630 |
| 63                   | 25   | 44                | 52.5              | 115               | 56                | 25.100                           | 1.00 | 25.063   | 9047410250630 |
| 63                   | 32   | 44                | 52.5              | 120               | 60                | 32.100                           | 1.10 | 32.063   | 9047410320630 |
| 63                   | 6  | 21                | 27                | 120               | 36                | 6.032                            | 0.90 | 806.063  | 9047418060630 |
| 63                   | 8  | 21                | 27                | 120               | 36                | 8.040                            | 1.00 | 808.063  | 9047418080630 |
| 63                   | 10   | 24                | 32                | 120               | 40                | 10.050                           | 1.10 | 810.063  | 9047418100630 |
| 63                   | 12   | 24                | 32                | 120               | 45                | 12.100                           | 1.20 | 212.063  | 9047412120630 |
| 63                   | 14   | 27                | 34                | 120               | 45                | 14.100                           | 1.40 | 214.063  | 9047412140630 |
| 63                   | 16   | 27                | 34                | 120               | 48                | 16.100                           | 1.40 | 216.063  | 9047412160630 |
| 63                   | 18   | 33                | 42                | 120               | 48                | 18.100                           | 1.60 | 218.063  | 9047412180630 |
| 63                   | 20   | 33                | 42                | 120               | 50                | 20.100                           | 1.60 | 220.063  | 9047412200630 |

MQL 1-channel shrink fit chucks HSK-A for automatic tool change

Series no. 4741

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4937 ... | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|--|------|----------|---------------|
| 63                      | 6  | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 0.80 | 906.063  | 9047419060630 |
| 63                      | 8  | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 0.80 | 908.063  | 9047419080630 |
| 63                      | 10   | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 0.90 | 910.063  | 9047419100630 |
| 63                      | 12   | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 0.90 | 112.063  | 9047411120630 |
| 63                      | 14   | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 1.00 | 114.063  | 9047411140630 |
| 63                      | 16   | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 1.00 | 116.063  | 9047411160630 |
| 63                      | 18   | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 1.20 | 118.063  | 9047411180630 |
| 63                      | 20   | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 1.20 | 120.063  | 9047411200630 |
| 63                      | 25   | 44                   | 52.5                 | 160                  | 56                   | 25.100                                 | 1.80 | 125.063  | 9047411250630 |
| 63                      | 32   | 44                   | 52.5                 | 160                  | 60                   | 32.100                                 | 1.70 | 132.063  | 9047411320630 |
| 80                      | 6  | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 1.30 | 6.080    | 9047410060800 |
| 80                      | 8  | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 1.30 | 8.080    | 9047410080800 |
| 80                      | 10   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 1.40 | 10.080   | 9047410100800 |
| 80                      | 12   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 1.40 | 12.080   | 9047410120800 |
| 80                      | 14   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 1.50 | 14.080   | 9047410140800 |
| 80                      | 16   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 1.50 | 16.080   | 9047410160800 |
| 80                      | 18   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 1.70 | 18.080   | 9047410180800 |
| 80                      | 20   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 1.70 | 20.080   | 9047410200800 |
| 80                      | 25   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 2.20 | 25.080   | 9047410250800 |
| 80                      | 32   | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 2.10 | 32.080   | 9047410320800 |
| 100                     | 6  | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 2.10 | 6.100    | 9047410061000 |
| 100                     | 8  | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 2.20 | 8.100    | 9047410081000 |
| 100                     | 10   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 2.30 | 10.100   | 9047410101000 |
| 100                     | 12   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 2.30 | 12.100   | 9047410121000 |
| 100                     | 14   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 2.30 | 14.100   | 9047410141000 |
| 100                     | 16   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 2.30 | 16.100   | 9047410161000 |
| 100                     | 18   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 2.50 | 18.100   | 9047410181000 |
| 100                     | 20   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 2.50 | 20.100   | 9047410201000 |
| 100                     | 25   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 3.00 | 25.100   | 9047410251000 |
| 100                     | 32   | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 3.00 | 32.100   | 9047410321000 |
| 100                     | 6  | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 2.60 | 106.100  | 9047411061000 |
| 100                     | 8  | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 2.50 | 108.100  | 9047411081000 |
| 100                     | 10   | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 2.70 | 110.100  | 9047411101000 |
| 100                     | 12   | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 2.70 | 112.100  | 9047411121000 |
| 100                     | 14   | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 2.80 | 114.100  | 9047411141000 |
| 100                     | 16   | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 2.80 | 116.100  | 9047411161000 |
| 100                     | 18   | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 3.20 | 118.100  | 9047411181000 |
| 100                     | 20   | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 3.10 | 120.100  | 9047411201000 |
| 100                     | 25   | 44                   | 53                   | 160                  | 56                   | 25.100                                 | 3.90 | 125.100  | 9047411251000 |
| 100                     | 32   | 44                   | 53                   | 160                  | 60                   | 32.100                                 | 3.70 | 132.100  | 9047411321000 |

MQL 1-channel

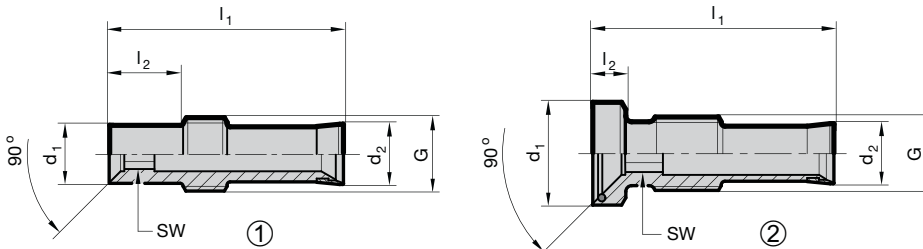
# MQL 1-channel length setting screws for HSK-A

## Product information

- to Gühring MQL standard
- for 1-channel-systems
- for the use of tool shanks to Gühring MQL standard
- gold colour, corrosion protective coating to visually identify the 1-channel system
- the patented face orientated o-ring provides axial force clamping which eliminates concentricity errors
- axial damping from Ø 14 to Ø 32

## Scope of delivery

- incl. sealing lip
- MQL key tool for the assembly  
Series no. 4050 to be ordered separately



Series no.

4937

| HSK-A     | for shank Ø d1 h6 mm | for d2 mm | l1 mm | l2 mm | G      | SW | type | EDP Number           |
|-----------|----------------------|-----------|-------|-------|--------|----|------|----------------------|
| 32        | 6                    | 4.0       | 34.5  | 2.5   | M5x0.8 | 2  | 2    | 6.032 9049370060320  |
| 32        | 8                    | 4.0       | 34.5  | 3.0   | M7x1   | 2  | 2    | 8.032 9049370080320  |
| 32        | 10                   | 4.0       | 35.5  | 3.5   | M8x1   | 2  | 2    | 10.032 9049370100320 |
| 32        | 12                   | 4.0       | 35.5  | 3.5   | M10x1  | 2  | 2    | 12.032 9049370120320 |
| 40        | 6                    | 5.4       | 34.1  | 11.0  | M7x1   | 3  | 1    | 6.040 9049370060400  |
| 40        | 8                    | 5.4       | 34.1  | 3.0   | M7x1   | 3  | 2    | 8.040 9049370080400  |
| 40        | 10                   | 5.4       | 30.1  | 3.5   | M8x1   | 3  | 2    | 10.040 9049370100400 |
| 40        | 12                   | 5.4       | 35.1  | 3.5   | M10x1  | 3  | 2    | 12.040 9049370120400 |
| 40        | 14                   | 5.4       | 35.1  | 4.5   | M10x1  | 3  | 2    | 14.040 9049370140400 |
| 40        | 16                   | 5.4       | 32.1  | 5.5   | M12x1  | 3  | 2    | 16.040 9049370160400 |
| 50        | 6                    | 6.5       | 31.8  | 10.0  | M8x1   | 4  | 1    | 6.050 9049370060500  |
| 50        | 8                    | 6.5       | 31.8  | 3.0   | M8x1   | 4  | 2    | 8.050 9049370080500  |
| 50        | 10                   | 6.5       | 32.8  | 3.5   | M8x1   | 4  | 2    | 10.050 9049370100500 |
| 50        | 12                   | 6.5       | 32.8  | 3.5   | M10x1  | 4  | 2    | 12.050 9049370120500 |
| 50        | 14                   | 6.5       | 32.8  | 4.5   | M10x1  | 4  | 2    | 14.050 9049370140500 |
| 50        | 16                   | 6.5       | 34.8  | 5.5   | M12x1  | 4  | 2    | 16.050 9049370160500 |
| 50        | 18                   | 6.5       | 34.8  | 6.5   | M12x1  | 4  | 2    | 18.050 9049370180500 |
| 50        | 20                   | 6.5       | 37.8  | 6.5   | M16x1  | 4  | 2    | 20.050 9049370200500 |
| 63/80/100 | 6                    | 8.0       | 31.0  | 10.0  | M10x1  | 4  | 1    | 6.100 9049370061000  |
| 63/80/100 | 8                    | 8.0       | 31.8  | 10.0  | M10x1  | 4  | 1    | 8.100 9049370081000  |
| 63/80/100 | 10                   | 8.0       | 32.8  | 3.5   | M10x1  | 4  | 2    | 10.100 9049370101000 |
| 63/80/100 | 12                   | 8.0       | 32.8  | 3.5   | M10x1  | 5  | 2    | 12.100 9049370121000 |
| 63/80/100 | 14                   | 8.0       | 32.8  | 4.5   | M10x1  | 5  | 2    | 14.100 9049370141000 |
| 63/80/100 | 16                   | 8.0       | 34.8  | 5.5   | M12x1  | 5  | 2    | 16.100 9049370161000 |
| 63/80/100 | 18                   | 8.0       | 34.8  | 6.5   | M12x1  | 5  | 2    | 18.100 9049370181000 |
| 63/80/100 | 20                   | 8.0       | 37.8  | 6.5   | M16x1  | 5  | 2    | 20.100 9049370201000 |
| 63/80/100 | 25                   | 8.0       | 43.8  | 10.0  | M16x1  | 5  | 2    | 25.100 9049370251000 |
| 63/80/100 | 32                   | 8.0       | 44.8  | 14.0  | M16x1  | 5  | 2    | 32.100 9049370321000 |

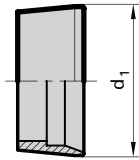
## Sealing lips for MQL 1-channel length setting screws

### Product information

- sealing lips for MQL 1-channel length setting screws  
Series no. 4937
- Series no. 4917 1,140 for module adaptor  
Series no. 4716

### Scope of delivery

- packaging unit: 5 pieces



Series no. **4617**

| HSK-A         | Modul                               | for d <sub>2</sub><br>mm | EDP Number    |
|---------------|-------------------------------------|--------------------------|---------------|
| 32            | -                                   | 4.0                      | 9046170010320 |
| 40            | -                                   | 5.4                      | 9046170010400 |
| 50            | -                                   | 6.5                      | 9046170010500 |
| 63 / 80 / 100 | -                                   | 8.0                      | 9046170011000 |
| -             | 60 / 70 / 80 / 80 / 100 / 117 / 140 | 10.5                     | 9046170011400 |

MQL 1-channel

## MQL-Key 3000

### Product information

- special tool set for the secure assembly of MQL tapered screws for 1- and 2-channel systems
- simplifies the handling when assembling the MQL length setting screws
- prevents damage to the MQL sealing elements
- i.e. to be applied for: MQL 1-channel length setting screws Series no. 4937 or MQL 2-channel length setting screws Series no. 4621

### Scope of delivery

- complete set in case or additional set



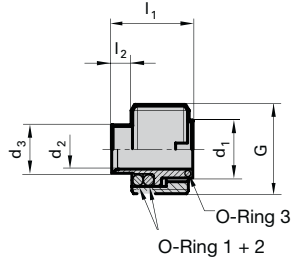
Series no. **4050**

|                                    | EDP Number    |
|------------------------------------|---------------|
| Case, complete 1-channel basic set | 9040500010000 |
| 2-channel retrofitting set         | 9040500020000 |

## MQL 1-channel coolant supply set HSK-A (filler)

### Product information

- for MQL tool holders  
(hydraulic chucks and shrink fit chucks)  
to company standard
- for 1-channel-systems
- for tool holders with manual tool change
- optimal seal for MQL clamping set



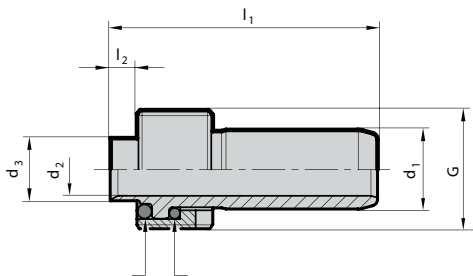
Series no. 4940

| for HSK-A | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | G       | O-ring 1 & 2 Viton 75 | O-ring 3 Viton 80 | EDP Number    |
|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-----------------------|-------------------|---------------|
| 32        | 5.8               | 4.0               | 4.8               | 18.7              | 12.5              | M10x1.0 | 5.0x1.2               | –                 | 9049400100320 |
| 40        | 7.6               | 5.4               | 6.8               | 13.8              | 5.5               | M12x1.0 | 7.5x1.5               | 6.0x0.5           | 9049400120400 |
| 50        | 9.6               | 6.5               | 7.8               | 15.8              | 5.5               | M16x1.0 | 9.0x2.0               | 7.0x1.0           | 9049400160500 |
| 63        | 11.6              | 8.0               | 9.7               | 16.3              | 4.0               | M18x1.0 | 10.0x2.5              | 9.0x1.0           | 9049400180630 |
| 80        | 13.6              | 8.0               | 9.7               | 18.4              | 4.0               | M20x1.5 | 13.0x2.0              | 10.0x1.0          | 9049400200800 |
| 100       | 15.6              | 8.0               | 11.7              | 18.4              | 2.0               | M24x1.5 | 14.0x3.0              | 12.0x1.0          | 9049400241000 |

## MQL 1-channel coolant supply set HSK-A

### Product information

- for MQL tool holders  
(hydraulic chucks and shrink fit chucks)  
to company standard
- for 1-channel-systems
- for tool holders with automatic tool change



Series no. 4939

| for HSK-A | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | G       | O-ring 1 Viton 75 | O-ring 2 Viton 75 | EDP Number    |
|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------------------|-------------------|---------------|
| 32        | 6                 | 4.0               | 4.8               | 38.5              | 12.5              | M10x1.0 | 5.0x1.2           | 5.0x1.2           | 9049390100320 |
| 40        | 8                 | 5.4               | 6.5               | 35.0              | 5.5               | M12x1.0 | 7.5x1.5           | 7.5x1.5           | 9049390120400 |
| 50        | 10                | 6.5               | 7.5               | 38.5              | 5.5               | M16x1.0 | 9.0x2.0           | 9.0x2.0           | 9049390160500 |
| 63        | 12                | 8.0               | 9.5               | 40.5              | 4.0               | M18x1.0 | 10.0x2.5          | 10.0x2.0          | 9049390180630 |
| 80        | 14                | 8.0               | 9.7               | 44.0              | 4.0               | M20x1.5 | 13.0x2.0          | 13.0x2.0          | 9049390200800 |
| 100       | 16                | 8.0               | 11.5              | 46.0              | 2.0               | M24x1.5 | 14.0x3.0          | 14.0x3.0          | 9049390241000 |

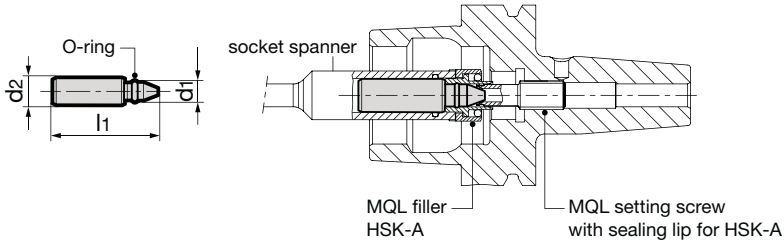
# Mounting adaptor for MQL HSK-A coolant supply set (filler)

**Product information**

- adaptor for socket spanner, Series no. 4911
- for mounting MQL HSK-A coolant supply set (filler), Series no. 4940, for manual tool change

**Scope of delivery**

- incl. operating manual
- socket spanner, Series no. 4911 to be ordered separately

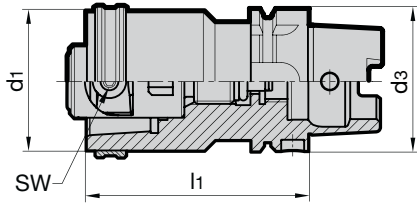


|           |       |       |       | Series no.    | 4948 |
|-----------|-------|-------|-------|---------------|------|
| for HSK-A | d1 mm | d2 mm | l1 mm | EDP Number    |      |
| 32        | 4.0   | 5.9   | 30.0  | 9049480060320 |      |
| 40        | 5.4   | 8.0   | 36.6  | 9049480080400 |      |
| 50        | 6.5   | 10.0  | 40.1  | 9049480100500 |      |
| 63        | 8.0   | 12.0  | 43.6  | 9049480120630 |      |
| 80        | 8.0   | 14.0  | 46.1  | 9049480140800 |      |
| 100       | 8.0   | 16.0  | 48.6  | 9049480161000 |      |
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MQL 1-channel

## Product information

- MQL suitable
- for 1-channel-systems



## Scope of delivery

- incl. MQL 4 point clamping set Series no. 4930 and adaptor for extensions
- incl. brass locking ring Series no. 4953
- order coolant supply set separately:
  - for automatic tool change Series no. 4939
  - for manual tool change Series no. 4940



MQL 1-channel

Series no. **4350**

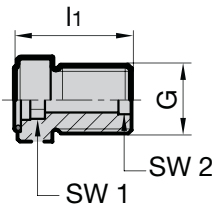
| HSK-A/HSK-C<br>d <sub>1</sub> / d <sub>3</sub> | l <sub>1</sub><br>mm | SW  | kg   | EDP Number    |
|--|----------------------|-----|------|---------------|
| 32   | 60                   | 2.5 | 0.30 | 9043500600320 |
| 40   | 80                   | 3.0 | 0.70 | 9043500800400 |
| 50   | 80                   | 4.0 | 0.90 | 9043500800500 |
| 50   | 100                  | 4.0 | 1.10 | 9043501000500 |
| 63   | 100                  | 5.0 | 1.80 | 9043501000630 |
| 63   | 140                  | 5.0 | 2.30 | 9043501400630 |
| 80   | 120                  | 6.0 | 4.20 | 9043501200800 |
| 80   | 160                  | 6.0 | 5.80 | 9043501600800 |
| 100  | 140                  | 8.0 | 8.00 | 9043501401000 |

## Length setting screws for conventional cooling

### Product information

• To adapt MQL tool holders to meet the requirements of conventional wet machining. For plain end shanks. The height of screw head compensates the height of MQL taper.

- for MQL HSK-A shrink fit chucks and hydraulic chucks
- for use with shank according to DIN 6535 with plain shank end for conventional cooling
- the patented face orientated o-ring provides axial force clamping which eliminates concentricity errors



Series no. **4941**

| for<br>HSK-A        | clamping-<br>Ø | G     | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | SW  | EDP Number    |
|---------------------|----------------|-------|----------------------|----------------------|-----|---------------|
| 40                  | 6              | M5    | 6                    | 15.0                 | 2.5 | 9049410060410 |
| 40                  | 6              | M7x1  | 6                    | 15.0                 | 2.5 | 9049410060400 |
| 40                  | 8              | M7x1  | 6                    | 18.0                 | 3.0 | 9049410080400 |
| 50                  | 6              | M8x1  | 8                    | 14.0                 | 2.5 | 9049410060500 |
| 50                  | 8              | M8x1  | 7                    | 18.0                 | 3.0 | 9049410080500 |
| 40 / 50             | 10             | M8x1  | 10                   | 17.7                 | 4.0 | 9049410100500 |
| 63/ 80/ 100         | 6              | M10x1 | 9                    | 22.0                 | 2.5 | 9049410061000 |
| 63/ 80/ 100         | 8              | M10x1 | 9                    | 22.0                 | 3.0 | 9049410081000 |
| 63/ 80/ 100         | 10             | M10x1 | 10                   | 16.2                 | 4.0 | 9049410101000 |
| 40/ 50/ 63/ 80/ 100 | 12             | M10x1 | 10                   | 16.2                 | 5.0 | 9049410121000 |
| 40/ 50/ 63/ 80/ 100 | 14             | M10x1 | 10                   | 17.2                 | 5.0 | 9049410141000 |
| 50/ 63/ 80/ 100     | 16             | M12x1 | 16                   | 18.2                 | 6.0 | 9049410161000 |
| 50/ 63/ 80/ 100     | 18             | M12x1 | 16                   | 19.2                 | 6.0 | 9049410181000 |
| 50/ 63/ 80/ 100     | 20             | M16x1 | 16                   | 19.2                 | 8.0 | 9049410201000 |
| 63/ 80/ 100         | 25             | M16x1 | 16                   | 22.7                 | 8.0 | 9049410251000 |
| 63/ 80/ 100         | 32             | M16x1 | 16                   | 26.7                 | 8.0 | 9049410321000 |

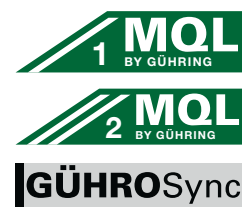
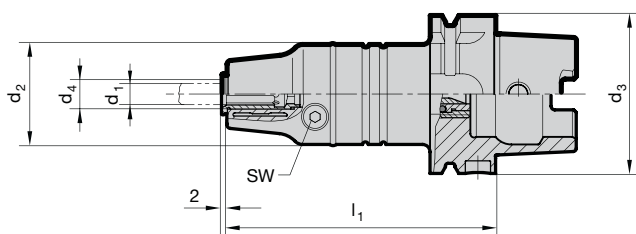
# MQL HSK-A hydraulic synchro tapping chucks for manual tool change

## Product information

- for MQL single channel systems
- MQL coolant pressure up to max. 16 bar
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction bushes with active drive
- length-setting screw allows 3 mm readjustment
- Gühring MQL identifiable by green coloured ring

## Scope of delivery

- incl. hexagon clamping key Series no. 4912
- incl. MQL coolant supply set for manual tool change (filler) Series no. 4513
- incl. adjustment key for MQL adjustment screws
- order MQL adjustment screw Series no. 4305 separately
- order reduction bushes Series no. 4605 or 4606 separately



MQL 1-channel

Series no. **4604**

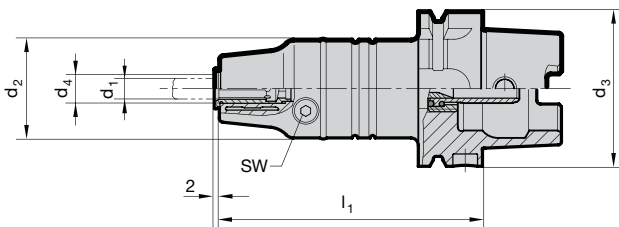
| HSK-A d <sub>3</sub> | d <sub>4</sub> mm | for shank-Ø d <sub>1</sub> | for thread | d <sub>2</sub> mm | l <sub>1</sub> mm | Mt max. Nm | SW | kg  | Code no. | EDP Number           |
|----------------------|-------------------|----------------------------|------------|-------------------|-------------------|------------|----|-----|----------|----------------------|
| 63                   | 12.00             | 2.8-10                     | M2-M12     | 40                | 106.5             | 26         | 4  | 1.5 | 12.063   | <b>9046040120630</b> |
| 63                   | 20.00             | 6-16                       | M4.5-M20   | 40                | 120.5             | 90         | 5  | 1.6 | 20.063   | <b>9046040200630</b> |
| 100                  | 12.00             | 2.8-10                     | M2-M12     | 40                | 113.0             | 26         | 4  | 2.8 | 12.100   | <b>9046040121000</b> |
| 100                  | 20.00             | 6-16                       | M4.5-M20   | 40                | 127.0             | 90         | 5  | 2.9 | 20.100   | <b>9046040201000</b> |
|                      |                   |                            |            |                   |                   |            |    |     |          |                      |
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|                      |                   |                            |            |                   |                   |            |    |     |          |                      |

**Product information**

- for MQL single channel systems
- MQL coolant pressure up to max. 16 bar
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction bushes with active drive
- length-setting screw allows 3 mm readjustment
- Gühring MQL identifiable by green coloured ring

**Scope of delivery**

- incl. hexagon clamping key Series no. 4912
- incl. MQL coolant supply set for automatic tool change Series no. 4508
- incl. adjustment key for MQL adjustment screws
- order MQL adjustment screw Series no. 4305 separately
- order reduction bushes Series no. 4605 or 4606 separately



MQL 1-channel



Series no. 4602

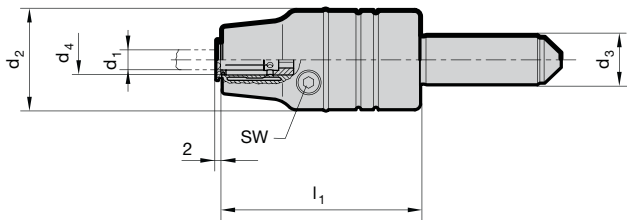
| HSK-A<br>d3 | d4<br>mm | for<br>shank-Ø<br>d1 | for<br>thread | d2<br>mm | l1<br>mm | Mt max.<br>Nm | SW | kg  | Code no. | EDP Number    |
|-------------|----------|----------------------|---------------|----------|----------|---------------|----|-----|----------|---------------|
| 63          | 12.00    | 2.8-10               | M2-M12        | 40       | 106.5    | 26            | 4  | 1.5 | 12.063   | 9046020120630 |
| 63          | 20.00    | 6-16                 | M4.5-M20      | 40       | 120.5    | 90            | 5  | 1.6 | 20.063   | 9046020200630 |
| 100         | 12.00    | 2.8-10               | M2-M12        | 40       | 113.0    | 26            | 4  | 2.8 | 12.100   | 9046020121000 |
| 100         | 20.00    | 6-16                 | M4.5-M20      | 40       | 127.0    | 90            | 5  | 2.9 | 20.100   | 9046020201000 |
|             |          |                      |               |          |          |               |    |     |          |               |
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**Product information**

- for MQL single and double channel systems
- MQL coolant pressure up to max. 16 bar
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction bushes with active drive
- length-setting screw allows 3 mm readjustment
- holder shank to DIN 1835-A or holding in precision chucks (hydraulic chucks or precision power chucks, shrink fit chucks for single application)
- Gühring MQL identifiable by green coloured ring

**Scope of delivery**

- incl. hexagon clamping key 4912
- incl. adjustment key for MQL adjustment screws
- order MQL adjustment screw 4305 separately
- order reduction bushes 4605 or 4606 separately



MQL 1-channel

Series no. **4524**

| $d_3$ h6 mm | $d_4$ mm | for shank- $\varnothing d_1$ | for thread | $d_2$ mm | $l_1$ mm | Mt max. Nm | SW | kg  | Code no. | EDP Number    |
|-------------|----------|------------------------------|------------|----------|----------|------------|----|-----|----------|---------------|
| 20          | 12.00    | 2.8-10                       | M2-M12     | 40       | 80       | 26         | 4  | 0.7 | 12.020   | 9045240120200 |
| 20          | 20.00    | 6-16                         | M4.5-M20   | 40       | 94       | 90         | 5  | 0.8 | 20.020   | 9045240200200 |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |
|             |          |                              |            |          |          |            |    |     |          |               |

## MQL HSK-A synchro tapping chucks for manual tool change

### Product information

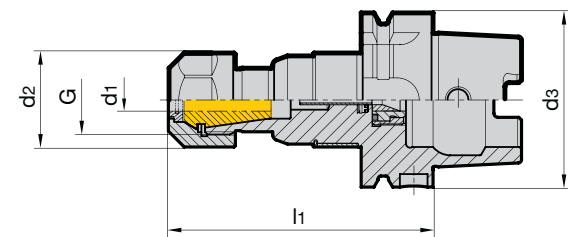
- for MQL single and double channel systems
- compensate synchronisation errors
- minimal length compensation  $\pm 0,15$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap, which can cause high frictional forces on the thread flanks and increase thread quality and tool life
- length-setting screw allows 2 to 3 mm readjustment
- MQL pressure up to max. 10 bar
- mounted MQL coolant supply pipe
- Gühring MQL identifiable by green coloured ring
- HSK-A to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. MQL coolant supply set Series no. 4513 (filler) for manual tool change
- Incl. IC/ER clamping nut Series no. 4306 (\*see torque)
- incl. adjustment key for MQL adjustment screw
- order MQL adjustment screw Series no. 4305 separately
- order sealing washer Series no. 4335 separately
- order collet Series no. 4308 separately
- order chuck spanner Series no. 4913 for ER retaining nut separately



Series no. **4298**



| HSK-A d <sub>3</sub> | nom. size | for thread | G       | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | torque* Nm | kg   | Code no. | EDP Number    |
|----------------------|-----------|------------|---------|-------------------|-------------------|-------------------|------------|------|----------|---------------|
| 63                   | ER20      | M4-M14     | M25x1.5 | 4.0-11            | 34                | 95.5              | 35         | 1.00 | 20.063   | 9042980200630 |
| 63                   | ER32      | M4-M30     | M40x1.5 | 4.0-20            | 50                | 109.0             | 136        | 1.50 | 32.063   | 9042980320630 |

## MQL HSK-A synchro tapping chucks for single channel systems for automatic tool change

### Product information

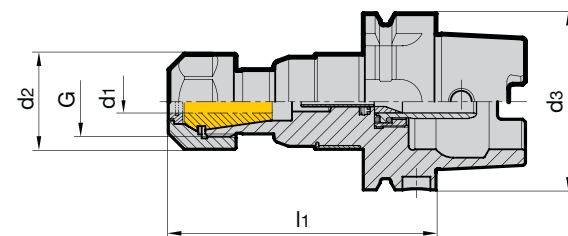
- for MQL single channel systems
- compensate synchronisation errors
- minimal length compensation  $\pm 0,15$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap, which can cause high frictional forces on the thread flanks and increase thread quality and tool life
- length-setting screw allows 2 to 3 mm readjustment
- MQL pressure up to max. 10 bar
- mounted MQL coolant supply pipe
- Gühring MQL identifiable by green coloured ring
- HSK-A to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. MQL coolant supply set Series no. 4508 for automatic tool change
- incl. sealed IC/ER clamping nut Series no. 4306 (\*see torque)
- incl. adjustment key for MQL adjustment screw
- order MQL adjustment screw Series no. 4305 separately
- order sealing washer Series no. 4335 separately
- order collet Series no. 4308 separately
- order chuck spanner Series no. 4913 for ER retaining nut separately



Series no. **4330**

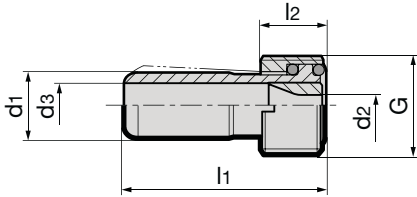


| HSK-A d <sub>3</sub> | nom. size | for thread | G       | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | torque* Nm | kg   | Code no. | EDP Number    |
|----------------------|-----------|------------|---------|-------------------|-------------------|-------------------|------------|------|----------|---------------|
| 63                   | ER20      | M4-M14     | M25x1.5 | 4.0-11            | 34                | 95.5              | 35         | 1.00 | 20.063   | 9043300200630 |
| 63                   | ER32      | M4-M30     | M40x1.5 | 4.0-20            | 50                | 109.0             | 136        | 1.50 | 32.063   | 9043300320630 |
| 100                  | ER20      | M4-M14     | M25x1.5 | 4.0-11            | 34                | 102.0             | 35         | 2.40 | 20.100   | 9043300201000 |
| 100                  | ER32      | M4-M30     | M40x1.5 | 4.0-20            | 50                | 115.5             | 136        | 3.00 | 32.100   | 9043300321000 |

## MQL coolant supply set for single channel HSK-A

### Product information

- for MQL 1-channel systems
- for tool holders with automatic tool clamping
- dimensions  $d_2$  and  $l_1$  based on installed condition



Series no. 4508

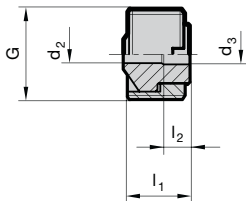
| for HSK-A | $d_1$ mm | $d_2$ mm | $d_3$ mm | $l_1$ mm | $l_2$ mm | G       | EDP Number    |
|-----------|----------|----------|----------|----------|----------|---------|---------------|
| 32        | 6.00     | 3.00     | 4.00     | 26.00    | 5.50     | M10x1   | 9045080100320 |
| 40        | 8.00     | 3.80     | 5.40     | 29.50    | 7.50     | M12x1   | 9045080120400 |
| 50        | 10.00    | 3.80     | 6.40     | 33.00    | 9.50     | M16x1   | 9045080160500 |
| 63        | 12.00    | 3.80     | 8.00     | 36.50    | 11.50    | M18x1   | 9045080180630 |
| 80        | 14.00    | 3.80     | 10.00    | 40.00    | 13.50    | M20x1.5 | 9045080200800 |
| 100       | 16.00    | 3.80     | 12.00    | 44.00    | 15.50    | M24x1.5 | 9045080241000 |

MQL 1-channel

## MQL coolant supply set HSK-A (filler)

### Product information

- for internal cooling MQL 1 and 2 channel systems
- for tool holders with manual tool clamping
- optimally sealed for MQL clamping set
- dimensions  $d_2$  and  $l_1$  based on installed condition



Series no. 4513

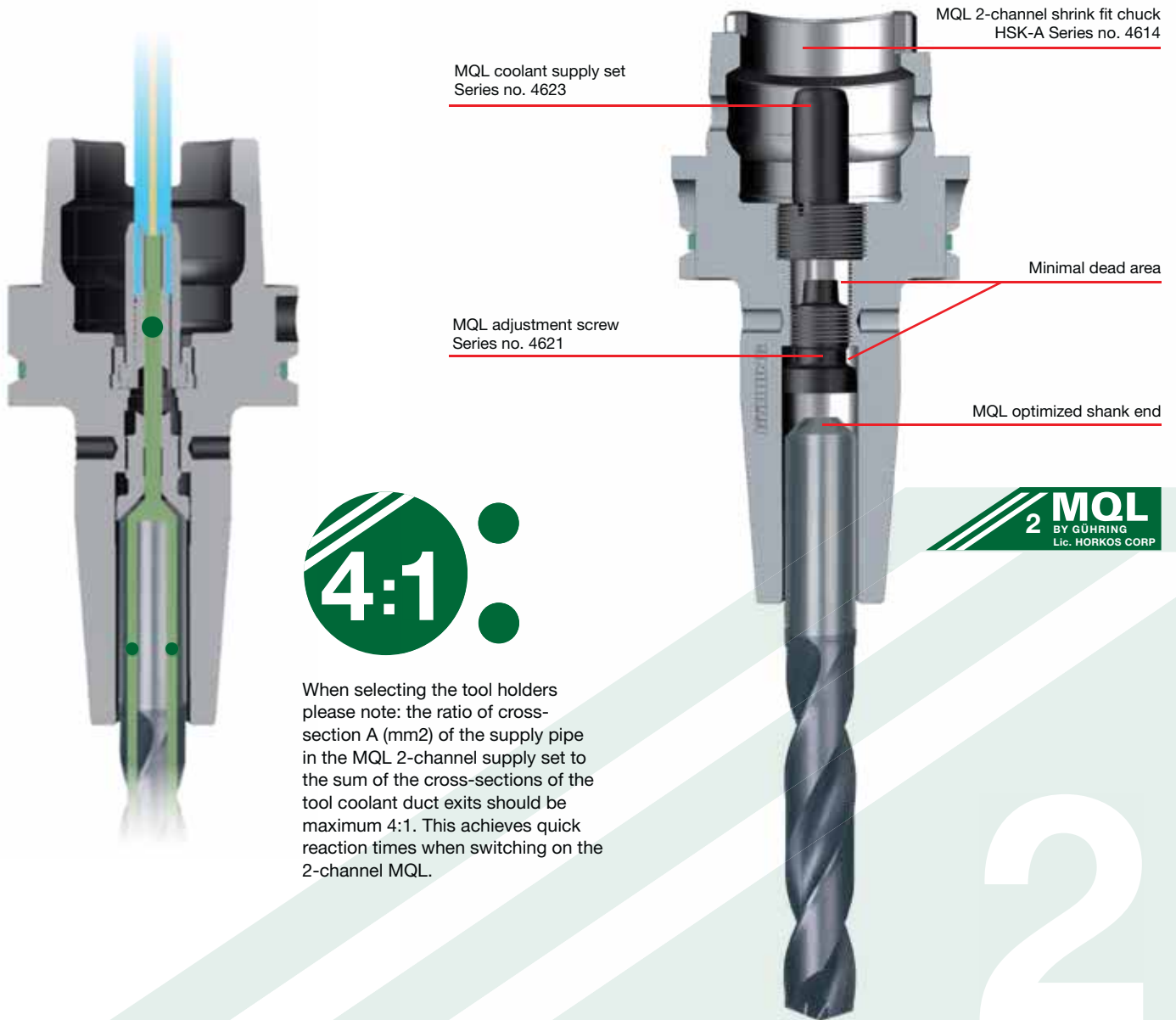
| for HSK-A | $d_2$ mm | $d_3$ mm | $l_1$ mm | $l_2$ mm | G       | EDP Number    |
|-----------|----------|----------|----------|----------|---------|---------------|
| 32        | 3.00     | 3.00     | 6.30     | -        | M10x1   | 9045130100320 |
| 40        | 3.60     | 4.00     | 8.30     | 5.00     | M12x1   | 9045130120400 |
| 50        | 3.60     | 4.00     | 10.30    | 5.00     | M16x1   | 9045130160500 |
| 50        | 5.00     | 5.00     | 10.30    | -        | M16x1   | 9045130161500 |
| 63        | 3.60     | 4.00     | 12.30    | 5.00     | M18x1   | 9045130180630 |
| 63        | 6.00     | 6.00     | 12.30    | -        | M18x1   | 9045130181630 |
| 80        | 3.60     | 4.00     | 14.40    | 5.00     | M20x1.5 | 9045130200800 |
| 80        | 8.00     | 8.00     | 14.40    | -        | M20x1.5 | 9045130201800 |
| 100       | 3.60     | 4.00     | 16.40    | 5.00     | M24x1.5 | 9045130241000 |
| 100       | 8.00     | 8.00     | 16.40    | -        | M24x1.5 | 9045130241010 |



Our products for the MQL 2-channel technology are identified by this symbol.

**Visual feature of the 2-channel system** is the black colored MQL length setting screw.

MQL 2-channel



MQL coolant supply set  
Series no. 4623

MQL 2-channel shrink fit chuck  
HSK-A Series no. 4614

MQL adjustment screw  
Series no. 4621

Minimal dead area

MQL optimized shank end

4:1

When selecting the tool holders please note: the ratio of cross-section A (mm<sup>2</sup>) of the supply pipe in the MQL 2-channel supply set to the sum of the cross-sections of the tool coolant duct exits should be maximum 4:1. This achieves quick reaction times when switching on the 2-channel MQL.



2

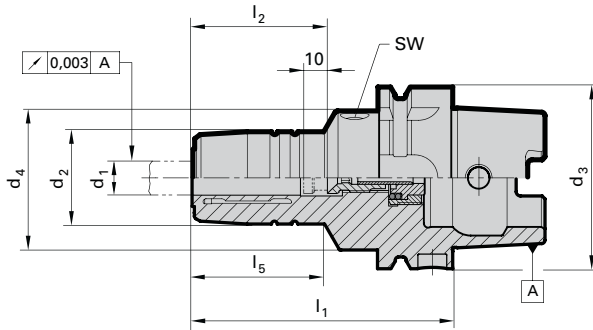
# MQL 2-channel hydraulic chucks HSK-A for manual tool change

## Product information

- to Gühring MQL standard
- for 2-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- axial length setting

## Scope of delivery

- incl. MQL adjustment screw Series no.4621 and MQL coolant supply set Series no. 4622
- incl. hexagon chuck key Series no. 4912
- special dimensions on request



| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4622 ... | SW | kg   | Code<br>no. | Series no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|----|------|-------------|------------|---------------|
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |             | 4611       |               |
| 32                      | 6  | 2.01                 | 26                   | 40                   | 80                   | 36                   | 29                   | 6.032                                  | 12.032                          | 4  | 0.40 | 6.032       |            | 9046110060320 |
| 32                      | 6  | 4.15                 | 26                   | 40                   | 80                   | 36                   | 29                   | 6.132                                  | 12.132                          | 4  | 0.40 | 6.132       |            | 9046110061320 |
| 32                      | 8  | 2.01                 | 28                   | 40                   | 80                   | 36                   | 29                   | 8.032                                  | 12.032                          | 4  | 0.42 | 8.032       |            | 9046110080320 |
| 32                      | 8  | 4.15                 | 28                   | 40                   | 80                   | 36                   | 29                   | 8.132                                  | 12.132                          | 4  | 0.42 | 8.132       |            | 9046110081320 |
| 32                      | 10   | 2.01                 | 30                   | 40                   | 85                   | 40                   | 35                   | 10.032                                 | 12.032                          | 4  | 0.45 | 10.032      |            | 9046110100320 |
| 32                      | 10   | 4.15                 | 30                   | 40                   | 85                   | 40                   | 35                   | 10.132                                 | 12.132                          | 4  | 0.45 | 10.132      |            | 9046110101320 |
| 32                      | 12   | 2.01                 | 32                   | 40                   | 90                   | 45                   | 40                   | 12.032                                 | 12.032                          | 4  | 0.49 | 12.032      |            | 9046110120320 |
| 32                      | 12   | 4.15                 | 32                   | 40                   | 90                   | 45                   | 40                   | 12.132                                 | 12.132                          | 4  | 0.49 | 12.132      |            | 9046110121320 |
| 40                      | 6  | 2.01                 | 26                   | 33.5                 | 80                   | 36                   | 46                   | 6.040                                  | 16.040                          | 4  | 0.44 | 6.040       |            | 9046110060400 |
| 40                      | 6  | 4.15                 | 26                   | 33.5                 | 80                   | 36                   | 46                   | 6.140                                  | 16.140                          | 4  | 0.44 | 6.140       |            | 9046110061400 |
| 40                      | 8  | 2.01                 | 28                   | 33.5                 | 80                   | 36                   | 46                   | 8.040                                  | 16.040                          | 4  | 0.47 | 8.040       |            | 9046110080400 |
| 40                      | 8  | 4.15                 | 28                   | 33.5                 | 80                   | 36                   | 46                   | 8.140                                  | 16.140                          | 4  | 0.47 | 8.140       |            | 9046110081400 |
| 40                      | 10   | 2.01                 | 30                   | 33.5                 | 80                   | 40                   | 46                   | 10.040                                 | 16.040                          | 4  | 0.49 | 10.040      |            | 9046110100400 |
| 40                      | 10   | 4.15                 | 30                   | 33.5                 | 80                   | 40                   | 46                   | 10.140                                 | 16.140                          | 4  | 0.49 | 10.140      |            | 9046110101400 |
| 40                      | 12   | 2.01                 | 32                   | 33.5                 | 90                   | 45                   | 56                   | 12.040                                 | 16.040                          | 4  | 0.56 | 12.040      |            | 9046110120400 |
| 40                      | 12   | 4.15                 | 32                   | 33.5                 | 90                   | 45                   | 56                   | 12.140                                 | 16.140                          | 4  | 0.56 | 12.140      |            | 9046110121400 |
| 40                      | 12   | 9.08                 | 32                   | 33.5                 | 90                   | 45                   | 56                   | 12.240                                 | 16.240                          | 4  | 0.56 | 12.240      |            | 9046110122400 |
| 50                      | 6  | 2.01                 | 26                   | 40                   | 80                   | 36                   | 38                   | 6.050                                  | 10.050                          | 4  | 0.95 | 6.050       |            | 9046110060500 |
| 50                      | 6  | 4.15                 | 26                   | 40                   | 80                   | 36                   | 38                   | 6.150                                  | 10.150                          | 4  | 0.95 | 6.150       |            | 9046110061500 |
| 50                      | 8  | 2.01                 | 28                   | 40                   | 80                   | 36                   | 38                   | 8.050                                  | 10.050                          | 4  | 0.95 | 8.050       |            | 9046110080500 |
| 50                      | 8  | 4.15                 | 28                   | 40                   | 80                   | 36                   | 38                   | 8.150                                  | 10.150                          | 4  | 0.95 | 8.150       |            | 9046110081500 |
| 50                      | 10   | 2.01                 | 30                   | 40                   | 85                   | 40                   | 44                   | 10.050                                 | 10.050                          | 4  | 0.95 | 10.050      |            | 9046110100500 |
| 50                      | 10   | 4.15                 | 30                   | 40                   | 85                   | 40                   | 44                   | 10.150                                 | 10.150                          | 4  | 0.95 | 10.150      |            | 9046110101500 |
| 50                      | 12   | 2.01                 | 32                   | 40                   | 90                   | 45                   | 49                   | 12.050                                 | 18.050                          | 4  | 0.95 | 12.050      |            | 9046110120500 |
| 50                      | 12   | 4.15                 | 32                   | 40                   | 90                   | 45                   | 49                   | 12.150                                 | 20.050                          | 4  | 0.95 | 12.150      |            | 9046110121500 |
| 50                      | 12   | 9.08                 | 32                   | 40                   | 90                   | 45                   | 49                   | 12.250                                 | 20.150                          | 4  | 0.95 | 12.250      |            | 9046110122500 |
| 50                      | 14   | 2.01                 | 34                   | 40                   | 90                   | 45                   | 49                   | 14.050                                 | 18.050                          | 4  | 0.95 | 14.050      |            | 9046110140500 |
| 50                      | 14   | 4.15                 | 34                   | 40                   | 90                   | 45                   | 49                   | 14.150                                 | 20.050                          | 4  | 0.95 | 14.150      |            | 9046110141500 |
| 50                      | 14   | 9.08                 | 34                   | 40                   | 90                   | 45                   | 49                   | 14.250                                 | 20.150                          | 4  | 0.95 | 14.250      |            | 9046110142500 |
| 50                      | 16   | 2.01                 | 38                   | 53                   | 95                   | 48                   | 36                   | 16.050                                 | 18.050                          | 5  | 1.25 | 16.050      |            | 9046110160500 |
| 50                      | 16   | 4.15                 | 38                   | 53                   | 95                   | 48                   | 36                   | 16.150                                 | 20.050                          | 5  | 1.25 | 16.150      |            | 9046110161500 |
| 50                      | 16   | 9.08                 | 38                   | 53                   | 95                   | 48                   | 36                   | 16.250                                 | 20.150                          | 5  | 1.25 | 16.250      |            | 9046110162500 |
| 50                      | 18   | 2.01                 | 40                   | 57                   | 95                   | 48                   | 36                   | 18.050                                 | 18.050                          | 5  | 1.25 | 18.050      |            | 9046110180500 |
| 50                      | 18   | 4.15                 | 40                   | 57                   | 95                   | 48                   | 36                   | 18.150                                 | 20.050                          | 5  | 1.25 | 18.150      |            | 9046110181500 |
| 50                      | 18   | 9.08                 | 40                   | 57                   | 95                   | 48                   | 36                   | 18.250                                 | 20.150                          | 5  | 1.25 | 18.250      |            | 9046110182500 |
| 50                      | 20   | 4.15                 | 42                   | 60                   | 100                  | 50                   | 39                   | 20.050                                 | 20.050                          | 5  | 1.25 | 20.050      |            | 9046110200500 |
| 50                      | 20   | 9.08                 | 42                   | 60                   | 100                  | 50                   | 39                   | 20.150                                 | 20.150                          | 5  | 1.25 | 20.150      |            | 9046110201500 |
| 50                      | 20   | 16.62                | 42                   | 60                   | 100                  | 50                   | 39                   | 20.250                                 | 20.250                          | 5  | 1.25 | 20.250      |            | 9046110202500 |

MQL 2-channel

MQL 2-channel hydraulic chucks HSK-A for manual tool change



Series no. 4611

| HSK-A d3 | for shank Ø d1 h6 mm | A mm <sup>2</sup> | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | incl. setting screw no. 4621 ... | incl. filler no. 4622 ... | SW | kg   | Code no. | EDP Number    |
|----------|----------------------|-------------------|-------|-------|-------|-------|-------|----------------------------------|---------------------------|----|------|----------|---------------|
| 63       | 6                    | 2.01              | 26    | 50    | 80    | 36    | 34.5  | 6.100                            | 10.063                    | 5  | 1.25 | 6.063    | 9046110060630 |
| 63       | 6                    | 4.15              | 26    | 50    | 80    | 36    | 34.5  | 6.101                            | 10.163                    | 5  | 1.25 | 6.163    | 9046110061630 |
| 63       | 8                    | 2.01              | 28    | 50    | 80    | 36    | 35.5  | 8.100                            | 10.063                    | 5  | 1.25 | 8.063    | 9046110080630 |
| 63       | 8                    | 4.15              | 28    | 50    | 80    | 36    | 35.5  | 8.101                            | 10.163                    | 5  | 1.25 | 8.163    | 9046110081630 |
| 63       | 10                   | 2.01              | 30    | 50    | 85    | 40    | 39    | 10.100                           | 10.063                    | 5  | 1.25 | 10.063   | 9046110100630 |
| 63       | 10                   | 4.15              | 30    | 50    | 85    | 40    | 39    | 10.101                           | 10.163                    | 5  | 1.25 | 10.163   | 9046110101630 |
| 63       | 12                   | 2.01              | 32    | 50    | 90    | 45    | 45    | 12.100                           | 18.063                    | 5  | 1.35 | 12.063   | 9046110120630 |
| 63       | 12                   | 4.15              | 32    | 50    | 90    | 45    | 45    | 12.101                           | 20.063                    | 5  | 1.35 | 12.163   | 9046110121630 |
| 63       | 12                   | 9.08              | 32    | 50    | 90    | 45    | 45    | 12.102                           | 20.163                    | 5  | 1.35 | 12.263   | 9046110122630 |
| 63       | 14                   | 2.01              | 34    | 50    | 90    | 45    | 46    | 14.100                           | 18.063                    | 5  | 1.35 | 14.063   | 9046110140630 |
| 63       | 14                   | 4.15              | 34    | 50    | 90    | 45    | 46    | 14.101                           | 20.063                    | 5  | 1.35 | 14.163   | 9046110141630 |
| 63       | 14                   | 9.08              | 34    | 50    | 90    | 45    | 46    | 14.102                           | 20.163                    | 5  | 1.35 | 14.263   | 9046110142630 |
| 63       | 16                   | 2.01              | 38    | 50    | 95    | 48    | 51    | 16.100                           | 18.063                    | 5  | 1.45 | 16.063   | 9046110160630 |
| 63       | 16                   | 4.15              | 38    | 50    | 95    | 48    | 51    | 16.101                           | 20.063                    | 5  | 1.45 | 16.163   | 9046110161630 |
| 63       | 16                   | 9.08              | 38    | 50    | 95    | 48    | 51    | 16.102                           | 20.163                    | 5  | 1.45 | 16.263   | 9046110162630 |
| 63       | 18                   | 2.01              | 40    | 50    | 95    | 48    | 52    | 18.100                           | 18.063                    | 5  | 1.45 | 18.063   | 9046110180630 |
| 63       | 18                   | 4.15              | 40    | 50    | 95    | 48    | 52    | 18.101                           | 20.063                    | 5  | 1.45 | 18.163   | 9046110181630 |
| 63       | 18                   | 9.08              | 40    | 50    | 95    | 48    | 52    | 18.102                           | 20.163                    | 5  | 1.45 | 18.263   | 9046110182630 |
| 63       | 20                   | 4.15              | 42    | 50    | 100   | 50    | 58    | 20.100                           | 20.063                    | 5  | 1.45 | 20.063   | 9046110200630 |
| 63       | 20                   | 9.08              | 42    | 50    | 100   | 50    | 58    | 20.101                           | 20.163                    | 5  | 1.45 | 20.163   | 9046110201630 |
| 63       | 20                   | 16.62             | 42    | 50    | 100   | 50    | 58    | 20.102                           | 20.263                    | 5  | 1.45 | 20.263   | 9046110202630 |
| 63       | 25                   | 4.15              | 57    | 63    | 115   | 56    | 50    | 25.100                           | 32.063                    | 6  | 2.45 | 25.063   | 9046110250630 |
| 63       | 25                   | 9.08              | 57    | 63    | 115   | 56    | 50    | 25.101                           | 32.163                    | 6  | 2.45 | 25.163   | 9046110251630 |
| 63       | 25                   | 16.62             | 57    | 63    | 115   | 56    | 50    | 25.102                           | 32.263                    | 6  | 2.45 | 25.263   | 9046110252630 |
| 63       | 32                   | 4.15              | 64    | 75    | 120   | 60    | 58    | 32.100                           | 32.063                    | 6  | 3.10 | 32.063   | 9046110320630 |
| 63       | 32                   | 9.08              | 64    | 75    | 120   | 60    | 58    | 32.101                           | 32.163                    | 6  | 3.10 | 32.163   | 9046110321630 |
| 63       | 32                   | 16.62             | 64    | 75    | 120   | 60    | 58    | 32.102                           | 32.263                    | 6  | 3.10 | 32.263   | 9046110322630 |
| 80       | 6                    | 2.01              | 26    | 50    | 85    | 36    | 39    | 6.100                            | 10.080                    | 5  | 1.5  | 6.080    | 9046110060800 |
| 80       | 6                    | 4.15              | 26    | 50    | 85    | 36    | 39    | 6.101                            | 10.180                    | 5  | 1.49 | 6.180    | 9046110061800 |
| 80       | 8                    | 2.01              | 28    | 50    | 85    | 36    | 39    | 8.100                            | 10.080                    | 5  | 1.52 | 8.080    | 9046110080800 |
| 80       | 8                    | 4.15              | 28    | 50    | 85    | 36    | 39    | 8.101                            | 10.180                    | 5  | 1.52 | 8.180    | 9046110081800 |
| 80       | 10                   | 2.01              | 30    | 50    | 90    | 40    | 45    | 10.100                           | 10.080                    | 5  | 1.56 | 10.080   | 9046110100800 |
| 80       | 10                   | 4.15              | 30    | 50    | 90    | 40    | 45    | 10.101                           | 10.180                    | 5  | 1.56 | 10.180   | 9046110101800 |
| 80       | 12                   | 2.01              | 32    | 50    | 95    | 45    | 50    | 12.100                           | 18.080                    | 5  | 1.61 | 12.080   | 9046110120800 |
| 80       | 12                   | 4.15              | 32    | 50    | 95    | 45    | 50    | 12.101                           | 32.080                    | 5  | 1.61 | 12.180   | 9046110121800 |
| 80       | 12                   | 9.08              | 32    | 50    | 95    | 45    | 50    | 12.102                           | 32.180                    | 5  | 1.6  | 12.280   | 9046110122800 |
| 80       | 14                   | 2.01              | 34    | 50    | 95    | 45    | 50    | 14.100                           | 18.080                    | 5  | 1.64 | 14.080   | 9046110140800 |
| 80       | 14                   | 4.15              | 34    | 50    | 95    | 45    | 50    | 14.101                           | 32.080                    | 5  | 1.63 | 14.180   | 9046110141800 |
| 80       | 14                   | 9.08              | 34    | 50    | 95    | 45    | 50    | 14.102                           | 32.180                    | 5  | 1.63 | 14.280   | 9046110142800 |
| 80       | 16                   | 2.01              | 38    | 50    | 100   | 48    | 56    | 16.100                           | 18.080                    | 5  | 1.72 | 16.080   | 9046110160800 |
| 80       | 16                   | 4.15              | 38    | 50    | 100   | 48    | 56    | 16.101                           | 32.080                    | 5  | 1.72 | 16.180   | 9046110161800 |
| 80       | 16                   | 9.08              | 38    | 50    | 100   | 48    | 56    | 16.102                           | 32.180                    | 5  | 1.72 | 16.280   | 9046110162800 |
| 80       | 18                   | 2.01              | 40    | 50    | 100   | 48    | 56    | 18.100                           | 18.080                    | 5  | 1.76 | 18.080   | 9046110180800 |
| 80       | 18                   | 4.15              | 40    | 50    | 100   | 48    | 56    | 18.101                           | 32.080                    | 5  | 1.76 | 18.180   | 9046110181800 |
| 80       | 18                   | 9.08              | 40    | 50    | 100   | 48    | 56    | 18.102                           | 32.180                    | 5  | 1.75 | 18.280   | 9046110182800 |
| 80       | 20                   | 4.15              | 42    | 50    | 105   | 50    | 62    | 20.100                           | 32.080                    | 5  | 1.82 | 20.080   | 9046110200800 |
| 80       | 20                   | 9.08              | 42    | 50    | 105   | 50    | 62    | 20.101                           | 32.180                    | 5  | 1.82 | 20.180   | 9046110201800 |
| 80       | 20                   | 16.62             | 42    | 50    | 105   | 50    | 62    | 20.102                           | 32.280                    | 5  | 1.83 | 20.280   | 9046110202800 |
| 80       | 25                   | 4.15              | 57    | 63    | 115   | 56    | 70    | 25.100                           | 32.080                    | 6  | 2.6  | 25.080   | 9046110250800 |
| 80       | 25                   | 9.08              | 57    | 63    | 115   | 56    | 70    | 25.101                           | 32.180                    | 6  | 2.6  | 25.180   | 9046110251800 |
| 80       | 25                   | 16.62             | 57    | 63    | 115   | 56    | 70    | 25.102                           | 32.280                    | 6  | 2.6  | 25.280   | 9046110252800 |
| 80       | 32                   | 4.15              | 64    | 75    | 120   | 60    | 58    | 32.100                           | 32.080                    | 6  | 3.11 | 32.080   | 9046110320800 |
| 80       | 32                   | 9.08              | 64    | 75    | 120   | 60    | 58    | 32.101                           | 32.180                    | 6  | 3.11 | 32.180   | 9046110321800 |
| 80       | 32                   | 16.62             | 64    | 75    | 120   | 60    | 58    | 32.102                           | 32.280                    | 6  | 3.11 | 32.280   | 9046110322800 |
| 100      | 6                    | 2.01              | 26    | 50    | 85    | 36    | 36    | 6.100                            | 10.100                    | 5  | 2.60 | 6.100    | 9046110061000 |
| 100      | 6                    | 4.15              | 26    | 50    | 85    | 36    | 36    | 6.101                            | 10.101                    | 5  | 2.60 | 6.101    | 9046110061010 |
| 100      | 8                    | 2.01              | 28    | 50    | 85    | 36    | 36    | 8.100                            | 10.100                    | 5  | 2.60 | 8.100    | 9046110081000 |
| 100      | 8                    | 4.15              | 28    | 50    | 85    | 36    | 36    | 8.101                            | 10.101                    | 5  | 2.60 | 8.101    | 9046110081010 |
| 100      | 10                   | 2.01              | 30    | 50    | 90    | 40    | 42    | 10.100                           | 10.100                    | 5  | 2.60 | 10.100   | 9046110101000 |
| 100      | 10                   | 4.15              | 30    | 50    | 90    | 40    | 42    | 10.101                           | 10.101                    | 5  | 2.60 | 10.101   | 9046110101010 |
| 100      | 12                   | 2.01              | 32    | 50    | 95    | 45    | 47    | 12.100                           | 18.100                    | 5  | 2.65 | 12.100   | 9046110121000 |
| 100      | 12                   | 4.15              | 32    | 50    | 95    | 45    | 47    | 12.101                           | 32.100                    | 5  | 2.65 | 12.101   | 9046110121010 |
| 100      | 12                   | 9.08              | 32    | 50    | 95    | 45    | 47    | 12.102                           | 32.101                    | 5  | 2.65 | 12.102   | 9046110121020 |
| 100      | 14                   | 2.01              | 34    | 50    | 95    | 45    | 47    | 14.100                           | 18.100                    | 5  | 2.65 | 14.100   | 9046110141000 |
| 100      | 14                   | 4.15              | 34    | 50    | 95    | 45    | 47    | 14.101                           | 32.100                    | 5  | 2.65 | 14.101   | 9046110141010 |
| 100      | 14                   | 9.08              | 34    | 50    | 95    | 45    | 47    | 14.102                           | 32.101                    | 5  | 2.65 | 14.102   | 9046110141020 |

MQL 2-channel



Series no. **4611**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4622 ... | SW | kg   | Code<br>no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|----|------|-------------|---------------|
| 100                     | 16   | 2.01                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.100                                 | 18.100                          | 5  | 2.85 | 16.100      | 9046110161000 |
| 100                     | 16   | 4.15                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.101                                 | 32.100                          | 5  | 2.85 | 16.101      | 9046110161010 |
| 100                     | 16   | 9.08                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.102                                 | 32.101                          | 5  | 2.85 | 16.102      | 9046110161020 |
| 100                     | 18   | 2.01                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.100                                 | 18.100                          | 5  | 2.85 | 18.100      | 9046110181000 |
| 100                     | 18   | 4.15                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.101                                 | 32.100                          | 5  | 2.85 | 18.101      | 9046110181010 |
| 100                     | 18   | 9.08                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.102                                 | 32.101                          | 5  | 2.85 | 18.102      | 9046110181020 |
| 100                     | 20   | 4.15                 | 42                   | 50                   | 105                  | 50                   | 59                   | 20.100                                 | 32.100                          | 5  | 3.35 | 20.100      | 9046110201000 |
| 100                     | 20   | 9.08                 | 42                   | 50                   | 105                  | 50                   | 59                   | 20.101                                 | 32.101                          | 5  | 3.35 | 20.101      | 9046110201010 |
| 100                     | 20   | 16.62                | 42                   | 50                   | 105                  | 50                   | 59                   | 20.102                                 | 32.102                          | 5  | 3.35 | 20.102      | 9046110201020 |
| 100                     | 25   | 4.15                 | 57                   | 63                   | 115                  | 56                   | 67                   | 25.100                                 | 32.100                          | 6  | 3.50 | 25.100      | 9046110251000 |
| 100                     | 25   | 9.08                 | 57                   | 63                   | 115                  | 56                   | 67                   | 25.101                                 | 32.101                          | 6  | 3.50 | 25.101      | 9046110251010 |
| 100                     | 25   | 16.62                | 57                   | 63                   | 115                  | 56                   | 67                   | 25.102                                 | 32.102                          | 6  | 3.50 | 25.102      | 9046110251020 |
| 100                     | 32   | 4.15                 | 64                   | 75                   | 120                  | 60                   | 72                   | 32.100                                 | 32.100                          | 6  | 3.95 | 32.100      | 9046110321000 |
| 100                     | 32   | 9.08                 | 64                   | 75                   | 120                  | 60                   | 72                   | 32.101                                 | 32.101                          | 6  | 3.95 | 32.101      | 9046110321010 |
| 100                     | 32   | 16.62                | 64                   | 75                   | 120                  | 60                   | 72                   | 32.102                                 | 32.102                          | 6  | 3.95 | 32.102      | 9046110321020 |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |             |               |
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MQL 2-channel

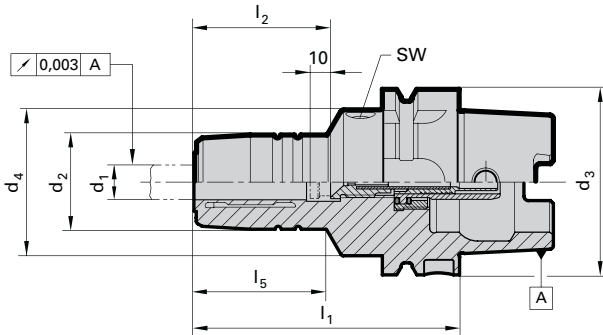
# MQL 2-channel hydraulic chucks HSK-A for automatic tool change

## Product information

- to Gühring MQL standard
- for 2-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- axial length setting

## Scope of delivery

- incl. MQL adjustment screw with sealing lip  
Series no. 4621 and MQL coolant supply set  
Series no. 4623
- incl. hexagon chuck key Series no. 4912
- special dimensions on request



Series no.

4612

| HSK-A d3 | for shank Ø d1 h6 mm | A mm <sup>2</sup> | d2 mm | d4 mm | l1 mm | l2 mm | l5 mm | incl. setting screw no. 4621 ... | incl. filler no. 4623 ... | SW | kg   | Code no. | EDP Number    |
|----------|----------------------|-------------------|-------|-------|-------|-------|-------|----------------------------------|---------------------------|----|------|----------|---------------|
| 32       | 6                    | 2.01              | 26    | 40    | 80    | 36    | 29    | 6.032                            | 12.032                    | 4  | 0.41 | 6.032    | 9046120060320 |
| 32       | 6                    | 4.15              | 26    | 40    | 80    | 36    | 29    | 6.132                            | 12.132                    | 4  | 0.41 | 6.132    | 9046120061320 |
| 32       | 8                    | 2.01              | 28    | 40    | 80    | 36    | 29    | 8.032                            | 12.032                    | 4  | 0.42 | 8.032    | 9046120080320 |
| 32       | 8                    | 4.15              | 28    | 40    | 80    | 36    | 29    | 8.132                            | 12.132                    | 4  | 0.42 | 8.132    | 9046120081320 |
| 32       | 10                   | 2.01              | 30    | 40    | 85    | 40    | 35    | 10.032                           | 12.032                    | 4  | 0.45 | 10.032   | 9046120100320 |
| 32       | 10                   | 4.15              | 30    | 40    | 85    | 40    | 35    | 10.132                           | 12.132                    | 4  | 0.45 | 10.132   | 9046120101320 |
| 32       | 12                   | 2.01              | 32    | 40    | 90    | 45    | 40    | 12.032                           | 12.032                    | 4  | 0.49 | 12.032   | 9046120120320 |
| 32       | 12                   | 4.15              | 32    | 40    | 90    | 45    | 40    | 12.132                           | 12.132                    | 4  | 0.49 | 12.132   | 9046120121320 |
| 40       | 6                    | 2.01              | 26    | 33.5  | 80    | 36    | 46    | 6.040                            | 16.040                    | 4  | 0.45 | 6.040    | 9046120060400 |
| 40       | 6                    | 4.15              | 26    | 33.5  | 80    | 36    | 46    | 6.140                            | 16.140                    | 4  | 0.45 | 6.140    | 9046120061400 |
| 40       | 8                    | 2.01              | 28    | 33.5  | 80    | 36    | 46    | 8.040                            | 16.040                    | 4  | 0.47 | 8.040    | 9046120080400 |
| 40       | 8                    | 4.15              | 28    | 33.5  | 80    | 36    | 46    | 8.140                            | 16.140                    | 4  | 0.47 | 8.140    | 9046120081400 |
| 40       | 10                   | 2.01              | 30    | 33.5  | 80    | 40    | 46    | 10.040                           | 16.040                    | 4  | 0.49 | 10.040   | 9046120100400 |
| 40       | 10                   | 4.15              | 30    | 33.5  | 80    | 40    | 46    | 10.140                           | 16.140                    | 4  | 0.49 | 10.140   | 9046120101400 |
| 40       | 12                   | 2.01              | 32    | 33.5  | 90    | 45    | 56    | 12.040                           | 16.040                    | 4  | 0.57 | 12.040   | 9046120120400 |
| 40       | 12                   | 4.15              | 32    | 33.5  | 90    | 45    | 56    | 12.140                           | 16.140                    | 4  | 0.57 | 12.140   | 9046120121400 |
| 40       | 12                   | 9.08              | 32    | 33.5  | 90    | 45    | 56    | 12.240                           | 16.240                    | 4  | 0.57 | 12.240   | 9046120122400 |
| 50       | 6                    | 2.01              | 26    | 40    | 80    | 36    | 38    | 6.050                            | 10.050                    | 4  | 0.95 | 6.050    | 9046120060500 |
| 50       | 6                    | 4.15              | 26    | 40    | 80    | 36    | 38    | 6.150                            | 10.150                    | 4  | 0.95 | 6.150    | 9046120061500 |
| 50       | 8                    | 2.01              | 28    | 40    | 80    | 36    | 38    | 8.050                            | 10.050                    | 4  | 0.95 | 8.050    | 9046120080500 |
| 50       | 8                    | 4.15              | 28    | 40    | 80    | 36    | 38    | 8.150                            | 10.150                    | 4  | 0.95 | 8.150    | 9046120081500 |
| 50       | 10                   | 2.01              | 30    | 40    | 85    | 40    | 44    | 10.050                           | 10.050                    | 4  | 0.95 | 10.050   | 9046120100500 |
| 50       | 10                   | 4.15              | 30    | 40    | 85    | 40    | 44    | 10.150                           | 10.150                    | 4  | 0.95 | 10.150   | 9046120101500 |
| 50       | 12                   | 2.01              | 32    | 40    | 90    | 45    | 49    | 12.050                           | 18.050                    | 4  | 0.95 | 12.050   | 9046120120500 |
| 50       | 12                   | 4.15              | 32    | 40    | 90    | 45    | 49    | 12.150                           | 20.050                    | 4  | 0.95 | 12.150   | 9046120121500 |
| 50       | 12                   | 9.08              | 32    | 40    | 90    | 45    | 49    | 12.250                           | 20.150                    | 4  | 0.95 | 12.250   | 9046120122500 |
| 50       | 14                   | 2.01              | 34    | 40    | 90    | 45    | 49    | 14.050                           | 18.050                    | 4  | 0.95 | 14.050   | 9046120140500 |
| 50       | 14                   | 4.15              | 34    | 40    | 90    | 45    | 49    | 14.150                           | 20.050                    | 4  | 0.95 | 14.150   | 9046120141500 |
| 50       | 14                   | 9.08              | 34    | 40    | 90    | 45    | 49    | 14.250                           | 20.150                    | 4  | 0.95 | 14.250   | 9046120142500 |
| 50       | 16                   | 2.01              | 38    | 53    | 95    | 48    | 36    | 16.050                           | 18.050                    | 5  | 1.25 | 16.050   | 9046120160500 |
| 50       | 16                   | 4.15              | 38    | 53    | 95    | 48    | 36    | 16.150                           | 20.050                    | 5  | 1.25 | 16.150   | 9046120161500 |
| 50       | 16                   | 9.08              | 38    | 53    | 95    | 48    | 36    | 16.250                           | 20.150                    | 5  | 1.25 | 16.250   | 9046120162500 |
| 50       | 18                   | 2.01              | 40    | 57    | 95    | 48    | 36    | 18.050                           | 18.050                    | 5  | 1.25 | 18.050   | 9046120180500 |
| 50       | 18                   | 4.15              | 40    | 57    | 95    | 48    | 36    | 18.150                           | 20.050                    | 5  | 1.25 | 18.150   | 9046120181500 |
| 50       | 18                   | 9.08              | 40    | 57    | 95    | 48    | 36    | 18.250                           | 20.150                    | 5  | 1.25 | 18.250   | 9046120182500 |
| 50       | 20                   | 4.15              | 42    | 60    | 100   | 50    | 39    | 20.050                           | 20.050                    | 5  | 1.25 | 20.050   | 9046120200500 |
| 50       | 20                   | 9.08              | 42    | 60    | 100   | 50    | 39    | 20.150                           | 20.150                    | 5  | 1.25 | 20.150   | 9046120201500 |
| 50       | 20                   | 16.62             | 42    | 60    | 100   | 50    | 39    | 20.250                           | 20.250                    | 5  | 1.25 | 20.250   | 9046120202500 |
| 63       | 6                    | 2.01              | 26    | 50    | 80    | 36    | 34.5  | 6.100                            | 10.063                    | 5  | 1.25 | 6.063    | 9046120060630 |
| 63       | 6                    | 4.15              | 26    | 50    | 80    | 36    | 34.5  | 6.101                            | 10.163                    | 5  | 1.25 | 6.163    | 9046120061630 |
| 63       | 8                    | 2.01              | 28    | 50    | 80    | 36    | 35.5  | 8.100                            | 10.063                    | 5  | 1.25 | 8.063    | 9046120080630 |
| 63       | 8                    | 4.15              | 28    | 50    | 80    | 36    | 35.5  | 8.101                            | 10.163                    | 5  | 1.25 | 8.163    | 9046120081630 |
| 63       | 10                   | 2.01              | 30    | 50    | 85    | 40    | 39    | 10.100                           | 10.063                    | 5  | 1.25 | 10.063   | 9046120100630 |
| 63       | 10                   | 4.15              | 30    | 50    | 85    | 40    | 39    | 10.101                           | 10.163                    | 5  | 1.25 | 10.163   | 9046120101630 |

MQL 2-channel hydraulic chucks HSK-A for automatic tool change



Series no.

4612

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4623 ... | SW | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|----|------|----------|---------------|
| 63                      | 12   | 2.01                 | 32                   | 50                   | 90                   | 45                   | 45                   | 12.100                                 | 18.063                          | 5  | 1.35 | 12.063   | 9046120120630 |
| 63                      | 12   | 4.15                 | 32                   | 50                   | 90                   | 45                   | 45                   | 12.101                                 | 20.063                          | 5  | 1.35 | 12.163   | 9046120121630 |
| 63                      | 12   | 9.08                 | 32                   | 50                   | 90                   | 45                   | 45                   | 12.102                                 | 20.163                          | 5  | 1.35 | 12.263   | 9046120122630 |
| 63                      | 14   | 2.01                 | 34                   | 50                   | 90                   | 45                   | 46                   | 14.100                                 | 18.063                          | 5  | 1.35 | 14.063   | 9046120140630 |
| 63                      | 14   | 4.15                 | 34                   | 50                   | 90                   | 45                   | 46                   | 14.101                                 | 20.063                          | 5  | 1.35 | 14.163   | 9046120141630 |
| 63                      | 14   | 9.08                 | 34                   | 50                   | 90                   | 45                   | 46                   | 14.102                                 | 20.163                          | 5  | 1.35 | 14.263   | 9046120142630 |
| 63                      | 16   | 2.01                 | 38                   | 50                   | 95                   | 48                   | 51                   | 16.100                                 | 18.063                          | 5  | 1.45 | 16.063   | 9046120160630 |
| 63                      | 16   | 4.15                 | 38                   | 50                   | 95                   | 48                   | 51                   | 16.101                                 | 20.063                          | 5  | 1.45 | 16.163   | 9046120161630 |
| 63                      | 16   | 9.08                 | 38                   | 50                   | 95                   | 48                   | 51                   | 16.102                                 | 20.163                          | 5  | 1.45 | 16.263   | 9046120162630 |
| 63                      | 18   | 2.01                 | 40                   | 50                   | 95                   | 48                   | 52                   | 18.100                                 | 18.063                          | 5  | 1.45 | 18.063   | 9046120180630 |
| 63                      | 18   | 4.15                 | 40                   | 50                   | 95                   | 48                   | 52                   | 18.101                                 | 20.063                          | 5  | 1.45 | 18.163   | 9046120181630 |
| 63                      | 18   | 9.08                 | 40                   | 50                   | 95                   | 48                   | 52                   | 18.102                                 | 20.163                          | 5  | 1.45 | 18.263   | 9046120182630 |
| 63                      | 20   | 4.15                 | 42                   | 50                   | 100                  | 50                   | 58                   | 20.100                                 | 20.063                          | 5  | 1.45 | 20.063   | 9046120200630 |
| 63                      | 20   | 9.08                 | 42                   | 50                   | 100                  | 50                   | 58                   | 20.101                                 | 20.163                          | 5  | 1.45 | 20.163   | 9046120201630 |
| 63                      | 20   | 16.62                | 42                   | 50                   | 100                  | 50                   | 58                   | 20.102                                 | 20.263                          | 5  | 1.45 | 20.263   | 9046120202630 |
| 63                      | 25   | 4.15                 | 57                   | 63                   | 115                  | 56                   | 50                   | 25.100                                 | 32.063                          | 6  | 2.45 | 25.063   | 9046120250630 |
| 63                      | 25   | 9.08                 | 57                   | 63                   | 115                  | 56                   | 50                   | 25.101                                 | 32.163                          | 6  | 2.45 | 25.163   | 9046120251630 |
| 63                      | 25   | 16.62                | 57                   | 63                   | 115                  | 56                   | 50                   | 25.102                                 | 32.263                          | 6  | 2.45 | 25.263   | 9046120252630 |
| 63                      | 32   | 4.15                 | 64                   | 75                   | 120                  | 60                   | 58                   | 32.100                                 | 32.063                          | 6  | 3.10 | 32.063   | 9046120320630 |
| 63                      | 32   | 9.08                 | 64                   | 75                   | 120                  | 60                   | 58                   | 32.101                                 | 32.163                          | 6  | 3.10 | 32.163   | 9046120321630 |
| 63                      | 32   | 16.62                | 64                   | 75                   | 120                  | 60                   | 58                   | 32.102                                 | 32.263                          | 6  | 3.10 | 32.263   | 9046120322630 |
| 80                      | 6  | 2.01                 | 26                   | 50                   | 85                   | 36                   | 39                   | 6.100                                  | 10.080                          | 5  | 1.52 | 6.080    | 9046120060800 |
| 80                      | 6  | 4.15                 | 26                   | 50                   | 85                   | 36                   | 39                   | 6.101                                  | 10.180                          | 5  | 1.52 | 6.180    | 9046120061800 |
| 80                      | 8  | 2.01                 | 28                   | 50                   | 85                   | 36                   | 39                   | 8.100                                  | 10.080                          | 5  | 1.54 | 8.080    | 9046120080800 |
| 80                      | 8  | 4.15                 | 28                   | 50                   | 85                   | 36                   | 39                   | 8.101                                  | 10.180                          | 5  | 1.54 | 8.180    | 9046120081800 |
| 80                      | 10   | 2.01                 | 30                   | 50                   | 90                   | 40                   | 45                   | 10.100                                 | 10.080                          | 5  | 1.58 | 10.080   | 9046120100800 |
| 80                      | 10   | 4.15                 | 30                   | 50                   | 90                   | 40                   | 45                   | 10.101                                 | 10.180                          | 5  | 1.58 | 10.180   | 9046120101800 |
| 80                      | 12   | 2.01                 | 32                   | 50                   | 95                   | 45                   | 50                   | 12.100                                 | 18.080                          | 5  | 1.63 | 12.080   | 9046120120800 |
| 80                      | 12   | 4.15                 | 32                   | 50                   | 95                   | 45                   | 50                   | 12.101                                 | 32.080                          | 5  | 1.63 | 12.180   | 9046120121800 |
| 80                      | 12   | 9.08                 | 32                   | 50                   | 95                   | 45                   | 50                   | 12.102                                 | 32.180                          | 5  | 1.63 | 12.280   | 9046120122800 |
| 80                      | 14   | 2.01                 | 34                   | 50                   | 95                   | 45                   | 50                   | 14.100                                 | 18.080                          | 5  | 1.66 | 14.080   | 9046120140800 |
| 80                      | 14   | 4.15                 | 34                   | 50                   | 95                   | 45                   | 50                   | 14.101                                 | 32.080                          | 5  | 1.66 | 14.180   | 9046120141800 |
| 80                      | 14   | 9.08                 | 34                   | 50                   | 95                   | 45                   | 50                   | 14.102                                 | 32.180                          | 5  | 1.66 | 14.280   | 9046120142800 |
| 80                      | 16   | 2.01                 | 38                   | 50                   | 100                  | 48                   | 56                   | 16.100                                 | 18.080                          | 5  | 1.75 | 16.080   | 9046120160800 |
| 80                      | 16   | 4.15                 | 38                   | 50                   | 100                  | 48                   | 56                   | 16.101                                 | 32.080                          | 5  | 1.74 | 16.180   | 9046120161800 |
| 80                      | 16   | 9.08                 | 38                   | 50                   | 100                  | 48                   | 56                   | 16.102                                 | 32.180                          | 5  | 1.74 | 16.280   | 9046120162800 |
| 80                      | 18   | 2.01                 | 40                   | 50                   | 100                  | 48                   | 56                   | 18.100                                 | 18.080                          | 5  | 1.78 | 18.080   | 9046120180800 |
| 80                      | 18   | 4.15                 | 40                   | 50                   | 100                  | 48                   | 56                   | 18.101                                 | 32.080                          | 5  | 1.78 | 18.180   | 9046120181800 |
| 80                      | 18   | 9.08                 | 40                   | 50                   | 100                  | 48                   | 56                   | 18.102                                 | 32.180                          | 5  | 1.77 | 18.280   | 9046120182800 |
| 80                      | 20   | 4.15                 | 42                   | 50                   | 105                  | 50                   | 62                   | 20.100                                 | 32.080                          | 5  | 1.85 | 20.080   | 9046120200800 |
| 80                      | 20   | 9.08                 | 42                   | 50                   | 105                  | 50                   | 62                   | 20.101                                 | 32.180                          | 5  | 1.84 | 20.180   | 9046120201800 |
| 80                      | 20   | 16.62                | 42                   | 50                   | 105                  | 50                   | 62                   | 20.102                                 | 32.280                          | 5  | 1.84 | 20.280   | 9046120202800 |
| 80                      | 25   | 4.15                 | 57                   | 63                   | 115                  | 56                   | 70                   | 25.100                                 | 32.080                          | 6  | 2.62 | 25.080   | 9046120250800 |
| 80                      | 25   | 9.08                 | 57                   | 63                   | 115                  | 56                   | 70                   | 25.101                                 | 32.180                          | 6  | 2.62 | 25.180   | 9046120251800 |
| 80                      | 25   | 16.62                | 57                   | 63                   | 115                  | 56                   | 70                   | 25.102                                 | 32.280                          | 6  | 2.62 | 25.280   | 9046120252800 |
| 80                      | 32   | 4.15                 | 64                   | 75                   | 120                  | 60                   | 58                   | 32.100                                 | 32.080                          | 6  | 3.13 | 32.080   | 9046120320800 |
| 80                      | 32   | 9.08                 | 64                   | 75                   | 120                  | 60                   | 58                   | 32.101                                 | 32.180                          | 6  | 3.13 | 32.180   | 9046120321800 |
| 80                      | 32   | 16.62                | 64                   | 75                   | 120                  | 60                   | 58                   | 32.102                                 | 32.280                          | 6  | 3.13 | 32.280   | 9046120322800 |
| 100                     | 6  | 2.01                 | 26                   | 50                   | 85                   | 36                   | 36                   | 6.100                                  | 10.100                          | 5  | 2.60 | 6.100    | 9046120061000 |
| 100                     | 6  | 4.15                 | 26                   | 50                   | 85                   | 36                   | 36                   | 6.101                                  | 10.101                          | 5  | 2.60 | 6.101    | 9046120061010 |
| 100                     | 8  | 2.01                 | 28                   | 50                   | 85                   | 36                   | 36                   | 8.100                                  | 10.100                          | 5  | 2.60 | 8.100    | 9046120081000 |
| 100                     | 8  | 4.15                 | 28                   | 50                   | 85                   | 36                   | 36                   | 8.101                                  | 10.101                          | 5  | 2.60 | 8.101    | 9046120081010 |
| 100                     | 10   | 2.01                 | 30                   | 50                   | 90                   | 40                   | 42                   | 10.100                                 | 10.100                          | 5  | 2.60 | 10.100   | 9046120101000 |
| 100                     | 10   | 4.15                 | 30                   | 50                   | 90                   | 40                   | 42                   | 10.101                                 | 10.101                          | 5  | 2.60 | 10.101   | 9046120101010 |
| 100                     | 12   | 2.01                 | 32                   | 50                   | 95                   | 45                   | 47                   | 12.100                                 | 18.100                          | 5  | 2.65 | 12.100   | 9046120121000 |
| 100                     | 12   | 4.15                 | 32                   | 50                   | 95                   | 45                   | 47                   | 12.101                                 | 32.100                          | 5  | 2.65 | 12.101   | 9046120121010 |
| 100                     | 12   | 9.08                 | 32                   | 50                   | 95                   | 45                   | 47                   | 12.102                                 | 32.101                          | 5  | 2.65 | 12.102   | 9046120121020 |
| 100                     | 14   | 2.01                 | 34                   | 50                   | 95                   | 45                   | 47                   | 14.100                                 | 18.100                          | 5  | 2.65 | 14.100   | 9046120141000 |
| 100                     | 14   | 4.15                 | 34                   | 50                   | 95                   | 45                   | 47                   | 14.101                                 | 32.100                          | 5  | 2.65 | 14.101   | 9046120141010 |
| 100                     | 14   | 9.08                 | 34                   | 50                   | 95                   | 45                   | 47                   | 14.102                                 | 32.101                          | 5  | 2.65 | 14.102   | 9046120141020 |
| 100                     | 16   | 2.01                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.100                                 | 18.100                          | 5  | 2.85 | 16.100   | 9046120161000 |
| 100                     | 16   | 4.15                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.101                                 | 32.100                          | 5  | 2.85 | 16.101   | 9046120161010 |
| 100                     | 16   | 9.08                 | 38                   | 50                   | 100                  | 48                   | 53                   | 16.102                                 | 32.101                          | 5  | 2.85 | 16.102   | 9046120161020 |
| 100                     | 18   | 2.01                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.100                                 | 18.100                          | 5  | 2.85 | 18.100   | 9046120181000 |
| 100                     | 18   | 4.15                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.101                                 | 32.100                          | 5  | 2.85 | 18.101   | 9046120181010 |
| 100                     | 18   | 9.08                 | 40                   | 50                   | 100                  | 48                   | 53                   | 18.102                                 | 32.101                          | 5  | 2.85 | 18.102   | 9046120181020 |
| 100                     | 20   | 4.15                 | 42                   | 50                   | 105                  | 50                   | 59                   | 20.100                                 | 32.100                          | 5  | 3.35 | 20.100   | 9046120201000 |
| 100                     | 20   | 9.08                 | 42                   | 50                   | 105                  | 50                   | 59                   | 20.101                                 | 32.101                          | 5  | 3.35 | 20.101   | 9046120201010 |

MQL 2-channel

MQL 2-channel hydraulic chucks HSK-A for automatic tool change



| Series no.              |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          | 4612          |  |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|----|------|----------|---------------|--|
| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4623 ... | SW | kg   | Code no. | EDP Number    |  |
| 100                     | 20   | 16.62                | 42                   | 50                   | 105                  | 50                   | 59                   | 20.102                                 | 32.102                          | 5  | 3.35 | 20.102   | 9046120201020 |  |
| 100                     | 25   | 4.15                 | 57                   | 63                   | 115                  | 56                   | 67                   | 25.100                                 | 32.100                          | 6  | 3.50 | 25.100   | 9046120251000 |  |
| 100                     | 25   | 9.08                 | 57                   | 63                   | 115                  | 56                   | 67                   | 25.101                                 | 32.101                          | 6  | 3.50 | 25.101   | 9046120251010 |  |
| 100                     | 25   | 16.62                | 57                   | 63                   | 115                  | 56                   | 67                   | 25.102                                 | 32.102                          | 6  | 3.50 | 25.102   | 9046120251020 |  |
| 100                     | 32   | 4.15                 | 64                   | 75                   | 120                  | 60                   | 72                   | 32.100                                 | 32.100                          | 6  | 3.95 | 32.100   | 9046120321000 |  |
| 100                     | 32   | 9.08                 | 64                   | 75                   | 120                  | 60                   | 72                   | 32.101                                 | 32.101                          | 6  | 3.95 | 32.101   | 9046120321010 |  |
| 100                     | 32   | 16.62                | 64                   | 75                   | 120                  | 60                   | 72                   | 32.102                                 | 32.102                          | 6  | 3.95 | 32.102   | 9046120321020 |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |
|                         |  |                      |                      |                      |                      |                      |                      |  |                                 |    |      |          |               |  |

MQL 2-channel

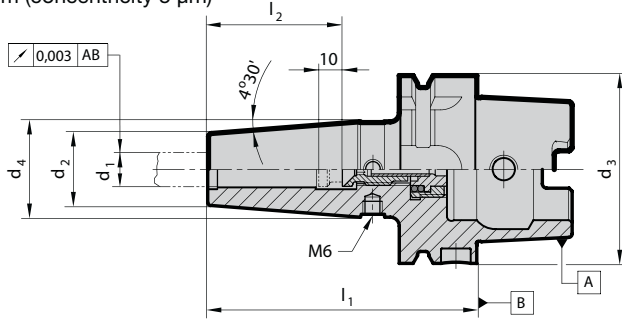
# MQL 2-channel shrink fit chucks HSK-A for manual tool change

## Product information

- to Gühring MQL standard
- for 2-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- also available in the lengths  
l1 = 120 mm (concentricity 4 µm)  
and 160 mm (concentricity 5 µm)

## Scope of delivery

- incl. MQL adjustment screw Series no. 4621  
and MQL coolant supply set Series no. 4622
- special dimensions on request



| HSK-A<br>d3 | for<br>shank Ø<br>d1 h6 mm | A<br>mm <sup>2</sup> | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4622 ... | kg   | Code no. | Series no. | EDP Number    |
|-------------|----------------------------|----------------------|----------|----------|----------|----------|--|---------------------------------|------|----------|------------|---------------|
|             |                            |                      |          |          |          |          |  |                                 |      |          | 4613       |               |
| 32          | 6                          | 2.01                 | 21       | 25.5     | 80       | 36       | 6.032                                  | 12.032                          | 0.30 | 6.032    |            | 9046130060320 |
| 32          | 6                          | 4.15                 | 21       | 25.5     | 80       | 36       | 6.132                                  | 12.132                          | 0.30 | 6.132    |            | 9046130061320 |
| 32          | 8                          | 2.01                 | 21       | 25.5     | 80       | 36       | 8.032                                  | 12.032                          | 0.30 | 8.032    |            | 9046130080320 |
| 32          | 8                          | 4.15                 | 21       | 25.5     | 80       | 36       | 8.132                                  | 12.132                          | 0.30 | 8.132    |            | 9046130081320 |
| 32          | 10                         | 2.01                 | 24       | 31.7     | 85       | 40       | 10.032                                 | 12.032                          | 0.30 | 10.032   |            | 9046130100320 |
| 32          | 10                         | 4.15                 | 24       | 31.7     | 85       | 40       | 10.132                                 | 12.132                          | 0.30 | 10.132   |            | 9046130101320 |
| 32          | 12                         | 2.01                 | 24       | 32.3     | 90       | 45       | 12.032                                 | 12.032                          | 0.30 | 12.032   |            | 9046130120320 |
| 32          | 12                         | 4.15                 | 24       | 32.3     | 90       | 45       | 12.132                                 | 12.132                          | 0.30 | 12.132   |            | 9046130121320 |
| 40          | 6                          | 2.01                 | 21       | 27       | 80       | 36       | 6.040                                  | 16.040                          | 0.40 | 6.040    |            | 9046130060400 |
| 40          | 6                          | 4.15                 | 21       | 27       | 80       | 36       | 6.140                                  | 16.140                          | 0.40 | 6.140    |            | 9046130061400 |
| 40          | 8                          | 2.01                 | 21       | 27       | 80       | 36       | 8.040                                  | 16.040                          | 0.40 | 8.040    |            | 9046130080400 |
| 40          | 8                          | 4.15                 | 21       | 27       | 80       | 36       | 8.140                                  | 16.140                          | 0.40 | 8.140    |            | 9046130081400 |
| 40          | 10                         | 2.01                 | 24       | 32       | 80       | 40       | 10.040                                 | 16.040                          | 0.50 | 10.040   |            | 9046130100400 |
| 40          | 10                         | 4.15                 | 24       | 32       | 80       | 40       | 10.140                                 | 16.140                          | 0.50 | 10.140   |            | 9046130101400 |
| 40          | 12                         | 2.01                 | 24       | 32       | 90       | 45       | 12.040                                 | 16.040                          | 0.50 | 12.040   |            | 9046130120400 |
| 40          | 12                         | 4.15                 | 24       | 32       | 90       | 45       | 12.140                                 | 16.140                          | 0.50 | 12.140   |            | 9046130121400 |
| 40          | 12                         | 9.08                 | 24       | 32       | 90       | 45       | 12.240                                 | 16.240                          | 0.50 | 12.240   |            | 9046130122400 |
| 40          | 14                         | 2.01                 | 27       | 33.5     | 90       | 45       | 14.040                                 | 16.040                          | 0.60 | 14.040   |            | 9046130140400 |
| 40          | 14                         | 4.15                 | 27       | 33.5     | 90       | 45       | 14.140                                 | 16.140                          | 0.60 | 14.140   |            | 9046130141400 |
| 40          | 14                         | 9.08                 | 27       | 33.5     | 90       | 45       | 14.240                                 | 16.240                          | 0.60 | 14.240   |            | 9046130142400 |
| 40          | 16                         | 2.01                 | 27       | 33.5     | 90       | 48       | 16.040                                 | 16.040                          | 0.50 | 16.040   |            | 9046130160400 |
| 40          | 16                         | 4.15                 | 27       | 33.5     | 90       | 48       | 16.140                                 | 16.140                          | 0.50 | 16.140   |            | 9046130161400 |
| 40          | 16                         | 9.08                 | 27       | 33.5     | 90       | 48       | 16.240                                 | 16.240                          | 0.50 | 16.240   |            | 9046130162400 |
| 50          | 6                          | 2.01                 | 21       | 27       | 80       | 36       | 6.050                                  | 10.050                          | 0.60 | 6.050    |            | 9046130060500 |
| 50          | 6                          | 4.15                 | 21       | 27       | 80       | 36       | 6.150                                  | 10.150                          | 0.60 | 6.150    |            | 9046130061500 |
| 50          | 8                          | 2.01                 | 21       | 27       | 80       | 36       | 8.050                                  | 10.050                          | 0.60 | 8.050    |            | 9046130080500 |
| 50          | 8                          | 4.15                 | 21       | 27       | 80       | 36       | 8.150                                  | 10.150                          | 0.60 | 8.150    |            | 9046130081500 |
| 50          | 10                         | 2.01                 | 24       | 32       | 85       | 40       | 10.050                                 | 10.050                          | 0.70 | 10.050   |            | 9046130100500 |
| 50          | 10                         | 4.15                 | 24       | 32       | 85       | 40       | 10.150                                 | 10.150                          | 0.70 | 10.150   |            | 9046130101500 |
| 50          | 12                         | 2.01                 | 24       | 32       | 90       | 45       | 12.050                                 | 18.050                          | 0.70 | 12.050   |            | 9046130120500 |
| 50          | 12                         | 4.15                 | 24       | 32       | 90       | 45       | 12.150                                 | 20.050                          | 0.70 | 12.150   |            | 9046130121500 |
| 50          | 12                         | 9.08                 | 24       | 32       | 90       | 45       | 12.250                                 | 20.150                          | 0.70 | 12.250   |            | 9046130122500 |
| 50          | 14                         | 2.01                 | 27       | 34       | 90       | 45       | 14.050                                 | 18.050                          | 0.70 | 14.050   |            | 9046130140500 |
| 50          | 14                         | 4.15                 | 27       | 34       | 90       | 45       | 14.150                                 | 20.050                          | 0.70 | 14.150   |            | 9046130141500 |
| 50          | 14                         | 9.08                 | 27       | 34       | 90       | 45       | 14.250                                 | 20.150                          | 0.70 | 14.250   |            | 9046130142500 |
| 50          | 16                         | 2.01                 | 27       | 34       | 95       | 48       | 16.050                                 | 18.050                          | 0.70 | 16.050   |            | 9046130160500 |
| 50          | 16                         | 4.15                 | 27       | 34       | 95       | 48       | 16.150                                 | 20.050                          | 0.70 | 16.150   |            | 9046130161500 |
| 50          | 16                         | 9.08                 | 27       | 34       | 95       | 48       | 16.250                                 | 20.150                          | 0.70 | 16.250   |            | 9046130162500 |
| 50          | 18                         | 2.01                 | 33       | 41.5     | 95       | 48       | 18.050                                 | 18.050                          | 0.90 | 18.050   |            | 9046130180500 |
| 50          | 18                         | 4.15                 | 33       | 41.5     | 95       | 48       | 18.150                                 | 20.050                          | 0.90 | 18.150   |            | 9046130181500 |
| 50          | 18                         | 9.08                 | 33       | 41.5     | 95       | 48       | 18.250                                 | 20.150                          | 0.90 | 18.250   |            | 9046130182500 |

MQL 2-channel


MQL 2-channel shrink fit chucks HSK-A for manual tool change



| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4622 ... | kg   | Code no. | Series no. | 4613          |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|------|----------|------------|---------------|
|                         |  |                      |                      |                      |                      |                      |  |                                 |      |          |            | EDP Number    |
| 50                      | 20   | 4.15                 | 33                   | 41.5                 | 100                  | 50                   | 20.050                                 | 20.050                          | 0.90 | 20.050   |            | 9046130200500 |
| 50                      | 20   | 9.08                 | 33                   | 41.5                 | 100                  | 50                   | 20.150                                 | 20.150                          | 0.90 | 20.150   |            | 9046130201500 |
| 50                      | 20   | 16.62                | 33                   | 41.5                 | 100                  | 50                   | 20.250                                 | 20.250                          | 0.90 | 20.250   |            | 9046130202500 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 80                   | 36                   | 6.100                                  | 10.063                          | 0.70 | 6.063    |            | 9046130060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 80                   | 36                   | 6.101                                  | 10.163                          | 0.70 | 6.163    |            | 9046130061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 80                   | 36                   | 8.100                                  | 10.063                          | 0.70 | 8.063    |            | 9046130080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 80                   | 36                   | 8.101                                  | 10.163                          | 0.70 | 8.163    |            | 9046130081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 85                   | 40                   | 10.100                                 | 10.063                          | 0.70 | 10.063   |            | 9046130100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 85                   | 40                   | 10.101                                 | 10.163                          | 0.70 | 10.163   |            | 9046130101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 90                   | 45                   | 12.100                                 | 18.063                          | 0.80 | 12.063   |            | 9046130120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 90                   | 45                   | 12.101                                 | 20.063                          | 0.80 | 12.163   |            | 9046130121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 90                   | 45                   | 12.102                                 | 20.163                          | 0.80 | 12.263   |            | 9046130122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 90                   | 45                   | 14.100                                 | 18.063                          | 0.80 | 14.063   |            | 9046130140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 90                   | 45                   | 14.101                                 | 20.063                          | 0.80 | 14.163   |            | 9046130141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 90                   | 45                   | 14.102                                 | 20.163                          | 0.80 | 14.263   |            | 9046130142630 |
| 63                      | 16   | 2.01                 | 27                   | 34                   | 95                   | 48                   | 16.100                                 | 18.063                          | 0.90 | 16.063   |            | 9046130160630 |
| 63                      | 16   | 4.15                 | 27                   | 34                   | 95                   | 48                   | 16.101                                 | 20.063                          | 0.90 | 16.163   |            | 9046130161630 |
| 63                      | 16   | 9.08                 | 27                   | 34                   | 95                   | 48                   | 16.102                                 | 20.163                          | 0.90 | 16.263   |            | 9046130162630 |
| 63                      | 18   | 2.01                 | 33                   | 42                   | 95                   | 48                   | 18.100                                 | 18.063                          | 0.90 | 18.063   |            | 9046130180630 |
| 63                      | 18   | 4.15                 | 33                   | 42                   | 95                   | 48                   | 18.101                                 | 20.063                          | 0.90 | 18.163   |            | 9046130181630 |
| 63                      | 18   | 9.08                 | 33                   | 42                   | 95                   | 48                   | 18.102                                 | 20.163                          | 0.90 | 18.263   |            | 9046130182630 |
| 63                      | 20   | 4.15                 | 33                   | 42                   | 100                  | 50                   | 20.100                                 | 20.063                          | 1.00 | 20.063   |            | 9046130200630 |
| 63                      | 20   | 9.08                 | 33                   | 42                   | 100                  | 50                   | 20.101                                 | 20.163                          | 1.00 | 20.163   |            | 9046130201630 |
| 63                      | 20   | 16.62                | 33                   | 42                   | 100                  | 50                   | 20.102                                 | 20.263                          | 1.00 | 20.263   |            | 9046130202630 |
| 63                      | 25   | 4.15                 | 44                   | 52.5                 | 115                  | 56                   | 25.100                                 | 32.063                          | 1.00 | 25.063   |            | 9046130250630 |
| 63                      | 25   | 9.08                 | 44                   | 52.5                 | 115                  | 56                   | 25.101                                 | 32.163                          | 1.00 | 25.163   |            | 9046130251630 |
| 63                      | 25   | 16.62                | 44                   | 52.5                 | 115                  | 56                   | 25.102                                 | 32.263                          | 1.00 | 25.263   |            | 9046130252630 |
| 63                      | 32   | 4.15                 | 44                   | 52.5                 | 120                  | 60                   | 32.100                                 | 32.063                          | 1.10 | 32.063   |            | 9046130320630 |
| 63                      | 32   | 9.08                 | 44                   | 52.5                 | 120                  | 60                   | 32.101                                 | 32.163                          | 1.10 | 32.163   |            | 9046130321630 |
| 63                      | 32   | 16.62                | 44                   | 52.5                 | 120                  | 60                   | 32.102                                 | 32.263                          | 1.10 | 32.263   |            | 9046130322630 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 120                  | 36                   | 6.032                                  | 208.063                         | 0.90 | 206.063  |            | 9046132060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 120                  | 36                   | 6.132                                  | 208.163                         | 0.90 | 206.163  |            | 9046132061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 120                  | 36                   | 8.040                                  | 208.063                         | 1.00 | 208.063  |            | 9046132080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 120                  | 36                   | 8.140                                  | 208.163                         | 1.00 | 208.163  |            | 9046132081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 120                  | 40                   | 10.050                                 | 210.063                         | 1.10 | 210.063  |            | 9046132100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 120                  | 40                   | 10.150                                 | 210.063                         | 1.10 | 210.163  |            | 9046132101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 120                  | 45                   | 12.100                                 | 214.063                         | 1.20 | 212.063  |            | 9046132120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 120                  | 45                   | 12.101                                 | 214.163                         | 1.20 | 212.163  |            | 9046132121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 120                  | 45                   | 12.102                                 | 214.263                         | 1.20 | 212.263  |            | 9046132122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 120                  | 45                   | 14.100                                 | 214.063                         | 1.20 | 214.063  |            | 9046132140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 120                  | 45                   | 14.101                                 | 214.163                         | 1.20 | 214.163  |            | 9046132141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 120                  | 45                   | 14.102                                 | 214.263                         | 1.20 | 214.263  |            | 9046132142630 |
| 63                      | 16   | 2.01                 | 27                   | 34                   | 120                  | 48                   | 16.100                                 | 218.063                         | 1.20 | 216.063  |            | 9046132160630 |
| 63                      | 16   | 4.15                 | 27                   | 34                   | 120                  | 48                   | 16.101                                 | 218.163                         | 1.20 | 216.163  |            | 9046132161630 |
| 63                      | 16   | 9.08                 | 27                   | 34                   | 120                  | 48                   | 16.102                                 | 218.263                         | 1.20 | 216.263  |            | 9046132162630 |
| 63                      | 18   | 2.01                 | 33                   | 42                   | 120                  | 48                   | 18.100                                 | 218.063                         | 1.40 | 218.063  |            | 9046132180630 |
| 63                      | 18   | 4.15                 | 33                   | 42                   | 120                  | 48                   | 18.101                                 | 218.163                         | 1.40 | 218.163  |            | 9046132181630 |
| 63                      | 18   | 9.08                 | 33                   | 42                   | 120                  | 48                   | 18.102                                 | 218.263                         | 1.40 | 218.263  |            | 9046132182630 |
| 63                      | 20   | 4.15                 | 33                   | 42                   | 120                  | 50                   | 20.100                                 | 220.063                         | 1.40 | 220.063  |            | 9046132200630 |
| 63                      | 20   | 9.08                 | 33                   | 42                   | 120                  | 50                   | 20.101                                 | 220.163                         | 1.40 | 220.163  |            | 9046132201630 |
| 63                      | 20   | 16.62                | 33                   | 42                   | 120                  | 50                   | 20.102                                 | 220.263                         | 1.40 | 220.263  |            | 9046132202630 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 108.063                         | 0.80 | 106.063  |            | 9046131060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 6.132                                  | 108.163                         | 0.80 | 106.163  |            | 9046131061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 108.063                         | 0.80 | 108.063  |            | 9046131080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 8.140                                  | 108.163                         | 0.80 | 108.163  |            | 9046131081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 110.063                         | 0.90 | 110.063  |            | 9046131100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 160                  | 40                   | 10.150                                 | 110.163                         | 0.90 | 110.163  |            | 9046131101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 114.063                         | 0.90 | 112.063  |            | 9046131120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 160                  | 45                   | 12.101                                 | 114.163                         | 0.90 | 112.163  |            | 9046131121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 160                  | 45                   | 12.102                                 | 114.263                         | 0.90 | 112.263  |            | 9046131122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 114.063                         | 1.00 | 114.063  |            | 9046131140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 160                  | 45                   | 14.101                                 | 114.163                         | 1.00 | 114.163  |            | 9046131141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 160                  | 45                   | 14.102                                 | 114.263                         | 1.00 | 114.263  |            | 9046131142630 |

MQL 2-channel

MQL 2-channel shrink fit chucks HSK-A for manual tool change

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm |  A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. filler<br>no.<br>4622 ... | kg   | Code no. | Series no. | EDP Number    |
|-------------------------|--|--|----------------------|----------------------|----------------------|----------------------|--|---------------------------------|------|----------|------------|---------------|
|                         |  |  |                      |                      |                      |                      |  |                                 |      |          | 4613       |               |
| 63                      | 16   | 2.01   | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 118.063                         | 1.00 | 116.063  |            | 9046131160630 |
| 63                      | 16   | 4.15   | 27                   | 34                   | 160                  | 48                   | 16.101                                 | 118.163                         | 1.00 | 116.163  |            | 9046131161630 |
| 63                      | 16   | 9.08   | 27                   | 34                   | 160                  | 48                   | 16.102                                 | 118.263                         | 1.00 | 116.263  |            | 9046131162630 |
| 63                      | 18   | 2.01   | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 118.063                         | 1.20 | 118.063  |            | 9046131180630 |
| 63                      | 18   | 4.15   | 33                   | 42                   | 160                  | 48                   | 18.101                                 | 118.163                         | 1.20 | 118.163  |            | 9046131181630 |
| 63                      | 18   | 9.08   | 33                   | 42                   | 160                  | 48                   | 18.102                                 | 118.263                         | 1.20 | 118.263  |            | 9046131182630 |
| 63                      | 20   | 4.15   | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 120.063                         | 1.20 | 120.063  |            | 9046131200630 |
| 63                      | 20   | 9.08   | 33                   | 42                   | 160                  | 50                   | 20.101                                 | 120.163                         | 1.20 | 120.163  |            | 9046131201630 |
| 63                      | 20   | 16.62  | 33                   | 42                   | 160                  | 50                   | 20.102                                 | 120.263                         | 1.20 | 120.263  |            | 9046131202630 |
| 63                      | 25   | 4.15   | 44                   | 52.5                 | 160                  | 56                   | 25.100                                 | 125.063                         | 1.80 | 125.063  |            | 9046131250630 |
| 63                      | 25   | 9.08   | 44                   | 52.5                 | 160                  | 56                   | 25.101                                 | 125.163                         | 1.80 | 125.163  |            | 9046131251630 |
| 63                      | 25   | 16.62  | 44                   | 52.5                 | 160                  | 56                   | 25.102                                 | 125.263                         | 1.80 | 125.263  |            | 9046131252630 |
| 63                      | 32   | 4.15   | 44                   | 52.5                 | 160                  | 60                   | 32.100                                 | 132.063                         | 1.70 | 132.063  |            | 9046131320630 |
| 63                      | 32   | 9.08   | 44                   | 52.5                 | 160                  | 60                   | 32.101                                 | 132.163                         | 1.70 | 132.163  |            | 9046131321630 |
| 63                      | 32   | 16.62  | 44                   | 52.5                 | 160                  | 60                   | 32.102                                 | 132.263                         | 1.70 | 132.263  |            | 9046131322630 |
| 80                      | 6  | 2.01   | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 10.080                          | 1.30 | 6.080    |            | 9046130060800 |
| 80                      | 6  | 4.15   | 21                   | 27                   | 85                   | 36                   | 6.101                                  | 10.180                          | 1.30 | 6.180    |            | 9046130061800 |
| 80                      | 8  | 2.01   | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 10.080                          | 1.30 | 8.080    |            | 9046130080800 |
| 80                      | 8  | 4.15   | 21                   | 27                   | 85                   | 36                   | 8.101                                  | 10.180                          | 1.30 | 8.180    |            | 9046130081800 |
| 80                      | 10   | 2.01   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 10.080                          | 1.40 | 10.080   |            | 9046130100800 |
| 80                      | 10   | 4.15   | 24                   | 32                   | 90                   | 40                   | 10.101                                 | 10.180                          | 1.40 | 10.180   |            | 9046130101800 |
| 80                      | 12   | 2.01   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 18.080                          | 1.40 | 12.080   |            | 9046130120800 |
| 80                      | 12   | 4.15   | 24                   | 32                   | 95                   | 45                   | 12.101                                 | 32.080                          | 1.40 | 12.180   |            | 9046130121800 |
| 80                      | 12   | 9.08   | 24                   | 32                   | 95                   | 45                   | 12.102                                 | 32.180                          | 1.40 | 12.280   |            | 9046130122800 |
| 80                      | 14   | 2.01   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 18.080                          | 1.50 | 14.080   |            | 9046130140800 |
| 80                      | 14   | 4.15   | 27                   | 34                   | 95                   | 45                   | 14.101                                 | 32.080                          | 1.50 | 14.180   |            | 9046130141800 |
| 80                      | 14   | 9.08   | 27                   | 34                   | 95                   | 45                   | 14.102                                 | 32.180                          | 1.50 | 14.280   |            | 9046130142800 |
| 80                      | 16   | 2.01   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 18.080                          | 1.50 | 16.080   |            | 9046130160800 |
| 80                      | 16   | 4.15   | 27                   | 34                   | 100                  | 48                   | 16.101                                 | 32.080                          | 1.50 | 16.180   |            | 9046130161800 |
| 80                      | 16   | 9.08   | 27                   | 34                   | 100                  | 48                   | 16.102                                 | 32.180                          | 1.50 | 16.280   |            | 9046130162800 |
| 80                      | 18   | 2.01   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 18.080                          | 1.70 | 18.080   |            | 9046130180800 |
| 80                      | 18   | 4.15   | 33                   | 42                   | 100                  | 48                   | 18.101                                 | 32.080                          | 1.70 | 18.180   |            | 9046130181800 |
| 80                      | 18   | 9.08   | 33                   | 42                   | 100                  | 48                   | 18.102                                 | 32.180                          | 1.70 | 18.280   |            | 9046130182800 |
| 80                      | 20   | 4.15   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 32.080                          | 1.70 | 20.080   |            | 9046130200800 |
| 80                      | 20   | 9.08   | 33                   | 42                   | 105                  | 50                   | 20.101                                 | 32.180                          | 1.70 | 20.180   |            | 9046130201800 |
| 80                      | 20   | 16.62  | 33                   | 42                   | 105                  | 50                   | 20.102                                 | 32.280                          | 1.70 | 20.280   |            | 9046130202800 |
| 80                      | 25   | 4.15   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 32.080                          | 2.20 | 25.080   |            | 9046130250800 |
| 80                      | 25   | 9.08   | 44                   | 53                   | 115                  | 56                   | 25.101                                 | 32.180                          | 2.20 | 25.180   |            | 9046130251800 |
| 80                      | 25   | 16.62  | 44                   | 53                   | 115                  | 56                   | 25.102                                 | 32.280                          | 2.20 | 25.280   |            | 9046130252800 |
| 80                      | 32   | 4.15   | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 32.080                          | 2.10 | 32.080   |            | 9046130320800 |
| 80                      | 32   | 9.08   | 44                   | 53                   | 120                  | 60                   | 32.101                                 | 32.180                          | 2.10 | 32.180   |            | 9046130321800 |
| 80                      | 32   | 16.62  | 44                   | 53                   | 120                  | 60                   | 32.102                                 | 32.280                          | 2.10 | 32.280   |            | 9046130322800 |
| 100                     | 6  | 2.01   | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 10.100                          | 2.10 | 6.100    |            | 9046130061000 |
| 100                     | 6  | 4.15   | 21                   | 27                   | 85                   | 36                   | 6.101                                  | 10.101                          | 2.10 | 6.101    |            | 9046130061010 |
| 100                     | 8  | 2.01   | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 10.100                          | 2.20 | 8.100    |            | 9046130081000 |
| 100                     | 8  | 4.15   | 21                   | 27                   | 85                   | 36                   | 8.101                                  | 10.101                          | 2.20 | 8.101    |            | 9046130081010 |
| 100                     | 10   | 2.01   | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 10.100                          | 2.30 | 10.100   |            | 9046130101000 |
| 100                     | 10   | 4.15   | 24                   | 32                   | 90                   | 40                   | 10.101                                 | 10.101                          | 2.30 | 10.101   |            | 9046130101010 |
| 100                     | 12   | 2.01   | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 18.100                          | 2.30 | 12.100   |            | 9046130121000 |
| 100                     | 12   | 4.15   | 24                   | 32                   | 95                   | 45                   | 12.101                                 | 32.100                          | 2.30 | 12.101   |            | 9046130121010 |
| 100                     | 12   | 9.08   | 24                   | 32                   | 95                   | 45                   | 12.102                                 | 32.101                          | 2.30 | 12.102   |            | 9046130121020 |
| 100                     | 14   | 2.01   | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 18.100                          | 2.30 | 14.100   |            | 9046130141000 |
| 100                     | 14   | 4.15   | 27                   | 34                   | 95                   | 45                   | 14.101                                 | 32.100                          | 2.30 | 14.101   |            | 9046130141010 |
| 100                     | 14   | 9.08   | 27                   | 34                   | 95                   | 45                   | 14.102                                 | 32.101                          | 2.30 | 14.102   |            | 9046130141020 |
| 100                     | 16   | 2.01   | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 18.100                          | 2.30 | 16.100   |            | 9046130161000 |
| 100                     | 16   | 4.15   | 27                   | 34                   | 100                  | 48                   | 16.101                                 | 32.100                          | 2.30 | 16.101   |            | 9046130161010 |
| 100                     | 16   | 9.08   | 27                   | 34                   | 100                  | 48                   | 16.102                                 | 32.101                          | 2.30 | 16.102   |            | 9046130161020 |
| 100                     | 18   | 2.01   | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 18.100                          | 2.50 | 18.100   |            | 9046130181000 |
| 100                     | 18   | 4.15   | 33                   | 42                   | 100                  | 48                   | 18.101                                 | 32.100                          | 2.50 | 18.101   |            | 9046130181010 |
| 100                     | 18   | 9.08   | 33                   | 42                   | 100                  | 48                   | 18.102                                 | 32.101                          | 2.50 | 18.102   |            | 9046130181020 |
| 100                     | 20   | 4.15   | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 32.100                          | 2.50 | 20.100   |            | 9046130201000 |
| 100                     | 20   | 9.08   | 33                   | 42                   | 105                  | 50                   | 20.101                                 | 32.101                          | 2.50 | 20.101   |            | 9046130201010 |
| 100                     | 20   | 16.62  | 33                   | 42                   | 105                  | 50                   | 20.102                                 | 32.102                          | 2.50 | 20.102   |            | 9046130201020 |
| 100                     | 25   | 4.15   | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 32.100                          | 3.00 | 25.100   |            | 9046130251000 |

MQL 2-channel

MQL 2-channel shrink fit chucks HSK-A for manual tool change



| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | Series no.                   |      | Code no. | 4613          |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|------------------------------|------|----------|---------------|
|                         |  |                      |                      |                      |                      |                      |  | incl. filler<br>no. 4622 ... | kg   |          | EDP Number    |
| 100                     | 25   | 9.08                 | 44                   | 53                   | 115                  | 56                   | 25.101                                 | 32.101                       | 3.00 | 25.101   | 9046130251010 |
| 100                     | 25   | 16.62                | 44                   | 53                   | 115                  | 56                   | 25.102                                 | 32.102                       | 3.00 | 25.102   | 9046130251020 |
| 100                     | 32   | 4.15                 | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 32.100                       | 3.00 | 32.100   | 9046130321000 |
| 100                     | 32   | 9.08                 | 44                   | 53                   | 120                  | 60                   | 32.101                                 | 32.101                       | 3.00 | 32.101   | 9046130321010 |
| 100                     | 32   | 16.62                | 44                   | 53                   | 120                  | 60                   | 32.102                                 | 32.102                       | 3.00 | 32.102   | 9046130321020 |
| 100                     | 6  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 108.100                      | 2.60 | 106.100  | 9046131061000 |
| 100                     | 6  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 6.132                                  | 108.101                      | 2.60 | 106.101  | 9046131061010 |
| 100                     | 8  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 108.100                      | 2.50 | 108.100  | 9046131081000 |
| 100                     | 8  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 8.140                                  | 108.101                      | 2.50 | 108.101  | 9046131081010 |
| 100                     | 10   | 2.01                 | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 110.100                      | 2.70 | 110.100  | 9046131101000 |
| 100                     | 10   | 4.15                 | 24                   | 32                   | 160                  | 40                   | 10.150                                 | 110.101                      | 2.70 | 110.101  | 9046131101010 |
| 100                     | 12   | 2.01                 | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 114.100                      | 2.70 | 112.100  | 9046131121000 |
| 100                     | 12   | 4.15                 | 24                   | 32                   | 160                  | 45                   | 12.101                                 | 114.101                      | 2.70 | 112.101  | 9046131121010 |
| 100                     | 12   | 9.08                 | 24                   | 32                   | 160                  | 45                   | 12.102                                 | 114.102                      | 2.70 | 112.102  | 9046131121020 |
| 100                     | 14   | 2.01                 | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 114.100                      | 2.80 | 114.100  | 9046131141000 |
| 100                     | 14   | 4.15                 | 27                   | 34                   | 160                  | 45                   | 14.101                                 | 114.101                      | 2.80 | 114.101  | 9046131141010 |
| 100                     | 14   | 9.08                 | 27                   | 34                   | 160                  | 45                   | 14.102                                 | 114.102                      | 2.80 | 114.102  | 9046131141020 |
| 100                     | 16   | 2.01                 | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 118.100                      | 2.80 | 116.100  | 9046131161000 |
| 100                     | 16   | 4.15                 | 27                   | 34                   | 160                  | 48                   | 16.101                                 | 118.101                      | 2.80 | 116.101  | 9046131161010 |
| 100                     | 16   | 9.08                 | 27                   | 34                   | 160                  | 48                   | 16.102                                 | 118.102                      | 2.80 | 116.102  | 9046131161020 |
| 100                     | 18   | 2.01                 | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 118.100                      | 3.20 | 118.100  | 9046131181000 |
| 100                     | 18   | 4.15                 | 33                   | 42                   | 160                  | 48                   | 18.101                                 | 118.101                      | 3.20 | 118.101  | 9046131181010 |
| 100                     | 18   | 9.08                 | 33                   | 42                   | 160                  | 48                   | 18.102                                 | 118.102                      | 3.20 | 118.102  | 9046131181020 |
| 100                     | 20   | 4.15                 | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 120.100                      | 3.10 | 120.100  | 9046131201000 |
| 100                     | 20   | 9.08                 | 33                   | 42                   | 160                  | 50                   | 20.101                                 | 120.101                      | 3.10 | 120.101  | 9046131201010 |
| 100                     | 20   | 16.62                | 33                   | 42                   | 160                  | 50                   | 20.102                                 | 120.102                      | 3.10 | 120.102  | 9046131201020 |
| 100                     | 25   | 4.15                 | 44                   | 53                   | 160                  | 56                   | 25.100                                 | 125.100                      | 3.90 | 125.100  | 9046131251000 |
| 100                     | 25   | 9.08                 | 44                   | 53                   | 160                  | 56                   | 25.101                                 | 125.101                      | 3.90 | 125.101  | 9046131251010 |
| 100                     | 25   | 16.62                | 44                   | 53                   | 160                  | 56                   | 25.102                                 | 125.102                      | 3.90 | 125.102  | 9046131251020 |
| 100                     | 32   | 4.15                 | 44                   | 53                   | 160                  | 60                   | 32.100                                 | 132.100                      | 3.70 | 132.100  | 9046131321000 |
| 100                     | 32   | 9.08                 | 44                   | 53                   | 160                  | 60                   | 32.101                                 | 132.101                      | 3.70 | 132.101  | 9046131321010 |
| 100                     | 32   | 16.62                | 44                   | 53                   | 160                  | 60                   | 32.102                                 | 132.102                      | 3.70 | 132.102  | 9046131321020 |

MQL 2-channel

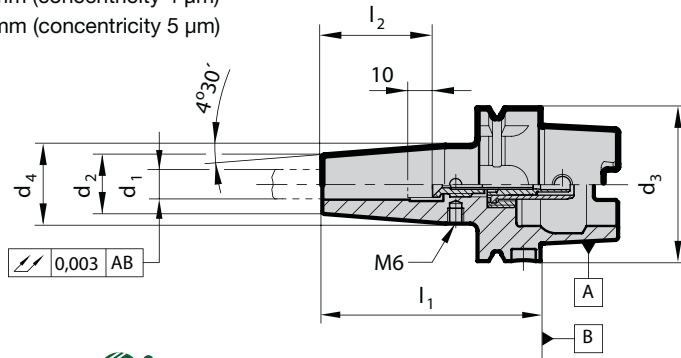
# MQL 2-channel shrink fit chucks HSK-A for automatic tool change

## Product information

- to Gühring MQL standard
- for 2-channel-systems
- balancing quality: G6.3 / 15,000 rev./min
- incl. balancing thread 4xM6/6xM6
- for tool shank tolerance h6
- also available in the lengths  
l1 = 120 mm (concentricity 4 µm)  
and 160 mm (concentricity 5 µm)

## Scope of delivery

- incl. MQL adjustment screw Series no. 4621  
and MQL coolant supply set Series no. 4623
- special dimensions on request



Series no. **4614**

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h6 mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. cool.<br>deliv. set<br>4623 ... | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------------|------|----------|---------------|
|                         |  |                      |                      |                      |                      |                      |  |                                       |      |          | EDP Number    |
| 32                      | 6                                      | 2.01                 | 21                   | 25.5                 | 80                   | 36                   | 6.032                                  | 12.032                                | 0.30 | 6.032    | 9046140060320 |
| 32                      | 6                                      | 4.15                 | 21                   | 25.5                 | 80                   | 36                   | 6.132                                  | 12.132                                | 0.30 | 6.132    | 9046140061320 |
| 32                      | 8                                      | 2.01                 | 21                   | 25.5                 | 80                   | 36                   | 8.032                                  | 12.032                                | 0.30 | 8.032    | 9046140080320 |
| 32                      | 8                                      | 4.15                 | 21                   | 25.5                 | 80                   | 36                   | 8.132                                  | 12.132                                | 0.30 | 8.132    | 9046140081320 |
| 32                      | 10                                     | 2.01                 | 24                   | 31.7                 | 85                   | 40                   | 10.032                                 | 12.032                                | 0.30 | 10.032   | 9046140100320 |
| 32                      | 10                                     | 4.15                 | 24                   | 31.7                 | 85                   | 40                   | 10.132                                 | 12.132                                | 0.30 | 10.132   | 9046140101320 |
| 32                      | 12                                     | 2.01                 | 24                   | 32.3                 | 90                   | 45                   | 12.032                                 | 12.032                                | 0.30 | 12.032   | 9046140120320 |
| 32                      | 12                                     | 4.15                 | 24                   | 32.3                 | 90                   | 45                   | 12.132                                 | 12.132                                | 0.30 | 12.132   | 9046140121320 |
| 40                      | 6                                      | 2.01                 | 21                   | 27                   | 80                   | 36                   | 6.040                                  | 16.040                                | 0.40 | 6.040    | 9046140060400 |
| 40                      | 6                                      | 4.15                 | 21                   | 27                   | 80                   | 36                   | 6.140                                  | 16.140                                | 0.40 | 6.140    | 9046140061400 |
| 40                      | 8                                      | 2.01                 | 21                   | 27                   | 80                   | 36                   | 8.040                                  | 16.040                                | 0.40 | 8.040    | 9046140080400 |
| 40                      | 8                                      | 4.15                 | 21                   | 27                   | 80                   | 36                   | 8.140                                  | 16.140                                | 0.40 | 8.140    | 9046140081400 |
| 40                      | 10                                     | 2.01                 | 24                   | 32                   | 80                   | 40                   | 10.040                                 | 16.040                                | 0.50 | 10.040   | 9046140100400 |
| 40                      | 10                                     | 4.15                 | 24                   | 32                   | 80                   | 40                   | 10.140                                 | 16.140                                | 0.50 | 10.140   | 9046140101400 |
| 40                      | 12                                     | 2.01                 | 24                   | 32                   | 90                   | 45                   | 12.040                                 | 16.040                                | 0.50 | 12.040   | 9046140120400 |
| 40                      | 12                                     | 4.15                 | 24                   | 32                   | 90                   | 45                   | 12.140                                 | 16.140                                | 0.50 | 12.140   | 9046140121400 |
| 40                      | 12                                     | 9.08                 | 24                   | 32                   | 90                   | 45                   | 12.240                                 | 16.240                                | 0.50 | 12.240   | 9046140122400 |
| 40                      | 14                                     | 2.01                 | 27                   | 33.5                 | 90                   | 45                   | 14.040                                 | 16.040                                | 0.60 | 14.040   | 9046140140400 |
| 40                      | 14                                     | 4.15                 | 27                   | 33.5                 | 90                   | 45                   | 14.140                                 | 16.140                                | 0.60 | 14.140   | 9046140141400 |
| 40                      | 14                                     | 9.08                 | 27                   | 33.5                 | 90                   | 45                   | 14.240                                 | 16.240                                | 0.60 | 14.240   | 9046140142400 |
| 40                      | 16                                     | 2.01                 | 27                   | 33.5                 | 90                   | 48                   | 16.040                                 | 16.040                                | 0.50 | 16.040   | 9046140160400 |
| 40                      | 16                                     | 4.15                 | 27                   | 33.5                 | 90                   | 48                   | 16.140                                 | 16.140                                | 0.50 | 16.140   | 9046140161400 |
| 40                      | 16                                     | 9.08                 | 27                   | 33.5                 | 90                   | 48                   | 16.240                                 | 16.240                                | 0.50 | 16.240   | 9046140162400 |
| 50                      | 6                                      | 2.01                 | 21                   | 27                   | 80                   | 36                   | 6.050                                  | 10.050                                | 0.60 | 6.050    | 9046140060500 |
| 50                      | 6                                      | 4.15                 | 21                   | 27                   | 80                   | 36                   | 6.150                                  | 10.150                                | 0.60 | 6.150    | 9046140061500 |
| 50                      | 8                                      | 2.01                 | 21                   | 27                   | 80                   | 36                   | 8.050                                  | 10.050                                | 0.60 | 8.050    | 9046140080500 |
| 50                      | 8                                      | 4.15                 | 21                   | 27                   | 80                   | 36                   | 8.150                                  | 10.150                                | 0.60 | 8.150    | 9046140081500 |
| 50                      | 10                                     | 2.01                 | 24                   | 32                   | 85                   | 40                   | 10.050                                 | 10.050                                | 0.70 | 10.050   | 9046140100500 |
| 50                      | 10                                     | 4.15                 | 24                   | 32                   | 85                   | 40                   | 10.150                                 | 10.150                                | 0.70 | 10.150   | 9046140101500 |
| 50                      | 12                                     | 2.01                 | 24                   | 32                   | 90                   | 45                   | 12.050                                 | 18.050                                | 0.70 | 12.050   | 9046140120500 |
| 50                      | 12                                     | 4.15                 | 24                   | 32                   | 90                   | 45                   | 12.150                                 | 20.050                                | 0.70 | 12.150   | 9046140121500 |
| 50                      | 12                                     | 9.08                 | 24                   | 32                   | 90                   | 45                   | 12.250                                 | 20.150                                | 0.70 | 12.250   | 9046140122500 |
| 50                      | 14                                     | 2.01                 | 27                   | 34                   | 90                   | 45                   | 14.050                                 | 18.050                                | 0.70 | 14.050   | 9046140140500 |
| 50                      | 14                                     | 4.15                 | 27                   | 34                   | 90                   | 45                   | 14.150                                 | 20.050                                | 0.70 | 14.150   | 9046140141500 |
| 50                      | 14                                     | 9.08                 | 27                   | 34                   | 90                   | 45                   | 14.250                                 | 20.150                                | 0.70 | 14.250   | 9046140142500 |
| 50                      | 16                                     | 2.01                 | 27                   | 34                   | 95                   | 48                   | 16.050                                 | 18.050                                | 0.70 | 16.050   | 9046140160500 |
| 50                      | 16                                     | 4.15                 | 27                   | 34                   | 95                   | 48                   | 16.150                                 | 20.050                                | 0.70 | 16.150   | 9046140161500 |
| 50                      | 16                                     | 9.08                 | 27                   | 34                   | 95                   | 48                   | 16.250                                 | 20.150                                | 0.70 | 16.250   | 9046140162500 |
| 50                      | 18                                     | 2.01                 | 33                   | 41.5                 | 95                   | 48                   | 18.050                                 | 18.050                                | 0.90 | 18.050   | 9046140180500 |
| 50                      | 18                                     | 4.15                 | 33                   | 41.5                 | 95                   | 48                   | 18.150                                 | 20.050                                | 0.90 | 18.150   | 9046140181500 |
| 50                      | 18                                     | 9.08                 | 33                   | 41.5                 | 95                   | 48                   | 18.250                                 | 20.150                                | 0.90 | 18.250   | 9046140182500 |
| 50                      | 20                                     | 4.15                 | 33                   | 41.5                 | 100                  | 50                   | 20.050                                 | 20.050                                | 0.90 | 20.050   | 9046140200500 |

MQL 2-channel

MQL 2-channel shrink fit chucks HSK-A for automatic tool change



Series no.

4614

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. cool.<br>deliv. set<br>4623 ... | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------------|------|----------|---------------|
| 50                      | 20   | 9.08                 | 33                   | 41.5                 | 100                  | 50                   | 20.150                                 | 20.150                                | 0.90 | 20.150   | 9046140201500 |
| 50                      | 20   | 16.62                | 33                   | 41.5                 | 100                  | 50                   | 20.250                                 | 20.250                                | 0.90 | 20.250   | 9046140202500 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 80                   | 36                   | 6.100                                  | 10.063                                | 0.70 | 6.063    | 9046140060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 80                   | 36                   | 6.101                                  | 10.163                                | 0.70 | 6.163    | 9046140061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 80                   | 36                   | 8.100                                  | 10.063                                | 0.70 | 8.063    | 9046140080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 80                   | 36                   | 8.101                                  | 10.163                                | 0.70 | 8.163    | 9046140081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 85                   | 40                   | 10.100                                 | 10.063                                | 0.70 | 10.063   | 9046140100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 85                   | 40                   | 10.101                                 | 10.163                                | 0.70 | 10.163   | 9046140101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 90                   | 45                   | 12.100                                 | 18.063                                | 0.80 | 12.063   | 9046140120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 90                   | 45                   | 12.101                                 | 20.063                                | 0.80 | 12.163   | 9046140121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 90                   | 45                   | 12.102                                 | 20.163                                | 0.80 | 12.263   | 9046140122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 90                   | 45                   | 14.100                                 | 18.063                                | 0.80 | 14.063   | 9046140140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 90                   | 45                   | 14.101                                 | 20.063                                | 0.80 | 14.163   | 9046140141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 90                   | 45                   | 14.102                                 | 20.163                                | 0.80 | 14.263   | 9046140142630 |
| 63                      | 16   | 2.01                 | 27                   | 34                   | 95                   | 48                   | 16.100                                 | 18.063                                | 0.90 | 16.063   | 9046140160630 |
| 63                      | 16   | 4.15                 | 27                   | 34                   | 95                   | 48                   | 16.101                                 | 20.063                                | 0.90 | 16.163   | 9046140161630 |
| 63                      | 16   | 9.08                 | 27                   | 34                   | 95                   | 48                   | 16.102                                 | 20.163                                | 0.90 | 16.263   | 9046140162630 |
| 63                      | 18   | 2.01                 | 33                   | 42                   | 95                   | 48                   | 18.100                                 | 18.063                                | 0.90 | 18.063   | 9046140180630 |
| 63                      | 18   | 4.15                 | 33                   | 42                   | 95                   | 48                   | 18.101                                 | 20.063                                | 0.90 | 18.163   | 9046140181630 |
| 63                      | 18   | 9.08                 | 33                   | 42                   | 95                   | 48                   | 18.102                                 | 20.163                                | 0.90 | 18.263   | 9046140182630 |
| 63                      | 20   | 4.15                 | 33                   | 42                   | 100                  | 50                   | 20.100                                 | 20.063                                | 1.00 | 20.063   | 9046140200630 |
| 63                      | 20   | 9.08                 | 33                   | 42                   | 100                  | 50                   | 20.101                                 | 20.163                                | 1.00 | 20.163   | 9046140201630 |
| 63                      | 20   | 16.62                | 33                   | 42                   | 100                  | 50                   | 20.102                                 | 20.263                                | 1.00 | 20.263   | 9046140202630 |
| 63                      | 25   | 4.15                 | 44                   | 52.5                 | 115                  | 56                   | 25.100                                 | 32.063                                | 1.00 | 25.063   | 9046140250630 |
| 63                      | 25   | 9.08                 | 44                   | 52.5                 | 115                  | 56                   | 25.101                                 | 32.163                                | 1.00 | 25.163   | 9046140251630 |
| 63                      | 25   | 16.62                | 44                   | 52.5                 | 115                  | 56                   | 25.102                                 | 32.263                                | 1.00 | 25.263   | 9046140252630 |
| 63                      | 32   | 4.15                 | 44                   | 52.5                 | 120                  | 60                   | 32.100                                 | 32.063                                | 1.10 | 32.063   | 9046140320630 |
| 63                      | 32   | 9.08                 | 44                   | 52.5                 | 120                  | 60                   | 32.101                                 | 32.163                                | 1.10 | 32.163   | 9046140321630 |
| 63                      | 32   | 16.62                | 44                   | 52.5                 | 120                  | 60                   | 32.102                                 | 32.263                                | 1.10 | 32.263   | 9046140322630 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 120                  | 36                   | 6.032                                  | 208.063                               | 0.90 | 206.063  | 9046142060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 120                  | 36                   | 6.132                                  | 208.163                               | 0.90 | 206.163  | 9046142061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 120                  | 36                   | 8.040                                  | 208.063                               | 1.00 | 208.063  | 9046142080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 120                  | 36                   | 8.140                                  | 208.163                               | 1.00 | 208.163  | 9046142081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 120                  | 40                   | 10.050                                 | 210.063                               | 1.10 | 210.063  | 9046142100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 120                  | 40                   | 10.150                                 | 210.063                               | 1.10 | 210.163  | 9046142101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 120                  | 45                   | 12.100                                 | 214.063                               | 1.20 | 212.063  | 9046142120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 120                  | 45                   | 12.101                                 | 214.163                               | 1.20 | 212.163  | 9046142121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 120                  | 45                   | 12.102                                 | 214.263                               | 1.20 | 212.263  | 9046142122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 120                  | 45                   | 14.100                                 | 214.063                               | 1.20 | 214.063  | 9046142140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 120                  | 45                   | 14.101                                 | 214.163                               | 1.20 | 214.163  | 9046142141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 120                  | 45                   | 14.102                                 | 214.263                               | 1.20 | 214.263  | 9046142142630 |
| 63                      | 16   | 2.01                 | 27                   | 34                   | 120                  | 48                   | 16.100                                 | 218.063                               | 1.20 | 216.063  | 9046142160630 |
| 63                      | 16   | 4.15                 | 27                   | 34                   | 120                  | 48                   | 16.101                                 | 218.163                               | 1.20 | 216.163  | 9046142161630 |
| 63                      | 16   | 9.08                 | 27                   | 34                   | 120                  | 48                   | 16.102                                 | 218.263                               | 1.20 | 216.263  | 9046142162630 |
| 63                      | 18   | 2.01                 | 33                   | 42                   | 120                  | 48                   | 18.100                                 | 218.063                               | 1.40 | 218.063  | 9046142180630 |
| 63                      | 18   | 4.15                 | 33                   | 42                   | 120                  | 48                   | 18.101                                 | 218.163                               | 1.40 | 218.163  | 9046142181630 |
| 63                      | 18   | 9.08                 | 33                   | 42                   | 120                  | 48                   | 18.102                                 | 218.263                               | 1.40 | 218.263  | 9046142182630 |
| 63                      | 20   | 4.15                 | 33                   | 42                   | 120                  | 50                   | 20.100                                 | 220.063                               | 1.40 | 220.063  | 9046142200630 |
| 63                      | 20   | 9.08                 | 33                   | 42                   | 120                  | 50                   | 20.101                                 | 220.163                               | 1.40 | 220.163  | 9046142201630 |
| 63                      | 20   | 16.62                | 33                   | 42                   | 120                  | 50                   | 20.102                                 | 220.263                               | 1.40 | 220.263  | 9046142202630 |
| 63                      | 6  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 6.032                                  | 108.063                               | 0.80 | 106.063  | 9046141060630 |
| 63                      | 6  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 6.132                                  | 108.163                               | 0.80 | 106.163  | 9046141061630 |
| 63                      | 8  | 2.01                 | 21                   | 27                   | 160                  | 36                   | 8.040                                  | 108.063                               | 0.80 | 108.063  | 9046141080630 |
| 63                      | 8  | 4.15                 | 21                   | 27                   | 160                  | 36                   | 8.140                                  | 108.163                               | 0.80 | 108.163  | 9046141081630 |
| 63                      | 10   | 2.01                 | 24                   | 32                   | 160                  | 40                   | 10.050                                 | 110.063                               | 0.90 | 110.063  | 9046141100630 |
| 63                      | 10   | 4.15                 | 24                   | 32                   | 160                  | 40                   | 10.150                                 | 110.163                               | 0.90 | 110.163  | 9046141101630 |
| 63                      | 12   | 2.01                 | 24                   | 32                   | 160                  | 45                   | 12.100                                 | 114.063                               | 0.90 | 112.063  | 9046141120630 |
| 63                      | 12   | 4.15                 | 24                   | 32                   | 160                  | 45                   | 12.101                                 | 114.163                               | 0.90 | 112.163  | 9046141121630 |
| 63                      | 12   | 9.08                 | 24                   | 32                   | 160                  | 45                   | 12.102                                 | 114.263                               | 0.90 | 112.263  | 9046141122630 |
| 63                      | 14   | 2.01                 | 27                   | 34                   | 160                  | 45                   | 14.100                                 | 114.063                               | 1.00 | 114.063  | 9046141140630 |
| 63                      | 14   | 4.15                 | 27                   | 34                   | 160                  | 45                   | 14.101                                 | 114.163                               | 1.00 | 114.163  | 9046141141630 |
| 63                      | 14   | 9.08                 | 27                   | 34                   | 160                  | 45                   | 14.102                                 | 114.263                               | 1.00 | 114.263  | 9046141142630 |

MQL 2-channel

MQL 2-channel shrink fit chucks HSK-A for automatic tool change



Series no.

4614

| HSK-A<br>d <sub>3</sub> | for<br>shank Ø<br>d <sub>1</sub> h <sub>6</sub> mm | A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | incl. setting<br>screw<br>no. 4621 ... | incl. cool.<br>deliv. set<br>4623 ... | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|---------------------------------------|------|----------|---------------|
| 63                      | 16   | 2.01                 | 27                   | 34                   | 160                  | 48                   | 16.100                                 | 118.063                               | 1.00 | 116.063  | 9046141160630 |
| 63                      | 16   | 4.15                 | 27                   | 34                   | 160                  | 48                   | 16.101                                 | 118.163                               | 1.00 | 116.163  | 9046141161630 |
| 63                      | 16   | 9.08                 | 27                   | 34                   | 160                  | 48                   | 16.102                                 | 118.263                               | 1.00 | 116.263  | 9046141162630 |
| 63                      | 18   | 2.01                 | 33                   | 42                   | 160                  | 48                   | 18.100                                 | 118.063                               | 1.20 | 118.063  | 9046141180630 |
| 63                      | 18   | 4.15                 | 33                   | 42                   | 160                  | 48                   | 18.101                                 | 118.163                               | 1.20 | 118.163  | 9046141181630 |
| 63                      | 18   | 9.08                 | 33                   | 42                   | 160                  | 48                   | 18.102                                 | 118.263                               | 1.20 | 118.263  | 9046141182630 |
| 63                      | 20   | 4.15                 | 33                   | 42                   | 160                  | 50                   | 20.100                                 | 120.063                               | 1.20 | 120.063  | 9046141200630 |
| 63                      | 20   | 9.08                 | 33                   | 42                   | 160                  | 50                   | 20.101                                 | 120.163                               | 1.20 | 120.163  | 9046141201630 |
| 63                      | 20   | 16.62                | 33                   | 42                   | 160                  | 50                   | 20.102                                 | 120.263                               | 1.20 | 120.263  | 9046141202630 |
| 63                      | 25   | 4.15                 | 44                   | 52.5                 | 160                  | 56                   | 25.100                                 | 125.063                               | 1.80 | 125.063  | 9046141250630 |
| 63                      | 25   | 9.08                 | 44                   | 52.5                 | 160                  | 56                   | 25.101                                 | 125.163                               | 1.80 | 125.163  | 9046141251630 |
| 63                      | 25   | 16.62                | 44                   | 52.5                 | 160                  | 56                   | 25.102                                 | 125.263                               | 1.80 | 125.263  | 9046141252630 |
| 63                      | 32   | 4.15                 | 44                   | 52.5                 | 160                  | 60                   | 32.100                                 | 132.063                               | 1.70 | 132.063  | 9046141320630 |
| 63                      | 32   | 9.08                 | 44                   | 52.5                 | 160                  | 60                   | 32.101                                 | 132.163                               | 1.70 | 132.163  | 9046141321630 |
| 63                      | 32   | 16.62                | 44                   | 52.5                 | 160                  | 60                   | 32.102                                 | 132.263                               | 1.70 | 132.263  | 9046141322630 |
| 80                      | 6  | 2.01                 | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 10.080                                | 1.30 | 6.080    | 9046140060800 |
| 80                      | 6  | 4.15                 | 21                   | 27                   | 85                   | 36                   | 6.101                                  | 10.180                                | 1.30 | 6.180    | 9046140061800 |
| 80                      | 8  | 2.01                 | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 10.080                                | 1.30 | 8.080    | 9046140080800 |
| 80                      | 8  | 4.15                 | 21                   | 27                   | 85                   | 36                   | 8.101                                  | 10.180                                | 1.30 | 8.180    | 9046140081800 |
| 80                      | 10   | 2.01                 | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 10.080                                | 1.40 | 10.080   | 9046140100800 |
| 80                      | 10   | 4.15                 | 24                   | 32                   | 90                   | 40                   | 10.101                                 | 10.180                                | 1.40 | 10.180   | 9046140101800 |
| 80                      | 12   | 2.01                 | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 18.080                                | 1.40 | 12.080   | 9046140120800 |
| 80                      | 12   | 4.15                 | 24                   | 32                   | 95                   | 45                   | 12.101                                 | 32.080                                | 1.40 | 12.180   | 9046140121800 |
| 80                      | 12   | 9.08                 | 24                   | 32                   | 95                   | 45                   | 12.102                                 | 32.180                                | 1.40 | 12.280   | 9046140122800 |
| 80                      | 14   | 2.01                 | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 18.080                                | 1.50 | 14.080   | 9046140140800 |
| 80                      | 14   | 4.15                 | 27                   | 34                   | 95                   | 45                   | 14.101                                 | 32.080                                | 1.50 | 14.180   | 9046140141800 |
| 80                      | 14   | 9.08                 | 27                   | 34                   | 95                   | 45                   | 14.102                                 | 32.180                                | 1.50 | 14.280   | 9046140142800 |
| 80                      | 16   | 2.01                 | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 18.080                                | 1.50 | 16.080   | 9046140160800 |
| 80                      | 16   | 4.15                 | 27                   | 34                   | 100                  | 48                   | 16.101                                 | 32.080                                | 1.50 | 16.180   | 9046140161800 |
| 80                      | 16   | 9.08                 | 27                   | 34                   | 100                  | 48                   | 16.102                                 | 32.180                                | 1.50 | 16.280   | 9046140162800 |
| 80                      | 18   | 2.01                 | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 18.080                                | 1.70 | 18.080   | 9046140180800 |
| 80                      | 18   | 4.15                 | 33                   | 42                   | 100                  | 48                   | 18.101                                 | 32.080                                | 1.70 | 18.180   | 9046140181800 |
| 80                      | 18   | 9.08                 | 33                   | 42                   | 100                  | 48                   | 18.102                                 | 32.180                                | 1.70 | 18.280   | 9046140182800 |
| 80                      | 20   | 4.15                 | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 32.080                                | 1.70 | 20.080   | 9046140200800 |
| 80                      | 20   | 9.08                 | 33                   | 42                   | 105                  | 50                   | 20.101                                 | 32.180                                | 1.70 | 20.180   | 9046140201800 |
| 80                      | 20   | 16.62                | 33                   | 42                   | 105                  | 50                   | 20.102                                 | 32.280                                | 1.70 | 20.280   | 9046140202800 |
| 80                      | 25   | 4.15                 | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 32.080                                | 2.20 | 25.080   | 9046140250800 |
| 80                      | 25   | 9.08                 | 44                   | 53                   | 115                  | 56                   | 25.101                                 | 32.180                                | 2.20 | 25.180   | 9046140251800 |
| 80                      | 25   | 16.62                | 44                   | 53                   | 115                  | 56                   | 25.102                                 | 32.280                                | 2.20 | 25.280   | 9046140252800 |
| 80                      | 32   | 4.15                 | 44                   | 53                   | 120                  | 60                   | 32.100                                 | 32.080                                | 2.10 | 32.080   | 9046140320800 |
| 80                      | 32   | 9.08                 | 44                   | 53                   | 120                  | 60                   | 32.101                                 | 32.180                                | 2.10 | 32.180   | 9046140321800 |
| 80                      | 32   | 16.62                | 44                   | 53                   | 120                  | 60                   | 32.102                                 | 32.280                                | 2.10 | 32.280   | 9046140322800 |
| 100                     | 6  | 2.01                 | 21                   | 27                   | 85                   | 36                   | 6.100                                  | 10.100                                | 2.10 | 6.100    | 9046140061000 |
| 100                     | 6  | 4.15                 | 21                   | 27                   | 85                   | 36                   | 6.101                                  | 10.101                                | 2.10 | 6.101    | 9046140061010 |
| 100                     | 8  | 2.01                 | 21                   | 27                   | 85                   | 36                   | 8.100                                  | 10.100                                | 2.20 | 8.100    | 9046140081000 |
| 100                     | 8  | 4.15                 | 21                   | 27                   | 85                   | 36                   | 8.101                                  | 10.101                                | 2.20 | 8.101    | 9046140081010 |
| 100                     | 10   | 2.01                 | 24                   | 32                   | 90                   | 40                   | 10.100                                 | 10.100                                | 2.30 | 10.100   | 9046140101000 |
| 100                     | 10   | 4.15                 | 24                   | 32                   | 90                   | 40                   | 10.101                                 | 10.101                                | 2.30 | 10.101   | 9046140101010 |
| 100                     | 12   | 2.01                 | 24                   | 32                   | 95                   | 45                   | 12.100                                 | 18.100                                | 2.30 | 12.100   | 9046140121000 |
| 100                     | 12   | 4.15                 | 24                   | 32                   | 95                   | 45                   | 12.101                                 | 32.100                                | 2.30 | 12.101   | 9046140121010 |
| 100                     | 12   | 9.08                 | 24                   | 32                   | 95                   | 45                   | 12.102                                 | 32.101                                | 2.30 | 12.102   | 9046140121020 |
| 100                     | 14   | 2.01                 | 27                   | 34                   | 95                   | 45                   | 14.100                                 | 18.100                                | 2.30 | 14.100   | 9046140141000 |
| 100                     | 14   | 4.15                 | 27                   | 34                   | 95                   | 45                   | 14.101                                 | 32.100                                | 2.30 | 14.101   | 9046140141010 |
| 100                     | 14   | 9.08                 | 27                   | 34                   | 95                   | 45                   | 14.102                                 | 32.101                                | 2.30 | 14.102   | 9046140141020 |
| 100                     | 16   | 2.01                 | 27                   | 34                   | 100                  | 48                   | 16.100                                 | 18.100                                | 2.30 | 16.100   | 9046140161000 |
| 100                     | 16   | 4.15                 | 27                   | 34                   | 100                  | 48                   | 16.101                                 | 32.100                                | 2.30 | 16.101   | 9046140161010 |
| 100                     | 16   | 9.08                 | 27                   | 34                   | 100                  | 48                   | 16.102                                 | 32.101                                | 2.30 | 16.102   | 9046140161020 |
| 100                     | 18   | 2.01                 | 33                   | 42                   | 100                  | 48                   | 18.100                                 | 18.100                                | 2.50 | 18.100   | 9046140181000 |
| 100                     | 18   | 4.15                 | 33                   | 42                   | 100                  | 48                   | 18.101                                 | 32.100                                | 2.50 | 18.101   | 9046140181010 |
| 100                     | 18   | 9.08                 | 33                   | 42                   | 100                  | 48                   | 18.102                                 | 32.101                                | 2.50 | 18.102   | 9046140181020 |
| 100                     | 20   | 4.15                 | 33                   | 42                   | 105                  | 50                   | 20.100                                 | 32.100                                | 2.50 | 20.100   | 9046140201000 |
| 100                     | 20   | 9.08                 | 33                   | 42                   | 105                  | 50                   | 20.101                                 | 32.101                                | 2.50 | 20.101   | 9046140201010 |
| 100                     | 20   | 16.62                | 33                   | 42                   | 105                  | 50                   | 20.102                                 | 32.102                                | 2.50 | 20.102   | 9046140201020 |
| 100                     | 25   | 4.15                 | 44                   | 53                   | 115                  | 56                   | 25.100                                 | 32.100                                | 3.00 | 25.100   | 9046140251000 |

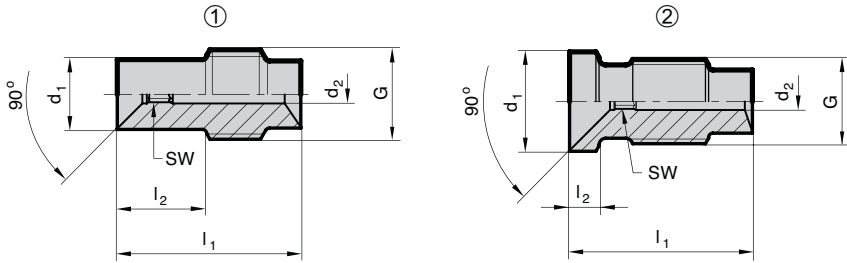
MQL 2-channel



# MQL 2-channel length setting screws for HSK-A

## Product information

- to Gühring MQL standard
- for 2-channel-systems
- for the use of tool shanks to Gühring MQL standard
- black color, corrosion protective coating to visually identify the 2-channel system



Series no. **4621**

| HSK-A | holder Ø d1 mm | for A mm <sup>2</sup> | d2 mm | l1 mm | l2 mm | G      | SW  | type | Code no. | EDP Number    |
|-------|----------------|-----------------------|-------|-------|-------|--------|-----|------|----------|---------------|
| 32    | 6              | 2.01                  | 2     | 25.8  | 2.5   | M5x0.8 | 1.5 | 2    | 6.032    | 9046210060320 |
| 32    | 6              | 4.15                  | 2.9   | 25.8  | 2.5   | M5x0.8 | 2   | 2    | 6.132    | 9046210061320 |
| 32    | 8              | 2.01                  | 2     | 21    | 3     | M7x1   | 1.5 | 2    | 8.032    | 9046210080320 |
| 32    | 8              | 4.15                  | 2.9   | 21    | 3     | M7x1   | 2   | 2    | 8.132    | 9046210081320 |
| 32    | 10             | 2.01                  | 2     | 22    | 3.5   | M8x1   | 1.5 | 2    | 10.032   | 9046210100320 |
| 32    | 10             | 4.15                  | 2.9   | 22    | 3.5   | M8x1   | 2   | 2    | 10.132   | 9046210101320 |
| 32    | 12             | 2.01                  | 2     | 22    | 3.5   | M10x1  | 1.5 | 2    | 12.032   | 9046210120320 |
| 32    | 12             | 4.15                  | 2.9   | 22    | 3.5   | M10x1  | 2   | 2    | 12.132   | 9046210121320 |
| 40    | 6              | 2.01                  | 2     | 26.5  | 11    | M7x1   | 1.5 | 1    | 6.040    | 9046210060400 |
| 40    | 6              | 4.15                  | 2.9   | 26.5  | 11    | M7x1   | 2   | 1    | 6.140    | 9046210061400 |
| 40    | 8              | 2.01                  | 2     | 26.5  | 3     | M7x1   | 1.5 | 2    | 8.040    | 9046210080400 |
| 40    | 8              | 4.15                  | 2.9   | 26.5  | 3     | M7x1   | 2   | 2    | 8.140    | 9046210081400 |
| 40    | 10             | 2.01                  | 2     | 22.2  | 3.5   | M8x1   | 1.5 | 2    | 10.040   | 9046210100400 |
| 40    | 10             | 4.15                  | 2.9   | 22.2  | 3.5   | M8x1   | 2   | 2    | 10.140   | 9046210101400 |
| 40    | 12             | 2.01                  | 2     | 26.5  | 3.5   | M10x1  | 1.5 | 2    | 12.040   | 9046210120400 |
| 40    | 12             | 4.15                  | 2.9   | 26.5  | 3.5   | M10x1  | 2   | 2    | 12.140   | 9046210121400 |
| 40    | 12             | 9.08                  | 4.1   | 26.5  | 3.5   | M10x1  | 3   | 2    | 12.240   | 9046210122400 |
| 40    | 14             | 2.01                  | 2     | 26.5  | 4.5   | M10x1  | 1.5 | 2    | 14.040   | 9046210140400 |
| 40    | 14             | 4.15                  | 2.9   | 26.5  | 4.5   | M10x1  | 2   | 2    | 14.140   | 9046210141400 |
| 40    | 14             | 9.08                  | 4.1   | 26.5  | 4.5   | M10x1  | 3   | 2    | 14.240   | 9046210142400 |
| 40    | 16             | 2.01                  | 2     | 23.5  | 5.5   | M12x1  | 1.5 | 2    | 16.040   | 9046210160400 |
| 40    | 16             | 4.15                  | 2.9   | 23.5  | 5.5   | M12x1  | 2   | 2    | 16.140   | 9046210161400 |
| 40    | 16             | 9.08                  | 4.1   | 23.5  | 5.5   | M12x1  | 3   | 2    | 16.240   | 9046210162400 |
| 50    | 6              | 2.01                  | 2     | 22    | 10    | M8x1   | 1.5 | 1    | 6.050    | 9046210060500 |
| 50    | 6              | 4.15                  | 2.9   | 22    | 10    | M8x1   | 2   | 1    | 6.150    | 9046210061500 |
| 50    | 8              | 2.01                  | 2     | 22    | 3     | M8x1   | 1.5 | 2    | 8.050    | 9046210080500 |
| 50    | 8              | 4.15                  | 2.9   | 22    | 3     | M8x1   | 2   | 2    | 8.150    | 9046210081500 |
| 50    | 10             | 2.01                  | 2     | 23    | 3.5   | M8x1   | 1.5 | 2    | 10.050   | 9046210100500 |
| 50    | 10             | 4.15                  | 2.9   | 23    | 3.5   | M8x1   | 2   | 2    | 10.150   | 9046210101500 |
| 50    | 12             | 2.01                  | 2     | 23.7  | 3.5   | M10x1  | 1.5 | 2    | 12.050   | 9046210120500 |
| 50    | 12             | 4.15                  | 2.9   | 23.7  | 3.5   | M10x1  | 2   | 2    | 12.150   | 9046210121500 |
| 50    | 12             | 9.08                  | 4.1   | 23.7  | 3.5   | M10x1  | 3   | 2    | 12.250   | 9046210122500 |
| 50    | 14             | 2.01                  | 2     | 23.7  | 4.5   | M10x1  | 1.5 | 2    | 14.050   | 9046210140500 |
| 50    | 14             | 4.15                  | 2.9   | 23.7  | 4.5   | M10x1  | 2   | 2    | 14.150   | 9046210141500 |
| 50    | 14             | 9.08                  | 4.1   | 23.7  | 4.5   | M10x1  | 3   | 2    | 14.250   | 9046210142500 |
| 50    | 16             | 2.01                  | 2     | 25.7  | 5.5   | M12x1  | 1.5 | 2    | 16.050   | 9046210160500 |
| 50    | 16             | 4.15                  | 2.9   | 25.7  | 5.5   | M12x1  | 2   | 2    | 16.150   | 9046210161500 |
| 50    | 16             | 9.08                  | 4.1   | 25.7  | 5.5   | M12x1  | 3   | 2    | 16.250   | 9046210162500 |
| 50    | 18             | 2.01                  | 2     | 25.7  | 6.5   | M12x1  | 1.5 | 2    | 18.050   | 9046210180500 |
| 50    | 18             | 4.15                  | 2.9   | 25.7  | 6.5   | M12x1  | 2   | 2    | 18.150   | 9046210181500 |
| 50    | 18             | 9.08                  | 4.1   | 25.7  | 6.5   | M12x1  | 3   | 2    | 18.250   | 9046210182500 |
| 50    | 20             | 4.15                  | 2.9   | 27.5  | 6.5   | M16x1  | 2   | 2    | 20.050   | 9046210200500 |
| 50    | 20             | 9.08                  | 4.1   | 27.5  | 6.5   | M16x1  | 3   | 2    | 20.150   | 9046210201500 |
| 50    | 20             | 16.62                 | 5.4   | 27.5  | 6.5   | M16x1  | 4   | 2    | 20.250   | 9046210202500 |

MQL 2-channel

# MQL 2-channel length setting screws for HSK-A



Series no. **4621**

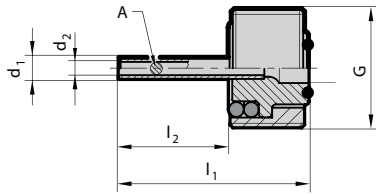
| HSK-A     | holder Ø<br>d <sub>1</sub><br>mm | for A<br>mm <sup>2</sup> | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | G     | SW  | type | Code no. | EDP Number    |
|-----------|----------------------------------|--------------------------|----------------------|----------------------|----------------------|-------|-----|------|----------|---------------|
| 63/80/100 | 6                                | 2.01                     | 2                    | 20.5                 | 10                   | M10x1 | 1.5 | 1    | 6.100    | 9046210061000 |
| 63/80/100 | 6                                | 4.15                     | 2.9                  | 20.5                 | 10                   | M10x1 | 2   | 1    | 6.101    | 9046210061010 |
| 63/80/100 | 8                                | 2.01                     | 2                    | 21.3                 | 10                   | M10x1 | 1.5 | 1    | 8.100    | 9046210081000 |
| 63/80/100 | 8                                | 4.15                     | 2.9                  | 21.3                 | 10                   | M10x1 | 2   | 1    | 8.101    | 9046210081010 |
| 63/80/100 | 10                               | 2.01                     | 2                    | 21.2                 | 3.5                  | M10x1 | 1.5 | 2    | 10.100   | 9046210101000 |
| 63/80/100 | 10                               | 4.15                     | 2.9                  | 21.2                 | 3.5                  | M10x1 | 2   | 2    | 10.101   | 9046210101010 |
| 63/80/100 | 12                               | 2.01                     | 2                    | 21.7                 | 3.5                  | M10x1 | 1.5 | 2    | 12.100   | 9046210121000 |
| 63/80/100 | 12                               | 4.15                     | 2.9                  | 21.7                 | 3.5                  | M10x1 | 2   | 2    | 12.101   | 9046210121010 |
| 63/80/100 | 12                               | 9.08                     | 4.1                  | 21.7                 | 3.5                  | M10x1 | 3   | 2    | 12.102   | 9046210121020 |
| 63/80/100 | 14                               | 2.01                     | 2                    | 21.8                 | 4.5                  | M10x1 | 1.5 | 2    | 14.100   | 9046210141000 |
| 63/80/100 | 14                               | 4.15                     | 2.9                  | 21.8                 | 4.5                  | M10x1 | 2   | 2    | 14.101   | 9046210141010 |
| 63/80/100 | 14                               | 9.08                     | 4.1                  | 21.8                 | 4.5                  | M10x1 | 3   | 2    | 14.102   | 9046210141020 |
| 63/80/100 | 16                               | 2.01                     | 2                    | 23.7                 | 5.5                  | M12x1 | 1.5 | 2    | 16.100   | 9046210161000 |
| 63/80/100 | 16                               | 4.15                     | 2.9                  | 23.7                 | 5.5                  | M12x1 | 2   | 2    | 16.101   | 9046210161010 |
| 63/80/100 | 16                               | 9.08                     | 4.1                  | 23.7                 | 5.5                  | M12x1 | 3   | 2    | 16.102   | 9046210161020 |
| 63/80/100 | 18                               | 2.01                     | 2                    | 23.8                 | 6.5                  | M12x1 | 1.5 | 2    | 18.100   | 9046210181000 |
| 63/80/100 | 18                               | 4.15                     | 2.9                  | 23.8                 | 6.5                  | M12x1 | 2   | 2    | 18.101   | 9046210181010 |
| 63/80/100 | 18                               | 9.08                     | 4.1                  | 23.8                 | 6.5                  | M12x1 | 3   | 2    | 18.102   | 9046210181020 |
| 63/80/100 | 20                               | 4.15                     | 2.9                  | 26.7                 | 6.5                  | M16x1 | 2   | 2    | 20.100   | 9046210201000 |
| 63/80/100 | 20                               | 9.08                     | 4.1                  | 26.7                 | 6.5                  | M16x1 | 3   | 2    | 20.101   | 9046210201010 |
| 63/80/100 | 20                               | 16.62                    | 5.4                  | 26.7                 | 6.5                  | M16x1 | 4   | 2    | 20.102   | 9046210201020 |
| 63/80/100 | 25                               | 4.15                     | 2.9                  | 30.6                 | 10                   | M16x1 | 2   | 2    | 25.100   | 9046210251000 |
| 63/80/100 | 25                               | 9.08                     | 4.1                  | 30.6                 | 10                   | M16x1 | 3   | 2    | 25.101   | 9046210251010 |
| 63/80/100 | 25                               | 16.62                    | 5.4                  | 30.6                 | 10                   | M16x1 | 4   | 2    | 25.102   | 9046210251020 |
| 63/80/100 | 32                               | 4.15                     | 2.9                  | 31.6                 | 14                   | M16x1 | 2   | 2    | 32.100   | 9046210321000 |
| 63/80/100 | 32                               | 9.08                     | 4.1                  | 31.6                 | 14                   | M16x1 | 3   | 2    | 32.101   | 9046210321010 |
| 63/80/100 | 32                               | 16.62                    | 5.4                  | 31.6                 | 14                   | M16x1 | 4   | 2    | 32.102   | 9046210321020 |

MQL 2-channel

# MQL 2-channel coolant supply set HSK-A (filler)

## Product information

- for MQL tool holders (hydraulic chucks and shrink fit chucks) to company standard
- for 2-channel-systems
- for tool holders with manual tool change
- sealed thanks to bypass system



Series no. 4622

| for HSK-A | for clamp. Ø mm | A mm <sup>2</sup> | d <sub>1</sub> mm | d <sub>2</sub> mm | I <sub>1</sub> mm | I <sub>2</sub> mm | G       | for chuck length | Code no. | EDP Number    |
|-----------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|------------------|----------|---------------|
| 32        | 6- 12           | 2.01              | 1.9               | 1.6               | 26,5              | 20                | M10x1   | Standard         | 12.032   | 9046220120320 |
| 32        | 6- 12           | 4.15              | 2.8               | 2.3               | 26,5              | 20                | M10x1   | Standard         | 12.132   | 9046220121320 |
| 40        | 6-16            | 2.01              | 1.9               | 1.6               | 22.8              | 14.5              | M12x1   | Standard         | 16.040   | 9046220160400 |
| 40        | 6-16            | 4.15              | 2.8               | 2.3               | 22.8              | 14.5              | M12x1   | Standard         | 16.140   | 9046220161400 |
| 40        | 12-16           | 9.08              | 4                 | 3.4               | 22.6              | 14.3              | M12x1   | Standard         | 16.240   | 9046220162400 |
| 50        | 6-10            | 2.01              | 1.9               | 1.6               | 26.3              | 16                | M16x1.0 | Standard         | 10.050   | 9046220100500 |
| 50        | 6-10            | 4.15              | 2.8               | 2.3               | 26.3              | 16                | M16x1.0 | Standard         | 10.150   | 9046220101500 |
| 50        | 12-18           | 2.01              | 1.9               | 1.6               | 24.2              | 13.9              | M16x1.0 | Standard         | 18.050   | 9046220180500 |
| 50        | 12-20           | 4.15              | 2.8               | 2.3               | 24.2              | 13.9              | M16x1.0 | Standard         | 20.050   | 9046220200500 |
| 50        | 12-20           | 9.08              | 4                 | 3.4               | 24.2              | 13.9              | M16x1.0 | Standard         | 20.150   | 9046220201500 |
| 50        | 20              | 16.62             | 5.3               | 4.6               | 24.2              | 13.9              | M16x1.0 | Standard         | 20.250   | 9046220202500 |
| 63        | 6-10            | 2.01              | 1.9               | 1.6               | 26.4              | 14.1              | M18x1.0 | Standard         | 10.063   | 9046220100630 |
| 63        | 6-10            | 4.15              | 2.8               | 2.3               | 26.4              | 14.1              | M18x1.0 | Standard         | 10.163   | 9046220101630 |
| 63        | 12-18           | 2.01              | 1.9               | 1.6               | 25.3              | 13.0              | M18x1.0 | Standard         | 18.063   | 9046220180630 |
| 63        | 12-20           | 4.15              | 2.8               | 2.3               | 25.3              | 13.0              | M18x1.0 | Standard         | 20.063   | 9046220200630 |
| 63        | 12-20           | 9.08              | 4.0               | 3.4               | 25.3              | 13.0              | M18x1.0 | Standard         | 20.163   | 9046220201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 26.5              | 14.2              | M18x1.0 | Standard         | 20.263   | 9046220202630 |
| 63        | 25-32           | 4.15              | 2.8               | 2.3               | 30.6              | 18.3              | M18x1.0 | Standard         | 32.063   | 9046220320630 |
| 63        | 25-32           | 9.08              | 4.0               | 3.4               | 30.6              | 18.3              | M18x1.0 | Standard         | 32.163   | 9046220321630 |
| 63        | 25-32           | 16.62             | 5.3               | 4.6               | 30.6              | 18.3              | M18x1.0 | Standard         | 32.263   | 9046220322630 |
| 63        | 6-8             | 2.01              | 1.9               | 1.6               | 66.4              | 54.1              | M18x1.0 | 120              | 208.063  | 9046222080630 |
| 63        | 6-8             | 4.15              | 2.8               | 2.3               | 66.4              | 54.1              | M18x1.0 | 120              | 208.163  | 9046222081630 |
| 63        | 10              | 2.01              | 1.9               | 1.6               | 61.4              | 49.1              | M18x1.0 | 120              | 210.063  | 9046222100630 |
| 63        | 10              | 4.15              | 2.8               | 2.3               | 61.4              | 49.1              | M18x1.0 | 120              | 210.163  | 9046222101630 |
| 63        | 12-14           | 2.01              | 1.9               | 1.6               | 55.3              | 43.0              | M18x1.0 | 120              | 214.063  | 9046222140630 |
| 63        | 12-14           | 4.15              | 2.8               | 2.3               | 55.3              | 43.0              | M18x1.0 | 120              | 214.163  | 9046222141630 |
| 63        | 12-14           | 9.08              | 4.0               | 3.4               | 55.3              | 43.0              | M18x1.0 | 120              | 214.263  | 9046222142630 |
| 63        | 16-18           | 2.01              | 1.9               | 1.6               | 50.3              | 38.0              | M18x1.0 | 120              | 218.063  | 9046222180630 |
| 63        | 16-18           | 4.15              | 2.8               | 2.3               | 50.3              | 38.0              | M18x1.0 | 120              | 218.163  | 9046222181630 |
| 63        | 16-18           | 9.08              | 4.0               | 3.4               | 50.3              | 38.0              | M18x1.0 | 120              | 218.263  | 9046222182630 |
| 63        | 20              | 4.15              | 2.8               | 2.3               | 46.5              | 34.2              | M18x1.0 | 120              | 220.063  | 9046222200630 |
| 63        | 20              | 9.08              | 4.0               | 3.4               | 46.5              | 34.2              | M18x1.0 | 120              | 220.163  | 9046222201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 46.5              | 34.2              | M18x1.0 | 120              | 220.263  | 9046222202630 |
| 63        | 6-8             | 2.01              | 1.9               | 1.6               | 106.4             | 94.1              | M18x1.0 | 160              | 108.063  | 9046221080630 |
| 63        | 6-8             | 4.15              | 2.8               | 2.3               | 106.4             | 94.1              | M18x1.0 | 160              | 108.163  | 9046221081630 |
| 63        | 10              | 2.01              | 1.9               | 1.6               | 101.4             | 89.1              | M18x1.0 | 160              | 110.063  | 9046221100630 |
| 63        | 10              | 4.15              | 2.8               | 2.3               | 101.4             | 89.1              | M18x1.0 | 160              | 110.163  | 9046221101630 |
| 63        | 12-14           | 2.01              | 1.9               | 1.6               | 95.3              | 83.0              | M18x1.0 | 160              | 114.063  | 9046221140630 |
| 63        | 12-14           | 4.15              | 2.8               | 2.3               | 95.3              | 83.0              | M18x1.0 | 160              | 114.163  | 9046221141630 |
| 63        | 12-14           | 9.08              | 4.0               | 3.4               | 95.3              | 83.0              | M18x1.0 | 160              | 114.263  | 9046221142630 |
| 63        | 16-18           | 2.01              | 1.9               | 1.6               | 90.3              | 78.0              | M18x1.0 | 160              | 118.063  | 9046221180630 |
| 63        | 16-18           | 4.15              | 2.8               | 2.3               | 90.3              | 78.0              | M18x1.0 | 160              | 118.163  | 9046221181630 |
| 63        | 16-18           | 9.08              | 4.0               | 3.4               | 90.3              | 78.0              | M18x1.0 | 160              | 118.263  | 9046221182630 |
| 63        | 20              | 4.15              | 2.8               | 2.3               | 86.5              | 74.2              | M18x1.0 | 160              | 120.063  | 9046221200630 |
| 63        | 20              | 9.08              | 4.0               | 3.4               | 86.5              | 74.2              | M18x1.0 | 160              | 120.163  | 9046221201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 86.5              | 74.2              | M18x1.0 | 160              | 120.263  | 9046221202630 |
| 63        | 25              | 4.15              | 2.8               | 2.3               | 75.6              | 63.3              | M18x1.0 | 160              | 125.063  | 9046221250630 |
| 63        | 25              | 9.08              | 4.0               | 3.4               | 75.6              | 63.3              | M18x1.0 | 160              | 125.163  | 9046221251630 |
| 63        | 25              | 16.62             | 5.3               | 4.6               | 75.6              | 63.3              | M18x1.0 | 160              | 125.263  | 9046221252630 |

MQL 2-channel

MQL 2-channel coolant supply set HSK-A (filler)



Series no.

4622

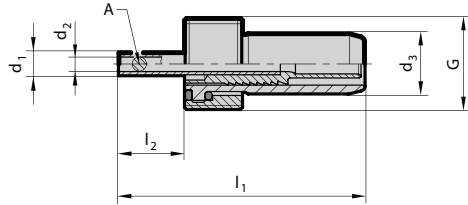
| for HSK-A | for clamp. Ø mm | A mm <sup>2</sup> | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | G       | for chuck length | Code no. | EDP Number    |
|-----------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|------------------|----------|---------------|
| 63        | 32              | 4.15              | 2.8               | 2.3               | 70.6              | 58.3              | M18x1.0 | 160              | 132.063  | 9046221320630 |
| 63        | 32              | 9.08              | 4.0               | 3.4               | 70.6              | 58.3              | M18x1.0 | 160              | 132.163  | 9046221321630 |
| 63        | 32              | 16.62             | 5.3               | 4.6               | 70.6              | 58.3              | M18x1.0 | 160              | 132.263  | 9046221322630 |
| 80        | 6-10            | 2.01              | 1.9               | 1.6               | 29.0              | 14.6              | M20x1.5 | Standard         | 10.080   | 9046220100800 |
| 80        | 6-10            | 4.15              | 2.8               | 2.3               | 29.0              | 14.6              | M20x1.5 | Standard         | 10.180   | 9046220101800 |
| 80        | 12-18           | 2.01              | 1.9               | 1.6               | 27.9              | 13.5              | M20x1.5 | Standard         | 18.080   | 9046220180800 |
| 80        | 12-32           | 4.15              | 2.8               | 2.3               | 27.9              | 13.5              | M20x1.5 | Standard         | 32.080   | 9046220320800 |
| 80        | 12-32           | 9.08              | 4.0               | 3.4               | 27.9              | 13.5              | M20x1.5 | Standard         | 32.180   | 9046220321800 |
| 80        | 20-32           | 16.62             | 5.3               | 4.6               | 28.4              | 14.0              | M20x1.5 | Standard         | 32.280   | 9046220322800 |
| 100       | 6-10            | 2.01              | 1.9               | 1.6               | 29.0              | 12.6              | M24x1.5 | Standard         | 10.100   | 9046220101000 |
| 100       | 6-10            | 4.15              | 2.8               | 2.3               | 29.0              | 12.6              | M24x1.5 | Standard         | 10.101   | 9046220101010 |
| 100       | 12-18           | 2.01              | 1.9               | 1.6               | 27.9              | 11.5              | M24x1.5 | Standard         | 18.100   | 9046220181000 |
| 100       | 12-32           | 4.15              | 2.8               | 2.3               | 27.9              | 11.5              | M24x1.5 | Standard         | 32.100   | 9046220321000 |
| 100       | 12-32           | 9.08              | 4.0               | 3.4               | 27.9              | 11.5              | M24x1.5 | Standard         | 32.101   | 9046220321010 |
| 100       | 20-32           | 16.62             | 5.3               | 4.6               | 28.4              | 12.0              | M24x1.5 | Standard         | 32.102   | 9046220321020 |
| 100       | 6-8             | 2.01              | 1.9               | 1.6               | 104.0             | 87.6              | M24x1.5 | 160              | 108.100  | 9046221081000 |
| 100       | 6-8             | 4.15              | 2.8               | 2.3               | 104.0             | 87.6              | M24x1.5 | 160              | 108.101  | 9046221081010 |
| 100       | 10              | 2.01              | 1.9               | 1.6               | 99.0              | 82.6              | M24x1.5 | 160              | 110.100  | 9046221101000 |
| 100       | 10              | 4.15              | 2.8               | 2.3               | 99.0              | 82.6              | M24x1.5 | 160              | 110.101  | 9046221101010 |
| 100       | 12-14           | 2.01              | 1.9               | 1.6               | 92.9              | 76.5              | M24x1.5 | 160              | 114.100  | 9046221141000 |
| 100       | 12-14           | 4.15              | 2.8               | 2.3               | 92.9              | 76.5              | M24x1.5 | 160              | 114.101  | 9046221141010 |
| 100       | 12-14           | 9.08              | 4.0               | 3.4               | 92.9              | 76.5              | M24x1.5 | 160              | 114.102  | 9046221141020 |
| 100       | 16-18           | 2.01              | 1.9               | 1.6               | 87.9              | 71.5              | M24x1.5 | 160              | 118.100  | 9046221181000 |
| 100       | 16-18           | 4.15              | 2.8               | 2.3               | 87.9              | 71.5              | M24x1.5 | 160              | 118.101  | 9046221181010 |
| 100       | 16-18           | 9.08              | 4.0               | 3.4               | 87.9              | 71.5              | M24x1.5 | 160              | 118.102  | 9046221181020 |
| 100       | 20              | 4.15              | 2.8               | 2.3               | 83.4              | 67.0              | M24x1.5 | 160              | 120.100  | 9046221201000 |
| 100       | 20              | 9.08              | 4.0               | 3.4               | 83.4              | 67.0              | M24x1.5 | 160              | 120.101  | 9046221201010 |
| 100       | 20              | 16.62             | 5.3               | 4.6               | 83.4              | 67.0              | M24x1.5 | 160              | 120.102  | 9046221201020 |
| 100       | 25              | 4.15              | 2.8               | 2.3               | 73.4              | 57.0              | M24x1.5 | 160              | 125.100  | 9046221251000 |
| 100       | 25              | 9.08              | 4.0               | 3.4               | 73.4              | 57.0              | M24x1.5 | 160              | 125.101  | 9046221251010 |
| 100       | 25              | 16.62             | 5.3               | 4.6               | 73.4              | 57.0              | M24x1.5 | 160              | 125.102  | 9046221251020 |
| 100       | 32              | 4.15              | 2.8               | 2.3               | 68.4              | 52.0              | M24x1.5 | 160              | 132.100  | 9046221321000 |
| 100       | 32              | 9.08              | 4.0               | 3.4               | 68.4              | 52.0              | M24x1.5 | 160              | 132.101  | 9046221321010 |
| 100       | 32              | 16.62             | 5.3               | 4.6               | 68.4              | 52.0              | M24x1.5 | 160              | 132.102  | 9046221321020 |

MQL 2-channel

# MQL 2-channel coolant supply set HSK-A

## Product information

- for MQL tool holders (hydraulic chucks and shrink fit chucks) to company standard
- for 2-channel-systems
- for tool holders with automatic tool change
- sealed thanks to bypass system
- “Crashsafe” design similar to DIN 69090-2 supply collar
- all dimensions to DIN 69895 unless stated



Series no. **4623**

| for HSK-A | for clamp. Ø mm | A mm <sup>2</sup> | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | G       | for chuck length | Code no. | EDP Number    |
|-----------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|------------------|----------|---------------|
| 32        | 6- 12           | 2.01              | 1.9               | 1.6               | 6                 | 47                | 20.6              | M10x1   | Standard         | 12.032   | 9046230120320 |
| 32        | 6- 12           | 4.15              | 2.8               | 2.3               | 6                 | 47                | 20.6              | M10x1   | Standard         | 12.132   | 9046230121320 |
| 40        | 6-16            | 2.01              | 1.9               | 1.6               | 8                 | 43.3              | 14.5              | M12x1   | Standard         | 16.040   | 9046230160400 |
| 40        | 6-16            | 4.15              | 2.8               | 2.3               | 8                 | 43.3              | 14.5              | M12x1   | Standard         | 16.140   | 9046230161400 |
| 40        | 12-16           | 9.08              | 4.0               | 3.4               | 8                 | 43.1              | 14.3              | M12x1   | Standard         | 16.240   | 9046230162400 |
| 50        | 6-10            | 2.01              | 1.9               | 1.6               | 10                | 48.6              | 16.0              | M16x1.0 | Standard         | 10.050   | 9046230100500 |
| 50        | 6-10            | 4.15              | 2.8               | 2.3               | 10                | 48.6              | 16.0              | M16x1.0 | Standard         | 10.150   | 9046230101500 |
| 50        | 12-18           | 2.01              | 1.9               | 1.6               | 10                | 46.5              | 13.9              | M16x1.0 | Standard         | 18.050   | 9046230180500 |
| 50        | 12-20           | 4.15              | 2.8               | 2.3               | 10                | 46.5              | 13.9              | M16x1.0 | Standard         | 20.050   | 9046230200500 |
| 50        | 12-20           | 9.08              | 4.0               | 3.4               | 10                | 46.5              | 13.9              | M16x1.0 | Standard         | 20.150   | 9046230201500 |
| 50        | 20              | 16.62             | 5.3               | 4.6               | 10                | 46.5              | 13.9              | M16x1.0 | Standard         | 20.250   | 9046230202500 |
| 63        | 6-10            | 2.01              | 1.9               | 1.6               | 12                | 50.0              | 14.1              | M18x1.0 | Standard         | 10.063   | 9046230100630 |
| 63        | 6-10            | 4.15              | 2.8               | 2.3               | 12                | 50.0              | 14.1              | M18x1.0 | Standard         | 10.163   | 9046230101630 |
| 63        | 12-18           | 2.01              | 1.9               | 1.6               | 12                | 48.8              | 13.0              | M18x1.0 | Standard         | 18.063   | 9046230180630 |
| 63        | 12-20           | 4.15              | 2.8               | 2.3               | 12                | 48.8              | 13.0              | M18x1.0 | Standard         | 20.063   | 9046230200630 |
| 63        | 12-20           | 9.08              | 4.0               | 3.4               | 12                | 48.8              | 13.0              | M18x1.0 | Standard         | 20.163   | 9046230201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 12                | 50.0              | 14.2              | M18x1.0 | Standard         | 20.263   | 9046230202630 |
| 63        | 25-32           | 4.15              | 2.8               | 2.3               | 12                | 54.1              | 18.3              | M18x1.0 | Standard         | 32.063   | 9046230320630 |
| 63        | 25-32           | 9.08              | 4.0               | 3.4               | 12                | 54.1              | 18.3              | M18x1.0 | Standard         | 32.163   | 9046230321630 |
| 63        | 25-32           | 16.62             | 5.3               | 4.6               | 12                | 54.1              | 18.3              | M18x1.0 | Standard         | 32.263   | 9046230322630 |
| 63        | 6-8             | 2.01              | 1.9               | 1.6               | 12                | 90.0              | 54.1              | M18x1.0 | 120              | 208.063  | 9046232080630 |
| 63        | 6-8             | 4.15              | 2.8               | 2.3               | 12                | 90.0              | 54.1              | M18x1.0 | 120              | 208.163  | 9046232081630 |
| 63        | 10              | 2.01              | 1.9               | 1.6               | 12                | 85.0              | 49.1              | M18x1.0 | 120              | 210.063  | 9046232100630 |
| 63        | 10              | 4.15              | 2.8               | 2.3               | 12                | 85.0              | 49.1              | M18x1.0 | 120              | 210.163  | 9046232101630 |
| 63        | 12-14           | 2.01              | 1.9               | 1.6               | 12                | 78.8              | 43.0              | M18x1.0 | 120              | 214.063  | 9046232140630 |
| 63        | 12-14           | 4.15              | 2.8               | 2.3               | 12                | 78.8              | 43.0              | M18x1.0 | 120              | 214.163  | 9046232141630 |
| 63        | 12-14           | 9.08              | 4.0               | 3.4               | 12                | 78.8              | 43.0              | M18x1.0 | 120              | 214.263  | 9046232142630 |
| 63        | 16-18           | 2.01              | 1.9               | 1.6               | 12                | 73.8              | 38.0              | M18x1.0 | 120              | 218.063  | 9046232180630 |
| 63        | 16-18           | 4.15              | 2.8               | 2.3               | 12                | 73.8              | 38.0              | M18x1.0 | 120              | 218.163  | 9046232181630 |
| 63        | 16-18           | 9.08              | 4.0               | 3.4               | 12                | 73.8              | 38.0              | M18x1.0 | 120              | 218.263  | 9046232182630 |
| 63        | 20              | 4.15              | 2.8               | 2.3               | 12                | 70.0              | 34.2              | M18x1.0 | 120              | 220.063  | 9046232200630 |
| 63        | 20              | 9.08              | 4.0               | 3.4               | 12                | 70.0              | 34.2              | M18x1.0 | 120              | 220.163  | 9046232201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 12                | 70.0              | 34.2              | M18x1.0 | 120              | 220.263  | 9046232202630 |
| 63        | 6-8             | 2.01              | 1.9               | 1.6               | 12                | 130.0             | 94.1              | M18x1.0 | 160              | 108.063  | 9046231080630 |
| 63        | 6-8             | 4.15              | 2.8               | 2.3               | 12                | 130.0             | 94.1              | M18x1.0 | 160              | 108.163  | 9046231081630 |
| 63        | 10              | 2.01              | 1.9               | 1.6               | 12                | 125.0             | 89.1              | M18x1.0 | 160              | 110.063  | 9046231100630 |
| 63        | 10              | 4.15              | 2.8               | 2.3               | 12                | 125.0             | 89.1              | M18x1.0 | 160              | 110.163  | 9046231101630 |
| 63        | 12-14           | 2.01              | 1.9               | 1.6               | 12                | 118.8             | 83.0              | M18x1.0 | 160              | 114.063  | 9046231140630 |
| 63        | 12-14           | 4.15              | 2.8               | 2.3               | 12                | 118.8             | 83.0              | M18x1.0 | 160              | 114.163  | 9046231141630 |
| 63        | 12-14           | 9.08              | 4.0               | 3.4               | 12                | 118.8             | 83.0              | M18x1.0 | 160              | 114.263  | 9046231142630 |
| 63        | 16-18           | 2.01              | 1.9               | 1.6               | 12                | 113.8             | 78.0              | M18x1.0 | 160              | 118.063  | 9046231180630 |
| 63        | 16-18           | 4.15              | 2.8               | 2.3               | 12                | 113.8             | 78.0              | M18x1.0 | 160              | 118.163  | 9046231181630 |
| 63        | 16-18           | 9.08              | 4.0               | 3.4               | 12                | 113.8             | 78.0              | M18x1.0 | 160              | 118.263  | 9046231182630 |
| 63        | 20              | 4.15              | 2.8               | 2.3               | 12                | 110.0             | 74.2              | M18x1.0 | 160              | 120.063  | 9046231200630 |
| 63        | 20              | 9.08              | 4.0               | 3.4               | 12                | 110.0             | 74.2              | M18x1.0 | 160              | 120.163  | 9046231201630 |
| 63        | 20              | 16.62             | 5.3               | 4.6               | 12                | 110.0             | 74.2              | M18x1.0 | 160              | 120.263  | 9046231202630 |

MQL 2-channel

MLL 2-channel coolant supply set HSK-A



Series no. 4623

| for HSK-A | for clamp. Ø mm | A mm <sup>2</sup> | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | G       | for chuck length | Code no. | EDP Number    |
|-----------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|------------------|----------|---------------|
| 63        | 25              | 4.15              | 2.8               | 2.3               | 12                | 99.1              | 63.3              | M18x1.0 | 160              | 125.063  | 9046231250630 |
| 63        | 25              | 9.08              | 4                 | 3.4               | 12                | 99.1              | 63.3              | M18x1.0 | 160              | 125.163  | 9046231251630 |
| 63        | 25              | 16.62             | 5.3               | 4.6               | 12                | 99.1              | 63.3              | M18x1.0 | 160              | 125.263  | 9046231252630 |
| 63        | 32              | 4.15              | 2.8               | 2.3               | 12                | 94.1              | 58.3              | M18x1.0 | 160              | 132.063  | 9046231320630 |
| 63        | 32              | 9.08              | 4.0               | 3.4               | 12                | 94.1              | 58.3              | M18x1.0 | 160              | 132.163  | 9046231321630 |
| 63        | 32              | 16.62             | 5.3               | 4.6               | 12                | 94.1              | 58.3              | M18x1.0 | 160              | 132.263  | 9046231322630 |
| 80        | 6-10            | 2.01              | 1.9               | 1.6               | 14                | 54.2              | 14.6              | M20x1.5 | Standard         | 10.080   | 9046230100800 |
| 80        | 6-10            | 4.15              | 2.8               | 2.3               | 14                | 54.2              | 14.6              | M20x1.5 | Standard         | 10.180   | 9046230101800 |
| 80        | 12-18           | 2.01              | 1.9               | 1.6               | 14                | 53.1              | 13.5              | M20x1.5 | Standard         | 18.080   | 9046230180800 |
| 80        | 12-32           | 4.15              | 2.8               | 2.3               | 14                | 53.1              | 13.5              | M20x1.5 | Standard         | 32.080   | 9046230320800 |
| 80        | 12-32           | 9.08              | 4.0               | 3.4               | 14                | 53.1              | 13.5              | M20x1.5 | Standard         | 32.180   | 9046230321800 |
| 80        | 20-32           | 16.62             | 5.3               | 4.6               | 14                | 53.6              | 14.0              | M20x1.5 | Standard         | 32.280   | 9046230322800 |
| 100       | 6-10            | 2.01              | 1.9               | 1.6               | 14                | 56.2              | 12.6              | M24x1.5 | Standard         | 10.100   | 9046230101000 |
| 100       | 6-10            | 4.15              | 2.8               | 2.3               | 14                | 56.2              | 12.6              | M24x1.5 | Standard         | 10.101   | 9046230101010 |
| 100       | 12-18           | 2.01              | 1.9               | 1.6               | 14                | 55.1              | 11.5              | M24x1.5 | Standard         | 18.100   | 9046230181000 |
| 100       | 12-32           | 4.15              | 2.8               | 2.3               | 14                | 55.1              | 11.5              | M24x1.5 | Standard         | 32.100   | 9046230321000 |
| 100       | 12-32           | 9.08              | 4.0               | 3.4               | 14                | 55.1              | 11.5              | M24x1.5 | Standard         | 32.101   | 9046230321010 |
| 100       | 20-32           | 16.62             | 5.3               | 4.6               | 14                | 55.6              | 12.0              | M24x1.5 | Standard         | 32.102   | 9046230321020 |
| 100       | 6-8             | 2.01              | 1.9               | 1.6               | 12                | 131.2             | 87.6              | M24x1.5 | 160              | 108.100  | 9046231081000 |
| 100       | 6-8             | 4.15              | 2.8               | 2.3               | 12                | 131.2             | 87.6              | M24x1.5 | 160              | 108.101  | 9046231081010 |
| 100       | 10              | 2.01              | 1.9               | 1.6               | 12                | 126.2             | 82.6              | M24x1.5 | 160              | 110.100  | 9046231101000 |
| 100       | 10              | 4.15              | 2.8               | 2.3               | 12                | 126.2             | 82.6              | M24x1.5 | 160              | 110.101  | 9046231101010 |
| 100       | 12-14           | 2.01              | 1.9               | 1.6               | 12                | 120.1             | 76.5              | M24x1.5 | 160              | 114.100  | 9046231141000 |
| 100       | 12-14           | 4.15              | 2.8               | 2.3               | 12                | 120.1             | 76.5              | M24x1.5 | 160              | 114.101  | 9046231141010 |
| 100       | 12-14           | 9.08              | 4.0               | 3.4               | 12                | 120.1             | 76.5              | M24x1.5 | 160              | 114.102  | 9046231141020 |
| 100       | 16-18           | 2.01              | 1.9               | 1.6               | 12                | 115.1             | 71.5              | M24x1.5 | 160              | 118.100  | 9046231181000 |
| 100       | 16-18           | 4.15              | 2.8               | 2.3               | 12                | 115.1             | 71.5              | M24x1.5 | 160              | 118.101  | 9046231181010 |
| 100       | 16-18           | 9.08              | 4.0               | 3.4               | 12                | 115.1             | 71.5              | M24x1.5 | 160              | 118.102  | 9046231181020 |
| 100       | 20              | 4.15              | 2.8               | 2.3               | 12                | 110.6             | 67.0              | M24x1.5 | 160              | 120.100  | 9046231201000 |
| 100       | 20              | 9.08              | 4.0               | 3.4               | 12                | 110.6             | 67.0              | M24x1.5 | 160              | 120.101  | 9046231201010 |
| 100       | 20              | 16.62             | 5.3               | 4.6               | 12                | 110.6             | 67.0              | M24x1.5 | 160              | 120.102  | 9046231201020 |
| 100       | 25              | 4.15              | 2.8               | 2.3               | 12                | 100.6             | 57.0              | M24x1.5 | 160              | 125.100  | 9046231251000 |
| 100       | 25              | 9.08              | 4.0               | 3.4               | 12                | 100.6             | 57.0              | M24x1.5 | 160              | 125.101  | 9046231251010 |
| 100       | 25              | 16.62             | 5.3               | 4.6               | 12                | 100.6             | 57.0              | M24x1.5 | 160              | 125.102  | 9046231251020 |
| 100       | 32              | 4.15              | 2.8               | 2.3               | 12                | 95.6              | 52.0              | M24x1.5 | 160              | 132.100  | 9046231321000 |
| 100       | 32              | 9.08              | 4.0               | 3.4               | 12                | 95.6              | 52.0              | M24x1.5 | 160              | 132.101  | 9046231321010 |
| 100       | 32              | 16.62             | 5.3               | 4.6               | 12                | 95.6              | 52.0              | M24x1.5 | 160              | 132.102  | 9046231321020 |

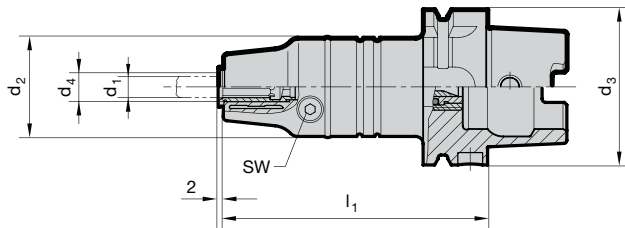
MLL 2-channel

**Product information**

- for MQL single and double channel systems
- MQL coolant pressure up to max. 16 bar
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction bushes with active drive
- length-setting screw allows 3 mm readjustment
- Gühring MQL identifiable by green colored ring

**Scope of delivery**

- incl. hexagon clamping key Series no. 4912
- incl. MQL coolant supply set for manual tool change (filler) Series no. 4513
- incl. adjustment key for MQL adjustment screws
- order MQL adjustment screw Series no. 4305 separately
- order reduction bushes Series no. 4605 or 4606 separately



MQL 2-channel

Series no. 4604

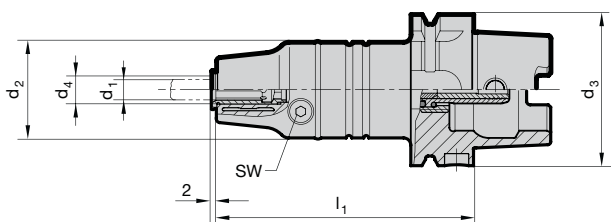
| HSK-A $d_3$ | $d_4$ mm | for shank-Ø $d_1$ | for thread | $d_2$ mm | $l_1$ mm | Mt max. Nm | SW | kg  | Code no. | EDP Number    |
|-------------|----------|-------------------|------------|----------|----------|------------|----|-----|----------|---------------|
| 63          | 12.00    | 2.8-10            | M2-M12     | 40       | 106.5    | 26         | 4  | 1.5 | 12.063   | 9046040120630 |
| 63          | 20.00    | 6-16              | M4.5-M20   | 40       | 120.5    | 90         | 5  | 1.6 | 20.063   | 9046040200630 |
| 100         | 12.00    | 2.8-10            | M2-M12     | 40       | 113.0    | 26         | 4  | 2.8 | 12.100   | 9046040121000 |
| 100         | 20.00    | 6-16              | M4.5-M20   | 40       | 127.0    | 90         | 5  | 2.9 | 20.100   | 9046040201000 |
|             |          |                   |            |          |          |            |    |     |          |               |
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|             |          |                   |            |          |          |            |    |     |          |               |

## Product information

- for MQL 2 channel systems
- MQL coolant pressure up to max. 16 bar
- compensates synchronisation errors
- guarantees high thread quality and optimal tool life
- minimal length compensation  $\pm 0,3$  mm in tension and compression direction balances very small pitch differences between synchro spindle and tap
- reduces an increase in axial forces during the cutting cycle to a minimum
- convenient hydraulic clamping using reduction bushes with active drive
- length-setting screw allows 3 mm readjustment
- Gühring MQL identifiable by green colored ring

## Scope of delivery

- incl. hexagon clamping key Series no. 4912
- incl. MQL coolant supply set for automatic tool change Series no. 4511
- incl. adjustment key for MQL adjustment screws
- order MQL adjustment screw Series no. 4305 separately
- order reduction bushes Series no. 4605 or 4606 separately



MQL 2-channel



Series no. **4603**

| HSK-A<br>d <sub>3</sub> | d <sub>4</sub><br>mm | for<br>shank-Ø<br>d <sub>1</sub> | for<br>thread | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | Mt max.<br>Nm | SW | kg  | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------------------|---------------|----------------------|----------------------|---------------|----|-----|----------|---------------|
| 63                      | 12.00                | 2.8-10                           | M2-M12        | 40                   | 106.5                | 26            | 4  | 1.5 | 12.063   | 9046030120630 |
| 63                      | 20.00                | 6-16                             | M4.5-M20      | 40                   | 120.5                | 90            | 5  | 1.6 | 20.063   | 9046030200630 |
| 100                     | 12.00                | 2.8-10                           | M2-M12        | 40                   | 113.0                | 26            | 4  | 2.8 | 12.100   | 9046030121000 |
| 100                     | 20.00                | 6-16                             | M4.5-M20      | 40                   | 127.0                | 90            | 5  | 2.9 | 20.100   | 9046030201000 |
|                         |                      |                                  |               |                      |                      |               |    |     |          |               |
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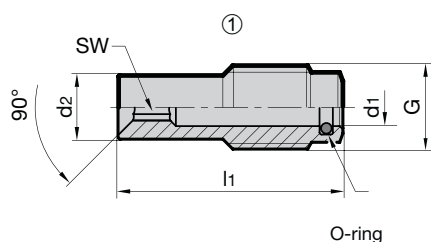


**Product information**

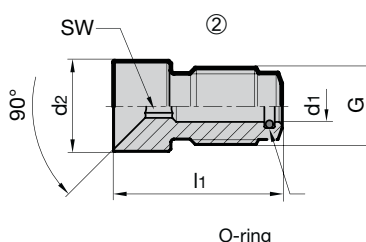
- MQL setting screws with internal cone
- for MQL single and double channel systems
- for MQL taps with external cone
- for MQL hydrosynchro tapping chucks  
Series no. 4602, 4603 4604 und 4524
- for MQL synchro tapping chucks  
Series no. 4298, 4330 und 4341
- position setting screw on tap shank
- length-setting screw allows 3 mm readjustment with hexagon chuck key Series no. 4912, type „B“

**Scope of delivery**

- with O-ring for secure seal



O-ring



O-ring



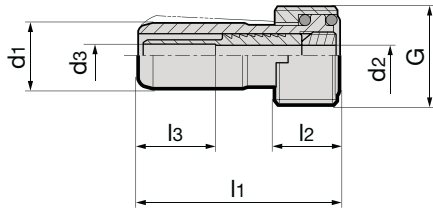
Series no. **4305**

| for nom. size  | for tap shank-Ø x □ | G     | d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | SW  | O-ring | type | EDP Number    |
|----------------|---------------------|-------|-------------------|-------------------|-------------------|-----|--------|------|---------------|
| ER20 / Hydro12 | 6x4.9               | M8x1  | 3.6               | 4.8               | 24.15             | 2.5 | 3.5x1  | 1    | 9043050060200 |
| ER20 / Hydro12 | 7x5.5               | M8x1  | 3.6               | 5.4               | 24.3              | 2.5 | 3.5x1  | 1    | 9043050070200 |
| ER20 / Hydro12 | 8x6.2               | M8x1  | 3.6               | 6.1               | 19.3              | 2.5 | 3.5x1  | 1    | 9043050080200 |
| ER20 / Hydro12 | 9x7                 | M8x1  | 3.6               | 6.9               | 18.2              | 2.5 | 3.5x1  | 1    | 9043050080200 |
| ER20 / Hydro12 | 10x8                | M8x1  | 3.6               | 7.8               | 14.65             | 2.5 | 3.5x1  | 2    | 9043050100200 |
| ER20 / Hydro12 | 11x9                | M8x1  | 3.6               | 8.8               | 16.0              | 2.5 | 3.5x1  | 2    | 9043050110200 |
| ER32 / Hydro20 | 6x4.9               | M10x1 | 4.1               | 4.8               | 34.5              | 3.0 | 4x1    | 1    | 9043050060320 |
| ER32 / Hydro20 | 7x5.5               | M10x1 | 4.1               | 5.4               | 34.5              | 3.0 | 4x1    | 1    | 9043050070320 |
| ER32 / Hydro20 | 8x6.2               | M10x1 | 4.1               | 6.1               | 29.5              | 3.0 | 4x1    | 1    | 9043050080320 |
| ER32 / Hydro20 | 9x7                 | M10x1 | 4.1               | 6.9               | 29.0              | 3.0 | 4x1    | 1    | 9043050080320 |
| ER32 / Hydro20 | 10x8                | M10x1 | 4.1               | 7.8               | 25.0              | 3.0 | 4x1    | 1    | 9043050100320 |
| ER32 / Hydro20 | 11x9 & 12x9         | M10x1 | 4.1               | 8.8               | 24.0              | 3.0 | 4x1    | 1    | 9043050110320 |
| ER32 / Hydro20 | 14x11               | M10x1 | 4.1               | 10.8              | 22.5              | 3.0 | 4x1    | 2    | 9043050140320 |
| ER32 / Hydro20 | 16x12               | M10x1 | 4.1               | 11.8              | 22.0              | 3.0 | 4x1    | 2    | 9043050160320 |
| ER32 / Hydro20 | 18x14.5 & 20x16     | M10x1 | 4.1               | 14.3              | 20.5              | 3.0 | 4x1    | 2    | 9043050180320 |
|                |                     |       |                   |                   |                   |     |        |      |               |
|                |                     |       |                   |                   |                   |     |        |      |               |
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## MQL coolant supply set for 2 channel systems HSK-A

### Product information

- to MQL standard
- version sim. to DIN 69895
- for MQL 2-channel systems
- for tool holders with automatic tool clamping
- “Crashsafe” version similar to DIN 69090-2 neck design
- dimensions  $d_2$  and  $l_1$  based on installed condition



Series no. 4511

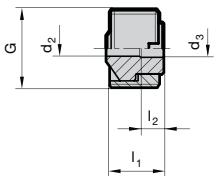
| for HSK-A | $d_1$ mm | $d_2$ mm | $d_3$ mm | $l_1$ mm | $l_2$ mm | $l_3$ mm | G       | EDP Number    |
|-----------|----------|----------|----------|----------|----------|----------|---------|---------------|
| 32        | 6.00     | 3.00     | 4.00     | 26.00    | 5.50     | -        | M10x1   | 9045110100320 |
| 40        | 8.00     | 3.80     | 5.40     | 29.50    | 7.50     | -        | M12x1   | 9045110120400 |
| 50        | 10.00    | 3.60     | 4.00     | 33.00    | 9.50     | 21.00    | M16x1   | 9045110160500 |
| 63        | 12.00    | 3.60     | 4.00     | 36.50    | 11.50    | 13.80    | M18x1   | 9045110180630 |
| 80        | 14.00    | 3.60     | 4.00     | 40.00    | 13.50    | 14.00    | M20x1.5 | 9045110200800 |
| 100       | 16.00    | 3.60     | 4.00     | 44.00    | 15.50    | 14.00    | M24x1.5 | 9045110241000 |

MQL 2-channel

## MQL coolant supply set HSK-A (filler)

### Product information

- to MQL standard
- for internal cooling MQL 1 and 2 channel systems
- for tool holders with manual tool clamping
- optimally sealed for MQL clamping set
- dimensions  $d_2$  and  $l_1$  based on installed condition



Series no. 4513

| for HSK-A | $d_2$ mm | $d_3$ mm | $l_1$ mm | $l_2$ mm | G       | for MQL or IC | EDP Number    |
|-----------|----------|----------|----------|----------|---------|---------------|---------------|
| 32        | 3.00     | 3.00     | 6.30     | -        | M10x1   | MQL-1C/2-C    | 9045130100320 |
| 40        | 3.60     | 4.00     | 8.30     | 5.00     | M12x1   | MQL-1C/2-C    | 9045130120400 |
| 50        | 3.60     | 4.00     | 10.30    | 5.00     | M16x1   | MQL-1C/2-C    | 9045130160500 |
| 50        | 5.00     | 5.00     | 10.30    | -        | M16x1   | IC            | 9045130161500 |
| 63        | 3.60     | 4.00     | 12.30    | 5.00     | M18x1   | MQL-1C/2-C    | 9045130180630 |
| 63        | 6.00     | 6.00     | 12.30    | -        | M18x1   | IC            | 9045130181630 |
| 80        | 3.60     | 4.00     | 14.40    | 5.00     | M20x1.5 | MQL-1C/2-C    | 9045130200800 |
| 80        | 8.00     | 8.00     | 14.40    | -        | M20x1.5 | IC            | 9045130201800 |
| 100       | 3.60     | 4.00     | 16.40    | 5.00     | M24x1.5 | MQL-1C/2-C    | 9045130241000 |
| 100       | 8.00     | 8.00     | 16.40    | -        | M24x1.5 | IC            | 9045130241010 |

# 4-POINT CLAMPING TECHNOLOGY FOR MQL

## TECHNICAL INFORMATION AND ADVANTAGES

**GÜHROCLAMP**



Our 4-point clamping system is suitable for radial manual clamping. Primarily designed for installation in spindles (short drilling spindles, multiple-spindle drilling heads).



### Advantages:

- simple and hence more economic spindle manufacture
- short, small diameter spindles with constricted spindle bearing spacing
- suitable for a pressure up to 160 bar (for conventional internal cooling)
- fast response time thanks to uninterrupted MQL supply
- compatible installation contour and application of our 4-point clamping set for conventional cooling
- fixed installation through screwed joint, prebalanced, good rotation symmetry, therefore high-speed capability

# GÜHROCLAMP MQL 4-point clamping sets for MQL and IC

## Product information

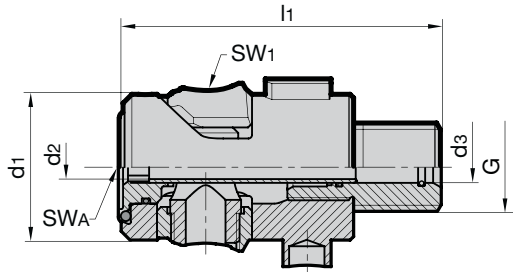
- for radial manual HSK tool clamping
- universal application for MQL and high-pressure IC
- the central and coaxial MQL supply with constant internal diameter prevents coolant from consolidating to DIN 69090-2
- for a coolant pressure up to 160 bar
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

## Scope of delivery

- complete as shown in illustration
- installation and operating instructions



**GÜHROCLAMP**



Series no. **4930**

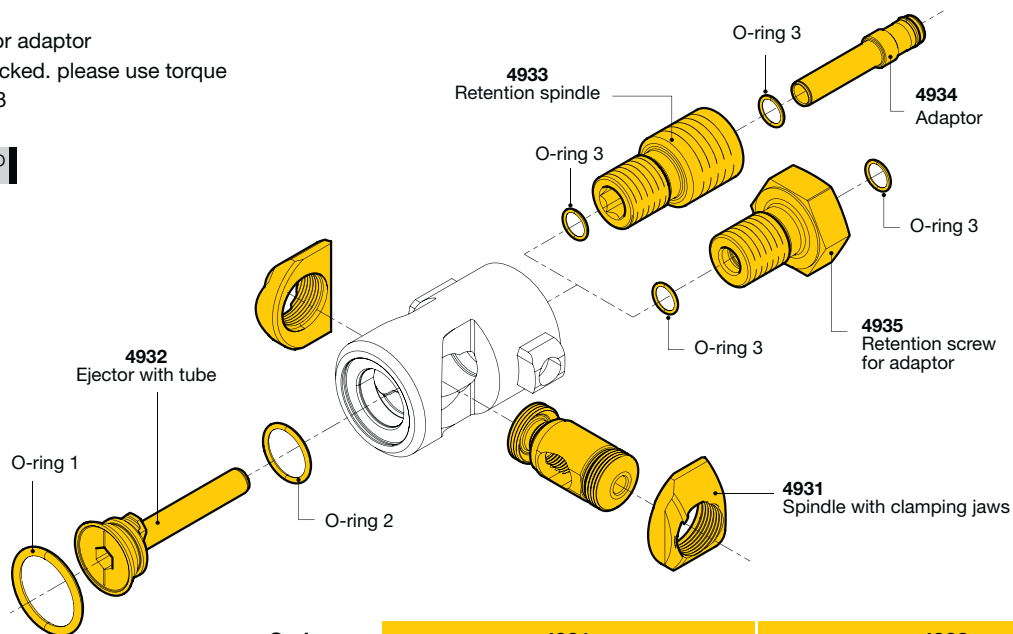
| HSK-C | d1 mm | d2 mm | d3 mm | l1 mm  | G   | SW1 | SWA | kg   | Code no. | EDP Number    |
|-------|-------|-------|-------|--------|-----|-----|-----|------|----------|---------------|
| 32    | 16.7  | 3     | 4.1   | 41.75  | M10 | 2.5 | 3   | 0.05 | 24.100   | 9049300241000 |
| 40    | 20.6  | 4     | 5.1   | 43.90  | M12 | 3   | 4   | 0.09 | 30.100   | 9049300301000 |
| 50    | 25.5  | 5     | 7.1   | 54.20  | M16 | 4   | 5   | 0.18 | 38.100   | 9049300381000 |
| 50    | 25.5  | 5     | 6.1   | 54.20  | M16 | 4   | 5   | 0.18 | 38.200   | 9049300382000 |
| 63    | 33.0  | 6     | 7.1   | 72.20  | M20 | 5   | 6   | 0.37 | 48.100   | 9049300481000 |
| 80    | 41.0  | 8     | 10.1  | 90.20  | M24 | 6   | 8   | 0.70 | 60.100   | 9049300601000 |
| 100   | 52.0  | 10    | 12.1  | 107.10 | M24 | 8   | 10  | 1.30 | 75.100   | 9049300751000 |

MQL  
HSK clamping  
technology

## GÜHROCLAMP component parts for MQL 4-point clamping sets Series no. 4930

- retention screw only for adaptor
- if spindle cannot be locked, please use torque socket Series no. 4963

**GÜHROCLAMP**



Series no. **4931** **4932**

| HSK-C | O-ring 1   | O-ring 2 | O-ring 3        | Spindle with clamping jaws | Ejector with tube |
|-------|------------|----------|-----------------|----------------------------|-------------------|
|       | mm         | mm       | mm              | EDP Number                 | EDP Number        |
| 32    | 10.5x2.0   | 6.0x1.5  | 3.5x1/4x1       | 9049310240000              | 9049320241000     |
| 40    | 13.0x2.0   | 7.0x1.5  | 4.5x1.0/5.0x1.0 | 9049310300000              | 9049320301000     |
| 50    | 16.0x2.0   | 10.0x1.5 | 5.5x1.0/7x1.0   | 9049310380000              | 9049320381000     |
| 63    | 20.3x2.4   | 14.0x1.5 | 7.0x1.0         | 9049310480000              | 9049320481000     |
| 80    | 23.4x3.53  | 16.0x2.0 | 10.0x1.5        | 9049310600000              | 9049320601000     |
| 100   | 28.17x3.53 | 22.0x2.0 | 12.0x1.70       | 9049310750000              | 9049320751000     |

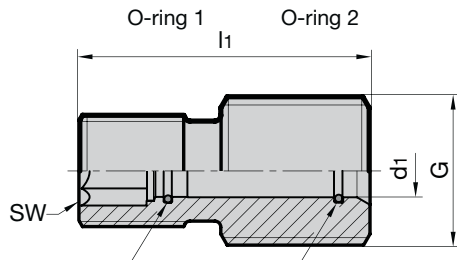
## Retention spindles for GÜHROCLAMP MQL 4-point clamping sets

### Product information

- retention spindle for direct installation in spindle

### Scope of delivery

- complete as shown in illustration



Series no. **4933**

| for HSK-C | $d_1$ mm | $l_1$ mm | G    | SW | O-ring 1  | O-ring 2  | EDP Number    |
|-----------|----------|----------|------|----|-----------|-----------|---------------|
| 32        | 4.1      | 22.5     | M10  | 4  | 3.5x1.0   | 4.0x1.0   | 9049330241000 |
| 40        | 5.1      | 23.2     | M 12 | 5  | 4.5x1.0   | 5.0x1.0   | 9049330301000 |
| 50        | 7.1      | 27.0     | M 16 | 6  | 5.5x1.0   | 7.0x1.0   | 9049330381000 |
| 50        | 6.1      | 27.0     | M 16 | 6  | 5.5x1.0   | 5.5x1.0   | 9049330382000 |
| 63        | 7.1      | 39.0     | M 20 | 8  | 7.0x1.0   | 7.0x1.0   | 9049330481000 |
| 80        | 10.1     | 50.0     | M 24 | 10 | 10.0x1.5  | 10.0x1.5  | 9049330601000 |
| 100       | 12.1     | 60.0     | M 24 | 12 | 12.0x1.70 | 12.0x1.70 | 9049330751000 |

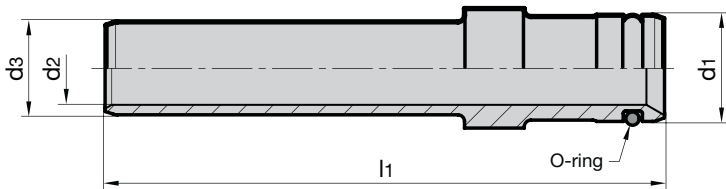
## Adaptor for GÜHROCLAMP MQL 4-point clamping sets

### Product information

- adaptor for direct installation in spindle and spindle adaptor (integrated) for coolant supply and sealing

### Scope of delivery

- complete as shown in illustration



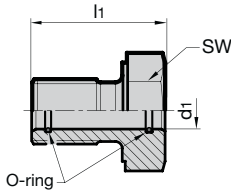
Series no. **4934**

| for HSK-C | $d_1$ mm | $d_2$ mm | $d_3$ mm | $l_1$ mm | O-ring     | EDP Number    |
|-----------|----------|----------|----------|----------|------------|---------------|
| 32        | 4.0      | 2.0      | 4.0      | 14       | 2.0 x 1.0  | 9049340241000 |
| 40        | 5.0      | 3.0      | 5.0      | 28       | 3.0 x 1.0  | 9049340301000 |
| 50        | 6.0      | 4.0      | 6.0      | 28       | 4.0 x 1.0  | 9049340382000 |
| 50        | 6.0      | 4.0      | 7.0      | 28       | 4.0 x 1.0  | 9049340381000 |
| 63        | 8.0      | 5.5      | 7.0      | 42       | 6.0 x 1.0  | 9049340481000 |
| 80        | 10.2     | 7.5      | 10.0     | 56       | 8.0 x 1.0  | 9049340601000 |
| 100       | 12.0     | 9.5      | 12.0     | 60       | 10.0 x 1.0 | 9049340751000 |

## Retention screw for GÜHROCLAMP MQL 4-point clamping sets

### Product information

- necessary for installation of MQL 4-point clamping set in spindle adaptors and module adaptor flange Series no. 4363, 4386, 4387 and 4713
- change against standard retention bolt



### Scope of delivery

- complete as shown in illustration



Series no.

4935

| for HSK-C | d <sub>1</sub> mm | l <sub>1</sub> mm | SW | O-ring 1 | O-ring 2 | torque Nm | EDP Number    |
|-----------|-------------------|-------------------|----|----------|----------|-----------|---------------|
| 32        | 4.1               | 23.5              | 13 | 4x1.0    | 4x1.0    | 14        | 9049350240000 |
| 40        | 5.1               | 21                | 16 | 4.5x1.0  | 5x1.0    | 30        | 9049350300000 |
| 50        | 6.1               | 25                | 18 | 5.5x1.0  | 6x1.0    | 60        | 9049350382000 |
| 50        | 7.1               | 25                | 18 | 5.5x1.0  | 7x1.0    | 60        | 9049350380000 |
| 63        | 7.1               | 29                | 24 | 7x1.0    | 7x1.0    | 110       | 9049350480000 |
| 80        | 10.1              | 36                | 24 | 10x1.5   | 10x1.5   | 180       | 9049350600000 |
| 100       | 12.1              | 46.5              | 32 | 12x1.7   | 12x1.7   | 200       | 9049350750000 |

MQL  
HSK clamping  
technology

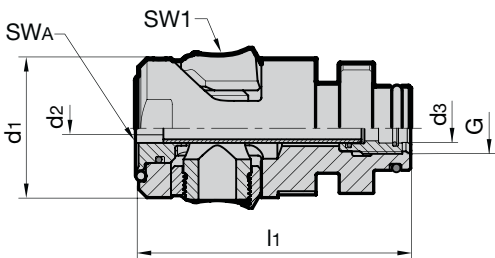
## M contour clamping sets for MQL and IC

### Product information

- HSK clamping sets compatible with M contour spindles and adaptors
- universal application for MQL and high-pressure IC
- the central coaxial MQL supply with constant internal diameter ensures a uninterrupted coolant supply to DIN 69090-2
- for a coolant pressure up to 160 bar
- for radial manual HSK tool clamping
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

### Scope of delivery

- incl. adaptor with through hole for uninterrupted coolant supply
- including installation and operating instructions
- order adaptor with spigot connection Series no. 4616 separately
- spindle connection dimensions on request



Series no.

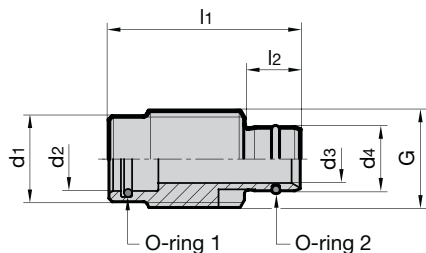
4615

| HSK-C | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | G     | SW1 | SWA | EDP Number    |
|-------|-------------------|-------------------|-------------------|-------------------|-------|-----|-----|---------------|
| 32    | 16.7              | 3.0               | 4.1               | 43.4              | M8x1  | 2.5 | 3   | 9046150240000 |
| 40    | 20.6              | 4.0               | 5.1               | 48.3              | M10x1 | 3   | 4   | 9046150300000 |
| 50    | 25.5              | 5.0               | 6.1               | 55.3              | M12x1 | 4   | 5   | 9046150381000 |
| 50    | 25.5              | 5.0               | 7.1               | 55.3              | M12x1 | 4   | 5   | 9046150380000 |
| 63    | 33.0              | 6.0               | 7.1               | 64.7              | M12x1 | 5   | 6   | 9046150480000 |
| 80    | 41.0              | 8.0               | 10.1              | 75.3              | M16x1 | 6   | 8   | 9046150600000 |
| 100   | 52.0              | 10.0              | 12.1              | 94.5              | M18x1 | 8   | 10  | 9046150750000 |

## Adaptor with spigot transition for M contour clamping set

### Product information

- application on M contour clamping sets  
Series no. 4615 instead of adaptor with coolant transfer hole
- universal application for MQL and high-pressure IC
- for a coolant pressure up to 160 bar
- adaptor for spindles without coolant tube for uninterrupted coolant supply
- spindle connection dimensions on request



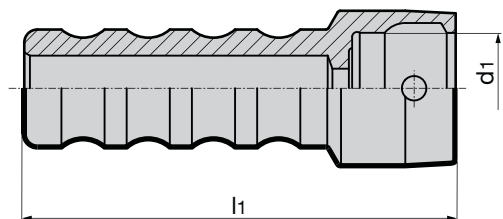
Series no. **4616**

| for HSK-C | d1 mm | d2 mm | d3 mm | d4 mm | l1 mm | l2 mm | O-ring 1 | O-ring 2 | G     | EDP Number    |
|-----------|-------|-------|-------|-------|-------|-------|----------|----------|-------|---------------|
| 32        | -     | 3.5   | 3     | 5.00  | 14.4  | 5.4   | 3.5x1    | 3x1      | M8x1  | 9046160240000 |
| 40        | 7.7   | 4.5   | 4     | 6.00  | 22.0  | 6.5   | 4.0x1    | 4x1      | M10x1 | 9046160300000 |
| 50        | 8.5   | 5.5   | 5     | 8.00  | 23.0  | 7.5   | 5.5x1    | 6x1      | M12x1 | 9046160380000 |
| 63        | 10.6  | 7.0   | 6     | 8.00  | 24.0  | 7.0   | 7.0x1    | 6x1      | M12x1 | 9046160480000 |
| 80        | -     | 10.0  | 8     | 11.30 | 23.3  | 8.3   | 10x1.5   | 8x1.5    | M12x1 | 9046160600000 |
| 100       | -     | 12.0  | 10    | 13.80 | 30.6  | 9.6   | 12x1.5   | 12x1.5   | M18x1 | 9046160750000 |

## Tool for the assembly / disassembly of M contour clamping sets

### Product information

- for the assembly and disassembly of M contour clamping sets  
Series no. 4615

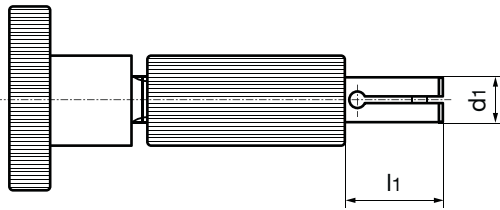


Series no. **4624**

| for HSK | d1 mm | l1 mm | EDP Number    |
|---------|-------|-------|---------------|
| 32      | 17    | 118.7 | 9046240320000 |
| 40      | 21    | 121.6 | 9046240400000 |
| 50      | 26    | 127.5 | 9046240500000 |
| 63      | 34    | 132   | 9046240630000 |
| 80      | 42    | 143   | 9046240800000 |
| 100     | 53    | 152   | 9046241000000 |

**Product information**

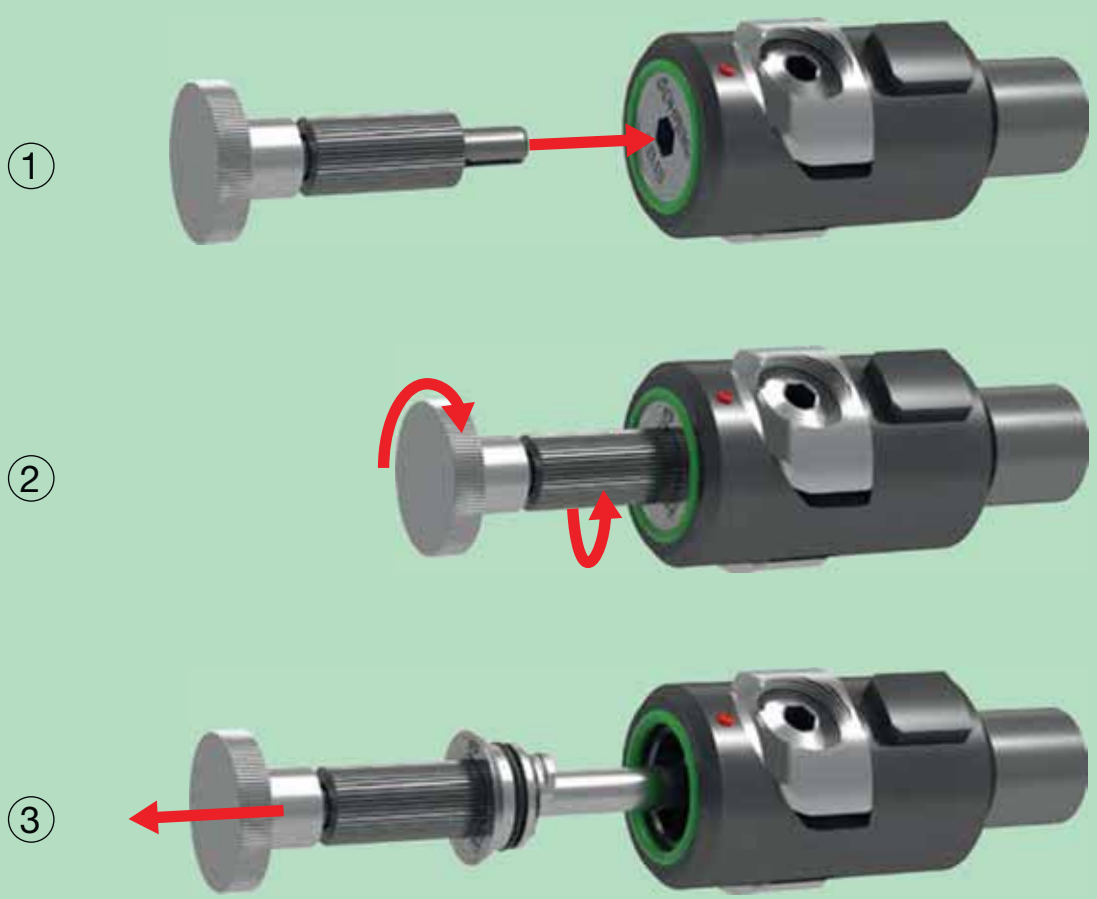
- for assembly and disassembly of ejectors of MQL clamping sets, Series no. 4930, and M contour clamping sets, Series no. 4615



|         |                   |                   | Series no.    | 4986 |
|---------|-------------------|-------------------|---------------|------|
| for HSK | d <sub>1</sub> mm | l <sub>1</sub> mm | EDP Number    |      |
| 32      | 3                 | 9                 | 9049860030320 |      |
| 40      | 4                 | 9                 | 9049860040400 |      |
| 50      | 5                 | 11                | 9049860050500 |      |
| 63      | 6                 | 12                | 9049860060630 |      |
| 80      | 8                 | 15                | 9049860080800 |      |
| 100     | 10                | 15                | 9049860101000 |      |

MQL HSK clamping technology

**Assembly instructions**



# MQL-CHECK 3001

## NEW GENERATION

### Measurement directly at tool tip

In particular with minimum quantity lubrication it is very essential that very little quantities of lubrication are perfectly applied on the tool's cutting edge.

Deficient supply or long response times may have fatal consequences, which are premature wear, lower processing quality or even tool breakages. If the quantity of lubrication is too high, this may lead to a cost-intensive and needless lubricant consumption and extra cleaning effort on components or/and machines. The MQL Check 3001 is a measuring device provided by Gühring which is easy in operation and which allows fast and reliable checking of the lubrication quantity directly at the tool's tip.

The MQL Check 3001 is fastened inside the machine via magnet points before the zero point of the plunging depth is determined via the tool's tip. After the tool has been positioned in the measuring device and the start command has been transmitted via the software, MQL supply can be started. The measuring device sends the collected data to the respective software on PC/laptop via bluetooth.

### Advantages of MQL-Check 3001

- simple, quick measurements of the coolant volume directly at the tool point
- reproduceable and at any time comparable measuring data
- it also comes with a master tool for cross-checking the MQL test stand → in order to check the function of the MQL device, machine, spindle, tool holder and tool
- a workshop suitable system, wireless operation - in terms of power supply as well as data transfer

### Technical Data

|                     |   |
|---------------------|---|
| Measuring range     | 10 to 160 ml/h                                  |
| Tool diameter range | 3 to 21.5 mm                                    |
| Measuring position  | 0 to 90°<br>(vertical and horizontal machining) |
| Radio range         | approx. 50 m<br>(at optimal conditions)         |



### Note:

**Only tools with axial coolant duct exits can be checked by means of the MQL Check 3001**

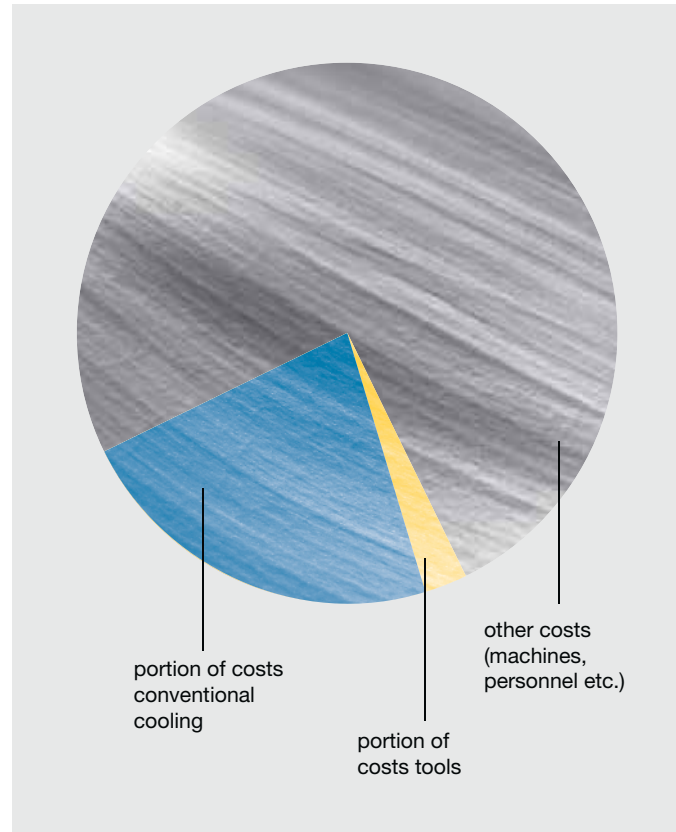
### MQL-Check 3001 consists of:

- Measuring device incl. bluetooth sender and magnet foot for fastening during horizontal processing
- Software for measured data logging
- 10 measuring filter
- Battery + power pack

**Introduction**

Alongside the machine and tooling the costs for coolant are a considerable portion of the overall cost of the machining process. Therefore, a reduction in the cooling lubrication requirements offers a potential for cost savings.

The reduction of cooling lubricants is not only cost saving but is also of benefit to the environment and health protection. Gühring is one of the pioneers in the research and development of MQL that began in the mid 1990's.

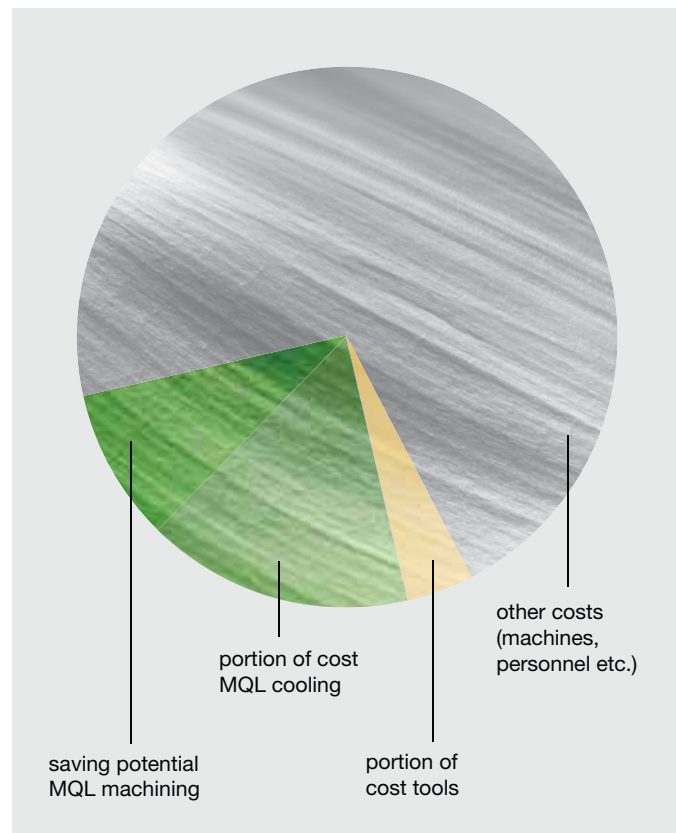


MQL technology

**The aim of MQL machining**

The acquisition of a new MQL cooling lubricant system is significantly less expensive than conventional cooling!

- reduction of thermal stresses at the tool point
- less tool wear
- effective chip evacuation from deep holes
- reduction of cooling lubricant requirement
- high cooling and lubrication effect especially in deep holes
- lowering the resulting costs such as:
  - component cleaning costs
  - cooling lubricant disposal costs
  - swarf disposal costs
- environment and health protection



**The development of present-day MQL systems**

Thanks to the research in MQL machining Gühring created the pre-condition for a practical MQL technology. From the clamping set to the tool's cutting edge all the components were integrated in the development – the result was the first MQL supply system.

**Features:**

- modular constructed and standardised system
- MQL and conventional clamping set are freely interchangeable thanks to an identical spindle contour
- hydraulic, shrink fit and synchro chucks are all designed for the MQL clamping set



MQL technology

**Gühring's current MQL system**

By incorporating the MQL length adjustment screw to Gühring's first MQL supply system in 2007, the original drawback was eliminated. There is, therefore, currently a MQL supply system available to the customer that optimally meets the requirements of the present-day production process.

**Features of the first Gühring MQL supply system:**

- no lubricant delays
- special MQL coolant supply unit
- MQL suitable tool shank end
- tapered length setting screw

The user, therefore, benefits from a standardised system and a clearly reduced stock keeping thanks to compatible components.



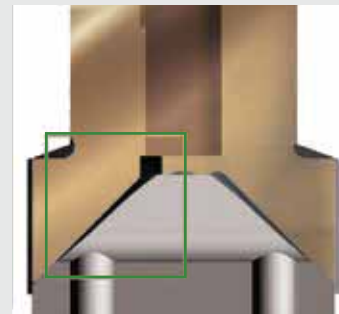
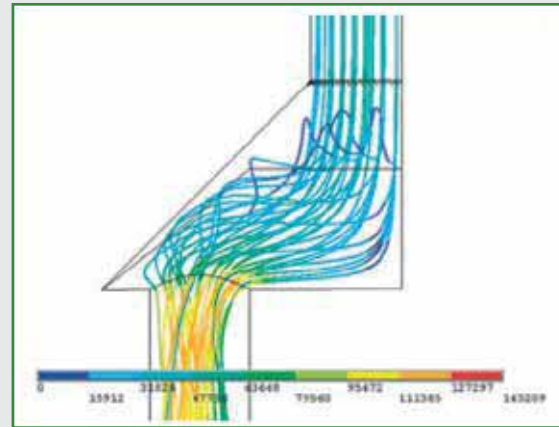
### Optimally formed shank end For a secure MQL supply

The supply of these extremely low coolant quantities directly to the effective area is of utmost importance. Hereby, the geometric design of the shank end plays a significant role! The Gühring developed conical shank end optimally satisfies the relevant MQL conditions.

#### Advantages of the tapered shank end:

- no lubricant delays
- minimal dead area
- simple operation
- cost-efficient production

Flow pattern with low vortex formation

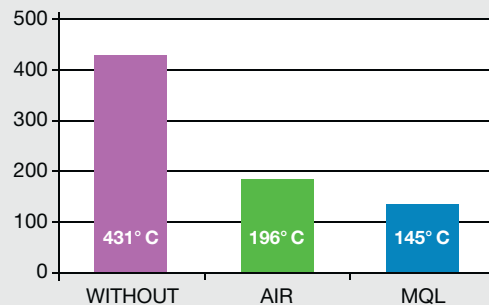
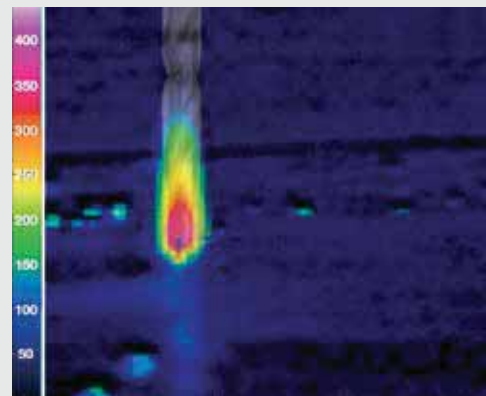


Flow conditions in the coolant duct connection slot at the point of the tapered transition

### Keeping a cool point

With MQL the process temperature can be considerably reduced in comparison to dry machining resulting in longer tool life and an increased process reliability.

Thermographic examination at Gühring:  
Comparison of tool temperatures



**The best form for MQL!**

Optimal MQL machining results thanks to the optimized tool geometry of RT 100 T!



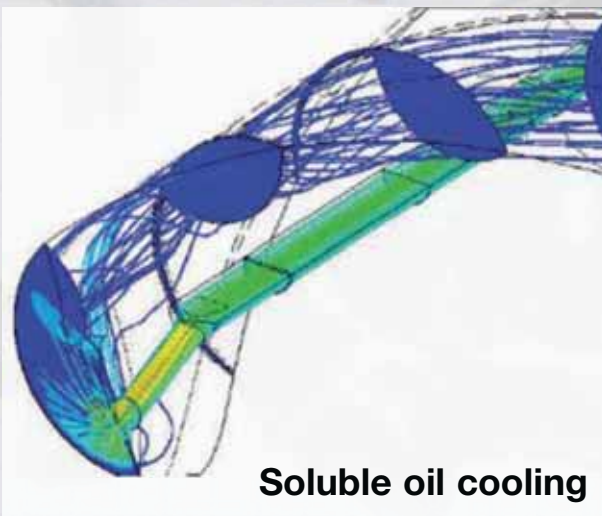
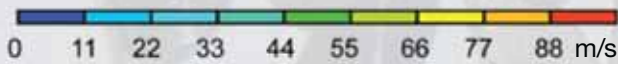
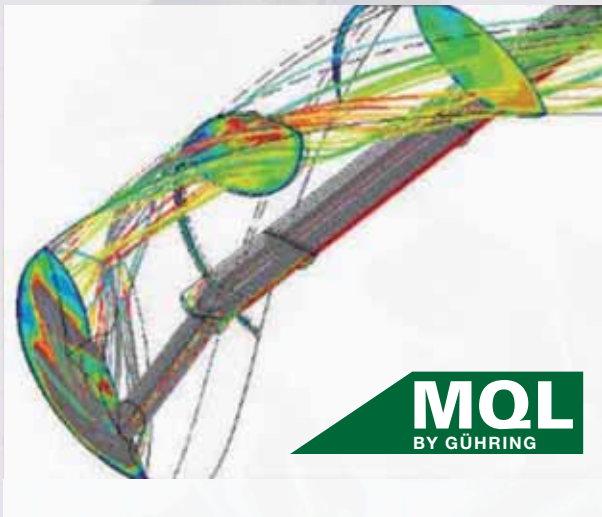
**1. Flute cross section:**

The flute geometry of Gühring MQL tools ensures short chips that are optimally evacuated from deep holes.

**2. Maximum coolant duct cross-section:**

The cooling lubricant supply as well as the chip evacuation have been optimized through the tool' maximum coolant duct cross-section.

**Flow speed comparison**



**The flow speed**

in the flute with MQL is 30.4 m/s.

**The volume** with MQL

is 6.960 l/h (std.litres air/h).

Tool Ø = 11.7 mm

Pressure at pump = 6 bar

Pressure at tool = 4 bar

**The flow speed**

In the flute with soluble oil is 3.5 m/s.

**The volume** with soluble oil

is 600 l/h (std.litres air/h).

Tool Ø = 11.7 mm

Pressure at pump = 60 bar

Pressure at tool = 31 bar

### MQL system types

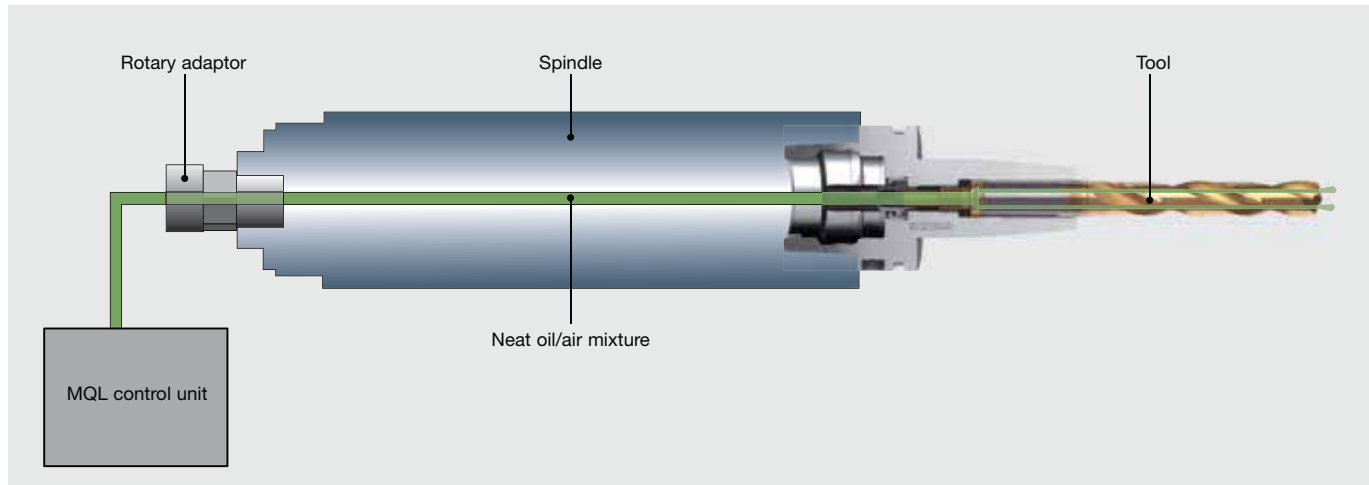
The provision of the MQL medium to the tool can be achieved in two ways: the aerosol mixture can be prepared outside the machine and conveyed to the machining location (1-channel system) or compressed air and MQL medium are conveyed separately to the mixing chamber where they are then mixed together (2-channel system).

#### 1-channel MQL system

With a 1-channel MQL system, a lubricating aerosol is created in a separate MQL unit attached to the machine tool. Special nozzle systems inside a pressurised container create a lubri-

The aerosol feed to the machining location is achieved via a suitable minimal quantity lubrication rotary adaptor (preferably with axial flowthrough), the spindle, the clamping system and finally the cutting tool. Unavoidable cross-section modifications should be as streamlined as possible.

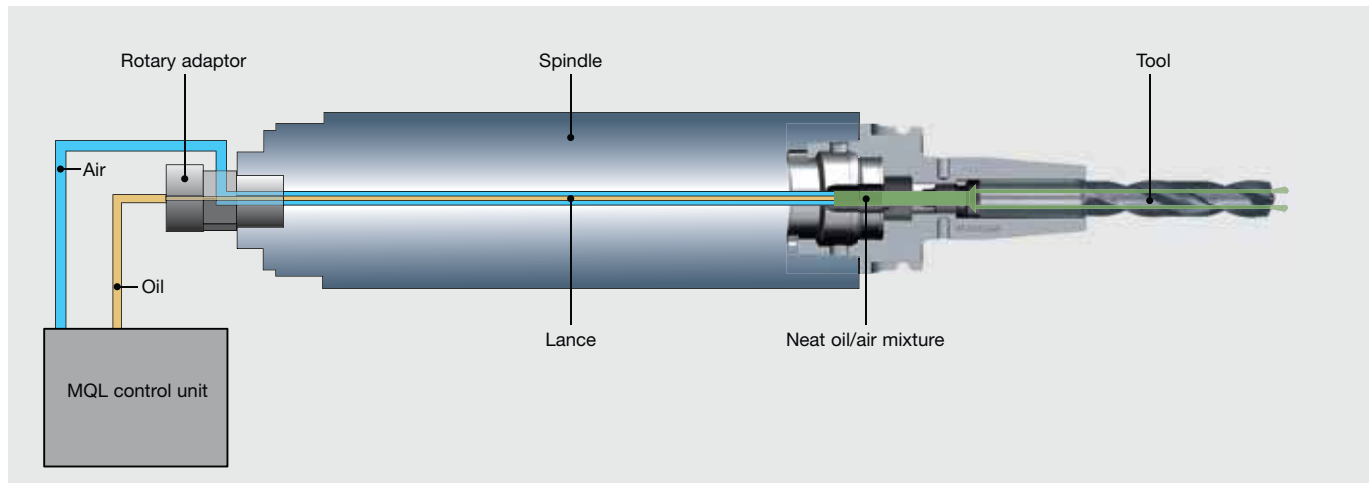
cating aerosol via a regulated compressed air feed, its neat oil content adjustable and then maintained within the physical limits by the MQL control.



#### The 2-channel MQL system

With a 2-channel system the neat oil reaches the rotary adaptor from the unit via a ring line and a as short as possible stub line. In it is incorporated a quick valve that regulates minute quantities of neat oil. The neat oil is transported into the tool holder via a lance attached in the spindle. The second channel of the rotary adaptor is used for the air supply to the tool holder. Only at this point the air is mixed with the neat oil.

To achieve this, the tool holder possesses a pressed-in pipe nozzle in which the mixing chamber is located. Neat oil and air can be mixed with this system in more or less any quantities. The route from the mixing chamber to the point of destination is only minimal resulting in a rapid response time and allowing a very quick alteration of the volume of neat oil.



MQL technology

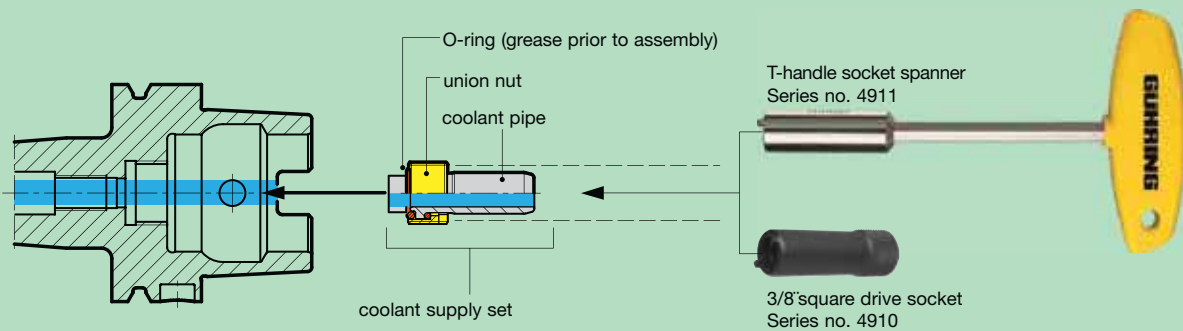
# INSTALLATION INSTRUCTIONS

1. The HSK holder must be clean, free of swarf and undamaged.
2. Grease the O-rings prior to assembly.
3. Centrally insert the complete coolant supply set (coolant pipe, union nut and 2 O-rings) in the HSK with the assistance of the socket spanner. When inserting the MQL coolant supply unit, it is paramount to ensure that the MQL pipe is inserted centrally and undamaged into the MQL length setting screw (do not kink).
4. Screw in the coolant supply set/coolant supply unit and tighten (see table for torque figures)
5. Check coolant pipe for radial mobility.

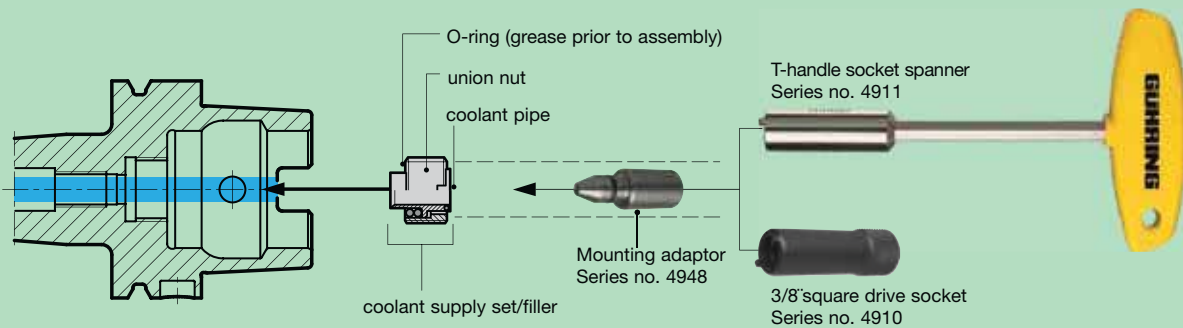
Torque figures

| for HSK | MA Nm |
|---------|-------|
| 32      | 7     |
| 40      | 11    |
| 50      | 15    |
| 63      | 20    |
| 80      | 25    |
| 100     | 30    |

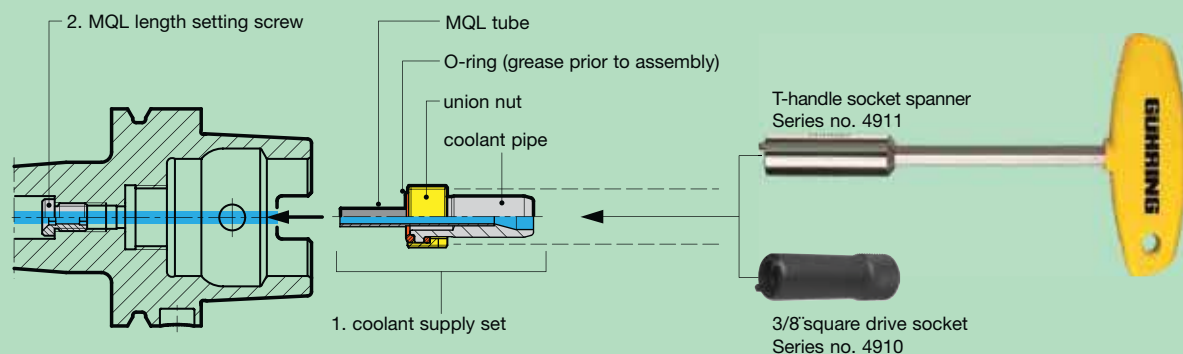
## Installation of MQL coolant supply set Series no. 4939



## Installation of MQL coolant supply set filler Series no. 4940



## Installation of MQL coolant supply unit Series no. 4623/4924



# HPC

HPC CLAMPING CHUCKS



HPC clamping chucks

AT FULL SPEED  
A FIRM GRASP  
ON EVERYTHING!



The background of the slide is a composite image. On the left, a hand wearing a white protective glove holds a large, flat metal plate. On the right, a CNC machine is shown in operation, with a cutting tool removing a piece of metal, creating a shower of sparks. The overall scene is industrial and technical.

 **HIGH CLAMPING FORCE**

 **IDEAL CLAMPING  
FORCE TRANSFER  
TO THE TOOL**

 **IMMENSE SPEEDS**

 **MAXIMUM RIGIDITY**

 **OPTIMAL FOR *i*machining<sup>®</sup>**

# PRECISION CLAMPING CHUCKS

## TECHNOLOGY AND ADVANTAGES

Gühring's precision clamping chucks offer highest clamping force particularly for milling operations but also for drilling and reaming as well as under HSC and HPC conditions. The special clamping sleeve is clamped via a worm gear and optimally transfers the enormous clamping force onto the clamped tool. This enables clamping forces of, for example, > 200 Nm for 12 mm shank diameters or > 300 Nm for 16 mm shank diameters.

**New:** Now available with PinLock pull-out protection!



• **This system offers the following advantages:**

- increased cutting depths in comparison to conventional tool holders
- increased radial engagement and subsequently higher material removal rate
- maintenance-free technology
- suitable for straight shanks to DIN 1835 A and B as well as to 6535 HA, HB and HE
- concentricity 3  $\mu\text{m}$  with 2.5 x D
- balancing quality: G2.5 / 20,000 rev./min or U < 1.2 gmm

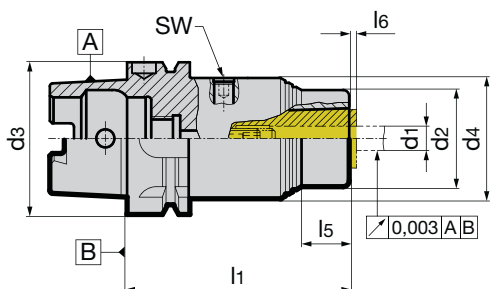
## HSK-A precision clamping chucks

### Product information

- for heavy-duty cutting as well as HSC and HPC
- HSK-A to ISO 12164-1/DIN 69893-1
- balancing quality: G2.5 / 20,000 rev./min or U < 1.2 gmm
- for tool shank tolerance h6
- highest clamping force and stability thanks to mech. tension gearing
- actuation torque for clamping initiation 10 Nm
- suitable for internal cooling up to 80 bar

### Scope of delivery

- hexagon clamping key Series no. 4912 4.600
- 
- order clamping sleeves Series no. 4302, 4235, 4236, 4237 separately
- order coolant supply set Series no. 4949 separately
- order torque wrench 10 Nm Series no. 4987 10.000 and hexagon socket/attachments Series no. 4916 4.000 separately



Series no. **4300**

| HSK-A d <sub>3</sub> | nom. size | for clamping-Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>5</sub> mm | l <sub>6</sub> mm | SW | Code no. | EDP Number    |
|----------------------|-----------|---|-------------------|-------------------|-------------------|-------------------|-------------------|----|----------|---------------|
| 63                   | 20        | 3-20  | 40                | 53                | 92                | 20                | 3.0               | 4  | 20.063   | 9043000200630 |
| 100                  | 20        | 3-20  | 40                | 70                | 100               | 18                | 3.0               | 4  | 20.100   | 9043000201000 |
| 100                  | 25        | 16-32   | 52.5              | 70                | 139               | -                 | 3.5               | 4  | 25.100   | 9043000251000 |

HPC clamping chucks

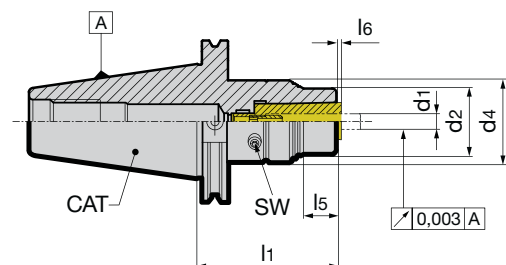
## CAT precision clamping chucks

### Product information

- for heavy-duty cutting as well as HSC and HPC
- CAT to ASME B5.50
- balancing quality: G2.5 / 20,000 rev./min or U < 1.2 gmm
- for tool shank tolerance h6
- highest clamping force and stability thanks to mech. tension gearing
- actuation torque for clamping initiation 10 Nm
- suitable for internal cooling up to 80 bar
- central coolant supply form DU
- CAT40 d4: does not correspond to ASME B5.50

### Scope of delivery

- hexagon clamping key Series no. 4912 4.600
- 
- order clamping sleeves Series no. 4302, 4235, 4236, 4237 separately
- order torque wrench 10 Nm Series no. 4987 10.000 and hexagon socket/attachments Series no. 4916 4.000 separately



Series no. **4243**

| CAT | nom. size | for clamping-Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>5</sub> mm | l <sub>6</sub> mm | SW | Code no. | EDP Number    |
|-----|-----------|---|-------------------|-------------------|-------------------|-------------------|-------------------|----|----------|---------------|
| 40  | 20        | 3-20  | 40                | 50                | 62.5              | 20                | 3.0               | 4  | 20.040   | 9042430200400 |
| 50  | 20        | 3-20  | 40                | 63                | 62                | 18                | 3.0               | 4  | 20.050   | 9042430200500 |
| 50  | 25        | 16-32   | 52.5              | 70                | 101.5             | -                 | 3.5               | 4  | 25.050   | 9042430250500 |

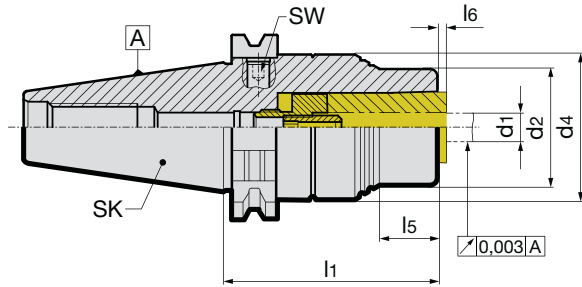
## SK taper precision clamping chucks

### Product information

- for heavy-duty cutting as well as HSC and HPC
- SK taper to DIN ISO 7388-1 form AD
- balancing quality: G2.5 / 20,000 rev./min or U< 1.2 gmm
- for tool shank tolerance h6
- highest clamping force and stability thanks to mech. tension gearing
- actuation torque for clamping initiation 10 Nm
- suitable for internal cooling up to 80 bar central coolant supply form AD
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- hexagon clamping key Series no. 4912 4.600
- order clamping sleeves Series no. 4302, 4235, 4236, 4237 separately
- order torque wrench 10 Nm, Series no. 4987 10.000, and hexagon socket/attachments, Series no. 4916 4.000, separately
- form AD/B on request



Series no. **4301**

| SK | nom. size | for clamping-Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l5<br>mm | l6<br>mm | SW | Code no. | EDP Number    |
|----|-----------|----------------------------|----------|----------|----------|----------|----------|----|----------|---------------|
| 40 | 20        | 3-20                       | 40       | 50       | 62.5     | 20       | 3.0      | 4  | 20.040   | 9043010200400 |
| 50 | 20        | 3-20                       | 40       | 63       | 62       | 18       | 3.0      | 4  | 20.050   | 9043010200500 |
| 50 | 25        | 16-32                      | 52.5     | 70       | 101.5    | -        | 3.5      | 4  | 25.050   | 9043010250500 |

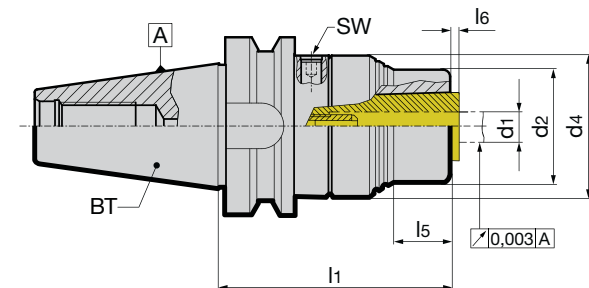
## MAS/BT precision clamping chucks

### Product information

- for heavy-duty cutting as well as HSC and HPC
- MAS/BT to DIN ISO7388-2 form AD
- balancing quality: G2.5 / 20,000 rev./min or U< 1.2 gmm
- for tool shank tolerance h6
- highest clamping force and stability thanks to mech. tension gearing
- actuation torque for clamping initiation 10 Nm
- suitable for internal cooling up to 80 bar
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

### Scope of delivery

- hexagon clamping key Series no. 4912 4.600
- order clamping sleeves Series no. 4302, 4235, 4236, 4237 separately
- order torque wrench 10 Nm Series no. 4987 10.000 and hexagon socket/attachments Series no. 4916 4.000 separately
- form AD/B on request



Series no. **4244**

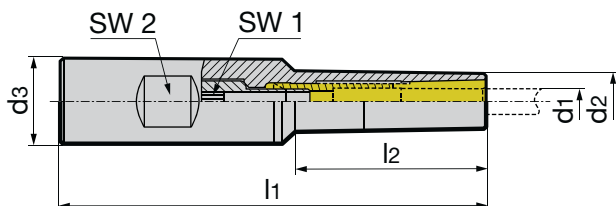
| MAS/BT | nom. size | for clamping-Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | l1<br>mm | l5<br>mm | l6<br>mm | SW | Code no. | EDP Number    |
|--------|-----------|----------------------------|----------|----------|----------|----------|----------|----|----------|---------------|
| 30     | 20        | 3-20                       | 40       | 53       | 82.0     | 20       | 3.0      | 4  | 20.030   | 9042440200300 |
| 40     | 20        | 3-20                       | 40       | 63       | 70.5     | 18       | 3.0      | 4  | 20.040   | 9042440200400 |
| 40     | 20        | 3-20                       | 40       | 63       | 120.0    | 48       | 3.0      | 4  | 120.040  | 9042441200400 |
| 50     | 20        | 3-20                       | 40       | 63       | 81.5     | 18       | 3.0      | 4  | 20.050   | 9042440200500 |
| 50     | 20        | 3-20                       | 40       | 63       | 167.5    | 84       | 3.0      | 4  | 120.050  | 9042441200500 |
| 40     | 25        | 16-32                      | 53       | 63       | 109.5    | -        | 3.5      | 4  | 25.040   | 9042440250400 |
| 50     | 25        | 16-32                      | 70       | 70       | 121      | -        | 3.5      | 4  | 25.050   | 9042440250500 |

**Product information**

- slender extension for mounting in HPC chucks or hydraulic shrink fit chucks
- for tool shank tolerances h6
- high clamping force
- actuation from back by using supplied hexagon key (SW 1)
- actuating torque for clamping initiation max. 3 Nm

**Scope of delivery**

- hexagon clamping key Series no. 4912 4.000
- order clamping sleeves Series no. 4302, 4235 separately
- for optimal operation order torque wrench Series no. 4915 3,000 separately



Series no. **4208**

| d <sub>3</sub> mm | nom. size | for clamping-Ø d <sub>1</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | SW 1 | SW 2 | kg   | Code no. | EDP Number    |
|-------------------|-----------|----------------------------------|-------------------|-------------------|------|------|------|----------|---------------|
| 14                | 6         | 1-6                              | 14.0              | 100               | 4    | 13   | 0.26 | 6.014    | 9042080060140 |
| 14                | 6         | 1-6                              | 14.0              | 150               | 4    | 13   | 0.32 | 6.114    | 9042080061140 |
| 14                | 6         | 1-6                              | 14.0              | 190               | 4    | 13   | 0.45 | 6.214    | 9042080062140 |
| 20                | 6         | 1-6                              | 20.0              | 100               | 4    | 16   | 0.34 | 6.020    | 9042080060200 |
| 20                | 6         | 1-6                              | 20.0              | 150               | 4    | 16   | 0.46 | 6.120    | 9042080061200 |

HPC clamping chucks

# Power milling with PinLock

**Drawout secure volume machining – with Gührojet cooling**  
**Perfect combination - HPC clamping chuck with PinLock drawout safety**

- process reliable (no tool drawout, no component damage)
- long tool life and optimal surface finish
- simple handling
- standard milling tools therefore no licenses required

Thanks to the application of a PinLock clamping sleeve with securing pin any drawout of the applied standard milling tools with HB shank to DIN 6535 is safely prevented. The combination of HPC clamping technology with perfect concentricity and the efficient Gührojet peripheral cooling achieves, until now, unachieved metal removal rates, tool life and surface quality. All this with standard tools and absolute protection against unwanted drawout effects.



# GÜHROJET clamping sleeves with peripheral cooling for precision clamping chucks

## Product information

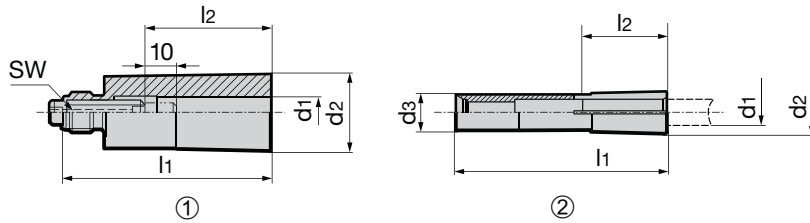
- for clamping tools with straight shank
- for maximum holding torque
- design with peripheral cooling thanks to long slots
- for tool shank tolerance h6
- Type 1: for HPC power clamping chucks
- Type 2: for HPC extensions
- Type P: PinLock drawout protection incl. 3 locking pins and assembly tool

## Scope of delivery

- incl. length setting screw



**GÜHROJET**  
**PINLOCK**



|           |                      |       |       |       |      |    |          | Series no.    | 4302 |
|-----------|----------------------|-------|-------|-------|------|----|----------|---------------|------|
| nom. size | for shank Ø d1 h6 mm | d2 mm | l1 mm | l2 mm | Type | SW | Code no. | EDP Number    |      |
| 6         | 1                    | 10    | 50    | 28    | 2    | -  | 1.006    | 9043020010060 |      |
| 6         | 2                    | 10    | 50    | 28    | 2    | -  | 2.006    | 9043020020060 |      |
| 6         | 3                    | 10    | 50    | 28    | 2    | -  | 3.006    | 9043020030006 |      |
| 6         | 4                    | 10    | 50    | 28    | 2    | -  | 4.006    | 9043020040006 |      |
| 6         | 5                    | 10    | 50    | 28    | 2    | -  | 5.006    | 9043020050006 |      |
| 6         | 6                    | 10    | 50    | 28    | 2    | -  | 6.006    | 9043020060006 |      |
|           |                      |       |       |       |      |    |          |               |      |
| 20        | 3                    | 24.6  | 66    | 28    | 1    | 4  | 3.020    | 9043020030200 |      |
| 20        | 4                    | 24.6  | 66    | 28    | 1    | 4  | 4.020    | 9043020040200 |      |
| 20        | 5                    | 24.6  | 66    | 28    | 1    | 4  | 5.020    | 9043020050200 |      |
| 20        | 6                    | 24.6  | 66    | 36    | 1    | 4  | 6.020    | 9043020060200 |      |
| 20        | 8                    | 24.6  | 66    | 36    | 1    | 4  | 8.020    | 9043020080200 |      |
| 20        | 10                   | 24.6  | 66    | 40    | 1    | 4  | 10.020   | 9043020100200 |      |
| 20        | 12                   | 24.6  | 66    | 45    | 1    | 4  | 12.020   | 9043020120200 |      |
| 20        | 14                   | 24.6  | 66    | 45    | 1    | 4  | 14.020   | 9043020140200 |      |
| 20        | 16                   | 24.6  | 66    | 48    | 1    | 4  | 16.020   | 9043020160200 |      |
| 20        | 18                   | 24.6  | 66    | 48    | 1    | 4  | 18.020   | 9043020180200 |      |
| 20        | 20                   | 24.6  | 66    | 50    | 1    | 4  | 20.020   | 9043020200200 |      |
|           |                      |       |       |       |      |    |          |               |      |
| 32        | 20                   | 45.5  | 90    | 50    | 1    | 4  | 20.032   | 9043020200320 |      |
| 32        | 22                   | 45.5  | 90    | 50    | 1    | 4  | 22.032   | 9043020220320 |      |
| 32        | 25                   | 45.5  | 90    | 56    | 1    | 4  | 25.032   | 9043020250320 |      |
| 32        | 32                   | 45.5  | 90    | 59    | 1    | 4  | 32.032   | 9043020320320 |      |
|           |                      |       |       |       |      |    |          |               |      |
| 25        | 16                   | 39    | 87.5  | 48    | 1    | 5  | 16.025   | 9043020160250 |      |
| 25        | 20                   | 39    | 87.5  | 50    | 1    | 5  | 20.025   | 9043020200250 |      |
| 25        | 22                   | 39    | 87.5  | 50    | 1    | 5  | 22.025   | 9043020220250 |      |
| 25        | 25                   | 39    | 87.5  | 56    | 1    | 5  | 25.025   | 9043020250250 |      |
| 25        | 32                   | 39    | 87.5  | 59    | 1    | 5  | 32.025   | 9043020320250 |      |
|           |                      |       |       |       |      |    |          |               |      |
| 20        | 6                    | 24.6  | 66    | 36    | 1/P  | 4  | 6.120    | 9043020061200 |      |
| 20        | 8                    | 24.6  | 66    | 36    | 1/P  | 4  | 8.120    | 9043020081200 |      |
| 20        | 10                   | 24.6  | 66    | 40    | 1/P  | 4  | 10.120   | 9043020101200 |      |
| 20        | 12                   | 24.6  | 66    | 45    | 1/P  | 4  | 12.120   | 9043020121200 |      |
| 20        | 14                   | 24.6  | 66    | 45    | 1/P  | 4  | 14.120   | 9043020141200 |      |
| 20        | 16                   | 24.6  | 66    | 48    | 1/P  | 4  | 16.120   | 9043020161200 |      |
| 20        | 18                   | 24.6  | 66    | 48    | 1/P  | 4  | 18.120   | 9043020181200 |      |
| 20        | 20                   | 24.6  | 66    | 50    | 1/P  | 4  | 20.120   | 9043020201200 |      |
|           |                      |       |       |       |      |    |          |               |      |
| 25        | 16                   | 39    | 87.5  | 48    | 1/P  | 5  | 16.125   | 9043020161250 |      |
| 25        | 20                   | 39    | 87.5  | 50    | 1/P  | 5  | 20.125   | 9043020201250 |      |
| 25        | 22                   | 39    | 87.5  | 50    | 1/P  | 5  | 22.125   | 9043020221250 |      |
| 25        | 25                   | 39    | 87.5  | 56    | 1/P  | 5  | 25.125   | 9043020251250 |      |

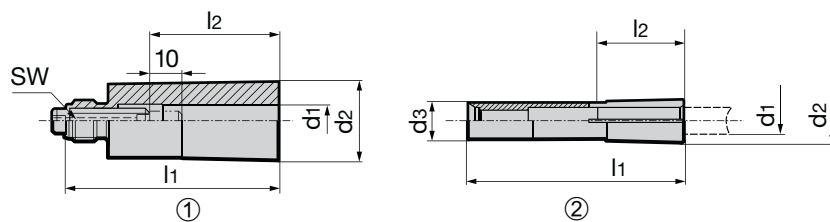
HPC  
clamping chucks

## Product information

- for clamping tools with straight shank
- high holding torque
- sealed design with short slots
- for tool shank tolerance h6
- Type 1: for HPC power clamping chucks
- Type 2: for HPC extensions

## Scope of delivery

- incl. length setting screw



Series no. **4235**

| nom. size | for shank Ø<br>d1 h6 mm | d2<br>mm | l1<br>mm | l2<br>mm | type | SW | Code no. | EDP Number    |
|-----------|-------------------------|----------|----------|----------|------|----|----------|---------------|
| 6         | 1                       | 24.6     | 50       | 28       | 2    | –  | 1.006    | 9042350010060 |
| 6         | 2                       | 24.6     | 50       | 28       | 2    | –  | 2.006    | 9042350020060 |
| 6         | 3                       | 24.6     | 50       | 28       | 2    | –  | 3.006    | 9042350030060 |
| 6         | 4                       | 24.6     | 50       | 28       | 2    | –  | 4.006    | 9042350040060 |
| 6         | 5                       | 24.6     | 50       | 28       | 2    | –  | 5.006    | 9042350050060 |
| 6         | 6                       | 24.6     | 50       | 36       | 2    | –  | 6.006    | 9042350060060 |
| 20        | 3                       | 24.6     | 66       | 28       | 1    | 4  | 3.020    | 9042350030200 |
| 20        | 4                       | 24.6     | 66       | 28       | 1    | 4  | 4.020    | 9042350040200 |
| 20        | 5                       | 24.6     | 66       | 28       | 1    | 4  | 5.020    | 9042350050200 |
| 20        | 6                       | 24.6     | 66       | 36       | 1    | 4  | 6.020    | 9042350060200 |
| 20        | 8                       | 24.6     | 66       | 36       | 1    | 4  | 8.020    | 9042350080200 |
| 20        | 10                      | 24.6     | 66       | 40       | 1    | 4  | 10.020   | 9042350100200 |
| 20        | 12                      | 24.6     | 66       | 45       | 1    | 4  | 12.020   | 9042350120200 |
| 20        | 14                      | 24.6     | 66       | 45       | 1    | 4  | 14.020   | 9042350140200 |
| 20        | 16                      | 24.6     | 66       | 48       | 1    | 4  | 16.020   | 9042350160200 |
| 20        | 18                      | 24.6     | 66       | 48       | 1    | 4  | 18.020   | 9042350180200 |
| 20        | 20                      | 24.6     | 66       | 50       | 1    | 4  | 20.020   | 9042350200200 |
| 25        | 16                      | 39       | 87.5     | 48       | 1    | 5  | 16.025   | 9042350160250 |
| 25        | 20                      | 39       | 87.5     | 50       | 1    | 5  | 20.025   | 9042350200250 |
| 25        | 22                      | 39       | 87.5     | 50       | 1    | 5  | 22.025   | 9042350220250 |
| 25        | 25                      | 39       | 87.5     | 56       | 1    | 5  | 25.025   | 9042350250250 |
| 25        | 32                      | 39       | 87.5     | 59       | 1    | 5  | 32.025   | 9042350320250 |
| 32        | 20                      | 45.5     | 90       | 50       | 1    | 4  | 20.032   | 9042350200320 |
| 32        | 22                      | 45.5     | 90       | 50       | 1    | 4  | 22.032   | 9042350220320 |
| 32        | 25                      | 45.5     | 90       | 56       | 1    | 4  | 25.032   | 9042350250320 |
| 32        | 32                      | 45.5     | 90       | 59       | 1    | 4  | 32.032   | 9042350320320 |

HPC  
clamping chucks



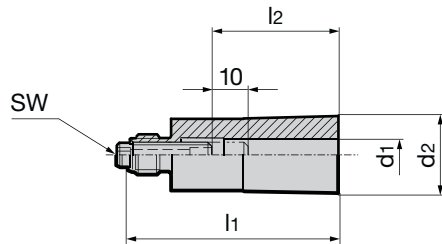
# Clamping sleeves, imperial, for precision clamping chucks, sealed version

### Product information

- for clamping imperial tool shanks
- high holding torque
- sealed design with short slots
- for tool shank tolerance h6

### Scope of delivery

- incl. length setting screw



Series no. **4237**

| nom. size | for shank Ø<br>d <sub>1</sub> h <sub>6</sub> inch | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | SW | Code no. | EDP Number    |
|-----------|---|----------------------|----------------------|----------------------|----|----------|---------------|
| 20        | 1/8"  | 24.6                 | 66                   | 28                   | 4  | 1.020    | 9042370010200 |
| 20        | 3/16"   | 24.6                 | 66                   | 28                   | 4  | 2.020    | 9042370020200 |
| 20        | 1/4"  | 24.6                 | 66                   | 36                   | 4  | 3.020    | 9042370030200 |
| 20        | 5/16"   | 24.6                 | 66                   | 36                   | 4  | 4.020    | 9042370040200 |
| 20        | 3/8"  | 24.6                 | 66                   | 40                   | 4  | 5.020    | 9042370050200 |
| 20        | 7/16"   | 24.6                 | 66                   | 45                   | 4  | 6.020    | 9042370060200 |
| 20        | 1/2"  | 24.6                 | 66                   | 45                   | 4  | 7.020    | 9042370070200 |
| 20        | 9/16"   | 24.6                 | 66                   | 45                   | 4  | 8.020    | 9042370080200 |
| 20        | 5/8"  | 24.6                 | 66                   | 48                   | 4  | 9.020    | 9042370090200 |
| 20        | 11/16"  | 24.6                 | 66                   | 48                   | 4  | 10.020   | 9042370100200 |
| 20        | 3/4"  | 24.6                 | 66                   | 50                   | 4  | 11.020   | 9042370110200 |
| 25        | 3/4"  | 39                   | 87.5                 | 50                   | 5  | 1.025    | 9042370010250 |
| 25        | 1"  | 39                   | 87.5                 | 56                   | 5  | 2.025    | 9042370020250 |
| 32        | 3/4"  | 45.5                 | 90                   | 50                   | 4  | 1.032    | 9042370010320 |
| 32        | 1"  | 45.5                 | 90                   | 56                   | 4  | 2.032    | 9042370020320 |
| 32        | 1 1/4"  | 45.5                 | 90                   | 59                   | 4  | 3.032    | 9042370030320 |

HPC  
clamping chucks

# GÜHRJET



TOOL HOLDERS

Tool holders

TOOL HOLDERS WITH  
PERIPHERAL  
COOLING

**|GÜHROJET|**





***OPTIMAL CHIP  
EVACUATION***



***HIGH PROCESS  
RELIABILITY***



***IMPROVED COOLING  
LUBRICATION***

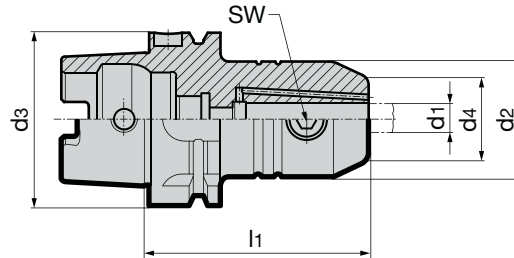


## Product information

- balancing quality: G6.3 / 15,000 rev./min
- with bore to DIN 1835-2 form B "Weldon"
- dimensions to DIN 69882-4
- from bore d1 = 25 with two clamping screws
- with coolant ducts in the bore for peripheral cooling, improving process and tool life
- coolant ducts:  
d = 6 - 14 with two coolant ducts  
d = 16 - 40 with four coolant ducts
- HSK-A to ISO 12164-1 / DIN 69893-1

## Scope of delivery

- incl. clamping screw article no. 4903
- order coolant supply set, article no. 4949 separately
- HSK-A32, 40 & 80 on request



Series no. **4232**

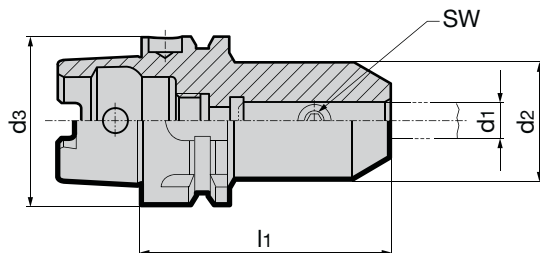
| HSK-A<br>d <sub>3</sub> | clamping-Ø<br>d <sub>1</sub> H5<br>mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | SW | kg   | Code no. | EDP Number    |
|-------------------------|---------------------------------------|----------------------|----------------------|----------------------|----|------|----------|---------------|
| 32                      | 6                                     | 25                   | 15                   | 60                   | 3  | 0.24 | 6.032    | 9042320060320 |
| 32                      | 8                                     | 28                   | 20                   | 60                   | 4  | 0.27 | 8.032    | 9042320080320 |
| 32                      | 10                                    | 35                   | 25                   | 65                   | 5  | 0.31 | 10.032   | 9042320100320 |
| 32                      | 12                                    | 42                   | 30                   | 65                   | 6  | 0.41 | 12.032   | 9042320120320 |
| 40                      | 6                                     | 25                   | 15                   | 60                   | 3  | 0.33 | 6.040    | 9042320060400 |
| 40                      | 8                                     | 28                   | 20                   | 60                   | 4  | 0.35 | 8.040    | 9042320080400 |
| 40                      | 10                                    | 35                   | 25                   | 60                   | 5  | 0.47 | 10.040   | 9042320100400 |
| 40                      | 12                                    | 42                   | 30                   | 70                   | 5  | 0.58 | 12.040   | 9042320120400 |
| 40                      | 14                                    | 44                   | 32                   | 75                   | 6  | 0.59 | 14.040   | 9042320140400 |
| 40                      | 16                                    | 48                   | 36                   | 75                   | 6  | 0.64 | 16.040   | 9042320160400 |
| 50                      | 6                                     | 25                   | 15                   | 65                   | 3  | 0.50 | 6.050    | 9042320060500 |
| 50                      | 8                                     | 28                   | 20                   | 65                   | 4  | 0.60 | 8.050    | 9042320080500 |
| 50                      | 10                                    | 35                   | 25                   | 65                   | 5  | 0.60 | 10.050   | 9042320100500 |
| 50                      | 12                                    | 42                   | 30                   | 80                   | 6  | 0.90 | 12.050   | 9042320120500 |
| 50                      | 14                                    | 44                   | 32                   | 80                   | 6  | 0.90 | 14.050   | 9042320140500 |
| 50                      | 16                                    | 48                   | 36                   | 80                   | 6  | 1.00 | 16.050   | 9042320160500 |
| 50                      | 18                                    | 50                   | 38                   | 80                   | 6  | 1.00 | 18.500   | 9042320185000 |
| 50                      | 20                                    | 52                   | 40                   | 80                   | 8  | 1.00 | 20.050   | 9042320200500 |
| 63                      | 6                                     | 25                   | 15                   | 65                   | 3  | 0.80 | 6.063    | 9042320060630 |
| 63                      | 8                                     | 28                   | 20                   | 65                   | 4  | 0.80 | 8.063    | 9042320080630 |
| 63                      | 10                                    | 35                   | 25                   | 65                   | 5  | 0.90 | 10.063   | 9042320100630 |
| 63                      | 12                                    | 42                   | 30                   | 80                   | 6  | 1.20 | 12.063   | 9042320120630 |
| 63                      | 14                                    | 44                   | 32                   | 80                   | 6  | 1.20 | 14.063   | 9042320140630 |
| 63                      | 16                                    | 48                   | 36                   | 80                   | 6  | 1.30 | 16.063   | 9042320160630 |
| 63                      | 18                                    | 50                   | 38                   | 80                   | 6  | 1.40 | 18.063   | 9042320180630 |
| 63                      | 20                                    | 52                   | 40                   | 80                   | 8  | 1.40 | 20.063   | 9042320200630 |
| 63                      | 25                                    | 65                   | 45                   | 110                  | 10 | 2.40 | 25.063   | 9042320250630 |
| 63                      | 32                                    | 72                   | 56                   | 110                  | 10 | 2.70 | 32.063   | 9042320320630 |
| 80                      | 6                                     | 25                   | 15                   | 80                   | 3  | 1.75 | 6.080    | 9042320060800 |
| 80                      | 8                                     | 28                   | 20                   | 80                   | 4  | 1.90 | 8.080    | 9042320080800 |
| 80                      | 10                                    | 35                   | 25                   | 80                   | 5  | 2.10 | 10.080   | 9042320100800 |
| 80                      | 12                                    | 42                   | 30                   | 80                   | 6  | 2.10 | 12.080   | 9042320120800 |
| 80                      | 14                                    | 44                   | 32                   | 80                   | 6  | 2.30 | 14.080   | 9042320140800 |
| 80                      | 16                                    | 48                   | 36                   | 100                  | 6  | 2.50 | 16.080   | 9042320160800 |
| 80                      | 18                                    | 50                   | 38                   | 100                  | 6  | 2.50 | 18.080   | 9042320180800 |
| 80                      | 20                                    | 52                   | 40                   | 100                  | 8  | 2.70 | 20.080   | 9042320200800 |
| 80                      | 25                                    | 65                   | 45                   | 100                  | 10 | 2.80 | 25.080   | 9042320250800 |
| 80                      | 32                                    | 72                   | 56                   | 110                  | 10 | 2.85 | 32.080   | 9042320320800 |
| 80                      | 40                                    | 80                   | 60                   | 120                  | 10 | 2.98 | 40.080   | 9042320400800 |
| 100                     | 6                                     | 25                   | 15                   | 80                   | 3  | 3.00 | 6.100    | 9042320061000 |
| 100                     | 8                                     | 28                   | 20                   | 80                   | 4  | 3.20 | 8.100    | 9042320081000 |
| 100                     | 10                                    | 35                   | 25                   | 80                   | 5  | 3.40 | 10.100   | 9042320101000 |
| 100                     | 12                                    | 42                   | 30                   | 80                   | 6  | 3.40 | 12.100   | 9042320121000 |
| 100                     | 14                                    | 44                   | 32                   | 80                   | 6  | 3.50 | 14.100   | 9042320141000 |
| 100                     | 16                                    | 48                   | 36                   | 100                  | 6  | 3.80 | 16.100   | 9042320161000 |
| 100                     | 18                                    | 50                   | 38                   | 100                  | 6  | 3.80 | 18.100   | 9042320181000 |
| 100                     | 20                                    | 52                   | 40                   | 100                  | 8  | 3.90 | 20.100   | 9042320201000 |
| 100                     | 25                                    | 65                   | 45                   | 100                  | 10 | 3.90 | 25.100   | 9042320251000 |
| 100                     | 32                                    | 72                   | 56                   | 100                  | 10 | 4.20 | 32.100   | 9042320321000 |
| 100                     | 40                                    | 80                   | 60                   | 110                  | 10 | 4.60 | 40.100   | 9042320401000 |

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- dimensions to DIN 69882-4
- with bore to DIN 1835-2 form B "Weldon"
- from bore d1 = 25 with two clamping screws
- HSK-A to ISO 12164-1 / DIN 69893-1

## Scope of delivery

- incl. clamping screw article no. 4903
- order coolant supply set, article no. 4949 separately



Series no. **4329**

| HSK-A d3 | clamping-Ø d1 H5 mm | d2 mm | d4 mm | l1 mm | SW | kg   | Code no. | EDP Number    |
|----------|---------------------|-------|-------|-------|----|------|----------|---------------|
| 32       | 6                   | 25    | 15    | 60    | 3  | 0.24 | 6.032    | 9043290060320 |
| 32       | 8                   | 28    | 20    | 60    | 4  | 0.27 | 8.032    | 9043290080320 |
| 32       | 10                  | 35    | 25    | 65    | 5  | 0.31 | 10.032   | 9043290100320 |
| 32       | 12                  | 42    | 30    | 65    | 6  | 0.41 | 12.032   | 9043290120320 |
| 40       | 6                   | 25    | 15    | 60    | 3  | 0.33 | 6.040    | 9043290060400 |
| 40       | 8                   | 28    | 20    | 60    | 4  | 0.35 | 8.040    | 9043290080400 |
| 40       | 10                  | 35    | 25    | 60    | 5  | 0.47 | 10.040   | 9043290100400 |
| 40       | 12                  | 42    | 30    | 70    | 6  | 0.58 | 12.040   | 9043290120400 |
| 40       | 14                  | 44    | 32    | 75    | 6  | 0.59 | 14.040   | 9043290140400 |
| 40       | 16                  | 48    | 36    | 75    | 6  | 0.64 | 16.040   | 9043290160400 |
| 50       | 6                   | 25    | 15    | 65    | 3  | 0.52 | 6.050    | 9043290060500 |
| 50       | 8                   | 28    | 20    | 65    | 4  | 0.55 | 8.050    | 9043290080500 |
| 50       | 10                  | 35    | 25    | 65    | 5  | 0.62 | 10.050   | 9043290100500 |
| 50       | 12                  | 42    | 30    | 80    | 6  | 0.87 | 12.050   | 9043290120500 |
| 50       | 14                  | 44    | 32    | 80    | 6  | 0.90 | 14.050   | 9043290140500 |
| 50       | 16                  | 48    | 36    | 80    | 6  | 0.94 | 16.050   | 9043290160500 |
| 50       | 18                  | 50    | 38    | 80    | 6  | 0.96 | 18.050   | 9043290180500 |
| 50       | 20                  | 52    | 40    | 80    | 8  | 0.97 | 20.050   | 9043290200500 |
| 63       | 6                   | 25    | 15    | 65    | 3  | 0.81 | 6.063    | 9043290060630 |
| 63       | 8                   | 28    | 20    | 65    | 4  | 0.83 | 8.063    | 9043290080630 |
| 63       | 10                  | 35    | 25    | 65    | 5  | 0.89 | 10.063   | 9043290100630 |
| 63       | 12                  | 42    | 30    | 80    | 6  | 1.20 | 12.063   | 9043290120630 |
| 63       | 14                  | 44    | 32    | 80    | 6  | 1.20 | 14.063   | 9043290140630 |
| 63       | 16                  | 48    | 36    | 80    | 6  | 1.30 | 16.063   | 9043290160630 |
| 63       | 18                  | 50    | 38    | 80    | 6  | 1.35 | 18.063   | 9043290180630 |
| 63       | 20                  | 52    | 40    | 80    | 8  | 1.40 | 20.063   | 9043290200630 |
| 63       | 25                  | 65    | 45    | 110   | 10 | 2.40 | 25.063   | 9043290250630 |
| 63       | 32                  | 72    | 56    | 110   | 10 | 2.70 | 32.063   | 9043290320630 |
| 80       | 6                   | 25    | 15    | 80    | 3  | 1.75 | 6.080    | 9043290060800 |
| 80       | 8                   | 28    | 20    | 80    | 4  | 1.90 | 8.080    | 9043290080800 |
| 80       | 10                  | 35    | 25    | 80    | 5  | 2.10 | 10.080   | 9043290100800 |
| 80       | 12                  | 42    | 30    | 80    | 6  | 2.10 | 12.080   | 9043290120800 |
| 80       | 14                  | 44    | 32    | 80    | 6  | 2.30 | 14.080   | 9043290140800 |
| 80       | 16                  | 48    | 36    | 100   | 6  | 2.50 | 16.080   | 9043290160800 |
| 80       | 18                  | 50    | 38    | 100   | 6  | 2.50 | 18.080   | 9043290180800 |
| 80       | 20                  | 52    | 40    | 100   | 8  | 2.70 | 20.080   | 9043290200800 |
| 80       | 25                  | 65    | 45    | 100   | 10 | 2.80 | 25.080   | 9043290250800 |
| 80       | 32                  | 72    | 56    | 110   | 10 | 2.85 | 32.080   | 9043290320800 |
| 80       | 40                  | 80    | 60    | 120   | 10 | 2.98 | 40.080   | 9043290400800 |
| 100      | 6                   | 25    | 15    | 80    | 3  | 3.00 | 6.100    | 9043290061000 |
| 100      | 8                   | 28    | 20    | 80    | 4  | 3.20 | 8.100    | 9043290081000 |
| 100      | 10                  | 35    | 25    | 80    | 5  | 3.40 | 10.100   | 9043290101000 |
| 100      | 12                  | 42    | 30    | 80    | 6  | 3.40 | 12.100   | 9043290121000 |
| 100      | 14                  | 44    | 32    | 80    | 6  | 3.50 | 14.100   | 9043290141000 |
| 100      | 16                  | 48    | 36    | 100   | 6  | 3.80 | 16.100   | 9043290161000 |
| 100      | 18                  | 50    | 38    | 100   | 6  | 3.80 | 18.100   | 9043290181000 |
| 100      | 20                  | 52    | 40    | 100   | 8  | 3.90 | 20.100   | 9043290201000 |
| 100      | 25                  | 65    | 45    | 100   | 10 | 3.90 | 25.100   | 9043290251000 |
| 100      | 32                  | 72    | 56    | 100   | 10 | 4.20 | 32.100   | 9043290321000 |
| 100      | 40                  | 80    | 60    | 110   | 10 | 4.60 | 40.100   | 9043290401000 |

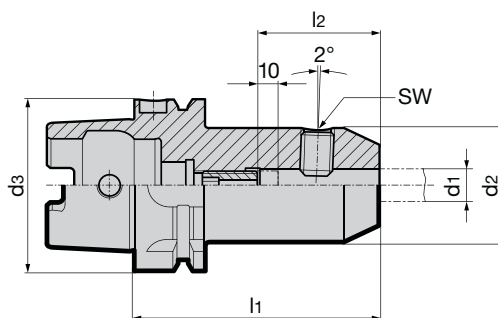
Tool holders

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- dimensions to DIN 69882-5
- with bore to DIN 1835-2 form E "Whistle Notch" with groove on face side for identification
- from bore d1 = 25 with two clamping screws
- HSK-A to ISO 12164-1 / DIN 69893-1

## Scope of delivery

- incl. clamping screw article no. 4903 and adjustment screw article no. 4904
- order coolant supply set, article no. 4949 separately



Series no. **4334**

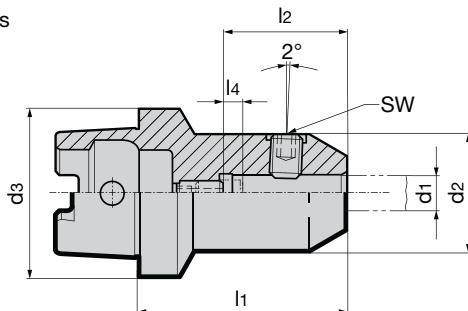
| HSK-A d <sub>3</sub> | clamping-Ø d <sub>1</sub> H5 mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | incl. adjustment screw 4904 ... | SW | kg   | Code no. | EDP Number    |
|----------------------|---------------------------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|----|------|----------|---------------|
| 32                   | 6                               | 25                | 15                | 80                | 36                | 6.014                           | 3  | 0.32 | 6.032    | 9043340060320 |
| 32                   | 8                               | 28                | 20                | 80                | 36                | 8.014                           | 4  | 0.36 | 8.032    | 9043340080320 |
| 32                   | 10                              | 35                | 25                | 80                | 40                | 10.014                          | 5  | 0.46 | 10.032   | 9043340100320 |
| 32                   | 12                              | 42                | 30                | 80                | 45                | 12.014                          | 6  | 0.57 | 12.032   | 9043340120320 |
| 40                   | 6                               | 25                | 15                | 80                | 36                | 6.014                           | 3  | 0.36 | 6.040    | 9043340060400 |
| 40                   | 8                               | 28                | 20                | 80                | 36                | 8.014                           | 4  | 0.40 | 8.040    | 9043340080400 |
| 40                   | 10                              | 35                | 25                | 80                | 40                | 10.014                          | 5  | 0.50 | 10.040   | 9043340100400 |
| 40                   | 12                              | 42                | 30                | 90                | 45                | 12.014                          | 6  | 0.68 | 12.040   | 9043340120400 |
| 40                   | 14                              | 44                | 32                | 90                | 45                | 12.014                          | 6  | 0.72 | 14.040   | 9043340140400 |
| 40                   | 16                              | 48                | 36                | 90                | 48                | 16.014                          | 6  | 0.77 | 16.040   | 9043340160400 |
| 50                   | 6                               | 25                | 15                | 80                | 36                | 6.014                           | 3  | 0.58 | 6.050    | 9043340060500 |
| 50                   | 8                               | 28                | 20                | 80                | 36                | 8.014                           | 4  | 0.62 | 8.050    | 9043340080500 |
| 50                   | 10                              | 35                | 25                | 80                | 40                | 10.014                          | 5  | 0.73 | 10.050   | 9043340100500 |
| 50                   | 12                              | 42                | 30                | 90                | 45                | 12.014                          | 6  | 0.97 | 12.050   | 9043340120500 |
| 50                   | 14                              | 44                | 32                | 90                | 45                | 12.014                          | 6  | 1.00 | 14.050   | 9043340140500 |
| 50                   | 16                              | 48                | 36                | 90                | 48                | 16.014                          | 6  | 1.09 | 16.050   | 9043340160500 |
| 50                   | 18                              | 50                | 38                | 90                | 48                | 16.014                          | 6  | 1.12 | 18.050   | 9043340180500 |
| 50                   | 20                              | 52                | 40                | 100               | 50                | 20.114                          | 8  | 1.30 | 20.050   | 9043340200500 |
| 63                   | 6                               | 25                | 15                | 80                | 36                | 6.014                           | 3  | 0.86 | 6.063    | 9043340060630 |
| 63                   | 8                               | 28                | 20                | 80                | 36                | 8.014                           | 4  | 0.90 | 8.063    | 9043340080630 |
| 63                   | 10                              | 35                | 25                | 80                | 40                | 10.014                          | 5  | 1.00 | 10.063   | 9043340100630 |
| 63                   | 12                              | 42                | 30                | 90                | 45                | 12.014                          | 6  | 1.24 | 12.063   | 9043340120630 |
| 63                   | 14                              | 44                | 32                | 90                | 45                | 12.014                          | 6  | 1.28 | 14.063   | 9043340140630 |
| 63                   | 16                              | 48                | 36                | 100               | 48                | 16.014                          | 6  | 1.53 | 16.063   | 9043340160630 |
| 63                   | 18                              | 50                | 38                | 100               | 48                | 16.014                          | 6  | 1.60 | 18.063   | 9043340180630 |
| 63                   | 20                              | 52                | 40                | 100               | 50                | 20.114                          | 8  | 1.65 | 20.063   | 9043340200630 |
| 63                   | 25                              | 65                | 45                | 110               | 56                | 20.114                          | 10 | 2.34 | 25.063   | 9043340250630 |
| 63                   | 32                              | 72                | 56                | 110               | 60                | 20.114                          | 10 | 2.54 | 32.063   | 9043340320630 |
| 80                   | 6                               | 25                | 15                | 90                | 36                | 6.014                           | 3  | 2.20 | 6.080    | 9043340060800 |
| 80                   | 8                               | 28                | 20                | 90                | 36                | 8.014                           | 4  | 2.25 | 8.080    | 9043340080800 |
| 80                   | 10                              | 35                | 25                | 90                | 40                | 10.014                          | 5  | 2.56 | 10.080   | 9043340100800 |
| 80                   | 12                              | 42                | 30                | 100               | 45                | 12.014                          | 6  | 2.60 | 12.080   | 9043340120800 |
| 80                   | 14                              | 44                | 32                | 100               | 45                | 12.014                          | 6  | 2.85 | 14.080   | 9043340140800 |
| 80                   | 16                              | 48                | 36                | 100               | 48                | 16.014                          | 6  | 2.88 | 16.080   | 9043340160800 |
| 80                   | 18                              | 50                | 38                | 100               | 48                | 16.014                          | 6  | 2.90 | 18.080   | 9043340180800 |
| 80                   | 20                              | 52                | 40                | 110               | 50                | 20.114                          | 8  | 3.05 | 20.080   | 9043340200800 |
| 80                   | 25                              | 65                | 45                | 110               | 56                | 20.114                          | 10 | 3.10 | 25.080   | 9043340250800 |
| 80                   | 32                              | 72                | 56                | 120               | 60                | 20.114                          | 10 | 3.20 | 32.080   | 9043340320800 |
| 100                  | 6                               | 25                | 15                | 90                | 36                | 6.014                           | 3  | 2.60 | 6.100    | 9043340061000 |
| 100                  | 8                               | 28                | 20                | 90                | 36                | 8.014                           | 4  | 2.60 | 8.100    | 9043340081000 |
| 100                  | 10                              | 35                | 25                | 90                | 40                | 10.014                          | 5  | 2.60 | 10.100   | 9043340101000 |
| 100                  | 12                              | 42                | 30                | 100               | 45                | 12.014                          | 6  | 2.80 | 12.100   | 9043340121000 |
| 100                  | 14                              | 44                | 32                | 100               | 45                | 12.014                          | 6  | 2.85 | 14.100   | 9043340141000 |
| 100                  | 16                              | 48                | 36                | 100               | 48                | 16.014                          | 6  | 2.97 | 16.100   | 9043340161000 |
| 100                  | 18                              | 50                | 38                | 100               | 48                | 16.014                          | 6  | 3.10 | 18.100   | 9043340181000 |
| 100                  | 20                              | 52                | 40                | 110               | 50                | 20.114                          | 8  | 3.23 | 20.100   | 9043340201000 |
| 100                  | 25                              | 65                | 45                | 120               | 56                | 20.114                          | 10 | 4.06 | 25.100   | 9043340251000 |
| 100                  | 32                              | 72                | 56                | 120               | 60                | 20.114                          | 10 | 4.40 | 32.100   | 9043340321000 |

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- dimensions to DIN 69882-5
- with bore to DIN 1835-2 form E "Whistle Notch" with groove on face side for identification
- from bore d1 = 25 with two clamping screws article no. 4903
- HSK-C to ISO 12164-1/DIN 69893-1

## Scope of delivery

- incl. clamping screw article no. 4903 and adjustment screw article no. 4905



Series no. **4333**

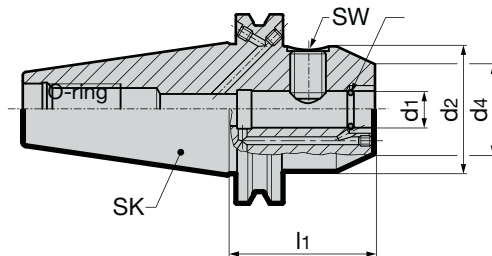
| HSK-C d <sub>3</sub> | clamping-Ø d <sub>1</sub> H5 mm | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | l <sub>4</sub> mm | incl. adjustment screw 4905 ... | SW | kg   | Code no. | EDP Number    |
|----------------------|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|----|------|----------|---------------|
| 32                   | 6                               | 25                | 15                | 60                | 36                | 10                | 9049050050160                   | 3  | 0.23 | 6.032    | 9043330060320 |
| 32                   | 8                               | 28                | 20                | 60                | 36                | 10                | 9049050060160                   | 4  | 0.28 | 8.032    | 9043330080320 |
| 32                   | 10                              | 35                | 25                | 65                | 40                | 10                | 9049050080170                   | 5  | 0.43 | 10.032   | 9043330100320 |
| 40                   | 6                               | 25                | 15                | 60                | 36                | 10                | 9049050050160                   | 3  | 0.29 | 6.040    | 9043330060400 |
| 40                   | 8                               | 28                | 20                | 60                | 36                | 10                | 9049050060160                   | 4  | 0.33 | 8.040    | 9043330080400 |
| 40                   | 10                              | 35                | 25                | 65                | 40                | 10                | 9049050080170                   | 5  | 0.47 | 10.040   | 9043330100400 |
| 40                   | 12                              | 42                | 30                | 70                | 45                | 8                 | 9049050100170                   | 6  | 0.67 | 12.040   | 9043330120400 |
| 40                   | 14                              | 44                | 32                | 70                | 45                | 8                 | 9049050100170                   | 6  | 0.73 | 14.040   | 9043330140400 |
| 40                   | 16                              | 48                | 36                | 75                | 48                | 8                 | 9049050120190                   | 6  | 0.92 | 16.040   | 9043330160400 |
| 40                   | 20                              | 52                | 40                | 80                | 50                | 8                 | 9049050160200                   | 8  | 1.11 | 20.040   | 9043330200400 |
| 50                   | 6                               | 25                | 15                | 60                | 36                | 8                 | 9049050050140                   | 3  | 0.42 | 6.050    | 9043330060500 |
| 50                   | 8                               | 28                | 20                | 60                | 36                | 8                 | 9049050060140                   | 4  | 0.46 | 8.050    | 9043330080500 |
| 50                   | 10                              | 35                | 25                | 65                | 40                | 8                 | 9049050080150                   | 5  | 0.57 | 10.050   | 9043330100500 |
| 50                   | 12                              | 42                | 30                | 75                | 45                | 10                | 9049050100200                   | 6  | 0.80 | 12.050   | 9043330120500 |
| 50                   | 14                              | 44                | 32                | 75                | 45                | 10                | 9049050100200                   | 6  | 0.87 | 14.050   | 9043330140500 |
| 50                   | 16                              | 48                | 36                | 80                | 48                | 10                | 9049050120220                   | 6  | 1.02 | 16.050   | 9043330160500 |
| 50                   | 18                              | 49                | 38                | 80                | 48                | 10                | 9049050120220                   | 6  | 1.09 | 18.050   | 9043330180500 |
| 50                   | 20                              | 52                | 40                | 80                | 50                | 8                 | 9049050160200                   | 8  | 1.15 | 20.050   | 9043330200500 |
| 50                   | 25                              | 65                | 45                | 95                | 56                | 8                 | 9049050200260                   | 10 | 2.14 | 25.050   | 9043330250500 |
| 63                   | 6                               | 25                | 15                | 60                | 36                | 8                 | 9049050050140                   | 3  | 0.64 | 6.063    | 9043330060630 |
| 63                   | 8                               | 28                | 20                | 60                | 36                | 8                 | 9049050060140                   | 4  | 0.66 | 8.063    | 9043330080630 |
| 63                   | 10                              | 35                | 25                | 65                | 40                | 8                 | 9049050080150                   | 5  | 0.78 | 10.063   | 9043330100630 |
| 63                   | 12                              | 42                | 30                | 75                | 45                | 10                | 9049050100200                   | 6  | 0.99 | 12.063   | 9043330120630 |
| 63                   | 14                              | 44                | 32                | 75                | 45                | 10                | 9049050100200                   | 6  | 1.03 | 14.063   | 9043330140630 |
| 63                   | 16                              | 48                | 36                | 80                | 48                | 10                | 9049050120220                   | 6  | 1.21 | 16.063   | 9043330160630 |
| 63                   | 18                              | 50                | 38                | 80                | 48                | 10                | 9049050120220                   | 6  | 1.26 | 18.063   | 9043330180630 |
| 63                   | 20                              | 52                | 40                | 80                | 50                | 8                 | 9049050160200                   | 8  | 1.31 | 20.063   | 9043330200630 |
| 63                   | 25                              | 65                | 45                | 95                | 56                | 8                 | 9049050200260                   | 10 | 2.23 | 25.063   | 9043330250630 |
| 63                   | 32                              | 72                | 56                | 100               | 60                | 8                 | 9049050200260                   | 10 | 2.75 | 32.063   | 9043330320630 |

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- form AD/B supplied with set screws in bores
- with coolant ducts in the bore for peripheral cooling, improving process and tool life
- from bore  $d_1 = 25$  mm with two clamping screws article no. 4903
- coolant supply form AD/B
- coolant ducts:
  - $d_1 = 6 - 18$  mm with two coolant ducts
  - $d_1 = 20 - 32$  mm with four coolant ducts
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

## Scope of delivery

- incl. clamping screw article no. 4903
- incl. O-ring for sealing



**GÜHROJET**

Series no. **4317**

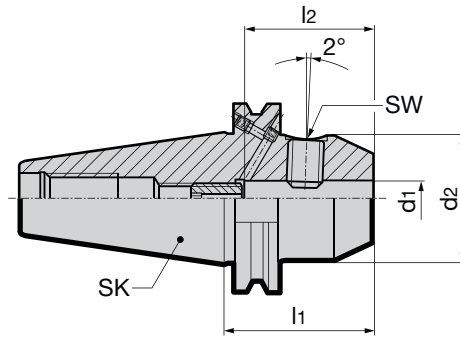
| SK taper/form | clamping- $\emptyset$<br>$d_1$ H5<br>mm | $d_2$<br>mm | $d_4$<br>mm | $l_1$<br>mm | SW | Code no. | EDP Number.   |
|---------------|---|-------------|-------------|-------------|----|----------|---------------|
| 40 AD         | 16                                      | 45          | 36          | 35          | 6  | 916.040  | 9043179160400 |
| 40 AD         | 20                                      | 45          | 40          | 35          | 8  | 920.040  | 9043179200400 |
| 40 AD         | 25                                      | 50          | 45          | 35          | 10 | 925.040  | 9043179250400 |
| 40 AD/B       | 6                                       | 25          | 15          | 50          | 3  | 6.040    | 9043170060400 |
| 40 AD/B       | 8                                       | 28          | 20          | 50          | 4  | 8.040    | 9043170080400 |
| 40 AD/B       | 10                                      | 35          | 25          | 50          | 5  | 10.040   | 9043170100400 |
| 40 AD/B       | 12                                      | 42          | 30          | 50          | 6  | 12.040   | 9043170120400 |
| 40 AD/B       | 14                                      | 44          | 32          | 50          | 6  | 14.040   | 9043170140400 |
| 40 AD/B       | 16                                      | 48          | 36          | 63          | 6  | 16.040   | 9043170160400 |
| 40 AD/B       | 18                                      | 50          | 38          | 63          | 6  | 18.040   | 9043170180400 |
| 40 AD/B       | 20                                      | 52          | 40          | 63          | 8  | 20.040   | 9043170200400 |
| 40 AD/B       | 6                                       | 25          | 15          | 100         | 3  | 106.040  | 9043171060400 |
| 40 AD/B       | 8                                       | 28          | 20          | 100         | 4  | 108.040  | 9043171080400 |
| 40 AD/B       | 10                                      | 35          | 25          | 100         | 5  | 110.040  | 9043171100400 |
| 40 AD/B       | 12                                      | 42          | 30          | 100         | 6  | 112.040  | 9043171120400 |
| 40 AD/B       | 14                                      | 44          | 32          | 100         | 6  | 114.040  | 9043171140400 |
| 40 AD/B       | 16                                      | 48          | 36          | 100         | 6  | 116.040  | 9043171160400 |
| 40 AD/B       | 18                                      | 50          | 38          | 100         | 6  | 118.040  | 9043171180400 |
| 40 AD/B       | 20                                      | 52          | 40          | 100         | 8  | 120.040  | 9043171200400 |
| 40 AD/B       | 25                                      | 63          | 45          | 100         | 10 | 25.040   | 9043170250400 |
| 40 AD/B       | 32                                      | 72          | 56          | 100         | 10 | 32.040   | 9043170320400 |
| 50 AD/B       | 6                                       | 25          | 15          | 63          | 3  | 6.050    | 9043170060500 |
| 50 AD/B       | 8                                       | 28          | 20          | 63          | 4  | 8.050    | 9043170080500 |
| 50 AD/B       | 10                                      | 35          | 25          | 63          | 5  | 10.050   | 9043170100500 |
| 50 AD/B       | 12                                      | 42          | 30          | 63          | 6  | 12.050   | 9043170120500 |
| 50 AD/B       | 14                                      | 44          | 32          | 63          | 6  | 14.050   | 9043170140500 |
| 50 AD/B       | 16                                      | 48          | 36          | 63          | 6  | 16.050   | 9043170160500 |
| 50 AD/B       | 18                                      | 50          | 38          | 63          | 6  | 18.050   | 9043170180500 |
| 50 AD/B       | 20                                      | 52          | 40          | 63          | 8  | 20.050   | 9043170200500 |
| 50 AD/B       | 25                                      | 65          | 45          | 80          | 10 | 25.050   | 9043170250500 |
| 50 AD/B       | 32                                      | 72          | 56          | 100         | 10 | 32.050   | 9043170320500 |

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- coolant supply form AD/B
- from bore d1 = 25 mm with two clamping screws article no. 4903
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

## Scope of delivery

- incl. clamping screw article no. 4903 and adjustment screw



Series no **4322**

| SK taper | clamping-Ø<br>d1 H5<br>mm | d2<br>mm | d4<br>mm | l1<br>mm | l2<br>mm | SW | kg  | Code no. | EDP Number    |
|----------|---------------------------|----------|----------|----------|----------|----|-----|----------|---------------|
| 40       | 6                         | 25       | 15       | 50       | 36       | 3  | 0.9 | 6.040    | 9043220060400 |
| 40       | 8                         | 28       | 20       | 50       | 36       | 4  | 0.9 | 8.040    | 9043220080400 |
| 40       | 10                        | 35       | 25       | 50       | 40       | 5  | 1.0 | 10.040   | 9043220100400 |
| 40       | 12                        | 42       | 30       | 50       | 45       | 6  | 1.2 | 12.040   | 9043220120400 |
| 40       | 14                        | 44       | 32       | 50       | 45       | 6  | 1.2 | 14.040   | 9043220140400 |
| 40       | 16                        | 48       | 36       | 63       | 48       | 6  | 1.2 | 16.040   | 9043220160400 |
| 40       | 18                        | 50       | 38       | 63       | 48       | 6  | 1.4 | 18.040   | 9043220180400 |
| 40       | 20                        | 52       | 40       | 63       | 50       | 8  | 1.5 | 20.040   | 9043220200400 |
| 40       | 25                        | 65       | 45       | 100      | 56       | 10 | 2.3 | 25.040   | 9043220250400 |
| 40       | 32                        | 72       | 56       | 100      | 60       | 10 | 2.5 | 32.040   | 9043220320400 |
| 50       | 6                         | 25       | 15       | 63       | 36       | 3  | 2.7 | 6.050    | 9043220060500 |
| 50       | 8                         | 28       | 20       | 63       | 36       | 4  | 2.7 | 8.050    | 9043220080500 |
| 50       | 10                        | 35       | 25       | 63       | 40       | 5  | 2.9 | 10.050   | 9043220100500 |
| 50       | 12                        | 42       | 30       | 63       | 45       | 6  | 3.0 | 12.050   | 9043220120500 |
| 50       | 14                        | 44       | 32       | 63       | 45       | 6  | 3.0 | 14.050   | 9043220140500 |
| 50       | 16                        | 48       | 36       | 63       | 48       | 6  | 3.0 | 16.050   | 9043220160500 |
| 50       | 18                        | 50       | 38       | 63       | 48       | 6  | 3.0 | 18.050   | 9043220180500 |
| 50       | 20                        | 52       | 40       | 63       | 50       | 8  | 3.1 | 20.050   | 9043220200500 |
| 50       | 25                        | 65       | 45       | 80       | 56       | 10 | 3.7 | 25.050   | 9043220250500 |
| 50       | 32                        | 72       | 56       | 100      | 60       | 10 | 4.5 | 32.050   | 9043220320500 |

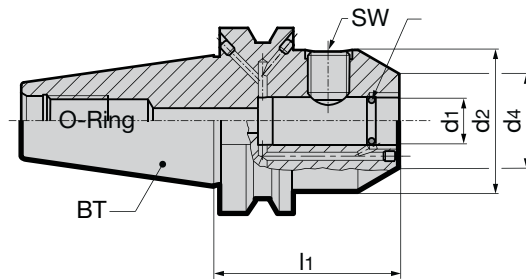
Tool holders

## Product information

- balancing quality: G6.3 / 15,000 rev./min
- from bore d1 = 25 with two clamping screws
- with coolant ducts in the bore for peripheral cooling, improving process and tool life
- coolant supply form AD/B
- coolant ducts:
  - d1 = 6 - 18 mm with two coolant ducts
  - d1 = 20 - 32 mm with four coolant ducts
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob

## Scope of delivery

- incl. clamping screw article no. 4903
- incl. O-ring for sealing
- BT-50 on request



**GÜHROJET**

Series no. **4234**

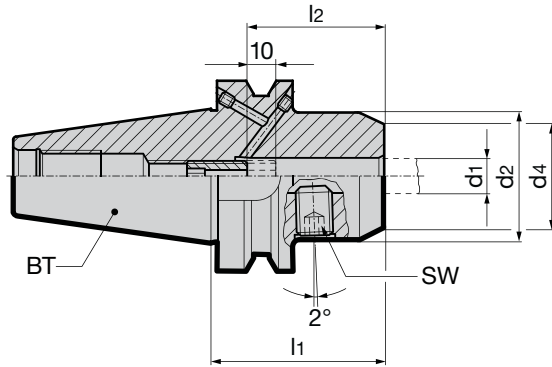
| BT  | clamping-Ø<br>d1 H5<br>mm | d2<br>mm | d4<br>mm | l1<br>mm | SW | Code no. | EDP Number.   |
|-----|---------------------------|----------|----------|----------|----|----------|---------------|
| 30* | 6                         | 25       | 15       | 50       | 3  | 6.030    | 9042340060300 |
| 30* | 8                         | 28       | 20       | 50       | 4  | 8.030    | 9042340080300 |
| 30* | 10                        | 35       | 25       | 50       | 5  | 10.030   | 9042340100300 |
| 30* | 12                        | 42       | 30       | 50       | 6  | 12.030   | 9042340120300 |
| 30* | 14                        | 44       | 32       | 50       | 6  | 14.030   | 9042340140300 |
| 30* | 16                        | 48       | 36       | 63       | 6  | 16.030   | 9042340160300 |
| 30* | 18                        | 50       | 38       | 63       | 6  | 18.030   | 9042340180300 |
| 30* | 20                        | 52       | 40       | 63       | 8  | 20.030   | 9042340200300 |
| 40* | 16                        | 45       | 36       | 35       | 6  | 916.040  | 9042349160400 |
| 40* | 20                        | 45       | 40       | 35       | 8  | 920.040  | 9042349200400 |
| 40* | 25                        | 45       | 45       | 35       | 10 | 925.040  | 9042349250400 |
| 40  | 6                         | 25       | 15       | 50       | 3  | 6.040    | 9042340060400 |
| 40  | 8                         | 28       | 20       | 50       | 4  | 8.040    | 9042340080400 |
| 40  | 10                        | 35       | 25       | 63       | 5  | 10.040   | 9042340100400 |
| 40  | 12                        | 42       | 30       | 63       | 6  | 12.040   | 9042340120400 |
| 40  | 14                        | 44       | 32       | 63       | 6  | 14.040   | 9042340140400 |
| 40  | 16                        | 48       | 36       | 63       | 6  | 16.040   | 9042340160400 |
| 40  | 18                        | 50       | 38       | 63       | 6  | 18.040   | 9042340180400 |
| 40  | 20                        | 52       | 40       | 63       | 8  | 20.040   | 9042340200400 |
| 40  | 25                        | 63       | 45       | 90       | 10 | 25.040   | 9042340250400 |
| 40  | 32                        | 72       | 56       | 100      | 10 | 32.040   | 9042340320400 |
| 40  | 6                         | 25       | 15       | 100      | 3  | 106.040  | 9042341060400 |
| 40  | 8                         | 28       | 20       | 100      | 4  | 108.040  | 9042341080400 |
| 40  | 10                        | 35       | 25       | 100      | 5  | 110.040  | 9042341100400 |
| 40  | 12                        | 42       | 30       | 100      | 6  | 112.040  | 9042341120400 |
| 40  | 14                        | 44       | 32       | 100      | 6  | 114.040  | 9042341140400 |
| 40  | 16                        | 48       | 36       | 100      | 6  | 116.040  | 9042341160400 |
| 40  | 18                        | 50       | 38       | 100      | 6  | 118.040  | 9042341180400 |
| 40  | 20                        | 52       | 40       | 100      | 8  | 120.040  | 9042341200400 |

### Product information

- balancing quality: G6.3 / 15,000 rev./min
- MAS/BT to DIN ISO 7388-2 form AD/B
- with bore to DIN 1835-2 form E "whistle notch"
- from bore d1 = 25 with two clamping screws
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. clamping screw article no. 4903 and adjustment screw



|    |                                       |                      |                      |                      |                      |    | Series no. | 4233          |  |
|----|---------------------------------------|----------------------|----------------------|----------------------|----------------------|----|------------|---------------|--|
| BT | clamping-Ø<br>d <sub>1</sub> H5<br>mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | SW | Code no.   | Order no.     |  |
| 40 | 6                                     | 25                   | 15                   | 50                   | 36                   | 3  | 6.040      | 9042330060400 |  |
| 40 | 8                                     | 28                   | 20                   | 50                   | 36                   | 4  | 8.040      | 9042330080400 |  |
| 40 | 10                                    | 35                   | 25                   | 63                   | 40                   | 5  | 10.040     | 9042330100400 |  |
| 40 | 12                                    | 42                   | 30                   | 63                   | 45                   | 6  | 12.040     | 9042330120400 |  |
| 40 | 14                                    | 44                   | 32                   | 63                   | 45                   | 6  | 14.040     | 9042330140400 |  |
| 40 | 16                                    | 48                   | 36                   | 63                   | 48                   | 6  | 16.040     | 9042330160400 |  |
| 40 | 18                                    | 50                   | 38                   | 63                   | 48                   | 6  | 18.040     | 9042330180400 |  |
| 40 | 20                                    | 52                   | 40                   | 63                   | 50                   | 8  | 20.040     | 9042330200400 |  |
| 40 | 25                                    | 63                   | 45                   | 90                   | 56                   | 10 | 25.040     | 9042330250400 |  |
| 40 | 32                                    | 72                   | 56                   | 100                  | 60                   | 10 | 32.040     | 9042330320400 |  |
| 50 | 6                                     | 25                   | 15                   | 63                   | 36                   | 3  | 6.050      | 9042330060500 |  |
| 50 | 8                                     | 28                   | 20                   | 63                   | 36                   | 4  | 8.050      | 9042330080500 |  |
| 50 | 10                                    | 35                   | 25                   | 63                   | 40                   | 5  | 10.050     | 9042330100500 |  |
| 50 | 12                                    | 42                   | 30                   | 80                   | 45                   | 6  | 12.050     | 9042330120500 |  |
| 50 | 14                                    | 44                   | 32                   | 80                   | 45                   | 6  | 14.050     | 9042330140500 |  |
| 50 | 16                                    | 48                   | 36                   | 80                   | 48                   | 6  | 16.050     | 9042330160500 |  |
| 50 | 18                                    | 50                   | 38                   | 80                   | 48                   | 6  | 18.050     | 9042330180500 |  |
| 50 | 20                                    | 52                   | 40                   | 80                   | 50                   | 8  | 20.050     | 9042330200500 |  |
| 50 | 25                                    | 65                   | 45                   | 100                  | 56                   | 10 | 25.050     | 9042330250500 |  |
| 50 | 32                                    | 72                   | 56                   | 105                  | 60                   | 10 | 32.050     | 9042330320500 |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |
|    |                                       |                      |                      |                      |                      |    |            |               |  |

Tool holders

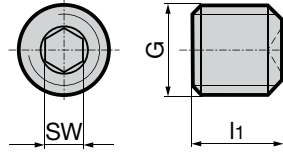
## Clamping screws

### Product information

- for side lock holders with bore to DIN 1835-2, B and E, and HSK-A adaptors for tapping chucks, article nos. 4317/4322/4329/4333/4334/4343
- article no. 4903 12,001 (M12) only for article no. 4343

### Scope of delivery

- minimum order quantity 5



Series no.

4903

| for holder-<br>Ø | G     | l <sub>1</sub><br>mm | torque<br>Nm | SW | EDP Number    |
|------------------|-------|----------------------|--------------|----|---------------|
| 6                | M6    | 10                   | 5            | 3  | 9049030060000 |
| 8                | M8    | 10                   | 10           | 4  | 9049030080000 |
| 10               | M10   | 12                   | 15           | 5  | 9049030100000 |
| 12/14            | M12   | 14                   | 28           | 6  | 9049030120000 |
| 25               | M12   | 12                   | 28           | 6  | 9049030120010 |
| 16/18            | M14   | 16                   | 42           | 6  | 9049030140000 |
| 20               | M16   | 16                   | 50           | 8  | 9049030160000 |
| 25               | M18x2 | 20                   | 60           | 10 | 9049030180000 |
| 32/40            | M20x2 | 20                   | 72           | 10 | 9049030200000 |
| 40               | M20x2 | 25                   | 72           | 10 | 9049030200010 |
| 25               | M14   | 11,5                 | 42           | 6  | 9049030140010 |
| 25               | M16   | 12                   | 50           | 8  | 9049030160010 |

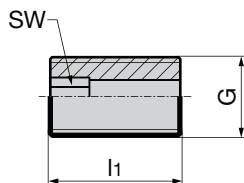
## Adjustment screws

### Product information

- for HSK-A Weldon side lock holders with bore to DIN 1835-2, form E, shrink fit chuck and shrink fit extensions

### Scope of delivery

- minimum order quantity 5



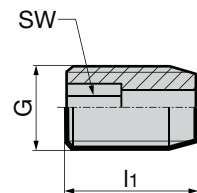
## Adjustment screws

### Product information

- for HSK-C side lock with bore to DIN 1835-2, form E, article nos. 4333 / 4322

### Scope of delivery

- minimum order quantity 5



Series no.

4904

| G   | l <sub>1</sub><br>mm | SW  | EDP Number    |
|-----|----------------------|-----|---------------|
| M5  | 16                   | 2.5 | 9049040050160 |
| M5  | 20                   | 2.5 | 9049040050200 |
| M6  | 16                   | 3.0 | 9049040060160 |
| M6  | 20                   | 3.0 | 9049040060200 |
| M8  | 12                   | 3.0 | 9049040080120 |
| M8  | 18                   | 4.0 | 9049040080180 |
| M10 | 17                   | 3.0 | 9049040100170 |
| M10 | 20                   | 5.0 | 9049040100200 |
| M12 | 14                   | 3.0 | 9049040120140 |
| M12 | 20                   | 5.0 | 9049040120200 |
| M16 | 25                   | 5.0 | 9049040160250 |
| M20 | 25                   | 6.0 | 9049040200250 |

Series no.

4905

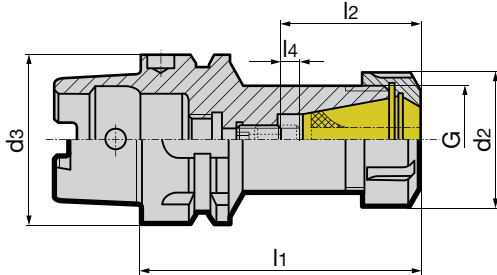
| G   | l <sub>1</sub><br>mm | SW  | EDP Number    |
|-----|----------------------|-----|---------------|
| M5  | 14                   | 2.5 | 9049050050140 |
| M5  | 16                   | 2.5 | 9049050050160 |
| M6  | 14                   | 3.0 | 9049050060140 |
| M6  | 16                   | 3.0 | 9049050060160 |
| M8  | 15                   | 4.0 | 9049050080150 |
| M8  | 17                   | 4.0 | 9049050080170 |
| M10 | 17                   | 5.0 | 9049050100170 |
| M10 | 20                   | 5.0 | 9049050100200 |
| M12 | 19                   | 6.0 | 9049050120190 |
| M12 | 22                   | 6.0 | 9049050120220 |
| M16 | 20                   | 6.0 | 9049050160200 |
| M20 | 26                   | 6.0 | 9049050200260 |

## Product information

- balancing quality: G2.5 / 25.000 rev./min or U< 1 gmm
- HSK-A to ISO 12164-1/DIN 69893-1
- for collet chucks with adjustment angle 8° according to DIN ISO 15488

## Scope of delivery

- incl. retaining nut article no. 4306 and adjustment screw article no. 4902
- order collet, article no. 4307, clamping key, article no. 4913 and coolant supply set, article no. 4949 separately



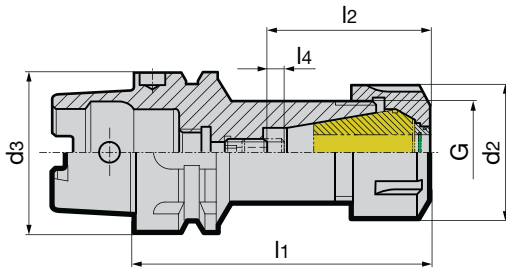
|                         |                   |                      |            |                      |                      |                      |   |      |          | Series no.    | 4304 |
|-------------------------|-------------------|----------------------|------------|----------------------|----------------------|----------------------|---|------|----------|---------------|------|
| HSK-A<br>d <sub>3</sub> | clamping<br>range | d <sub>2</sub><br>mm | G          | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>4</sub><br>mm | incl. adjustment<br>screw<br>art. no. 4902... | kg   | Code no. | EDP Number    |      |
| 32                      | ER 11 Ø 0.5-7.0   | 19                   | M14 x 0.75 | 55                   | 25                   | 6                    | 11.012  | 0.20 | 11.032   | 9043040110320 |      |
| 32                      | ER 16 Ø 0.5-10.0  | 28                   | M22 x 1.5  | 80                   | 34                   | 6                    | 16.012  | 0.30 | 16.032   | 9043040160320 |      |
| 32                      | ER 20 Ø 0.5-13.0  | 34                   | M25 x 1.5  | 70                   | 40                   | 8                    | 16.012  | 0.30 | 20.032   | 9043040200320 |      |
| 40                      | ER 16 Ø 0.5-10.0  | 28                   | M22 x 1.5  | 80                   | 34                   | 6                    | 16.012  | 0.40 | 16.040   | 9043040160400 |      |
| 40                      | ER 25 Ø 0.5-16.0  | 42                   | M32 x 1.5  | 80                   | 44                   | 8                    | 25.014  | 0.50 | 25.040   | 9043040250400 |      |
| 40                      | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 100                  | 50                   | 10                   | 32.020  | 0.80 | 32.040   | 9043040320400 |      |
| 50                      | ER 16 Ø 0.5-10.0  | 28                   | M22 x 1.5  | 100                  | 34                   | 6                    | 16.012  | 0.70 | 16.050   | 9043040160500 |      |
| 50                      | ER 25 Ø 0.5-16.0  | 42                   | M32 x 1.5  | 100                  | 44                   | 8                    | 25.014  | 1.00 | 25.050   | 9043040250500 |      |
| 50                      | ER 25 Ø 0.5-16.0  | 42                   | M32 x 1.5  | 80                   | 44                   | 8                    | 25.014  | 0.80 | 25.150   | 9043040251500 |      |
| 50                      | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 100                  | 50                   | 10                   | 32.020  | 1.00 | 32.050   | 9043040320500 |      |
| 63                      | ER 16 Ø 0.5-10.0  | 28                   | M22 x 1.5  | 100                  | 34                   | 6                    | 16.012  | 0.90 | 16.063   | 9043040160630 |      |
| 63                      | ER 16 Ø 0.5-10.0  | 28                   | M22 x 1.5  | 160                  | 34                   | 6                    | 16.012  | 1.20 | 16.163   | 9043040161630 |      |
| 63                      | ER 25 Ø 0.5-16.0  | 42                   | M32 x 1.5  | 80                   | 42                   | 6                    | 25.014  | 1.00 | 25.063   | 9043040250630 |      |
| 63                      | ER 25 Ø 0.5-16.0  | 42                   | M32 x 1.5  | 100                  | 42                   | 6                    | 25.014  | 1.20 | 25.163   | 9043040251630 |      |
| 63                      | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 100                  | 50                   | 10                   | 32.020  | 1.40 | 32.063   | 9043040320630 |      |
| 63                      | ER 40 Ø 3.0-26.0  | 63                   | M50 x 1.5  | 120                  | 56                   | 10                   | 32.020  | 1.90 | 40.063   | 9043040400630 |      |
| 80                      | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 100                  | 50                   | 10                   | 32.020  | 1.90 | 32.080   | 9043040320800 |      |
| 80                      | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 160                  | 50                   | 10                   | 32.020  | 2.80 | 32.180   | 9043040321800 |      |
| 80                      | ER 40 Ø 3.0-26.0  | 63                   | M50 x 1.5  | 120                  | 56                   | 10                   | 32.020  | 2.80 | 40.080   | 9043040400800 |      |
| 100                     | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 100                  | 50                   | 10                   | 32.020  | 2.80 | 32.100   | 9043040321000 |      |
| 100                     | ER 32 Ø 1.0-20.0  | 50                   | M40 x 1.5  | 160                  | 50                   | 10                   | 32.020  | 3.60 | 32.101   | 9043040321010 |      |
| 100                     | ER 40 Ø 3.0-26.0  | 63                   | M50 x 1.5  | 120                  | 56                   | 10                   | 32.020  | 3.60 | 40.100   | 9043040401000 |      |

## Product information

- sealed, suitable for coolant pressure up to 100 bar thanks to the application of IC clamping nuts and suitable sealing washer
- balancing quality: G2.5 / 25.000 rev./min or U < 1 gmm
- HSK-A to ISO 12164-1/DIN 69893-1
- for collet chucks with adjustment angle 8° according to DIN ISO 15488

## Scope of delivery

- incl. IC retaining nut article no. 4306 and adjustment screw article no. 4902
- order sealing washer, article no. 4335, collet, article no. 4307, clamping key, article no. 4913 and coolant supply set article no. 4949 separately



Series no. **4324**

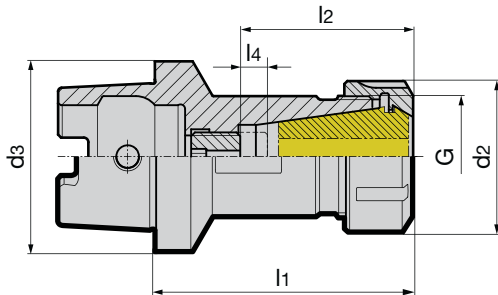
| HSK-A d <sub>3</sub> | clamping range   | d <sub>2</sub> mm | G         | l <sub>1</sub> mm | l <sub>2</sub> mm | l <sub>4</sub> mm | incl. adjustment screw art. no. 4902... | kg   | Code no. | EDP Number    |
|----------------------|------------------|-------------------|-----------|-------------------|-------------------|-------------------|---|------|----------|---------------|
| 32                   | ER 16 Ø 0.5-10.0 | 28                | M22 x 1.5 | 85                | 39                | 6                 | 16.012                                  | 0.30 | 16.032   | 9043240160320 |
| 32                   | ER 20 Ø 0.5-13.0 | 34                | M25 x 1.5 | 75                | 45                | 8                 | 16.012                                  | 0.30 | 20.032   | 9043240200320 |
| 40                   | ER 16 Ø 0.5-10.0 | 28                | M22 x 1.5 | 85                | 39                | 6                 | 16.012                                  | 0.40 | 16.040   | 9043240160400 |
| 40                   | ER 25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 85                | 49                | 8                 | 25.014                                  | 0.50 | 25.040   | 9043240250400 |
| 40                   | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 105               | 55                | 10                | 32.020                                  | 0.80 | 32.040   | 9043240320400 |
| 50                   | ER 16 Ø 0.5-10.0 | 28                | M22 x 1.5 | 105               | 39                | 6                 | 16.012                                  | 0.70 | 16.050   | 9043240160500 |
| 50                   | ER 25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 105               | 49                | 8                 | 25.014                                  | 0.90 | 25.050   | 9043240250500 |
| 50                   | ER 25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 85                | 49                | 6                 | 25.014                                  | 1.00 | 25.150   | 9043240251500 |
| 50                   | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 105               | 55                | 10                | 32.020                                  | 1.00 | 32.050   | 9043240320500 |
| 63                   | ER 16 Ø 0.5-10.0 | 28                | M22 x 1.5 | 105               | 39                | 6                 | 16.012                                  | 0.90 | 16.063   | 9043240160630 |
| 63                   | ER 16 Ø 0.5-10.0 | 28                | M22 x 1.5 | 165               | 39                | 6                 | 16.012                                  | 1.20 | 16.163   | 9043240161630 |
| 63                   | ER 25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 85                | 47                | 6                 | 25.014                                  | 1.00 | 25.063   | 9043240250630 |
| 63                   | ER 25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 105               | 47                | 6                 | 25.014                                  | 1.20 | 25.163   | 9043240251630 |
| 63                   | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 105               | 55                | 10                | 32.020                                  | 1.40 | 32.063   | 9043240320630 |
| 63                   | ER 40 Ø 3.0-26.0 | 63                | M50 x 1.5 | 125               | 61                | 10                | 32.020                                  | 1.90 | 40.063   | 9043240400630 |
| 80                   | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 105               | 55                | 10                | 32.020                                  | 1.90 | 32.080   | 9043240320800 |
| 80                   | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 165               | 55                | 10                | 32.020                                  | 2.80 | 32.180   | 9043240321800 |
| 80                   | ER 40 Ø 3.0-26.0 | 63                | M50 x 1.5 | 125               | 61                | 10                | 32.020                                  | 2.80 | 40.080   | 9043240400800 |
| 100                  | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 105               | 55                | 10                | 32.020                                  | 2.80 | 32.100   | 9043240321000 |
| 100                  | ER 32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 165               | 55                | 10                | 32.020                                  | 3.70 | 32.101   | 9043240321010 |
| 100                  | ER 40 Ø 3.0-26.0 | 63                | M50 x 1.5 | 125               | 61                | 10                | 32.020                                  | 3.70 | 40.100   | 9043240401000 |

## Product information

- balancing quality: G2.5 / 25.000 rev./min or U< 1 gmm
- HSK-C to ISO 12164-1/DIN 69893-1
- for collet chucks with adjustment angle 8° according to DIN ISO 15488

## Scope of delivery

- incl. retaining nut article no. 4306 and adjustment screw article no. 4901
- order collet, article no. 4307, clamping key, article no. 4913 separately



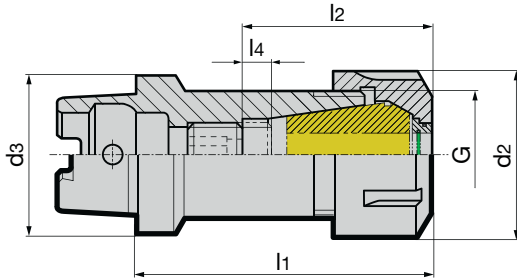
|                         |                      |                      |           |                      |                      |                      |   |      |          | Series no.    | 4303 |
|-------------------------|----------------------|----------------------|-----------|----------------------|----------------------|----------------------|---|------|----------|---------------|------|
| HSK-C<br>d <sub>3</sub> | clamping<br>range    | d <sub>2</sub><br>mm | G         | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>4</sub><br>mm | incl. adjustment<br>screw<br>art. no. 4901... | kg   | Code no. | EDP Number    |      |
| 25                      | ER16 mini Ø 0.5-10.0 | 22                   | M19 x 1.0 | 50                   | 30                   | 3                    | 16.012  | 0.10 | 16.025   | 9043030160250 |      |
| 32                      | ER 16 Ø 0.5-10.0     | 28                   | M22 x 1.5 | 55                   | 32                   | 4                    | 16.012  | 0.20 | 16.032   | 9043030160320 |      |
| 32                      | ER 20 Ø 0.5-13.0     | 34                   | M25 x 1.5 | 60                   | 38                   | 6                    | 16.012  | 0.30 | 20.032   | 9043030200320 |      |
| 32                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 70                   | 44                   | 6                    | 25.014  | 0.40 | 25.032   | 9043030250320 |      |
| 40                      | ER 20 Ø 0.5-13.0     | 34                   | M25 x 1.5 | 60                   | 38                   | 6                    | 16.012  | 0.40 | 20.040   | 9043030200400 |      |
| 40                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 70                   | 44                   | 8                    | 25.014  | 0.50 | 25.040   | 9043030250400 |      |
| 40                      | ER 32 Ø 1.0-20.0     | 50                   | M40 x 1.5 | 75                   | 49                   | 8                    | 25.014  | 0.60 | 32.040   | 9043030320400 |      |
| 50                      | ER 16 Ø 0.5-10.0     | 28                   | M22 x 1.5 | 60                   | 34                   | 6                    | 16.012  | 0.40 | 16.050   | 9043030160500 |      |
| 50                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 70                   | 44                   | 8                    | 25.014  | 0.70 | 25.050   | 9043030250500 |      |
| 50                      | ER 32 Ø 1.0-20.0     | 50                   | M40 x 1.5 | 75                   | 49                   | 8                    | 25.014  | 0.90 | 32.050   | 9043030320500 |      |
| 50                      | ER 40 Ø 3.0-26.0     | 63                   | M50 x 1.5 | 80                   | 54                   | 8                    | 25.014  | 1.00 | 40.050   | 9043030400500 |      |
| 63                      | ER 40 Ø 3.0-26.0     | 63                   | M50 x 1.5 | 80                   | 54                   | 8                    | 25.014  | 1.50 | 40.063   | 9043030400630 |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |
|                         |                      |                      |           |                      |                      |                      |   |      |          |               |      |

## Product information

- sealed, suitable for coolant pressure up to 100 bar thanks to the application of IC clamping nuts and suitable sealing washer
- balancing quality: G2.5 / 25.000 rev./min or  $U < 1$  gmm
- HSK-C to ISO 12164-1/DIN 69893-1
- for collet chucks with adjustment angle  $8^\circ$  according to DIN ISO 15488

## Scope of delivery

- incl. IC retaining nut article no. 4306 and adjustment screw article no. 4901
- order sealing washer, article no. 4335, collet, article no. 4307, clamping key, article no. 4913 separately



Series no. **4323**

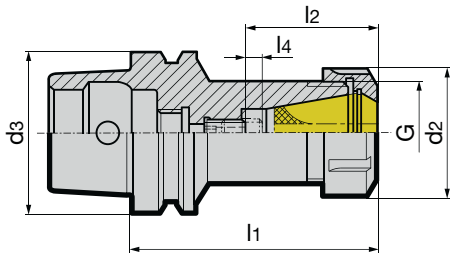
| HSK-C<br>d <sub>3</sub> | clamping<br>range    | d <sub>2</sub><br>mm | G         | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>4</sub><br>mm | incl. adjustment<br>screw<br>art. no. 4901... | kg   | Code<br>no. | EDP Number    |
|-------------------------|----------------------|----------------------|-----------|----------------------|----------------------|----------------------|---|------|-------------|---------------|
| 25                      | ER16 mini Ø 1.0-10.0 | 22                   | M19 x 1.0 | 55                   | 35                   | 3                    | 16.012  | 0.10 | 16.025      | 9043230160250 |
| 32                      | ER 16 Ø 0.5-10.0     | 28                   | M22 x 1.5 | 60                   | 37                   | 4                    | 16.012  | 0.20 | 16.032      | 9043230160320 |
| 32                      | ER 20 Ø 0.5-13.0     | 34                   | M25 x 1.5 | 65                   | 43                   | 6                    | 16.012  | 0.30 | 20.032      | 9043230200320 |
| 32                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 75                   | 49                   | 8                    | 25.014  | 0.40 | 25.032      | 9043230250320 |
| 40                      | ER 20 Ø 0.5-13.0     | 34                   | M25 x 1.5 | 65                   | 43                   | 6                    | 16.012  | 0.40 | 20.040      | 9043230200400 |
| 40                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 75                   | 49                   | 8                    | 25.014  | 0.60 | 25.040      | 9043230250400 |
| 40                      | ER 32 Ø 1.0-20.0     | 50                   | M40 x 1.5 | 80                   | 54                   | 8                    | 25.014  | 0.60 | 32.040      | 9043230320400 |
| 50                      | ER 16 Ø 0.5-10.0     | 28                   | M22 x 1.5 | 65                   | 39                   | 6                    | 16.012  | 0.40 | 16.050      | 9043230160500 |
| 50                      | ER 25 Ø 0.5-16.0     | 42                   | M32 x 1.5 | 75                   | 49                   | 8                    | 25.014  | 0.70 | 25.050      | 9043230250500 |
| 50                      | ER 32 Ø 1.0-20.0     | 50                   | M40 x 1.5 | 80                   | 54                   | 8                    | 25.014  | 0.90 | 32.050      | 9043230320500 |
| 50                      | ER 40 Ø 3.0-26.0     | 63                   | M50 x 1.5 | 85                   | 59                   | 8                    | 25.014  | 1.10 | 40.050      | 9043230400500 |
| 63                      | ER 40 Ø 3.0-26.0     | 63                   | M50 x 1.5 | 85                   | 59                   | 8                    | 25.014  | 1.50 | 40.063      | 9043230400630 |

**Product information**

- balancing quality: G2.5 / 25,000 rev./min or < 1 gmm residual imbalance
- incl. spanner flat for locking during clamping
- Order no. 16,025 without length adjustment and central cooling
- HSK-E according to DIN 69893-5 with access hole in taper for manual tool change
- for collet chucks with adjustment angle 8° according to DIN ISO 15488

**Scope of delivery**

- incl. retaining nut article no. 4306 and adjustment screw article no. 4902
- order collet, article no. 4307, clamping key, article no. 4913 and coolant supply set, article no. 4949 separately



Series no. **4397**

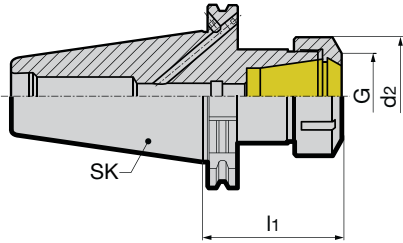
| HSK-E d3 | clamping range        | d2 mm | G         | l1 mm | l2 mm | l4 mm | incl. adjustment screw art. no. 4902... | kg   | Code no. | EDP Number    |
|----------|-----------------------|-------|-----------|-------|-------|-------|---|------|----------|---------------|
| 25       | ER 16 mini Ø 0.5-10.0 | 22    | M19 x 1.0 | 43    | -     | -     | -                                       | 0.10 | 16.025   | 9043970160250 |
| 32       | ER 16 mini Ø 0.5-10.0 | 22    | M19 x 1.0 | 60    | 34    | 6     | 16.010                                  | 0.20 | 16.032   | 9043970160320 |
| 32       | ER 20 mini Ø 0.5-13.0 | 28    | M24 x 1.0 | 60    | 34    | 4     | 16.010                                  | 0.30 | 20.032   | 9043970200320 |
| 40       | ER 16 Ø 0.5-10.0      | 28    | M22 x 1.5 | 60    | 32    | 4     | 16.010                                  | 0.30 | 16.040   | 9043970160400 |
| 40       | ER 20 mini Ø 0.5-13.0 | 28    | M24 x 1.0 | 65    | 37    | 6     | 16.010                                  | 0.30 | 20.040   | 9043970200400 |
| 40       | ER 25 mini Ø 0.5-16.0 | 35    | M30 x 1.0 | 80    | 44    | 8     | 25.014                                  | 0.50 | 25.040   | 9043970250400 |
| 50       | ER 16 Ø 0.5-10.0      | 28    | M22 x 1.5 | 100   | 34    | 6     | 16.012                                  | 0.80 | 16.050   | 9043970160500 |
| 50       | ER 20 Ø 0.5-13.0      | 34    | M25 x 1.5 | 70    | 38    | 6     | 16.010                                  | 0.60 | 20.050   | 9043970200500 |
| 50       | ER 25 Ø 0.5-16.0      | 42    | M32 x 1.5 | 80    | 44    | 8     | 25.014                                  | 0.80 | 25.050   | 9043970250500 |
| 50       | ER 32 Ø 1.0-20.0      | 50    | M40 x 1.5 | 100   | 50    | 10    | 32.020                                  | 1.00 | 32.050   | 9043970320500 |
| 63       | ER 32 Ø 1.0-20.0      | 50    | M40 x 1.5 | 90    | 50    | 10    | 25.014                                  | 1.30 | 32.063   | 9043970320630 |
| 63       | ER 40 Ø 3.0-26.0      | 63    | M50 x 1.5 | 120   | 56    | 10    | 32.020                                  | 1.80 | 40.063   | 9043970400630 |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |
|          |                       |       |           |       |       |       |   |      |          |               |

Tool holders

## SK taper collet holders

### Product information

- balancing quality: G6.3 / 15,000 rev./min
- ISO taper to DIN ISO 7388-1 form AD/B
- for collet chucks with adjustment angle 8° according to DIN ISO 15488
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob



### Scope of delivery

- incl. retaining nut
- order collet, article no. 4307, separately
- order clamping key, article no. 4913, separately



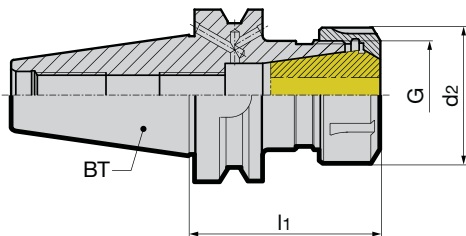
Series no. **4318**

| SK taper | clamping range  | d <sub>2</sub> mm | G         | l <sub>1</sub> mm | Code no. | EDP Number    |
|----------|-----------------|-------------------|-----------|-------------------|----------|---------------|
| 40       | ER16 Ø 0.5-10.0 | 32                | M22 x 1.5 | 63                | 16.040   | 9043180160400 |
| 40       | ER25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 60                | 25.040   | 9043180250400 |
| 40       | ER32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 70                | 32.040   | 9043180320400 |
| 40       | ER16 Ø 0.5-10.0 | 32                | M22 x 1.5 | 160               | 16.140   | 9043180161400 |
| 40       | ER25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 160               | 25.140   | 9043180251400 |
| 40       | ER32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 160               | 32.140   | 9043180321400 |
| 50       | ER25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 60                | 25.050   | 9043180250500 |
| 50       | ER32 Ø 1.0-20.0 | 50                | M40 x 1.5 | 70                | 32.050   | 9043180320500 |
| 50       | ER40 Ø 3.0-26.0 | 63                | M50 x 1.5 | 80                | 40.050   | 9043180400500 |
| 50       | ER25 Ø 0.5-16.0 | 42                | M32 x 1.5 | 160               | 25.150   | 9043180251500 |
| 50       | ER40 Ø 3.0-26.0 | 63                | M50 x 1.5 | 160               | 40.150   | 9043180401500 |

## MAS/BT collet holders

### Product information

- balancing quality: G6.3 / 15,000 rev./min
- MAS/BT to DIN ISO 7388-2 form AD/B
- coolant supply form AD/B  
(\* BT30 version AD without coolant supply over collar)
- for collet chucks with adjustment angle 8° per DIN ISO 15488
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob



### Scope of delivery

- incl. retaining nut
- order collet, article no. 4307, separately
- order clamping key, article no. 4913, separately
- BT50 on request



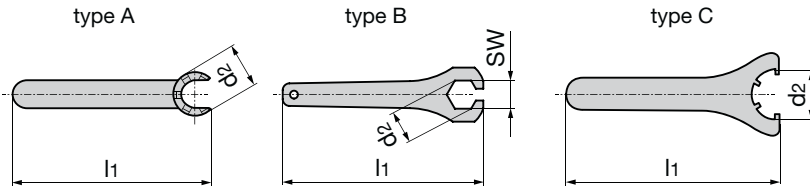
Series no. **4245**

| BT  | clamping range | d <sub>2</sub> mm | G       | l <sub>1</sub> mm | Code no. | EDP Number    |
|-----|----------------|-------------------|---------|-------------------|----------|---------------|
| 30* | ER16 0.5-10.0  | 32                | M22x1.5 | 70                | 16.030   | 9042450160300 |
| 30* | ER25 0.5-16.0  | 42                | M32x1.5 | 70                | 25.030   | 9042450250300 |
| 40  | ER16 0.5-10.0  | 32                | M22x1.5 | 63                | 16.040   | 9042450160400 |
| 40  | ER25 0.5-16.0  | 42                | M32x1.5 | 60                | 25.040   | 9042450250400 |
| 40  | ER32 1.0-20.0  | 50                | M40x1.5 | 70                | 32.040   | 9042450320400 |
| 40  | ER16 0.5-10.0  | 32                | M22x1.5 | 160               | 16.140   | 9042450161400 |
| 40  | ER25 0.5-16.0  | 42                | M32x1.5 | 160               | 25.140   | 9042450251400 |
| 40  | ER32 1.0-20.0  | 50                | M40x1.5 | 160               | 32.140   | 9042450321400 |

# Clamping key

## Product information

- for clamping nuts
- Type A with special hook key for clamping nuts  
System DIN 6499 mini design
- Type B for clamping nuts with hexagonal design
- Type C for clamping nuts for external slots



Series no.

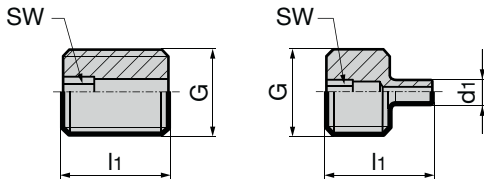
4913

| nom. size<br>mm | type | l <sub>1</sub><br>mm | for ER d <sub>2</sub><br>mm | SW | EDP Number    |
|-----------------|------|----------------------|-----------------------------|----|---------------|
| ER16 mini       | A    | 122                  | 22                          | -  | 9049130162000 |
| ER20 mini       | A    | 139                  | 28                          | -  | 9049130202000 |
| ER25 mini       | A    | 143                  | 35                          | -  | 9049130252000 |
| ER11            | B    | 141                  | 19                          | 17 | 9049130110000 |
| ER16            | B    | 178                  | 28                          | 25 | 9049130160000 |
| ER16            | C    | 161                  | 32                          | -  | 9049130160320 |
| ER20            | B    | 200                  | 34                          | 30 | 9049130200000 |
| ER20            | C    | 183                  | 35                          | -  | 9049130201000 |
| ER25            | C    | 210                  | 42                          | -  | 9049130250000 |
| ER32            | C    | 250                  | 50                          | -  | 9049130320000 |
| ER40            | C    | 290                  | 63                          | -  | 9049130400000 |
|                 |      |                      |                             |    |               |
|                 |      |                      |                             |    |               |
|                 |      |                      |                             |    |               |
|                 |      |                      |                             |    |               |
|                 |      |                      |                             |    |               |
|                 |      |                      |                             |    |               |

## Adjustment screws for HSK-A/HSK-E collet holders

### Product information

- for dimensions without d1 the screw is designed without spigot



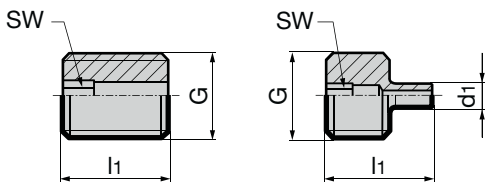
Series no. **4902**

| for nom. size | for clamping range | G   | d1 mm | l1 mm | SW | EDP Number    |
|---------------|--------------------|-----|-------|-------|----|---------------|
| ER11          | 2- 7               | M6  | –     | 12    | 3  | 9049020110120 |
| ER16          | 2- 6               | M10 | 3.5   | 18    | 3  | 9049020160180 |
| ER16          | 6-10               | M10 | –     | 12    | 3  | 9049020160120 |
| ER16          | 6- 10              | M10 | –     | 10    | 3  | 9049020200240 |
| ER20          | 2,5- 6             | M10 | 4.5   | 24    | 3  | 9049020200180 |
| ER20          | 6-10               | M10 | 5.5   | 18    | 3  | 9049020160120 |
| ER20          | 10-13              | M10 | –     | 12    | 3  | 9049020250260 |
| ER25          | 2,5- 7             | M16 | 4.5   | 26    | 4  | 9049020250200 |
| ER25          | 7-10               | M16 | 6.5   | 20    | 4  | 9049020250140 |
| ER25          | 10-17              | M16 | –     | 14    | 4  | 9049020320360 |
| ER32          | 3,5-10             | M16 | 6.5   | 36    | 5  | 9049020320280 |
| ER32          | 10-16              | M16 | 9.5   | 28    | 5  | 9049020320200 |
| ER32          | 16-22              | M16 | –     | 20    | 5  | 9049020400440 |
| ER40          | 3- 8               | M16 | 6.5   | 44    | 5  | 9049020320200 |
| ER40          | 8-10               | M16 | 6.5   | 36    | 5  | 9049020320360 |
| ER40          | 10-16              | M16 | 9.5   | 28    | 5  | 9049020320280 |
| ER40          | 16-30              | M16 | –     | 20    | 5  | 9049020320200 |

## Adjustment screws for HSK-C collet holders

### Product information

- for dimensions without d1 the screw is designed without spigot



Series no. **4901**

| for nom. size | for clamping range | G   | d1 mm | l1 mm | SW | EDP Number    |
|---------------|--------------------|-----|-------|-------|----|---------------|
| ER16          | 2- 6               | M10 | 3.5   | 16    | 3  | 9049010160160 |
| ER16          | 6-10               | M10 | –     | 12    | 3  | 9049010160120 |
| ER20          | 2,5- 6             | M10 | 4.5   | 20    | 3  | 9049010200200 |
| ER20          | 6-10               | M10 | 5.5   | 16    | 3  | 9049010200160 |
| ER20          | 10-13              | M10 | –     | 12    | 3  | 9049010160120 |
| ER25          | 2,5- 7             | M16 | 4.5   | 26    | 4  | 9049010250260 |
| ER25          | 7-10               | M16 | 6.5   | 20    | 4  | 9049010250200 |
| ER25          | 10-17              | M16 | –     | 14    | 4  | 9049010250140 |
| ER32          | 3- 7               | M16 | 6.5   | 32    | 5  | 9049010320320 |
| ER32          | 7-10               | M16 | 6.5   | 26    | 5  | 9049010320260 |
| ER32          | 10-16              | M16 | 9.5   | 20    | 5  | 9049010320200 |
| ER32          | 16-22              | M16 | –     | 14    | 4  | 9049010250140 |
| ER40          | 3- 6               | M16 | 6.5   | 38    | 5  | 9049010400380 |
| ER40          | 6- 8               | M16 | 6.5   | 32    | 5  | 9049010320320 |
| ER40          | 8-10               | M16 | 6.5   | 26    | 5  | 9049010320260 |
| ER40          | 10-16              | M16 | 9.5   | 20    | 5  | 9049010320200 |
| ER40          | 16-30              | M16 | –     | 14    | 4  | 9049010250140 |

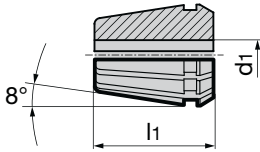
**Product information**

- the clamping range of collet, article no. 4307, is to be applied as indicated. For intermediate sizes as i.e. for Ø 6.3 mm (nom. size ER20) order collet d1 = 7.0 mm - 6.0 mm (Order no. 7.020)
- concentricity error max. 10 µm

- clamping range:
- ER11: Ø 0.5 - Ø 7.0
  - ER16: Ø 0.5 - Ø 10.0
  - ER20: Ø 0.5 - Ø 13.0
  - ER25: Ø 0.5 - Ø 16.0
  - ER32: Ø 0.5 - Ø 20.0
  - ER40: Ø 0.5 - Ø 26.0

**Ordering example:**

Ø d1 = 2.5  
 nom. size = ER 20  
 article no./Order no. = 4307 02,520  
 (d1 = 7.0 mm - 6.0 mm)



Series no. **4307**

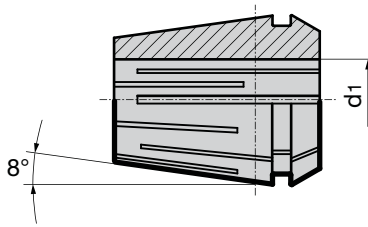
| nom. size | for clamping range d1 mm | l1 mm | Code no. | EDP Number    |
|-----------|--------------------------|-------|----------|---------------|
| ER11      | 1.0-0.5                  | 18.0  | 1.011    | 9043070010110 |
| ER11      | 1.5-1.0                  | 18.0  | 1.511    | 9043070015110 |
| ER11      | 2.0-1.5                  | 18.0  | 2.011    | 9043070020110 |
| ER11      | 2.5-2.0                  | 18.0  | 2.511    | 9043070025110 |
| ER11      | 3.0-2.5                  | 18.0  | 3.011    | 9043070030110 |
| ER11      | 4.0-3.5                  | 18.0  | 4.011    | 9043070040110 |
| ER11      | 5.0-4.5                  | 18.0  | 5.011    | 9043070050110 |
| ER11      | 6.0-5.5                  | 18.0  | 6.011    | 9043070060110 |
| ER11      | 7.0-6.5                  | 18.0  | 7.011    | 9043070070110 |
| ER16      | 1.0-0.5                  | 27.5  | 1.016    | 9043070010160 |
| ER16      | 1.5-1.0                  | 27.5  | 1.516    | 9043070015160 |
| ER16      | 2.0-1.0                  | 27.5  | 2.016    | 9043070020160 |
| ER16      | 2.5-1.5                  | 27.5  | 2.516    | 9043070025160 |
| ER16      | 3.0-2.0                  | 27.5  | 3.016    | 9043070030160 |
| ER16      | 4.0-3.0                  | 27.5  | 4.016    | 9043070040160 |
| ER16      | 5.0-4.0                  | 27.5  | 5.016    | 9043070050160 |
| ER16      | 6.0-5.0                  | 27.5  | 6.016    | 9043070060160 |
| ER16      | 7.0-6.0                  | 27.5  | 7.016    | 9043070070160 |
| ER16      | 8.0-7.0                  | 27.5  | 8.016    | 9043070080160 |
| ER16      | 9.0-8.0                  | 27.5  | 9.016    | 9043070090160 |
| ER16      | 10.0-9.0                 | 26.0  | 10.016   | 9043070100160 |
| ER20      | 1.0-0.5                  | 31.5  | 1.020    | 9043070010200 |
| ER20      | 1.5-1.0                  | 31.5  | 1.520    | 9043070015200 |
| ER20      | 2.0-1.0                  | 31.5  | 2.020    | 9043070020200 |
| ER20      | 2.5-1.5                  | 31.5  | 2.520    | 9043070025200 |
| ER20      | 3.0-2.0                  | 31.5  | 3.020    | 9043070030200 |
| ER20      | 4.0-3.0                  | 31.5  | 4.020    | 9043070040200 |
| ER20      | 5.0-4.0                  | 31.5  | 5.020    | 9043070050200 |
| ER20      | 6.0-5.0                  | 31.5  | 6.020    | 9043070060200 |
| ER20      | 7.0-6.0                  | 31.5  | 7.020    | 9043070070200 |
| ER20      | 8.0-7.0                  | 31.5  | 8.020    | 9043070080200 |
| ER20      | 9.0-8.0                  | 31.5  | 9.020    | 9043070090200 |
| ER20      | 10.0-9.0                 | 31.5  | 10.020   | 9043070100200 |
| ER20      | 11.0-10.0                | 31.5  | 11.020   | 9043070110200 |
| ER20      | 12.0-11.0                | 31.5  | 12.020   | 9043070120200 |
| ER20      | 13.0-12.0                | 31.5  | 13.020   | 9043070130200 |
| ER25      | 1.0-0.5                  | 34.0  | 1.025    | 9043070010250 |
| ER25      | 1.5-1.0                  | 34.0  | 1.525    | 9043070015250 |
| ER25      | 2.0-1.0                  | 34.0  | 2.025    | 9043070020250 |
| ER25      | 2.5-1.5                  | 34.0  | 2.525    | 9043070025250 |
| ER25      | 3.0-2.0                  | 34.0  | 3.025    | 9043070030250 |
| ER25      | 4.0-3.0                  | 34.0  | 4.025    | 9043070040250 |
| ER25      | 5.0-4.0                  | 34.0  | 5.025    | 9043070050250 |
| ER25      | 6.0-5.0                  | 34.0  | 6.025    | 9043070060250 |
| ER25      | 7.0-6.0                  | 34.0  | 7.025    | 9043070070250 |
| ER25      | 8.0-7.0                  | 34.0  | 8.025    | 9043070080250 |

Tool holders

|           |  |                      |          | Series no.    | 4307 |
|-----------|--|----------------------|----------|---------------|------|
| nom. size | for<br>clamping range d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |      |
| ER25      | 9 to 8                                     | 34                   | 9.025    | 9043070090250 |      |
| ER25      | 10 to 9                                    | 34                   | 10.025   | 9043070100250 |      |
| ER25      | 11 to 10                                   | 34                   | 11.025   | 9043070110250 |      |
| ER25      | 12 to 11                                   | 34                   | 12.025   | 9043070120250 |      |
| ER25      | 13 to 12                                   | 34                   | 13.025   | 9043070130250 |      |
| ER25      | 14 to 13                                   | 34                   | 14.025   | 9043070140250 |      |
| ER25      | 15 to 14                                   | 34                   | 15.025   | 9043070150250 |      |
| ER25      | 16 to 15                                   | 34                   | 16.025   | 9043070160250 |      |
| ER32      | 2 to 1.5                                   | 40                   | 2.032    | 9043070020320 |      |
| ER32      | 2.5 to 2                                   | 40                   | 2.532    | 9043070025320 |      |
| ER32      | 3 to 2.5                                   | 40                   | 3.032    | 9043070030320 |      |
| ER32      | 4 to 3                                     | 40                   | 4.032    | 9043070040320 |      |
| ER32      | 5 to 4                                     | 40                   | 5.032    | 9043070050320 |      |
| ER32      | 6 to 5                                     | 40                   | 6.032    | 9043070060320 |      |
| ER32      | 7 to 6                                     | 40                   | 7.032    | 9043070070320 |      |
| ER32      | 8 to 7                                     | 40                   | 8.032    | 9043070080320 |      |
| ER32      | 9 to 8                                     | 40                   | 9.032    | 9043070090320 |      |
| ER32      | 10 to 9                                    | 40                   | 10.032   | 9043070100320 |      |
| ER32      | 11 to 10                                   | 40                   | 11.032   | 9043070110320 |      |
| ER32      | 12 to 11                                   | 40                   | 12.032   | 9043070120320 |      |
| ER32      | 13 to 12                                   | 40                   | 13.032   | 9043070130320 |      |
| ER32      | 14 to 13                                   | 40                   | 14.032   | 9043070140320 |      |
| ER32      | 15 to 14                                   | 40                   | 15.032   | 9043070150320 |      |
| ER32      | 16 to 15                                   | 40                   | 16.032   | 9043070160320 |      |
| ER32      | 17 to 16                                   | 40                   | 17.032   | 9043070170320 |      |
| ER32      | 18 to 17                                   | 40                   | 18.032   | 9043070180320 |      |
| ER32      | 19 to 18                                   | 40                   | 19.032   | 9043070190320 |      |
| ER32      | 20 to 19                                   | 40                   | 20.032   | 9043070200320 |      |
| ER40      | 4 to 3                                     | 46                   | 4.040    | 9043070040400 |      |
| ER40      | 5 to 4                                     | 46                   | 5.040    | 9043070050400 |      |
| ER40      | 6 to 5                                     | 46                   | 6.040    | 9043070060400 |      |
| ER40      | 7 to 6                                     | 46                   | 7.040    | 9043070070400 |      |
| ER40      | 8 to 7                                     | 46                   | 8.040    | 9043070080400 |      |
| ER40      | 9 to 8                                     | 46                   | 9.040    | 9043070090400 |      |
| ER40      | 10 to 9                                    | 46                   | 10.040   | 9043070100400 |      |
| ER40      | 11 to 10                                   | 46                   | 11.040   | 9043070110400 |      |
| ER40      | 12 to 11                                   | 46                   | 12.040   | 9043070120400 |      |
| ER40      | 13 to 12                                   | 46                   | 13.040   | 9043070130400 |      |
| ER40      | 14 to 13                                   | 46                   | 14.040   | 9043070140400 |      |
| ER40      | 15 to 14                                   | 46                   | 15.040   | 9043070150400 |      |
| ER40      | 16 to 15                                   | 46                   | 16.040   | 9043070160400 |      |
| ER40      | 17 to 16                                   | 46                   | 17.040   | 9043070170400 |      |
| ER40      | 18 to 17                                   | 46                   | 18.040   | 9043070180400 |      |
| ER40      | 19 to 18                                   | 46                   | 19.040   | 9043070190400 |      |
| ER40      | 20 to 19                                   | 46                   | 20.040   | 9043070200400 |      |
| ER40      | 21 to 20                                   | 46                   | 21.040   | 9043070210400 |      |
| ER40      | 22 to 21                                   | 46                   | 22.040   | 9043070220400 |      |
| ER40      | 23 to 22                                   | 46                   | 23.040   | 9043070230400 |      |
| ER40      | 24 to 23                                   | 46                   | 24.040   | 9043070240400 |      |
| ER40      | 25 to 24                                   | 46                   | 25.040   | 9043070250400 |      |
| ER40      | 26 to 25                                   | 46                   | 26.040   | 9043070260400 |      |

**Product information**

- DIN ISO 15488
  - for application without sealing washer
  - concentricity error max. 6 µm
  - for high-performance tools with internal cooling e.g. HR 500 reamers
  - metallic sealed up to 300 bar coolant pressure
  - ER-DM collets with restricted clamping range
- The tool must be clamped flush, or deeper into the collet chuck. A minimum clamping length of 2/3 as for standard collet chucks is not possible as there would be no other sealing.



Series no. **4175**

| nom. size | clamping range<br>d1 h9 | Code no.. | EDP Number    |
|-----------|-------------------------|-----------|---------------|
| ER20      | 3.00                    | 3.020     | 9041750030200 |
| ER20      | 4.00                    | 4.020     | 9041750040200 |
| ER20      | 5.00                    | 5.020     | 9041750050200 |
| ER20      | 6.00                    | 6.020     | 9041750060200 |
| ER20      | 7.00 - 6.50             | 7.020     | 9041750070200 |
| ER20      | 8.00 - 7.50             | 8.020     | 9041750080200 |
| ER20      | 9.00 - 8.50             | 9.020     | 9041750090200 |
| ER20      | 10.00 - 9.50            | 10.020    | 9041750100200 |
| ER20      | 11.00 - 10.50           | 11.020    | 9041750110200 |
| ER20      | 12.00 - 11.50           | 12.020    | 9041750120200 |
| ER20      | 13.00 - 12.50           | 13.020    | 9041750130200 |
|           |                         |           |               |
| ER25      | 6.00                    | 6.025     | 9041750060250 |
| ER25      | 8.00 - 7.50             | 8.025     | 9041750080250 |
| ER25      | 10.00 - 9.50            | 10.025    | 9041750100250 |
| ER25      | 12.00 - 11.50           | 12.025    | 9041750120250 |
| ER25      | 14.00 - 13.50           | 14.025    | 9041750140250 |
| ER25      | 16.00 - 15.50           | 16.025    | 9041750160250 |
|           |                         |           |               |
| ER32      | 6.00                    | 6.032     | 9041750060320 |
| ER32      | 8.00 - 7.50             | 8.032     | 9041750080320 |
| ER32      | 10.00 - 9.50            | 10.032    | 9041750100320 |
| ER32      | 12.00 - 11.50           | 12.032    | 9041750120320 |
| ER32      | 14.00 - 13.50           | 14.032    | 9041750140320 |
| ER32      | 16.00 - 15.50           | 16.032    | 9041750160320 |
| ER32      | 18.00 - 17.50           | 18.032    | 9041750180320 |
| ER32      | 20.00 - 19.50           | 20.032    | 9041750200320 |
|           |                         |           |               |
|           |                         |           |               |
|           |                         |           |               |

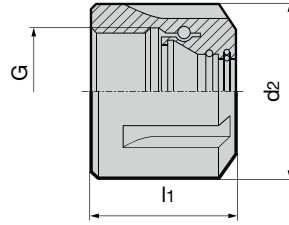
Tool holders

**Product information**

- for collets DIN ISO 15488
- for application with internal cooling IC/ER for sealing washer
- for increased clamping version ER or IC/ER with glide ring
- suitable for up to 150 bar coolant pressure

**Scope of delivery**

- version for internal cooling IC/ER: order sealing washer article no. 4335 separately
- IC/ER versions for internal cooling



Series no.

4306

| for sealing washer no. 4335 | with glide ring | nom. size    | d2 mm | l1 mm | G        | max. torque Nm | EDP Number    |
|-----------------------------|-----------------|--------------|-------|-------|----------|----------------|---------------|
| -                           | -               | ER16 mini    | 22    | 18.0  | M19x1.0  | 55             | 9043060162000 |
| -                           | -               | ER20 mini    | 28    | 19.0  | M24x1.0  | 75             | 9043060202000 |
| -                           | -               | ER25 mini    | 35    | 20.0  | M30x1.0  | 100            | 9043060252000 |
| -                           | -               | ER11         | 19    | 11.3  | M14x0.75 | 25             | 9043060110000 |
| -                           | -               | ER16         | 28    | 17.5  | M22x1.5  | 55             | 9043060160000 |
| -                           | -               | ER20         | 34    | 19.0  | M25x1.5  | 75             | 9043060200000 |
| -                           | -               | ER25         | 42    | 20.0  | M32x1.5  | 100            | 9043060250000 |
| -                           | -               | ER32         | 50    | 22.5  | M40x1.5  | 140            | 9043060320000 |
| -                           | -               | ER40         | 63    | 25.5  | M50x1.5  | 200            | 9043060400000 |
| x                           | -               | IC/ER16 mini | 22    | 22.0  | M19x1.0  | 55             | 9043060163000 |
| x                           | -               | IC/ER20 mini | 28    | 24.0  | M24x1.0  | 75             | 9043060203000 |
| x                           | -               | IC/ER25 mini | 35    | 25.0  | M30x1.0  | 100            | 9043060253000 |
| x                           | -               | IC/ER16      | 28    | 22.5  | M22x1.5  | 55             | 9043060166000 |
| x                           | -               | IC/ER20      | 34    | 24.0  | M25x1.5  | 75             | 9043060206000 |
| x                           | -               | IC/ER25      | 42    | 25.0  | M32x1.5  | 100            | 9043060256000 |
| x                           | -               | IC/ER32      | 50    | 27.5  | M40x1.5  | 140            | 9043060326000 |
| x                           | -               | IC/ER40      | 63    | 30.5  | M50x1.5  | 200            | 9043060406000 |
| -                           | x               | ER16         | 28    | 20.3  | M22x1.5  | 55             | 9043060164000 |
| -                           | x               | ER20         | 34    | 21.8  | M25x1.5  | 75             | 9043060204000 |
| -                           | x               | ER25         | 42    | 22.4  | M32x1.5  | 100            | 9043060254000 |
| -                           | x               | ER32         | 50    | 25.0  | M40x1.5  | 140            | 9043060324000 |
| -                           | x               | ER40         | 63    | 28.3  | M50x1.5  | 200            | 9043060404000 |
| x                           | x               | IC/ER16      | 28    | 22.7  | M22x1.5  | 55             | 9043060165000 |
| x                           | x               | IC/ER20      | 34    | 24.2  | M25x1.5  | 75             | 9043060205000 |
| x                           | x               | IC/ER25      | 42    | 25.2  | M32x1.5  | 100            | 9043060255000 |
| x                           | x               | IC/ER32      | 50    | 27.4  | M40x1.5  | 140            | 9043060325000 |
| x                           | x               | IC/ER40      | 63    | 30.7  | M50x1.5  | 200            | 9043060405000 |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
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|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
|                             |                 |              |       |       |          |                |               |
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|                             |                 |              |       |       |          |                |               |

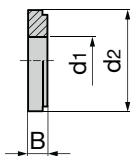
Tool Holders

## Product information

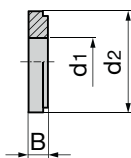
- the application range of sealing washer, article no. 4325, is from nom.-Ø d1 to the next dimension below, i.e. for Ø 6.3 mm (nom. size ER20) order sealing washer d1 = 6.5 mm (Order no. 6.520).
- suitable for up to 150 bar coolant pressure

## Ordering example

Ø d1 = 3.5  
 nom. size = ER 20  
 article no./Order no. = 4335 3.520



|              |       |               |       |      |          | Series no.    | 4335 |
|--------------|-------|---------------|-------|------|----------|---------------|------|
| nominal size | d1 mm | Sealing Range | d2 mm | B mm | Code no. | EDP Number    |      |
| ER16         | 3     | 2.5 to 3      | 13    | 4    | 3.016    | 9043350030160 |      |
| ER20         | 3     | 2.5 to 3      | 16    | 4    | 3.020    | 9043350030200 |      |
| ER25         | 3     | 2.5 to 3      | 21    | 4    | 3.025    | 9043350030250 |      |
| ER32         | 3     | 2.5 to 3      | 27    | 4    | 3.032    | 9043350030320 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 3.5   | 3 to 3.5      | 13    | 4    | 3.516    | 9043350035160 |      |
| ER20         | 3.5   | 3 to 3.5      | 16    | 4    | 3.520    | 9043350035200 |      |
| ER25         | 3.5   | 3 to 3.5      | 21    | 4    | 3.525    | 9043350035250 |      |
| ER32         | 3.5   | 3 to 3.5      | 27    | 4    | 3.532    | 9043350035320 |      |
| ER40         | 3.5   | 3 to 3.5      | 33.5  | 4    | 3.540    | 9043350035400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 4     | 3.5 to 4      | 13    | 4    | 4.016    | 9043350040160 |      |
| ER20         | 4     | 3.5 to 4      | 16    | 4    | 4.020    | 9043350040200 |      |
| ER25         | 4     | 3.5 to 4      | 21    | 4    | 4.025    | 9043350040250 |      |
| ER32         | 4     | 3.5 to 4      | 27    | 4    | 4.032    | 9043350040320 |      |
| ER40         | 4     | 3.5 to 4      | 33.5  | 4    | 4.040    | 9043350040400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 4.5   | 4 to 4.5      | 13    | 4    | 4.516    | 9043350045160 |      |
| ER20         | 4.5   | 4 to 4.5      | 16    | 4    | 4.520    | 9043350045200 |      |
| ER25         | 4.5   | 4 to 4.5      | 21    | 4    | 4.525    | 9043350045250 |      |
| ER32         | 4.5   | 4 to 4.5      | 27    | 4    | 4.532    | 9043350045320 |      |
| ER40         | 4.5   | 4 to 4.5      | 33.5  | 4    | 4.540    | 9043350045400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 5     | 4.5 to 5      | 13    | 4    | 5.016    | 9043350050160 |      |
| ER20         | 5     | 4.5 to 5      | 16    | 4    | 5.020    | 9043350050200 |      |
| ER25         | 5     | 4.5 to 5      | 21    | 4    | 5.025    | 9043350050250 |      |
| ER32         | 5     | 4.5 to 5      | 27    | 4    | 5.032    | 9043350050320 |      |
| ER40         | 5     | 4.5 to 5      | 33.5  | 4    | 5.040    | 9043350050400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 5.5   | 5 to 5.5      | 13    | 4    | 5.516    | 9043350055160 |      |
| ER20         | 5.5   | 5 to 5.5      | 16    | 4    | 5.520    | 9043350055200 |      |
| ER25         | 5.5   | 5 to 5.5      | 21    | 4    | 5.525    | 9043350055250 |      |
| ER32         | 5.5   | 5 to 5.5      | 27    | 4    | 5.532    | 9043350055320 |      |
| ER40         | 5.5   | 5 to 5.5      | 33.5  | 4    | 5.540    | 9043350055400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 6     | 5.5 to 6      | 13    | 4    | 6.016    | 9043350060160 |      |
| ER20         | 6     | 5.5 to 6      | 16    | 4    | 6.020    | 9043350060200 |      |
| ER25         | 6     | 5.5 to 6      | 21    | 4    | 6.025    | 9043350060250 |      |
| ER32         | 6     | 5.5 to 6      | 27    | 4    | 6.032    | 9043350060320 |      |
| ER40         | 6     | 5.5 to 6      | 33.5  | 4    | 6.040    | 9043350060400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 6.5   | 6 to 6.5      | 13    | 4    | 6.516    | 9043350065160 |      |
| ER20         | 6.5   | 6 to 6.5      | 16    | 4    | 6.520    | 9043350065200 |      |
| ER25         | 6.5   | 6 to 6.5      | 21    | 4    | 6.525    | 9043350065250 |      |
| ER32         | 6.5   | 6 to 6.5      | 27    | 4    | 6.532    | 9043350065320 |      |
| ER40         | 6.5   | 6 to 6.5      | 33.5  | 4    | 6.540    | 9043350065400 |      |
|              |       |               |       |      |          |               |      |
| ER16         | 7     | 6.5 to 7      | 13    | 4    | 7.016    | 9043350070160 |      |
| ER20         | 7     | 6.5 to 7      | 16    | 4    | 7.020    | 9043350070200 |      |
| ER25         | 7     | 6.5 to 7      | 21    | 4    | 7.025    | 9043350070250 |      |
| ER32         | 7     | 6.5 to 7      | 27    | 4    | 7.032    | 9043350070320 |      |
| ER40         | 7     | 6.5 to 7      | 33.5  | 4    | 7.040    | 9043350070400 |      |



Series no. **4335**

| nominal size | d1 mm | Sealing Range | d2 mm | B mm | Code no. | EDP Number    |
|--------------|-------|---------------|-------|------|----------|---------------|
| ER16         | 7.5   | 7 to 7.5      | 13    | 4    | 7.516    | 9043350075160 |
| ER20         | 7.5   | 7 to 7.5      | 16    | 4    | 7.520    | 9043350075200 |
| ER25         | 7.5   | 7 to 7.5      | 21    | 4    | 7.525    | 9043350075250 |
| ER32         | 7.5   | 7 to 7.5      | 27    | 4    | 7.532    | 9043350075320 |
| ER40         | 7.5   | 7 to 7.5      | 33.5  | 4    | 7.540    | 9043350075400 |
| ER16         | 8     | 7.5 to 8      | 13    | 4    | 8.016    | 9043350080160 |
| ER20         | 8     | 7.5 to 8      | 16    | 4    | 8.020    | 9043350080200 |
| ER25         | 8     | 7.5 to 8      | 21    | 4    | 8.025    | 9043350080250 |
| ER32         | 8     | 7.5 to 8      | 27    | 4    | 8.032    | 9043350080320 |
| ER40         | 8     | 7.5 to 8      | 33.5  | 4    | 8.040    | 9043350080400 |
| ER16         | 8.5   | 8 to 8.5      | 13    | 4    | 8.516    | 9043350085160 |
| ER20         | 8.5   | 8 to 8.5      | 16    | 4    | 8.520    | 9043350085200 |
| ER25         | 8.5   | 8 to 8.5      | 21    | 4    | 8.525    | 9043350085250 |
| ER32         | 8.5   | 8 to 8.5      | 27    | 4    | 8.532    | 9043350085320 |
| ER40         | 8.5   | 8 to 8.5      | 33.5  | 4    | 8.540    | 9043350085400 |
| ER16         | 9     | 8.5 to 9      | 13    | 4    | 9.016    | 9043350090160 |
| ER20         | 9     | 8.5 to 9      | 16    | 4    | 9.020    | 9043350090200 |
| ER25         | 9     | 8.5 to 9      | 21    | 4    | 9.025    | 9043350090250 |
| ER32         | 9     | 8.5 to 9      | 27    | 4    | 9.032    | 9043350090320 |
| ER40         | 9     | 8.5 to 9      | 33.5  | 4    | 9.040    | 9043350090400 |
| ER16         | 9.5   | 9 to 9.5      | 13    | 4    | 9.516    | 9043350095160 |
| ER20         | 9.5   | 9 to 9.5      | 16    | 4    | 9.520    | 9043350095200 |
| ER25         | 9.5   | 9 to 9.5      | 21    | 4    | 9.525    | 9043350095250 |
| ER32         | 9.5   | 9 to 9.5      | 27    | 4    | 9.532    | 9043350095320 |
| ER40         | 9.5   | 9 to 9.5      | 33.5  | 4    | 9.540    | 9043350095400 |
| ER16         | 10    | 9.5 to 10     | 13    | 4    | 10.016   | 9043350100160 |
| ER20         | 10    | 9.5 to 10     | 16    | 4    | 10.020   | 9043350100200 |
| ER25         | 10    | 9.5 to 10     | 21    | 4    | 10.025   | 9043350100250 |
| ER32         | 10    | 9.5 to 10     | 27    | 4    | 10.032   | 9043350100320 |
| ER40         | 10    | 9.5 to 10     | 33.5  | 4    | 10.040   | 9043350100400 |
| ER20         | 10.5  | 10 to 10.5    | 16    | 4    | 10.520   | 9043350105200 |
| ER25         | 10.5  | 10 to 10.5    | 21    | 4    | 10.525   | 9043350105250 |
| ER32         | 10.5  | 10 to 10.5    | 27    | 4    | 10.532   | 9043350105320 |
| ER40         | 10.5  | 10 to 10.5    | 33.5  | 4    | 10.540   | 9043350105400 |
| ER20         | 11    | 10.5 to 11    | 16    | 4    | 11.020   | 9043350110200 |
| ER25         | 11    | 10.5 to 11    | 21    | 4    | 11.025   | 9043350110250 |
| ER32         | 11    | 10.5 to 11    | 27    | 4    | 11.032   | 9043350110320 |
| ER40         | 11    | 10.5 to 11    | 33.5  | 4    | 11.040   | 9043350110400 |
| ER20         | 11.5  | 11 to 11.5    | 16    | 4    | 11.520   | 9043350115200 |
| ER25         | 11.5  | 11 to 11.5    | 21    | 4    | 11.525   | 9043350115250 |
| ER32         | 11.5  | 11 to 11.5    | 27    | 4    | 11.532   | 9043350115320 |
| ER40         | 11.5  | 11 to 11.5    | 33.5  | 4    | 11.540   | 9043350115400 |
| ER20         | 12    | 11.5 to 12    | 16    | 4    | 12.020   | 9043350120200 |
| ER25         | 12    | 11.5 to 12    | 21    | 4    | 12.025   | 9043350120250 |
| ER32         | 12    | 11.5 to 12    | 27    | 4    | 12.032   | 9043350120320 |
| ER40         | 12    | 11.5 to 12    | 33.5  | 4    | 12.040   | 9043350120400 |
| ER20         | 12.5  | 12 to 12.5    | 16    | 4    | 12.520   | 9043350125200 |
| ER25         | 12.5  | 12 to 12.5    | 21    | 4    | 12.525   | 9043350125250 |
| ER32         | 12.5  | 12 to 12.5    | 27    | 4    | 12.532   | 9043350125320 |
| ER40         | 12.5  | 12 to 12.5    | 33.5  | 4    | 12.540   | 9043350125400 |

Series no. 4335

| nominal size | d <sub>1</sub><br>mm | Sealing<br>Range | d <sub>2</sub><br>mm | B<br>mm | Code<br>no. | EDP Number    |
|--------------|----------------------|------------------|----------------------|---------|-------------|---------------|
| ER20         | 13                   | 12.5 to 13       | 16                   | 4       | 13.020      | 9043350130200 |
| ER25         | 13                   | 12.5 to 13       | 21                   | 4       | 13.025      | 9043350130250 |
| ER32         | 13                   | 12.5 to 13       | 27                   | 4       | 13.032      | 9043350130320 |
| ER40         | 13                   | 12.5 to 13       | 33.5                 | 4       | 13.040      | 9043350130400 |
| ER25         | 13.5                 | 13 to 13.5       | 21                   | 4       | 13.525      | 9043350135250 |
| ER32         | 13.5                 | 13 to 13.5       | 27                   | 4       | 13.532      | 9043350135320 |
| ER40         | 13.5                 | 13 to 13.5       | 33.5                 | 4       | 13.540      | 9043350135400 |
| ER25         | 14                   | 13.5 to 14       | 21                   | 4       | 14.025      | 9043350140250 |
| ER32         | 14                   | 13.5 to 14       | 27                   | 4       | 14.032      | 9043350140320 |
| ER40         | 14                   | 13.5 to 14       | 33.5                 | 4       | 14.040      | 9043350140400 |
| ER25         | 14.5                 | 14 to 14.5       | 21                   | 4       | 14.525      | 9043350145250 |
| ER32         | 14.5                 | 14 to 14.5       | 27                   | 4       | 14.532      | 9043350145320 |
| ER40         | 14.5                 | 14 to 14.5       | 33.5                 | 4       | 14.540      | 9043350145400 |
| ER25         | 15                   | 14.5 to 15       | 21                   | 4       | 15.025      | 9043350150250 |
| ER32         | 15                   | 14.5 to 15       | 27                   | 4       | 15.032      | 9043350150320 |
| ER40         | 15                   | 14.5 to 15       | 33.5                 | 4       | 15.040      | 9043350150400 |
| ER25         | 15.5                 | 15 to 15.5       | 21                   | 4       | 15.525      | 9043350155250 |
| ER32         | 15.5                 | 15 to 15.5       | 27                   | 4       | 15.532      | 9043350155320 |
| ER40         | 15.5                 | 15 to 15.5       | 33.5                 | 4       | 15.540      | 9043350155400 |
| ER25         | 16                   | 15.5 to 16       | 21                   | 4       | 16.025      | 9043350160250 |
| ER32         | 16                   | 15.5 to 16       | 27                   | 4       | 16.032      | 9043350160320 |
| ER40         | 16                   | 15.5 to 16       | 33.5                 | 4       | 16.040      | 9043350160400 |
| ER32         | 16.5                 | 16 to 16.5       | 27                   | 4       | 16.532      | 9043350165320 |
| ER40         | 16.5                 | 16 to 16.5       | 33.5                 | 4       | 16.540      | 9043350165400 |
| ER32         | 17                   | 16.5 to 17       | 27                   | 4       | 17.032      | 9043350170320 |
| ER40         | 17                   | 16.5 to 17       | 33.5                 | 4       | 17.040      | 9043350170400 |
| ER32         | 17.5                 | 17 to 17.5       | 27                   | 4       | 17.532      | 9043350175320 |
| ER40         | 17.5                 | 17 to 17.5       | 33.5                 | 4       | 17.540      | 9043350175400 |
| ER32         | 18                   | 17.5 to 18       | 27                   | 4       | 18.032      | 9043350180320 |
| ER40         | 18                   | 17.5 to 18       | 33.5                 | 4       | 18.040      | 9043350180400 |
| ER32         | 18.5                 | 18 to 18.5       | 27                   | 4       | 18.532      | 9043350185320 |
| ER40         | 18.5                 | 18 to 18.5       | 33.5                 | 4       | 18.540      | 9043350185400 |
| ER32         | 19                   | 18.5 to 19       | 27                   | 4       | 19.032      | 9043350190320 |
| ER40         | 19                   | 18.5 to 19       | 33.5                 | 4       | 19.040      | 9043350190400 |
| ER32         | 19.5                 | 19 to 19.5       | 27                   | 4       | 19.532      | 9043350195320 |
| ER40         | 19.5                 | 19 to 19.5       | 33.5                 | 4       | 19.540      | 9043350195400 |
| ER32         | 20                   | 19.5 to 20       | 27                   | 4       | 20.032      | 9043350200320 |
| ER40         | 20                   | 19.5 to 20       | 33.5                 | 4       | 20.040      | 9043350200400 |
| ER40         | 20.5                 | 20 to 20.5       | 33.5                 | 4       | 20.540      | 9043350205400 |
| ER40         | 21                   | 20.5 to 21       | 33.5                 | 4       | 21.040      | 9043350210400 |
| ER40         | 21.5                 | 21 to 21.5       | 33.5                 | 4       | 21.540      | 9043350215400 |
| ER40         | 22                   | 21.5 to 22       | 33.5                 | 4       | 22.040      | 9043350220400 |
| ER40         | 22.5                 | 22 to 22.5       | 33.5                 | 4       | 22.540      | 9043350225400 |
| ER40         | 23                   | 22.5 to 23       | 33.5                 | 4       | 23.040      | 9043350230400 |
| ER40         | 23.5                 | 23 to 23.5       | 33.5                 | 4       | 23.540      | 9043350235400 |
| ER40         | 24                   | 23.5 to 24       | 33.5                 | 4       | 24.040      | 9043350240400 |
| ER40         | 24.5                 | 24 to 24.5       | 33.5                 | 4       | 24.540      | 9043350245400 |
| ER40         | 25                   | 24.5 to 25       | 33.5                 | 4       | 25.040      | 9043350250400 |
| ER40         | 25.5                 | 25 to 25.5       | 33.5                 | 4       | 25.540      | 9043350255400 |
| ER40         | 26                   | 25.5 to 26       | 33.5                 | 4       | 26.040      | 9043350260400 |

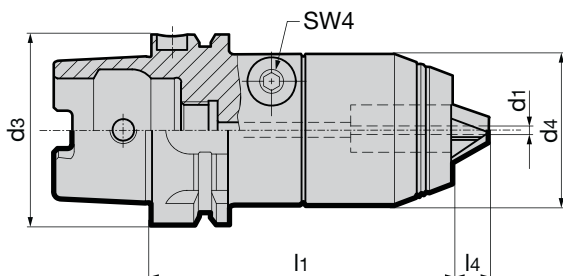
## HSK-A drilling chucks with internal cooling

### Product information

- for clamping all straight shank tools
- HSK-A to ISO 12164-1/DIN 69893-1
- continuous Ø-range
- high clamping force thanks to robust worm gear
- max. coolant pressure up to 50 bar
- limit speed 20,000 rpm
- balancing quality: G2,5 / 20.000 rev./min

### Scope of delivery

- incl. clamping key
- order coolant supply set, article no. 4949 separately



**GÜHROJET**

Series no. 4346

| HSK-A<br>d <sub>3</sub> | clamping range<br>d <sub>1</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>4</sub><br>mm | kg   | Code no. | EDP Number    |
|-------------------------|--|----------------------|----------------------|----------------------|------|----------|---------------|
| 50                      | 1-16                                   | 50                   | 107                  | 12                   | 1.60 | 16.050   | 9043460160500 |
| 63                      | 1-16                                   | 50                   | 98                   | 12                   | 1.90 | 16.063   | 9043460160630 |
| 80                      | 1-16                                   | 50                   | 101                  | 12                   | 2.70 | 16.080   | 9043460160800 |
| 100                     | 1-16                                   | 50                   | 104                  | 12                   | 3.30 | 16.100   | 9043460161000 |

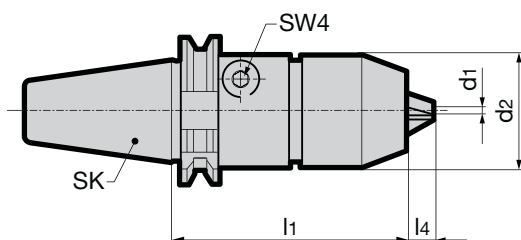
## SK taper drilling chucks with internal cooling

### Product information

- for clamping all straight shank tools
- ISO taper to DIN ISO 7388-1 form AD
- continuous Ø-range
- high clamping force thanks to robust worm gear
- max. coolant pressure up to 50 bar
- limit speed 20,000 rpm
- balancing quality: G2,5 / 20.000 rev./min
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. clamping key



**GÜHROJET**

Series no. 4242

| SK taper | clamping range<br>d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>4</sub><br>mm | Code no. | EDP Number    |
|----------|--|----------------------|----------------------|----------------------|----------|---------------|
| 40       | 1.00 - 16.00                           | 50                   | 80                   | 12                   |          | 9042420160400 |
| 50       | 1.00 - 16.00                           | 50                   | 80                   | 12                   |          | 9042420160500 |

**Product information**

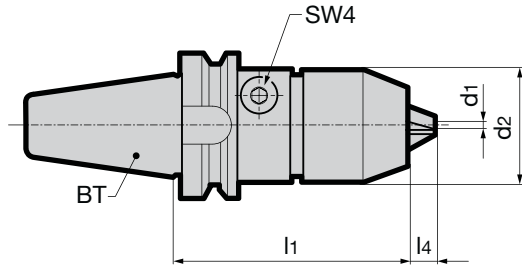
- for clamping all straight shank tools
- MAS/BT to DIN ISO 7388-2 form AD
- continuous Ø-range
- high clamping force thanks to robust worm gear
- max. coolant pressure up to 50 bar
- limit speed 20,000 rpm
- balancing quality: G2,5 / 20.000 rev./min
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

**Scope of delivery**

- incl. clamping key



**GÜHROJET**



Series no. **4240**

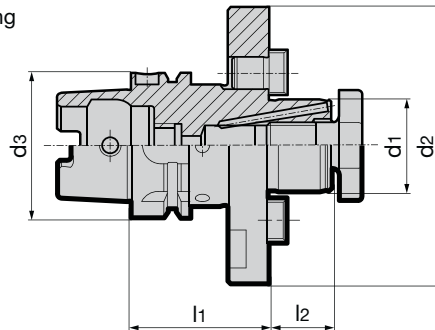
| MAS/BT | clamping range<br>d1<br>mm | d2<br>mm | l1<br>mm | l4<br>mm | Code no. | EDP Number    |
|--------|----------------------------|----------|----------|----------|----------|---------------|
| 30     | 0.5 - 10                   | 45       | 72       | 9        | 10.030   | 9042400100300 |
| 40     | 1 - 16                     | 50       | 88       | 12       | 16.040   | 9042400160400 |
| 50     | 1 - 16                     | 50       | 99       | 12       | 16.050   | 9042400160500 |

## Product information

- HSK-A to ISO 12164-1/DIN 69893-1
- to hold face milling cutters
- balancing quality: G6.3 / 15,000 rev./min
- to DIN 69882-3
- for centralised or decentralised internal cooling, therefore process and tool life improvement
- bore-Ø 40 mm has four additional holes with internal thread for milling heads with tool attachment DIN 2079 and increased tight fitting diameter d2
- incl. balancing thread 6xM6

## Scope of delivery

- incl. milling retainer screw article no. 4908 and driving keys
- order coolant supply set article no. 4949 separately



**GÜHROJET**

Series no. **4362**

| HSK-A d <sub>3</sub> | arbor-Ø d <sub>1</sub> h <sub>6</sub> mm | d <sub>2</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | kg  | Code no. | EDP Number    |
|----------------------|--|-------------------|-------------------|-------------------|-----|----------|---------------|
| 63                   | 22                                       | 50                | 50                | 19                | 1.1 | 22.063   | 9043620220630 |
| 63                   | 27                                       | 60                | 60                | 21                | 1.3 | 27.063   | 9043620270630 |
| 63                   | 32                                       | 78                | 60                | 24                | 1.5 | 32.063   | 9043620320630 |
| 63                   | 40                                       | 120               | 60                | 27                | 2.7 | 40.063   | 9043620400630 |
| 63                   | 40                                       | 89                | 60                | 27                | 2.7 | 140.063  | 9043621400630 |
| 80                   | 27                                       | 60                | 50                | 21                | 1.8 | 27.080   | 9043620270800 |
| 80                   | 32                                       | 78                | 50                | 24                | 2.1 | 32.080   | 9043620320800 |
| 80                   | 40                                       | 120               | 60                | 27                | 3.3 | 40.080   | 9043620400800 |
| 80                   | 40                                       | 89                | 60                | 27                | 3.3 | 140.080  | 9043621400800 |
| 80                   | 60                                       | 160               | 70                | 40                | 6.3 | 60.080   | 9043620600800 |
| 100                  | 27                                       | 60                | 50                | 21                | 2.9 | 27.100   | 9043620271000 |
| 100                  | 32                                       | 78                | 50                | 24                | 3.3 | 32.100   | 9043620321000 |
| 100                  | 40                                       | 120               | 60                | 27                | 4.2 | 40.100   | 9043620401000 |
| 100                  | 40                                       | 89                | 60                | 27                | 4.2 | 140.100  | 9043621401000 |
| 100                  | 60                                       | 160               | 70                | 40                | 7.2 | 60.100   | 9043620601000 |
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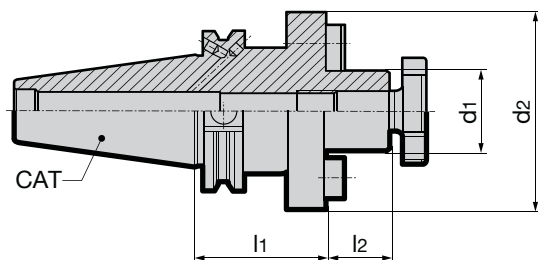
Tool Holders

**Product information**

- for the mounting of face milling cutters
- balancing quality: G6,3 / 15,000 rpm
- CAT according to ASME B5.50
- for central internal cooling
- coolant supply form AD/AB
- bore-Ø 40 mm has four additional holes with internal thread for milling heads with tool attachment DIN 2079 and increased tight fitting diameter d2

**Scope of delivery**

- incl. cylinder screw DIN EN ISO 4762 art. no. 4907
- incl. retaining screws art. no. 4908 and driving keys



**GUHROJET**

Series no. **4222**

| HSK-A d <sub>3</sub> | arbor-Ø d <sub>1</sub> h6 mm | d <sub>2</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | kg   | Code no. | EDP Number    |
|----------------------|------------------------------|-------------------|-------------------|-------------------|------|----------|---------------|
| 40                   | 16                           | 38                | 35                | 17                | 1.03 | 16.040   | 9042220160400 |
| 40                   | 22                           | 44                | 35                | 19                | 1.13 | 22.040   | 9042220220400 |
| 40                   | 27                           | 50                | 40                | 21                | 1.43 | 27.040   | 9042220270400 |
| 40                   | 32                           | 78                | 50                | 24                | 1.73 | 32.040   | 9042220320400 |
| 40                   | 40                           | 89                | 50                | 27                | 2.23 | 40.040   | 9042220400400 |
| 50                   | 16                           | 38                | 35                | 17                | 2.79 | 16.050   | 9042220160500 |
| 50                   | 22                           | 48                | 35                | 19                | 2.89 | 22.050   | 9042220220500 |
| 50                   | 27                           | 60                | 40                | 21                | 3.19 | 27.050   | 9042220270500 |
| 50                   | 32                           | 78                | 50                | 24                | 3.81 | 32.050   | 9042220320500 |
| 50                   | 40                           | 89                | 50                | 27                | 4.15 | 40.050   | 9042220400500 |
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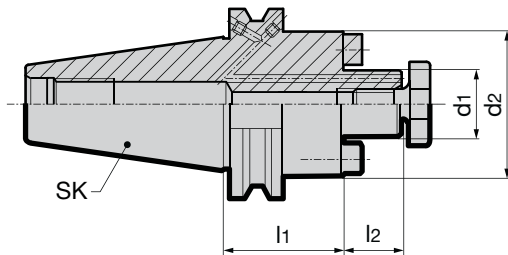
Tool holders

## Product information

- to hold face milling cutters
- balancing quality: G6.3 / 15,000 rev./min
- ISO taper to DIN ISO 7388-1 form AD/B
- for centralized or decentralised internal cooling, therefore process and tool life improvement
- coolant supply form AD/B
- bore-Ø 40 mm has four additional holes with internal thread for milling heads with tool attachment DIN 2079 and increased tight fitting diameter d2
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

## Scope of delivery

- incl. milling retainer screw, article no. 4908, and driving keys



Series no. **4231**

| SK taper | arbor-Ø<br>d <sub>1</sub> h6<br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | Code no. | EDP Number    |
|----------|------------------------------------|----------------------|----------------------|----------------------|----------|---------------|
| 40       | 16                                 | 38                   | 35                   | 17                   | 16.040   | 9042310160400 |
| 40       | 22                                 | 48                   | 35                   | 19                   | 22.040   | 9042310220400 |
| 40       | 27                                 | 58                   | 40                   | 21                   | 27.040   | 9042310270400 |
| 40       | 32                                 | 78                   | 50                   | 24                   | 32.040   | 9042310320400 |
| 40       | 40                                 | 88                   | 50                   | 27                   | 40.040   | 9042311400400 |
| 50       | 22                                 | 48                   | 35                   | 19                   | 22.050   | 9042310220500 |
| 50       | 27                                 | 58                   | 40                   | 21                   | 27.050   | 9042310270500 |
| 50       | 32                                 | 78                   | 50                   | 24                   | 32.050   | 9042310320500 |
| 50       | 40                                 | 88                   | 50                   | 27                   | 40.050   | 9042310400500 |
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Tool Holders

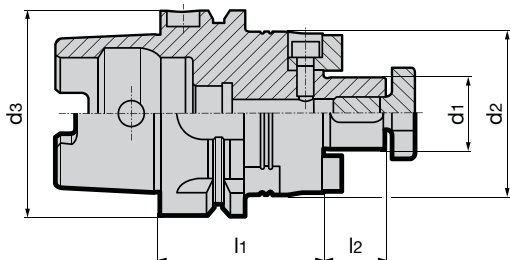


## Product information

- to hold shell mills DIN 841, arbor-type single angle cutters DIN 842 with keyway, shell mills DIN 1880 with keyway and milling cutters with inserts DIN 1830
- bore-Ø 40 and 50 mm has four additional holes with internal thread for milling heads with tool attachment DIN 2079
- HSK-A to ISO 12164-1/DIN 69893-1
- for central coolant supply

## Scope of delivery

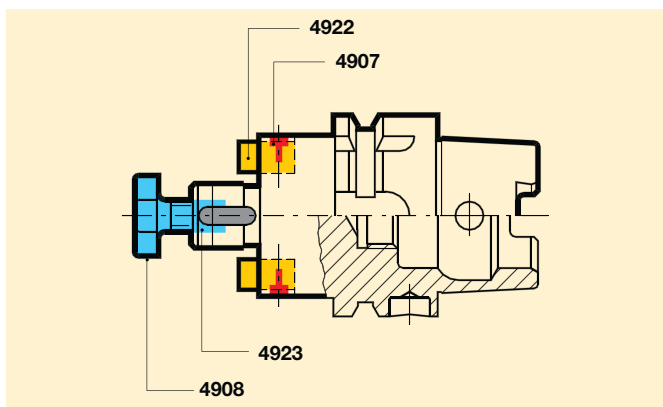
- completely assembled with milling cutter retaining screw, article no. 4908, drive dogs, article no. 4922 and feather key article no. 4923
- order coolant supply set article no. 4949 separately



Series no. **4361**

| HSK-A d <sub>3</sub> | arbor-Ø d <sub>1</sub> h6 mm | d <sub>2</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | kg   | Code no. | EDP Number    |
|----------------------|------------------------------|-------------------|-------------------|-------------------|------|----------|---------------|
| 32                   | 16                           | 40                | 45                | 17                | 0.27 | 16.032   | 9043610160320 |
| 32                   | 22                           | 50                | 50                | 19                | 0.40 | 22.032   | 9043610220320 |
| 40                   | 16                           | 40                | 45                | 17                | 0.40 | 16.040   | 9043610160400 |
| 40                   | 22                           | 50                | 50                | 19                | 0.50 | 22.040   | 9043610220400 |
| 50                   | 16                           | 40                | 45                | 17                | 0.60 | 16.050   | 9043610160500 |
| 50                   | 22                           | 50                | 50                | 19                | 0.80 | 22.050   | 9043610220500 |
| 50                   | 27                           | 60                | 55                | 21                | 1.00 | 27.050   | 9043610270500 |
| 63                   | 16                           | 40                | 45                | 17                | 0.90 | 16.063   | 9043610160630 |
| 63                   | 22                           | 50                | 50                | 19                | 1.00 | 22.063   | 9043610220630 |
| 63                   | 27                           | 60                | 55                | 21                | 1.30 | 27.063   | 9043610270630 |
| 63                   | 32                           | 78                | 55                | 24                | 1.60 | 32.063   | 9043610320630 |
| 63                   | 40                           | 89                | 60                | 27                | 2.10 | 40.063   | 9043610400630 |
| 80                   | 16                           | 40                | 45                | 17                | 2.10 | 16.080   | 9043610160800 |
| 80                   | 22                           | 50                | 50                | 19                | 2.30 | 22.080   | 9043610220800 |
| 80                   | 27                           | 60                | 55                | 21                | 2.50 | 27.080   | 9043610270800 |
| 80                   | 32                           | 78                | 55                | 24                | 2.60 | 32.080   | 9043610320800 |
| 80                   | 40                           | 89                | 60                | 27                | 3.40 | 40.080   | 9043610400800 |
| 100                  | 22                           | 50                | 50                | 19                | 2.50 | 22.100   | 9043610221000 |
| 100                  | 27                           | 60                | 55                | 21                | 2.80 | 27.100   | 9043610271000 |
| 100                  | 32                           | 78                | 55                | 24                | 3.10 | 32.100   | 9043610321000 |
| 100                  | 40                           | 89                | 60                | 27                | 3.70 | 40.100   | 9043610401000 |
| 100                  | 50                           | 120               | 70                | 30                | 5.60 | 50.100   | 9043610501000 |

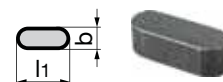
## Positioning of accessories



## Feather keys DIN 6885 A

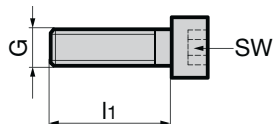
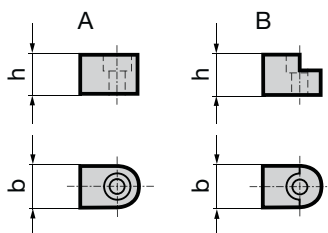
### Scope of delivery

- minimum order quantity 10



Series no. **4923**

| for arbor-Ø mm | l <sub>1</sub> mm | b mm | EDP Number    |
|----------------|-------------------|------|---------------|
| 16             | 14                | 4    | 9049230040160 |
| 22             | 16                | 6    | 9049230060220 |
| 27             | 19                | 7    | 9049230070270 |
| 32             | 22                | 8    | 9049230080320 |
| 40             | 25                | 10   | 9049230100400 |
| 50             | 28                | 12   | 9049230120500 |



**Scope of delivery**  
 • minimum order quantity 10

Series no. **4922**

| for arbor-Ø mm | Form | h mm  | b mm | EDP Number    |
|----------------|------|-------|------|---------------|
| 16             | B    | 9.25  | 8    | 9049220160000 |
| 22             | B    | 11.00 | 10   | 9049220220000 |
| 27             | A    | 12.75 | 12   | 9049220270000 |
| 32             | A    | 16.50 | 14   | 9049220320000 |
| 40             | A    | 20.00 | 16   | 9049220400000 |
| 50             | A    | 27.50 | 18   | 9049220500000 |

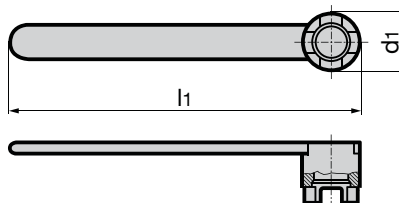
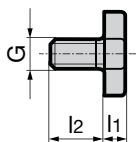
Series no. **4907**

| G   | l1 mm | SW | strength | EDP Number    |
|-----|-------|----|----------|---------------|
| M4  | 10    | 3  | 8.8      | 9049070041000 |
| M5  | 12    | 4  | 8.8      | 9049070051200 |
| M6  | 16    | 5  | 8.8      | 9049070061600 |
| M6  | 20    | 5  | 8.8      | 9049070062000 |
| M8  | 25    | 6  | 8.8      | 9049070082500 |
| M12 | 65    | 10 | 10.9     | 9049070126500 |

Milling cutter retaining screws

Socket wrenches for retaining screws

**Product information**  
 • to DIN 6367  
 • on request with internal cooling



Series no. **4908**

| for arbor-Ø mm | G   | l1 mm | l2 mm | torque Nm | EDP Number    |
|----------------|-----|-------|-------|-----------|---------------|
| 16             | M8  | 6     | 16    | 40        | 9049080160000 |
| 22             | M10 | 7     | 18    | 60        | 9049080220000 |
| 27             | M12 | 8     | 22    | 80        | 9049080270000 |
| 32             | M16 | 9     | 26    | 95        | 9049080320000 |
| 40             | M20 | 10    | 30    | 100       | 9049080400000 |
| 50             | M24 | 12    | 36    | 135       | 9049080500000 |
| 60             | M30 | 14    | 45    | 160       | 9049080600000 |

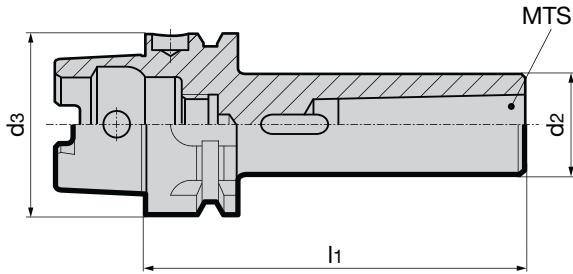
Series no. **4909**

| for arbor-Ø mm | d1 mm | l1 mm | EDP Number    |
|----------------|-------|-------|---------------|
| 16             | 22    | 180   | 9049090160000 |
| 22             | 28    | 200   | 9049090220000 |
| 27             | 35    | 225   | 9049090270000 |
| 32             | 42    | 250   | 9049090320000 |
| 40             | 52    | 280   | 9049090400000 |
| 50             | 63    | 315   | 9049090500000 |
| 60             | 76    | 355   | 9049090600000 |

Tool holders

## Product information

- for holding Morse tapers with tang to DIN 228-1 form B,
- HSK-A to ISO 12164-1/DIN 69893-1



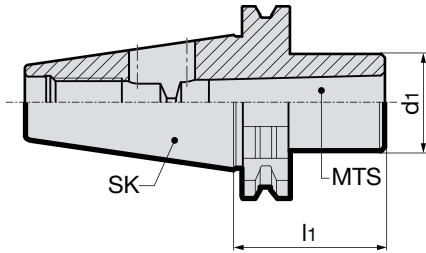
Series no. **4320**

| HSK-A<br>d <sub>3</sub><br>mm | MTS | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | kg  | Code no. | EDP Number    |
|-------------------------------|-----|----------------------|----------------------|-----|----------|---------------|
| 50                            | 1   | 25                   | 100                  | 0.8 | 1.050    | 9043200010500 |
| 50                            | 2   | 32                   | 120                  | 0.8 | 2.050    | 9043200020500 |
| 50                            | 3   | 40                   | 140                  | 1.2 | 3.050    | 9043200030500 |
| 63                            | 1   | 25                   | 100                  | 0.9 | 1.063    | 9043200010630 |
| 63                            | 2   | 32                   | 120                  | 1.1 | 2.063    | 9043200020630 |
| 63                            | 3   | 40                   | 140                  | 1.5 | 3.063    | 9043200030630 |
| 63                            | 4   | 48                   | 160                  | 1.9 | 4.063    | 9043200040630 |
| 80                            | 1   | 25                   | 110                  | 1.5 | 1.080    | 9043200010800 |
| 80                            | 2   | 32                   | 120                  | 1.7 | 2.080    | 9043200020800 |
| 80                            | 3   | 40                   | 150                  | 2.0 | 3.080    | 9043200030800 |
| 80                            | 4   | 48                   | 170                  | 2.6 | 4.080    | 9043200040800 |
| 100                           | 1   | 25                   | 110                  | 2.3 | 1.100    | 9043200011000 |
| 100                           | 2   | 32                   | 120                  | 2.5 | 2.100    | 9043200021000 |
| 100                           | 3   | 40                   | 150                  | 2.8 | 3.100    | 9043200031000 |
| 100                           | 4   | 48                   | 170                  | 4.2 | 4.100    | 9043200041000 |
| 100                           | 5   | 63                   | 200                  | 4.5 | 5.100    | 9043200051000 |

## SK taper morse taper holders

### Product information

- for holding Morse tapers with tang to DIN 228-1 form B
- ISO taper to DIN ISO 7388-1 form AD
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob



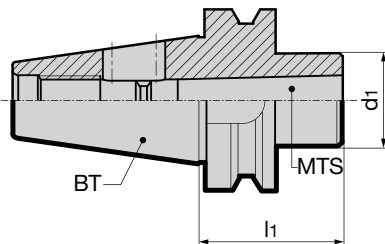
Series no. **4238**

| SK taper | MTS | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |
|----------|-----|----------------------|----------------------|----------|---------------|
| 40       | 1   | 25                   | 50                   | 1.040    | 9042380010400 |
| 40       | 2   | 32                   | 50                   | 2.040    | 9042380020400 |
| 40       | 3   | 40                   | 70                   | 3.040    | 9042380030400 |
| 40       | 4   | 48                   | 95                   | 4.040    | 9042380040400 |
| 50       | 1   | 25                   | 45                   | 1.050    | 9042380010500 |
| 50       | 2   | 32                   | 60                   | 2.050    | 9042380020500 |
| 50       | 3   | 40                   | 65                   | 3.050    | 9042380030500 |
| 50       | 4   | 48                   | 95                   | 4.050    | 9042380040500 |
| 50       | 5   | 63                   | 105                  | 5.050    | 9042380050500 |

## BT morse taper holders

### Product information

- for holding Morse tapers with tang to DIN 228-1 form B
- MAS/BT to DIN ISO 7388-2 form AD
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob



Series no. **4239**

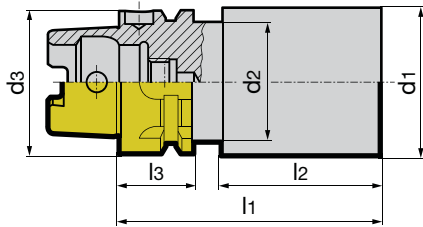
| BT | MTS | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |
|----|-----|----------------------|----------------------|----------|---------------|
| 30 | 1   | 25                   | 45                   | 1.030    | 9042390010300 |
| 30 | 2   | 32                   | 60                   | 2.030    | 9042390020300 |
| 30 | 3   | 40                   | 75                   | 3.030    | 9042390030300 |
| 40 | 1   | 25                   | 50                   | 1.040    | 9042390010400 |
| 40 | 2   | 32                   | 50                   | 2.040    | 9042390020400 |
| 40 | 3   | 40                   | 70                   | 3.040    | 9042390030400 |
| 40 | 4   | 48                   | 95                   | 4.040    | 9042390040400 |
| 50 | 1   | 25                   | 45                   | 1.050    | 9042390010500 |
| 50 | 2   | 32                   | 60                   | 2.050    | 9042390020500 |
| 50 | 3   | 40                   | 65                   | 3.050    | 9042390030500 |
| 50 | 4   | 48                   | 95                   | 4.050    | 9042390040500 |
| 50 | 5   | 63                   | 105                  | 5.050    | 9042390050500 |

Tool holders

## HSK-A blanks

### Product information

- material: nitrided steel, hardened and ground taper (yellow in scale drawing), blank unhardened for further machining
- HSK-A to ISO 12164-1/DIN 69893-1



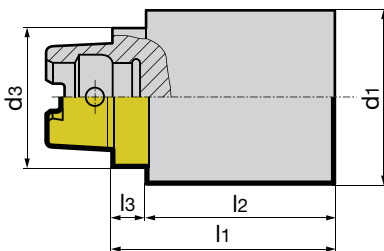
Series no. **4983**

| HSK-A<br>d <sub>3</sub> | d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | kg    | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------|----------|---------------|
| 32                      | 41                   | 26                   | 175                  | 140                  | 20                   | 1.62  | 150.063  | 9049831500630 |
| 40                      | 51                   | 34                   | 205                  | 170                  | 20                   | 3.02  | 175.032  | 9049831750320 |
| 50                      | 64                   | 42                   | 235                  | 193                  | 26                   | 5.42  | 205.040  | 9049832050400 |
| 63                      | 63                   | 53                   | 150                  | 108                  | 26                   | 3.55  | 235.050  | 9049832350500 |
| 63                      | 81                   | 53                   | 235                  | 193                  | 26                   | 8.71  | 235.063  | 9049832350630 |
| 80                      | 101                  | 67                   | 235                  | 193                  | 26                   | 13.63 | 235.080  | 9049832350800 |
| 100                     | 126                  | 85                   | 250                  | 205                  | 29                   | 22.71 | 250.100  | 9049832501000 |

## HSK-C blanks

### Product information

- material: nitrided steel, hardened and ground taper (yellow in scale drawing), blank unhardened for further machining
- machining not permitted in l<sub>3</sub> area
- HSK-C to ISO 12164-1/DIN 69893-1



Series no. **4982**

| HSK-C<br>d <sub>3</sub> | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | kg    | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------|----------------------|----------------------|-------|----------|---------------|
| 25                      | 30                   | 100                  | 90                   | 10                   | 0.54  | 87.025   | 9049820870250 |
| 32                      | 41                   | 150                  | 139                  | 11                   | 1.50  | 50.032   | 9049820500320 |
| 40                      | 51                   | 180                  | 169                  | 11                   | 2.81  | 63.040   | 9049820630400 |
| 50                      | 64                   | 200                  | 186                  | 14                   | 4.92  | 80.050   | 9049820800500 |
| 50                      | 64                   | 90                   | 76                   | 14                   | 2.15  | 100.050  | 9049821000500 |
| 63                      | 81                   | 200                  | 186                  | 14                   | 7.90  | 112.063  | 9049821120630 |
| 63                      | 81                   | 100                  | 86                   | 14                   | 3.89  | 120.080  | 9049821200800 |
| 80                      | 101                  | 210                  | 193                  | 17                   | 12.90 | 125.063  | 9049821250630 |
| 100                     | 124                  | 225                  | 208                  | 17                   | 21.70 | 145.100  | 9049821451000 |

# HOLDERS FOR FINE MACHINING



Holders for fine machining

# PRECISION

IS A MATTER OF SETTING!





**QUICK + SIMPLE  
ADJUSTMENT**



**AXIAL + RADIAL  
 $\mu$ -ACCURATE SETTING**



**CONCENTRICITY AND  
ALIGNMENT ERROR  
COMPENSATION**



**MQL SUITABLE**



**4949**

Coolant supply set HSK-A (conventional)



**4939**

MQL 1-channel coolant supply set HSK-A



**4940**

MQL 1-channel coolant supply set HSK-A (filler)



**4723**

Module HSK-A alignment adaptor



**4725**

Module SK taper alignment adaptor



**4712**

Module taper alignment adaptor BT



machine spindle direct installation



Intermediate sleeve



**4716**

Intermediate sleeve



**4363**

Module HSK adaptor flange



**4722**

Module hydraulic chuck flange



**4717**

Module shrink fit chuck flange



**4714**

Module HPC clamping chuck flange



HOLDERS FOR FINE MACHINING



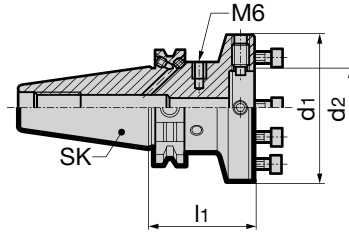
## Module 6x6 SK taper alignment adaptor

### Product information

- ISO taper to DIN ISO 7388-1 form AD/B
- for the highly accurate alignment of all modular flanges 6x6
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G6.3 / 15,000 rev./min
- 6 balancing threads M6
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. 6 screws for radial adjustment
- incl. 6 clamping screws



Series no.

4725

| SK | d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |
|----|----------------------|----------------------|----------------------|----------|---------------|
| 40 | 60                   | 30                   | 50                   | 60.040   | 9047250600400 |
| 40 | 70                   | 35                   | 50                   | 70.040   | 9047250700400 |
| 40 | 80                   | 40                   | 55                   | 80.040   | 9047250800400 |
| 40 | 100                  | 50                   | 60                   | 100.040  | 9047251000400 |
| 50 | 60                   | 30                   | 50                   | 60.050   | 9047250600500 |
| 50 | 70                   | 35                   | 50                   | 70.050   | 9047250700500 |
| 50 | 80                   | 40                   | 50                   | 80.050   | 9047250800500 |
| 50 | 100                  | 50                   | 60                   | 100.050  | 9047251000500 |
| 50 | 117                  | 60                   | 60                   | 117.050  | 9047251170500 |
| 50 | 140                  | 80                   | 60                   | 140.050  | 9047251400500 |

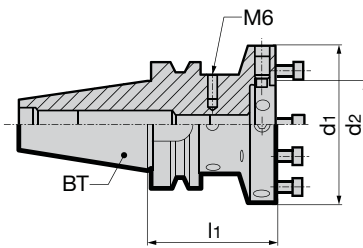
## Module 6x6 taper alignment adaptor BT

### Product information

- MAS/BT to DIN ISO 7388-2 form AD
- for the highly accurate alignment of all modular flanges 6x6
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G6.3 / 15,000 rev./min
- 6 balancing threads M6
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. 6 screws for radial adjustment
- incl. 6 clamping screws



Series no.

4712

| BT | d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |
|----|----------------------|----------------------|----------------------|----------|---------------|
| 30 | 60                   | 30                   | 50                   | 60.030   | 9047120600300 |
| 30 | 70                   | 35                   | 50                   | 70.030   | 9047120700300 |
| 40 | 60                   | 30                   | 55                   | 60.040   | 9047120600400 |
| 40 | 70                   | 35                   | 55                   | 70.040   | 9047120700400 |
| 40 | 80                   | 40                   | 65                   | 80.040   | 9047120800400 |
| 40 | 100                  | 50                   | 70                   | 100.040  | 9047121000400 |
| 50 | 60                   | 30                   | 70                   | 60.050   | 9047120600500 |
| 50 | 70                   | 35                   | 70                   | 70.050   | 9047120700500 |
| 50 | 80                   | 40                   | 70                   | 80.050   | 9047120800500 |
| 50 | 100                  | 50                   | 70                   | 100.050  | 9047121000500 |
| 50 | 117                  | 60                   | 80                   | 117.050  | 9047121170500 |
| 50 | 140                  | 80                   | 80                   | 140.050  | 9047121400500 |

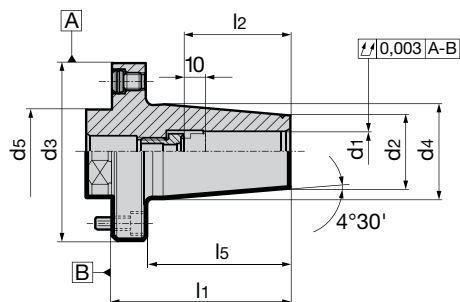


**Product information**

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- with axial damping screw for optimal concentricity

**Scope of delivery**

- incl. adjustment screw with axial force
- damping Series no. 4941
- incl. 6 angular alignment sets Series no. 4715
- incl. 6 clamping screws
- order intermediate tube Series no. 4716 separately
- further dimensions on request



Series no. **4717**

| Modul-Ø<br>d3<br>mm | für<br>Schaft-Ø<br>d1 h6 mm | d2<br>mm | d4<br>mm | d5<br>mm | l1<br>mm | l2<br>mm | l5<br>mm | incl.<br>setting screw<br>art. no. 4941 | intermediate<br>sleeve tube<br>art. no. 4716 | Code no. | EDP Number    |
|---------------------|-----------------------------|----------|----------|----------|----------|----------|----------|---|--|----------|---------------|
| 60                  | 6                           | 21       | 27       | 30       | 70       | 36       | 56       | 6.100                                   | 14.010                                       | 6.060    | 9047170060600 |
| 60                  | 8                           | 21       | 27       | 30       | 70       | 36       | 56       | 8.100                                   | 14.010                                       | 8.060    | 9047170080600 |
| 60                  | 10                          | 24       | 32       | 30       | 70       | 40       | 56       | 10.100                                  | 14.020                                       | 10.060   | 9047170100600 |
| 60                  | 12                          | 24       | 32       | 30       | 70       | 45       | 56       | 12.100                                  | 14.030                                       | 12.060   | 9047170120600 |
| 70                  | 12                          | 24       | 32       | 35       | 75       | 45       | 60       | 12.100                                  | 14.020                                       | 12.070   | 9047170120700 |
| 70                  | 14                          | 27       | 34       | 35       | 75       | 45       | 60       | 14.100                                  | 14.020                                       | 14.070   | 9047170140700 |
| 70                  | 16                          | 27       | 34       | 35       | 75       | 48       | 60       | 16.100                                  | 14.040                                       | 16.070   | 9047170160700 |
| 80                  | 18                          | 33       | 42       | 40       | 80       | 48       | 65       | 18.100                                  | 14.050                                       | 18.080   | 9047170180800 |
| 80                  | 20                          | 33       | 42       | 40       | 80       | 50       | 65       | 20.100                                  | 14.040                                       | 20.080   | 9047170200800 |
| 100                 | 25                          | 44       | 52       | 50       | 80       | 56       | 61       | 25.100                                  | 20.010                                       | 25.100   | 9047170251000 |
| 100                 | 32                          | 44       | 52       | 50       | 80       | 60       | 61       | 32.100                                  | 20.020                                       | 32.100   | 9047170321000 |

HOLDERS  
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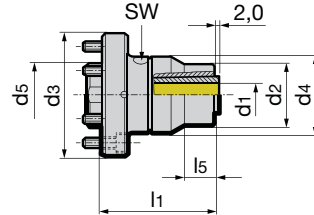
## Module 6x6 HPC clamping chuck flange

### Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- highest concentricity, clamping force and rigidity thanks to mech. tension gearing
- suitable for internal cooling up to 80 bar
- positive damping characteristics
- for tool shank tolerance h6

### Scope of delivery

- incl. hexagon chuck key Series no. 4912
- incl. 6 angular alignment sets Series no. 4715
- incl. 6 clamping screws
- order intermediate tube Series no. 4716 separately
- order clamping sleeves article nos. 4302, 4235, 4236, 4237 separately



|                                  |           |  |                      |                      |                      |                      |                      |  |    |          | Series no.    | 4714 |
|----------------------------------|-----------|--|----------------------|----------------------|----------------------|----------------------|----------------------|--|----|----------|---------------|------|
| Module-Ø<br>d <sub>3</sub><br>mm | nom. size | for shank Ø<br>d <sub>1</sub> h6<br>mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | d <sub>5</sub><br>mm | l <sub>1</sub><br>mm | l <sub>5</sub><br>mm | intermediate<br>sleeve tube<br>Series no. 4716 | SW | Code no. | EDP Number    |      |
| 70                               | 20        | 3 - 20                                 | 40                   | 53                   | 35                   | 87                   | 20                   | 20.030   | 4  | 20.070   | 9047140200700 |      |
| 80                               | 20        | 3 - 20                                 | 40                   | 53                   | 40                   | 73                   | 20                   | 20.030   | 4  | 20.080   | 9047140200800 |      |
| 100                              | 25        | 16-32                                  | 53                   | 63                   | 50                   | 118                  | -                    | 20.030   | 4  | 25.100   | 9047140251000 |      |

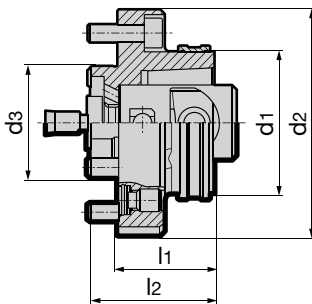
## Module 6x6 HSK adaptor flange

### Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- suitable for MQL and conventional cooling
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893

### Scope of delivery

- incl. MQL 4-point clamping set Series no. 4930
- incl. clamping screw Series no. 4935
- incl. brass lock ring Series no. 4953
- incl. 6 angular alignment sets Series no. 4715
- incl. 6 clamping screws
- incl. intermediate tube Series no. 4716



|                               |                                  |                      |     |                      |                      |  |          | Series no.    | 4363 |
|-------------------------------|----------------------------------|----------------------|-----|----------------------|----------------------|--|----------|---------------|------|
| HSK-C<br>d <sub>1</sub><br>mm | Module-Ø<br>d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | kg  | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | intermediate<br>sleeve tube<br>Series no. 4716 | Code no. | EDP Number    |      |
| 32                            | 60                               | 30                   | 0.4 | 26                   | 36                   | 24.060   | 24.060   | 9043630240600 |      |
| 40                            | 70                               | 35                   | 0.6 | 30                   | 40                   | 30.070   | 30.070   | 9043630300700 |      |
| 50                            | 80                               | 40                   | 1.0 | 35                   | 45                   | 238.080  | 38.080   | 9043630380800 |      |
| 63                            | 100                              | 50                   | 1.8 | 43                   | 55                   | 48.100   | 48.100   | 9043630481000 |      |
| 80                            | 117                              | 60                   | 2.9 | 50                   | 62                   | 60.117   | 60.110   | 9043630601100 |      |
| 100                           | 140                              | 80                   | 5.8 | 75                   | 87                   | 75.140   | 75.140   | 9043630751400 |      |

Holders for fine machining



**4949**

Coolant supply set HSK-A (conventional)



**4939**

MQL 1-channel coolant supply set HSK-A



**4940**

MQL 1-channel coolant supply set HSK-A (filler)



**4797**

Module HSK-A alignment adaptor



**4724**

Module SK taper alignment adaptor



**4709**

Module taper alignment adaptor BT



machine spindle direct installation



Intermediate sleeve



**4716**

Intermediate sleeve



**4713**

Module HSK adaptor flange



**4360**

Module hydraulic chuck flange



**4760**

Module shrink fit chuck flange



HOLDERS FOR FINE MACHINING



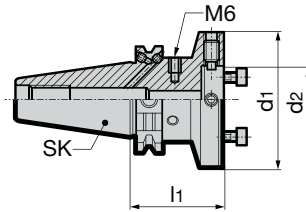
## Module 4x4 SK taper alignment adaptor

### Product information

- ISO taper to DIN ISO 7388-1 form AD/B
- for highly accurate alignment of all modular flanges 4x4
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G6.3 / 15,000 rev./min
- 6 balancing threads M6
- SK40 - M16 x 2.0 retention knob
- SK50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. 4 screws for radial adjustment
- incl. 4 clamping screws
- order intermediate tube Series no. 4716 separately



Series no. **4724**

| SK | d1 mm | d2 mm | l1 mm | Code no. | EDP Number    |
|----|-------|-------|-------|----------|---------------|
| 40 | 60    | 30    | 50    | 60.040   | 9047240600400 |
| 40 | 70    | 35    | 50    | 70.040   | 9047240700400 |
| 40 | 80    | 40    | 55    | 80.040   | 9047240800400 |
| 40 | 100   | 50    | 60    | 100.040  | 9047241000400 |
| 50 | 60    | 30    | 50    | 60.050   | 9047240600500 |
| 50 | 70    | 35    | 50    | 70.050   | 9047240700500 |
| 50 | 80    | 40    | 50    | 80.050   | 9047240800500 |
| 50 | 100   | 50    | 60    | 100.050  | 9047241000500 |
| 50 | 117   | 50    | 60    | 117.050  | 9047241170500 |
| 50 | 140   | 80    | 60    | 140.050  | 9047241400500 |

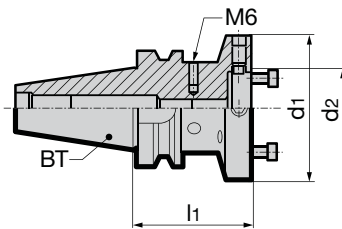
## Module 4x4 taper alignment adaptor BT

### Product information

- MAS/BT to DIN ISO 7388-2 form AD
- for highly accurate alignment of all modular flanges 4x4
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G6.3 / 15,000 rev./min
- 6 balancing threads M6
- BT30 - M12 x 1.75 retention knob
- BT40 - M16 x 2.0 retention knob
- BT50 - M24 x 3.0 retention knob

### Scope of delivery

- incl. 4 screws for radial adjustment
- incl. 4 clamping screws
- incl. set screws



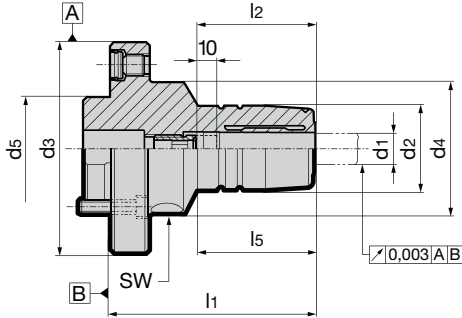
Series no. **4709**

| BT | d1 mm | d2 mm | l1 mm | Code no. | EDP Number    |
|----|-------|-------|-------|----------|---------------|
| 30 | 60    | 30    | 50    | 60.030   | 9047090600300 |
| 30 | 70    | 35    | 50    | 70.030   | 9047090700300 |
| 40 | 60    | 30    | 55    | 60.040   | 9047090600400 |
| 40 | 70    | 35    | 55    | 70.040   | 9047090700400 |
| 40 | 80    | 40    | 65    | 80.040   | 9047090800400 |
| 40 | 100   | 50    | 70    | 100.040  | 9047091000400 |
| 50 | 60    | 30    | 70    | 60.050   | 9047090600500 |
| 50 | 70    | 35    | 70    | 70.050   | 9047090700500 |
| 50 | 80    | 40    | 70    | 80.050   | 9047090800500 |
| 50 | 100   | 50    | 70    | 100.050  | 9047091000500 |
| 50 | 117   | 60    | 80    | 117.050  | 9047091170500 |
| 50 | 140   | 80    | 80    | 140.050  | 9047091400500 |

## Module 4x4 hydraulic chuck flange

### Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G6.3 / 15,000 rev./min
- for tool shank tolerance h6



### Scope of delivery

- incl. adjustment screw Series no. 4941 for conventional cooling
- incl. angular alignment set Series no. 4715
- incl. 4 clamping screws
- incl. hexagon chuck key Series no. 4912
- order intermediate tube Series no. 4716 separately
- for other clamping  $\varnothing$  apply reduction bushes Series no. 4368 or 4369
- MQL version on request



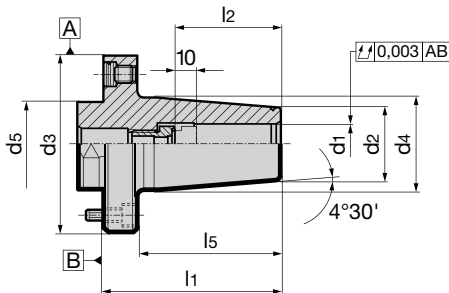
Series no. **4360**

| Module- $\varnothing$<br>d <sub>3</sub><br>mm | for<br>shank $\varnothing$<br>d <sub>1</sub> h6 mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | d <sub>5</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl.<br>setting screw<br>art. no. 4941 | intermediate<br>sleeve tube<br>art. no. 4716 | SW | Code no. | EDP Number    |
|---|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|--|----|----------|---------------|
| 70  | 12   | 32                   | 40                   | 35                   | 75.0                 | 45                   | 45.0                 | 12.100                                  | 14.020                                       | 4  | 12.070   | 9043600120700 |
| 80  | 12   | 32                   | 50                   | 40                   | 77.5                 | 45                   | 44.3                 | 12.100                                  | 14.050                                       | 5  | 12.080   | 9043600120800 |
| 80  | 20   | 42                   | 50                   | 40                   | 82.5                 | 50                   | 51.5                 | 20.100                                  | 14.040                                       | 5  | 20.080   | 9043600200800 |
| 100   | 32   | 64                   | 64                   | 50                   | 103.0                | 60                   | 84.0                 | 32.100                                  | 14.020                                       | 6  | 32.100   | 9043600321000 |

## Module 4x4 shrink fit chuck flange

### Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G6.3 / 15,000 rev./min
- for tool shank tolerance h6
- with axial damping screw for optimal concentricity



### Scope of delivery

- incl. adjustment screw with axial force
- damping Series no. 4941
- incl. angular alignment seten Series no. 4715
- incl. 4 clamping screws
- order intermediate tube Series no. 4716 separately
- further dimensions on request



Series no. **4760**

| Module- $\varnothing$<br>d <sub>3</sub><br>mm | for<br>shank $\varnothing$<br>d <sub>1</sub> h6 mm | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | d <sub>5</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>5</sub><br>mm | incl.<br>setting screw<br>art. no. 4941 | intermediate<br>sleeve tube<br>art. no. 4716 | Code no. | EDP Number    |
|---|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|--|----------|---------------|
| 60  | 6  | 21                   | 27                   | 30                   | 70                   | 36                   | 56                   | 6.100                                   | 14.010                                       | 6.060    | 9047600060600 |
| 60  | 8  | 21                   | 27                   | 30                   | 70                   | 36                   | 56                   | 8.100                                   | 14.010                                       | 8.060    | 9047600080600 |
| 60  | 10   | 24                   | 32                   | 30                   | 70                   | 40                   | 56                   | 10.100                                  | 14.020                                       | 10.060   | 9047600100600 |
| 60  | 12   | 24                   | 32                   | 30                   | 70                   | 45                   | 56                   | 12.100                                  | 14.030                                       | 12.060   | 9047600120600 |
| 70  | 12   | 24                   | 32                   | 35                   | 75                   | 45                   | 60                   | 12.100                                  | 14.020                                       | 12.070   | 9047600120700 |
| 70  | 14   | 27                   | 34                   | 35                   | 75                   | 45                   | 60                   | 14.100                                  | 14.020                                       | 14.070   | 9047600140700 |
| 70  | 16   | 27                   | 34                   | 35                   | 75                   | 48                   | 60                   | 16.100                                  | 14.040                                       | 16.070   | 9047600160700 |
| 80  | 18   | 33                   | 42                   | 40                   | 80                   | 48                   | 65                   | 18.100                                  | 14.050                                       | 18.080   | 9047600180800 |
| 80  | 20   | 33                   | 42                   | 40                   | 80                   | 50                   | 65                   | 20.100                                  | 14.040                                       | 20.080   | 9047600200800 |
| 100   | 25   | 44                   | 52                   | 50                   | 80                   | 56                   | 61                   | 25.100                                  | 20.010                                       | 25.100   | 9047600251000 |
| 100   | 32   | 44                   | 52                   | 50                   | 80                   | 60                   | 61                   | 32.100                                  | 20.020                                       | 32.100   | 9047600321000 |

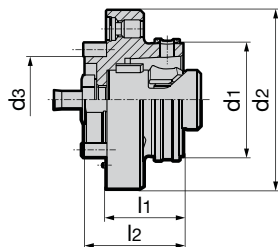
HOLDERS FOR  
 FINE MACHINING

## Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- suitable for MQL and conventional cooling
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893

## Scope of delivery

- incl. MQL 4-point clamping set Series no. 4930
- incl. clamping screw Series no. 4935
- incl. brass lock ring Series no. 4953
- incl. 6 angular alignment sets Series no. 4715
- incl. 6 clamping screws
- incl. intermediate tube Series no. 4716



Series no. **4713**

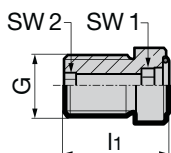
| HSK-C<br>d <sub>1</sub><br>mm | Module-Ø<br>d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | intermediate<br>sleeve tube<br>art. no. 4716 | Code no. | EDP Number    |
|-------------------------------|----------------------------------|----------------------|----------------------|----------------------|--|----------|---------------|
| 32                            | 60                               | 30                   | 26                   | 36                   | 24.060                                       | 24.060   | 9047130240600 |
| 40                            | 70                               | 35                   | 30                   | 40                   | 30.070                                       | 30.070   | 9047130300700 |
| 50                            | 80                               | 40                   | 35                   | 45                   | 238.080                                      | 38.080   | 9047130380800 |
| 63                            | 100                              | 50                   | 43                   | 55                   | 48.100                                       | 48.100   | 9047130481000 |
| 80                            | 117                              | 60                   | 50                   | 62                   | 60.117                                       | 60.117   | 9047130601170 |
| 100                           | 140                              | 80                   | 75                   | 87                   | 75.140                                       | 75.140   | 9047130751400 |

## Length adjustment screw for conventional cooling

## Product information

- to adapt MQL tool holders to meet the requirements of conventional wet machining. For plain end shanks. The height of screw head compensates the height of MQL taper

- for MQL HSK-A shrink fit and hydraulic chucks
- for use with shank according to DIN 6535 with plain shank end for conventional cooling
- with the patented face orientated O ring axial force damping is provided which prevents concentricity errors.



Series no. **4941**

| for<br>HSK-A        | clamping-<br>Ø | G     | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | SW1 | SW2 | Code no. | EDP Number    |
|---------------------|----------------|-------|----------------------|----------------------|-----|-----|----------|---------------|
| 40                  | 6              | M5    | 6.0                  | 14.9                 | 2.5 | -   | 6.0400   | 9049410060400 |
| 40                  | 6              | M7x1  | 5.8                  | 15.0                 | 2.5 | -   | 6.0410   | 9049410060410 |
| 40                  | 8              | M7x1  | 5.8                  | 18.0                 | 3   | -   | 6.0500   | 9049410060500 |
| 50                  | 6              | M8x1  | 5.8                  | 14.0                 | 2.5 | -   | 6.1000   | 9049410061000 |
| 50                  | 8              | M8x1  | 6.8                  | 18.0                 | 3   | -   | 8.0400   | 9049410080400 |
| 40 / 50             | 10             | M8x1  | 9.8                  | 17.7                 | 4   | -   | 8.0500   | 9049410080500 |
| 63/ 80/ 100         | 6              | M10x1 | 5.8                  | 17.0                 | 2.5 | -   | 8.1000   | 9049410081000 |
| 63/ 80/ 100         | 8              | M10x1 | 7.8                  | 17.0                 | 3   | -   | 10.0500  | 9049410100500 |
| 63/ 80/ 100         | 10             | M10x1 | 9.8                  | 16.2                 | 4   | -   | 10.1000  | 9049410101000 |
| 40/ 50/ 63/ 80/ 100 | 12             | M10x1 | 9.8                  | 16.0                 | 5   | -   | 12.1000  | 9049410121000 |
| 40/ 50/ 63/ 80/ 100 | 14             | M10x1 | 9.8                  | 17.2                 | 5   | -   | 14.1000  | 9049410141000 |
| 50/ 63/ 80/ 100     | 16             | M12x1 | 15.8                 | 18.2                 | 6   | -   | 16.1000  | 9049410161000 |
| 50/ 63/ 80/ 100     | 18             | M12x1 | 15.8                 | 19.2                 | 6   | -   | 18.1000  | 9049410181000 |
| 50/ 63/ 80/ 100     | 20             | M16x1 | 15.8                 | 19.2                 | 6   | 8   | 20.1000  | 9049410201000 |
| 63/ 80/ 100         | 25             | M16x1 | 15.8                 | 22.7                 | 6   | 8   | 25.1000  | 9049410251000 |
| 63/ 80/ 100         | 32             | M16x1 | 15.8                 | 26.7                 | 6   | 8   | 32.1000  | 9049410321000 |

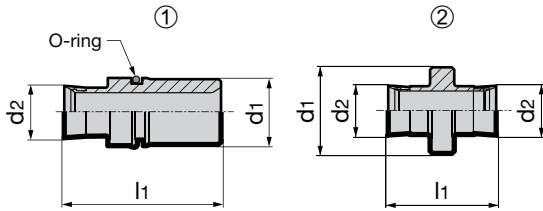
## Intermediate sleeves for module flange and alignment adaptor 6x6 and 4x4

### Product information

- for sealing when machining with either coolant or MQL
- Design without O-ring for HSK module adaptor flange art. no. 4363 and art. no. 4713

### Scope of delivery

- with O-ring and sealing lip  
Series no. 4617 1.140



Series no. **4716**

| d <sub>1</sub><br>mm | for d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | O-ring | type | Code no. | EDP Number    |
|----------------------|--------------------------|----------------------|--------|------|----------|---------------|
| 14                   | 10.5                     | 47.5                 | 10x1.5 | 1    | 14.01    | 9047160140100 |
| 14                   | 10.5                     | 32.0                 | 10x1.5 | 1    | 14.02    | 9047160140200 |
| 14                   | 10.5                     | 37.5                 | 10x1.5 | 1    | 14.03    | 9047160140300 |
| 14                   | 10.5                     | 26.5                 | 10x1.5 | 1    | 14.04    | 9047160140400 |
| 14                   | 10.5                     | 31.5                 | 10x1.5 | 1    | 14.05    | 9047160140500 |
| 20                   | 10.5                     | 28.0                 | 17x1.5 | 1    | 20.01    | 9047160200100 |
| 20                   | 10.5                     | 25.5                 | 17x1.5 | 1    | 20.02    | 9047160200200 |
| 20                   | 10.5                     | 16.5                 | 17x1.5 | 1    | 20.03    | 9047160200300 |
| 4                    | 10.5                     | 26.1                 | -      | 1    | 24.060   | 9047160240600 |
| 5                    | 10.5                     | 21.9                 | -      | 1    | 30.070   | 9047160300700 |
| 6                    | 10.5                     | 21.9                 | -      | 1    | 238.080  | 9047162380800 |
| 7                    | 10.5                     | 31.7                 | -      | 1    | 48.100   | 9047160481000 |
| 10                   | 10.5                     | 28.6                 | -      | 1    | 60.117   | 9047160601170 |
| 12                   | 10.5                     | 36.4                 | -      | 1    | 75.140   | 9047160751400 |
| 17.8                 | 10.5                     | 22.3                 | -      | 2    | 60.100   | 9047160601000 |
| 17.8                 | 10.5                     | 26.3                 | -      | 2    | 117.140  | 9047161171400 |

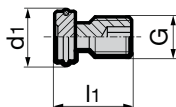
## Angle alignment units for module flange and alignment adaptor 6x6 and 4x4

### Product information

- for accurate angle alignment of module flanges

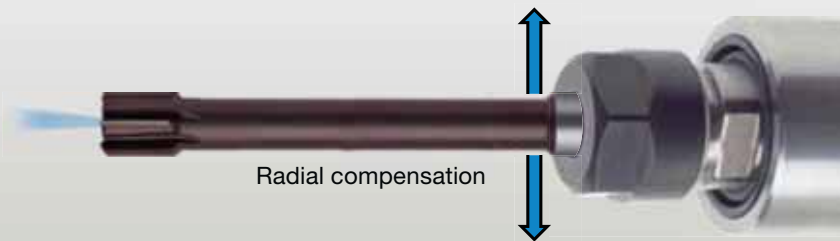
### Scope of delivery

- pressure disc, threaded pin and snap ring

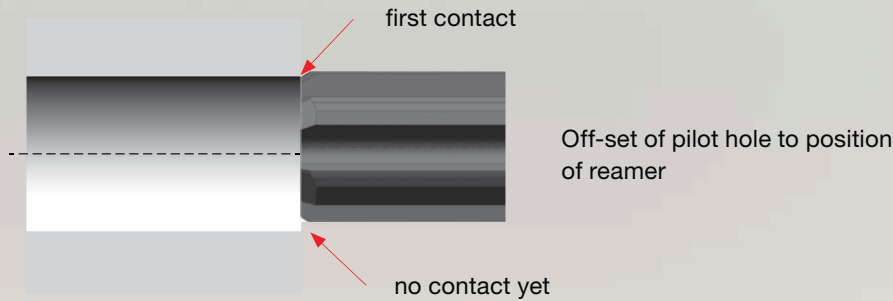


Series no. **4715**

| for module      | G     | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | Code no. | EDP Number    |
|-----------------|-------|----------------------|----------------------|----------|---------------|
| 60 / 70 / 80    | M8x1  | 11.5                 | 13                   | 8.01     | 9047150080100 |
| 100 / 117 / 140 | M10x1 | 13.6                 | 19                   | 10.01    | 9047150100100 |



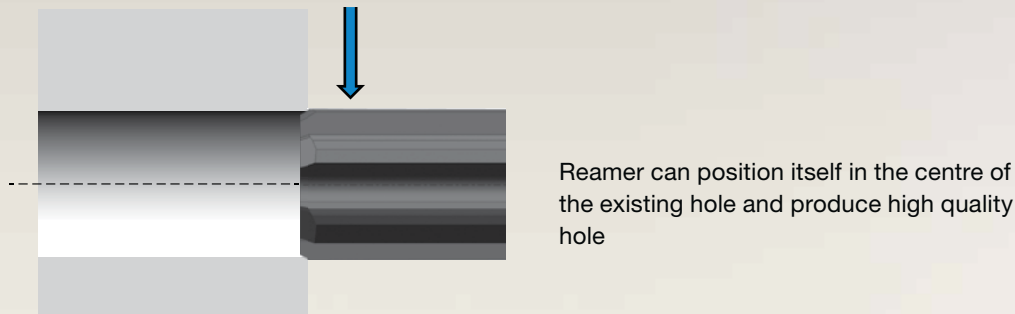
Radial compensation



first contact

Off-set of pilot hole to position of reamer

no contact yet



Reamer can position itself in the centre of the existing hole and produce high quality hole

## Floating holder for perfect HPC reaming

For the fine machining of holes the matching of pilot hole with the tool axis is a pre-requisite for the perfect functioning of the reamer. Floating holders serve to compensate the lateral off-set between tool and pilot hole. This off-set is usually created by machining with multiple clamping operations, cycle and positioning errors during tool and workpiece changes as well as by alignment errors on turning machines. As our floating holders have been designed for high-speed reaming operations, we consciously dispense of angle compensation. This improves the clamping rigidity. When the radial play is excessive upon entry into the pilot hole the reamer is subjected to high stresses. Crumbling of the edges is the consequence. Limited radial play on our floating holders compensates for any possible vibration even at high speeds.

Coolant ducts integrated in the floating holder ensure the reamer is optimally supplied with cooling lubricant. Longer hole tolerance compliancy and tool life are the result. Higher economic efficiency thanks to cost and time saving is guaranteed.

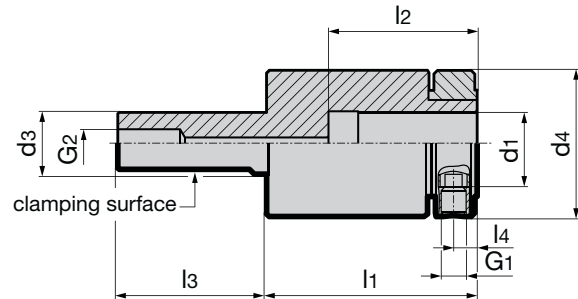
## Floating holders with side lock holder

### Product information

- straight shank d3 with whistle notch flat
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- central coolant supply max. 80 bar
- drive flat on tool shank necessary
- for tool shank tolerance h6

### Scope of delivery

- for other shank  $\varnothing$  order reduction sleeves Series no. 4095 separately
- order hexagon chuck key Series no. 4912 separately
- further sizes with differing radial play are available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4167**

| d <sub>3</sub><br>g6 mm | for holder<br>d <sub>1</sub> h6<br>mm | recommen-<br>ded tool- $\varnothing$ | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | l <sub>4</sub><br>mm | G <sub>1</sub> | G <sub>2</sub> | radial<br>play | Code no. | EDP Number    |
|-------------------------|---------------------------------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------|----------------|----------------|----------|---------------|
| 20                      | 20                                    | up to $\varnothing$ 28               | 49                   | 75                   | 50                   | 50                   | 9.5                  | M8             | 1/8            | 0.12           | 20.020   | 9041670200200 |
| 25                      | 25                                    | $\varnothing$ 10 - $\varnothing$ 36  | 59                   | 85                   | 60                   | 60                   | 9.5                  | M10            | 1/4            | 0.12           | 25.025   | 9041670250250 |
| 32                      | 32                                    | $\varnothing$ 16 - $\varnothing$ 60  | 80                   | 92                   | 63                   | 80                   | 12.5                 | M12            | 3/8            | 0.12           | 32.032   | 9041670320320 |

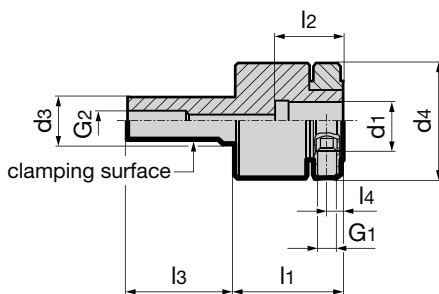
## Short floating holders with side lock holder

### Product information

- straight shank d3 with whistle notch flat
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- central coolant supply max. 80 bar
- drive flat on tool shank necessary
- for tool shank tolerance h6

### Scope of delivery

- for other shank  $\varnothing$  order reduction sleeves Series no. 4095 separately
- order hexagon chuck key Series no. 4912 separately
- further sizes with differing radial play are available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4169**

| d <sub>3</sub><br>g6 mm | for holder<br>d <sub>1</sub> h6<br>mm | recommen-<br>ded tool- $\varnothing$ | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | l <sub>4</sub><br>mm | G <sub>1</sub> | G <sub>2</sub> | radial<br>play | Code no. | EDP Number    |
|-------------------------|---------------------------------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------|----------------|----------------|----------|---------------|
| 20                      | 10                                    | up to $\varnothing$ 14               | 38.5                 | 46                   | 25                   | 40                   | 6                    | M6             | 1/8            | 0.08           | 10.020   | 9041690100200 |
| 20                      | 16                                    | up to $\varnothing$ 22               | 49                   | 46                   | 29                   | 46                   | 7                    | M6             | 1/8            | 0.10           | 16.020   | 9041690160200 |
| 20                      | 20                                    | up to $\varnothing$ 28               | 49                   | 46                   | 29                   | 46                   | 7                    | M6             | 1/8            | 0.12           | 20.020   | 9041690200200 |

Holders for  
fine machining

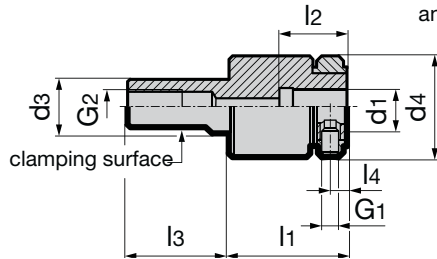
## Mini floating holders with side lock holder

### Product information

- holder shank with lateral clamping surface
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- very compact design for restricted space
- central coolant supply max. 80 bar
- drive flat on tool shank necessary
- for tool shank tolerance h6

### Scope of delivery

- for other shank  $\varnothing$  order reduction sleeves Series no. 4097 separately
- order hexagon chuck key Series no. 4912 separately
- further sizes with differing radial play are available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4174**

| d <sub>3</sub><br>g6 mm | for holder<br>d <sub>1</sub> h6<br>mm | recommen-<br>ded tool- $\varnothing$ | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | l <sub>4</sub><br>mm | G <sub>1</sub> | G <sub>2</sub> | radial<br>play | Code no. | EDP Number    |
|-------------------------|---------------------------------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------|----------------|----------------|----------|---------------|
| 16                      | 10                                    | to $\varnothing$ 14                  | 30                   | 35                   | 20                   | 30                   | 5                    | M5             | 1/8            | 0.12           | 10.016   | 9041740100160 |

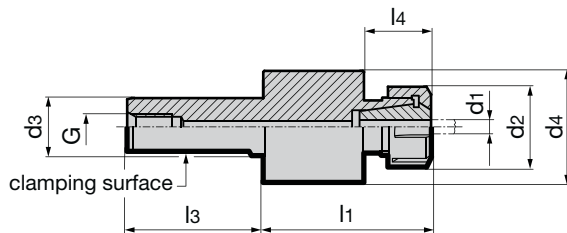
## Floating holder with ER collet holder

### Product information

- straight shank d<sub>3</sub> with whistle notch flat
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- for the application of internally cooled reamers use metallic sealed collets type DM Series no. 4175
- central coolant supply max. 80 bar

### Scope of delivery

- incl. retaining nut
- order collet Series no. 4175 or 4307 as well as clamping key Series no. 4913 separately
- further sizes with differing radial play are available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4098**

| d <sub>3</sub><br>g6 mm | recommended<br>tool- $\varnothing$ d <sub>1</sub><br>mm | clamping<br>range       | d <sub>2</sub><br>mm | d <sub>4</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | l <sub>4</sub><br>mm | G   | radial<br>play | Code no. | EDP Number    |
|-------------------------|---|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----|----------------|----------|---------------|
| 16                      | up to $\varnothing$ 16                                  | ER20 $\varnothing$ 1-13 | 34                   | 49.5                 | 74                   | 40                   | 29.5                 | 1/8 | 0.06           | 20.016   | 9040980200160 |
| 20                      | $\varnothing$ 4- $\varnothing$ 24                       | ER25 $\varnothing$ 2-16 | 42                   | 59                   | 84                   | 50                   | 35                   | 1/8 | 0.06           | 25.020   | 9040980250200 |
| 25                      | up to $\varnothing$ 16                                  | ER20 $\varnothing$ 1-13 | 34                   | 49.5                 | 74                   | 60                   | 29.5                 | 1/4 | 0.08           | 20.025   | 9040980200250 |
| 25                      | $\varnothing$ 4- $\varnothing$ 24                       | ER25 $\varnothing$ 2-16 | 42                   | 59                   | 84                   | 60                   | 35                   | 1/4 | 0.08           | 25.025   | 9040980250250 |
| 32                      | $\varnothing$ 6 - $\varnothing$ 30                      | ER32 $\varnothing$ 3-20 | 50                   | 64                   | 91                   | 80                   | 35.5                 | 3/8 | 0.10           | 32.032   | 9040980320320 |
| 40                      | $\varnothing$ 6 - $\varnothing$ 30                      | ER32 $\varnothing$ 3-20 | 50                   | 64                   | 91                   | 80                   | 35.5                 | 1/2 | 0.12           | 32.040   | 9040980320400 |

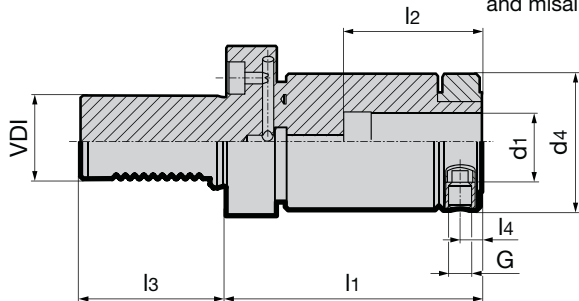
## Floating side lock holder VDI DIN 69880-1

### Product information

- VDI holder shank with teeth
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- central coolant supply max. 80 bar
- tool shank with special whistle notch flat necessary
- drive flat on tool shank necessary
- for tool shank tolerance h6

### Scope of delivery

- for other shank  $\varnothing$  order reduction sleeves Series no. 4095 separately
- order hexagon chuck key Series no. 4912 separately
- further dimensions available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4117**

| VDI | holder d <sub>1</sub> h6 mm | clamping range | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | l <sub>3</sub> mm | l <sub>4</sub> mm | M   | radial play | Code no. | EDP Number    |
|-----|-----------------------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|-------------|----------|---------------|
| 30  | 25                          | Ø 16-25        | 59                | 111               | 59                | 55                | 9.5               | M10 | 0.12        | 25.030   | 9041170250300 |
| 40  | 25                          | Ø 16-25        | 59                | 111               | 59                | 63                | 9.5               | M10 | 0.12        | 25.040   | 9041170250400 |
| 40  | 32                          | Ø 20-32        | 80                | 117               | 63                | 63                | 12.5              | M12 | 0.12        | 32.040   | 9041170320400 |
| 50  | 25                          | Ø 16-25        | 59                | 111               | 59                | 78                | 9.5               | M10 | 0.12        | 25.050   | 9041170250500 |
| 50  | 32                          | Ø 20-32        | 80                | 117               | 63                | 78                | 12.5              | M12 | 0.12        | 32.050   | 9041170320500 |

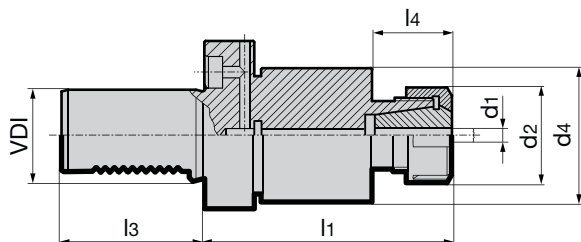
## Floating ER Collet holder VDI DIN 69880-1

### Product information

- VDI holder shank with teeth
- suitable for conventional and high performance multi-fluted reamers, because of no angle compensation
- for the application of internally cooled reamers use metallic sealed collets type DM Series no. 4175
- with coolant supply max. 80 bar

### Scope of delivery

- incl. retaining nut
- order collet Series no. 4175 or 4307 as well as clamping key Series no. 4913 separately
- further sizes with differing radial play are available on request
- compensates lateral deviation between tool and workpiece
- vibration-free compensation of concentricity and misalignment



Series no. **4116**

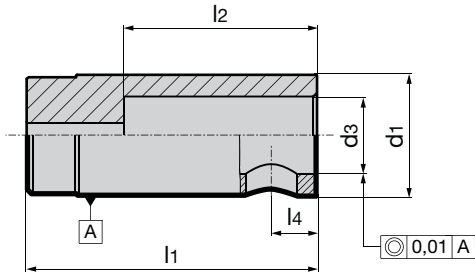
| VDI | recommended tool-Ø | clamping range | d <sub>2</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>3</sub> mm | l <sub>4</sub> mm | radial play | Code no. | EDP Number    |
|-----|--------------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|----------|---------------|
| 30  | up to Ø 20         | ER25 Ø 2-16    | 42                | 59                | 109               | 55                | 35                | 0.08        | 25.030   | 9041160250300 |
| 40  | up to Ø 20         | ER25 Ø 2-16    | 42                | 59                | 109               | 63                | 35                | 0.10        | 25.040   | 9041160250400 |
| 40  | Ø 6- Ø 32          | ER32 Ø 3-20    | 50                | 64                | 116               | 63                | 35.5              | 0.10        | 32.040   | 9041160320400 |
| 50  | up to Ø 20         | ER25 Ø 2-16    | 42                | 59                | 109               | 78                | 35                | 0.12        | 25.050   | 9041160250500 |
| 50  | Ø 6- Ø 32          | ER32 Ø 3-20    | 50                | 64                | 116               | 78                | 35.5              | 0.12        | 32.050   | 9041160320500 |

HOLDERS for fine machining

## Reduction sleeves for floating holder

### Product information

- for reducing the clamping diameter in floating holders
  - central coolant supply
  - drive flat on tool shank necessary
  - applicable in floating holders
- Series no. 4167 and 4117



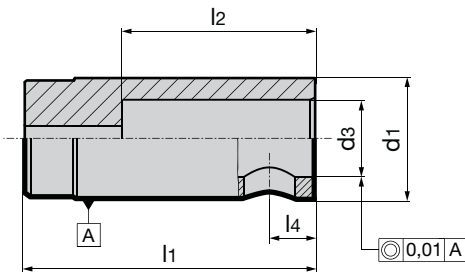
Series no. **4095**

| d1<br>mm | for shank Ø<br>d3 h6<br>mm | l1<br>mm | l2<br>mm | l4<br>mm | Code no. | EDP Number    |
|----------|----------------------------|----------|----------|----------|----------|---------------|
| 20       | 14                         | 50       | 40       | 9.5      | 14.020   | 9040950140200 |
| 20       | 16                         | 50       | 40       | 9.5      | 16.020   | 9040950160200 |
| 25       | 16                         | 60       | 40       | 9.5      | 16.025   | 9040950160250 |
| 25       | 18                         | 60       | 40       | 9.5      | 18.025   | 9040950180250 |
| 25       | 20                         | 60       | 50       | 9.5      | 20.025   | 9040950200250 |
| 32       | 20                         | 63       | 50       | 12.5     | 20.032   | 9040950200320 |
| 32       | 25                         | 63       | 60       | 12.5     | 25.032   | 9040950250320 |

## Reduction sleeves for short floating holder

### Product information

- for reducing the clamping diameter in floating holders
  - central coolant supply
  - drive flat on tool shank necessary
  - applicable in short floating holders
- Series no. 4169



Series no. **4096**

| d1<br>mm | for shank Ø<br>d3 h6<br>mm | l1<br>mm | l2<br>mm | l4<br>mm | Code no. | EDP Number    |
|----------|----------------------------|----------|----------|----------|----------|---------------|
| 10       | 4                          | 25       | 10       | 6.0      | 4.010    | 9040960040100 |
| 10       | 6                          | 25       | -        | 6.0      | 6.010    | 9040960060100 |
| 10       | 8                          | 25       | 20       | 6.0      | 8.010    | 9040960080100 |
| 16       | 10                         | 29       | 25       | 7.0      | 10.016   | 9040960100160 |
| 16       | 12                         | 29       | 25       | 7.0      | 12.016   | 9040960120160 |
| 20       | 12                         | 29       | 25       | 7.0      | 12.020   | 9040960120200 |
| 20       | 14                         | 29       | 25       | 7.0      | 14.020   | 9040960140200 |
| 20       | 16                         | 29       | 25       | 7.0      | 16.020   | 9040960160200 |



MODULE 6x6  
PCD

# HIGHEST PRECISION

Module 6x6 and  
PCD tools



- ⇒ perfect concentricity
- ⇒ axial and radial  $\mu$ -accurate setting
- ⇒ targeted balancing
- ⇒ quick tool pre-setting

# HSK



HSK CLAMPING TECHNOLOGY

ONE CLAMPING SET  
MANY NEW  
POSSIBILITIES!





**SUITABLE FOR DIFFERENT  
SPINDLE CONTOURS**



**MAXIMUM  
CLAMPING FORCE**



**OPTIMAL COOLING  
SUPPLY – MQL &  
CONVENTIONAL**



**STRAIGHT-  
LINE COOLANT  
THROUGHFLOW**



# 4-POINT CLAMPING TECHNOLOGY FOR MQL

## TECHNICAL INFORMATION AND ADVANTAGES

**GÜHRO**CLAMP



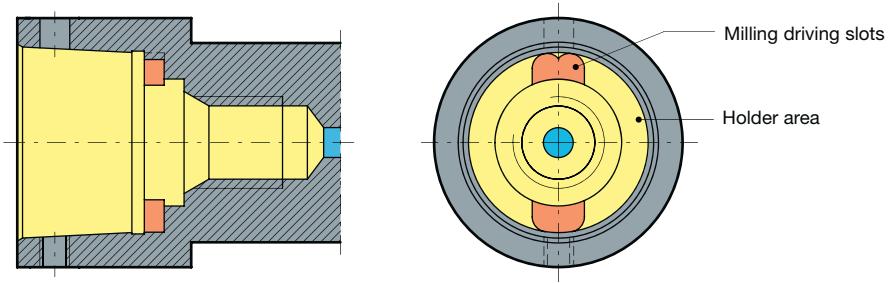
Our 4-point clamping system is suitable for radial manual clamping. Primarily designed for installation in spindles (short drilling spindles, multiple-spindle drilling heads).



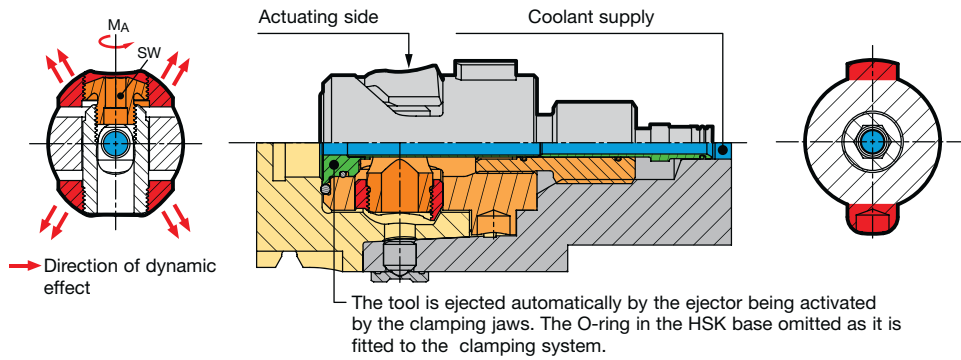
### Advantages:

- simple and hence more economic spindle manufacture
- short, small diameter spindles with constricted spindle bearing spacing
- suitable for a pressure up to 160 bar (for conventional internal cooling)
- fast response time thanks to uninterrupted MQL supply
- compatible installation contour and application of our 4-point clamping set for conventional cooling
- fixed installation through screwed joint, prebalanced, and good rotation symmetry, suitable for high-speed processes

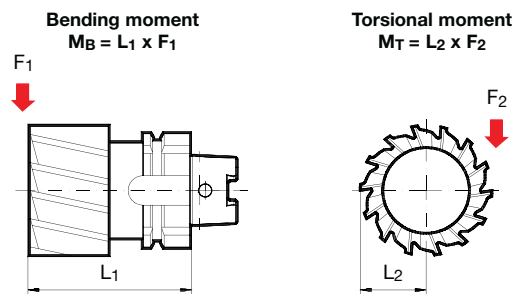
Internal contour of spindle



Installation and principle of operation



Bending, torsional and tightening moment for 4-point clamping sets for MQL



① We recommend  $M_A$  max. for rough machining and milling operations. For drilling and reaming operations a lower deviation of  $M_A$  max. up to 30% is permissible. Please check the torque with a torque wrench.

② Depending on temperature and lubricating conditions these values can be up to 15% lower.

③ Due to the screwed connection.  $M_T$  max. can be lower with adaptors.

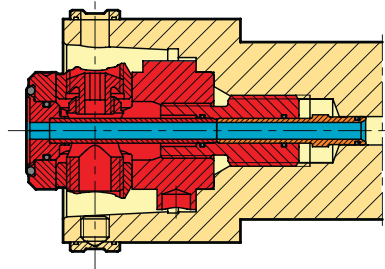
| HSK-C | max. torque $M_A$ [Nm] ① | Key size | max. drawing force [kN] ② | max. linear bending moment $M_B$ [Nm] ② | max. transferrable torsional moment $M_T$ [Nm] ② ③ |
|-------|--------------------------|----------|---------------------------|---|--|
| 32    | 3.0                      | 2.5      | 8.5                       | 72                                      | 105  |
| 40    | 6.0                      | 3.0      | 12.5                      | 135                                     | 180  |
| 50    | 12.0                     | 4.0      | 24.0                      | 330                                     | 390  |
| 63    | 24.0                     | 5.0      | 32.0                      | 570                                     | 680  |
| 80    | 40.0                     | 6.0      | 45.0                      | 1000                                    | 1570   |
| 100   | 60.0                     | 8.0      | 53.0                      | 1620                                    | 4200   |

**General notes:** Our manual clamping sets must not be operated with motor-driven tools (impulse screwdriver or similar). The hexagonal key should not exceed the key size over its entire length, this largely prevents excessive torque being transferred. We recommend the T-handle hexagonal key, Series no. 4912. For accurate setting of the maximum torque and achieving the maximum interface rigidity, we recommend the application of a torque wrench, Series no. 4915 with hexagonal sockets, Series no. 4916. Production drawings of the spindle contour to suit direct installation are available on request, including .dxf.

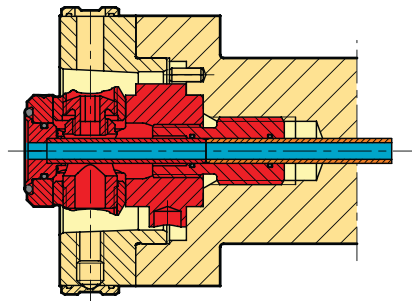


## MQL 4-point clamping set connection dimensions for new designs

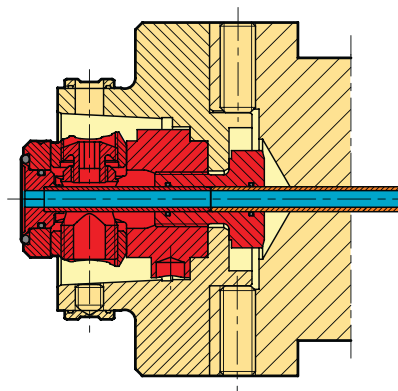
Direct installation in spindle with MQL adaptor



Short spindle adaptor with MQL supply pipe



Adaptor (in front) with MQL supply pipe



# GÜHROCLAMP MQL 4-point clamping sets for MQL and IC

## Product information

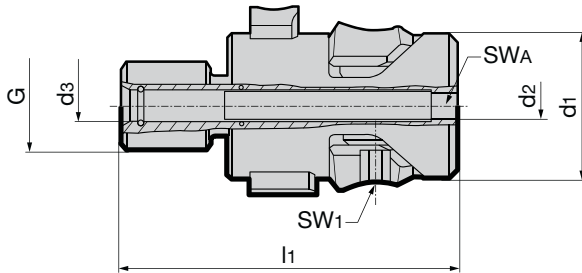
- for radial manual HSK tool clamping
- universal application for MQL and high-pressure IC
- the central and coaxial MQL supply with constant internal diameter prevents coolant from consolidating to DIN 69090-2
- for a coolant pressure up to 160 bar
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

## Scope of delivery

- complete as shown in illustration
- installation and operating instructions



**GÜHROCLAMP**



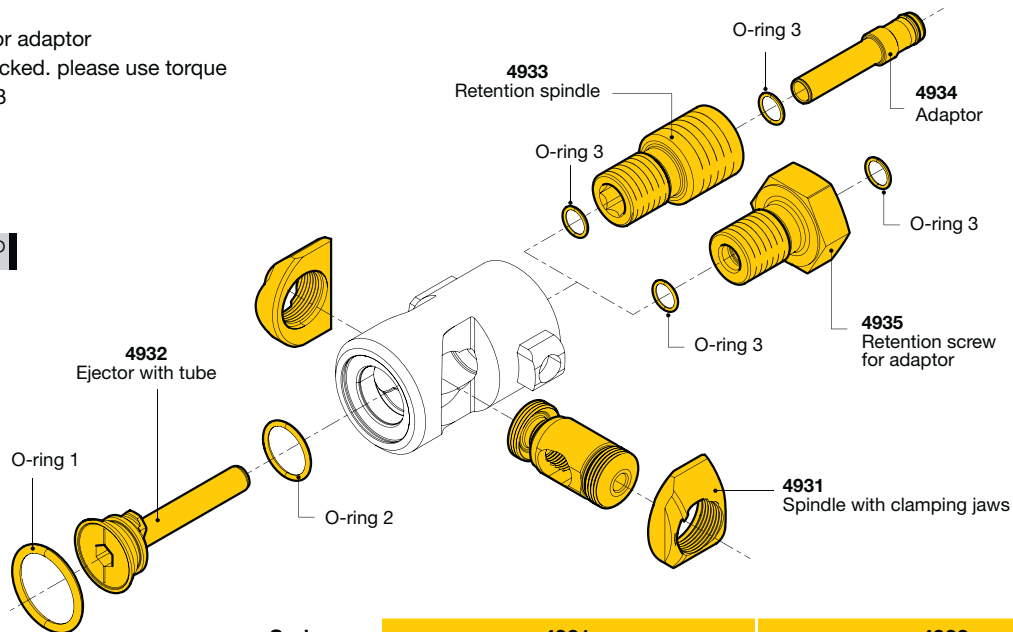
Series no. **4930**

| HSK-C | d1 mm | d2 mm | d3 mm | l1 mm  | G   | SW1 | SWA | kg   | Code no. | EDP Number    |
|-------|-------|-------|-------|--------|-----|-----|-----|------|----------|---------------|
| 32    | 16.7  | 3     | 4.1   | 41.75  | M10 | 2.5 | 3   | 0.05 | 24.100   | 9049300241000 |
| 40    | 20.6  | 4     | 5.1   | 43.90  | M12 | 3   | 4   | 0.09 | 30.100   | 9049300301000 |
| 50    | 25.5  | 5     | 7.1   | 54.20  | M16 | 4   | 5   | 0.18 | 38.100   | 9049300381000 |
| 50    | 25.5  | 5     | 6.1   | 54.20  | M16 | 4   | 5   | 0.18 | 38.200   | 9049300382000 |
| 63    | 33.0  | 6     | 7.1   | 72.20  | M20 | 5   | 6   | 0.37 | 48.100   | 9049300481000 |
| 80    | 41.0  | 8     | 10.1  | 90.20  | M24 | 6   | 8   | 0.70 | 60.100   | 9049300601000 |
| 100   | 52.0  | 10    | 12.1  | 107.10 | M24 | 8   | 10  | 1.30 | 75.100   | 9049300751000 |

## GÜHROCLAMP component parts for MQL 4-point clamping sets Series no. 4930

- retention screw only for adaptor
- if spindle cannot be locked, please use torque socket Series no. 4963

**GÜHROCLAMP**



Series no. **4931** **4932**

| HSK-C | O-ring 1   | O-ring 2 | O-ring 3        | Spindle with clamping jaws | Ejector with tube |
|-------|------------|----------|-----------------|----------------------------|-------------------|
|       | mm         | mm       | mm              | EDP Number                 | EDP Number        |
| 32    | 10.5x2.0   | 6.0x1.5  | 3.5x1/4x1       | 9049310240000              | 9049320241000     |
| 40    | 13.0x2.0   | 7.0x1.5  | 4.5x1.0/5.0x1.0 | 9049310300000              | 9049320301000     |
| 50    | 16.0x2.0   | 10.0x1.5 | 5.5x1.0/7x1.0   | 9049310380000              | 9049320381000     |
| 63    | 20.3x2.4   | 14.0x1.5 | 7.0x1.0         | 9049310480000              | 9049320481000     |
| 80    | 23.4x3.53  | 16.0x2.0 | 10.0x1.5        | 9049310600000              | 9049320601000     |
| 100   | 28.17x3.53 | 22.0x2.0 | 12.0x1.70       | 9049310750000              | 9049320751000     |

HSK  
clamping technology

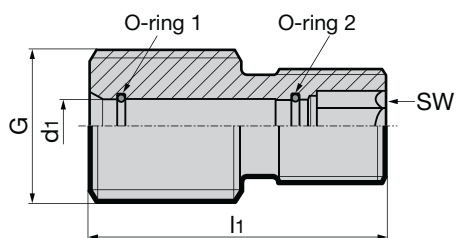
## Retention spindles for GÜHROCLAMP MQL 4-point clamping sets

### Product information

- retention spindle for direct installation in spindle

### Scope of delivery

- complete as shown in illustration



Series no. **4933**

| for HSK-C | d <sub>1</sub> mm | l <sub>1</sub> mm | G    | SW | O-ring 1  | O-ring 2  | EDP Number    |
|-----------|-------------------|-------------------|------|----|-----------|-----------|---------------|
| 32        | 4.1               | 22.5              | M10  | 4  | 3.5x1.0   | 4.0x1.0   | 9049330241000 |
| 40        | 5.1               | 23.2              | M 12 | 5  | 4.5x1.0   | 5.0x1.0   | 9049330301000 |
| 50        | 7.1               | 27.0              | M 16 | 6  | 5.5x1.0   | 7.0x1.0   | 9049330381000 |
| 50        | 6.1               | 27.0              | M 16 | 6  | 5.5x1.0   | 5.5x1.0   | 9049330382000 |
| 63        | 7.1               | 39.0              | M 20 | 8  | 7.0x1.0   | 7.0x1.0   | 9049330481000 |
| 80        | 10.1              | 50.0              | M 24 | 10 | 10.0x1.5  | 10.0x1.5  | 9049330601000 |
| 100       | 12.1              | 60.0              | M 24 | 12 | 12.0x1.70 | 12.0x1.70 | 9049330751000 |

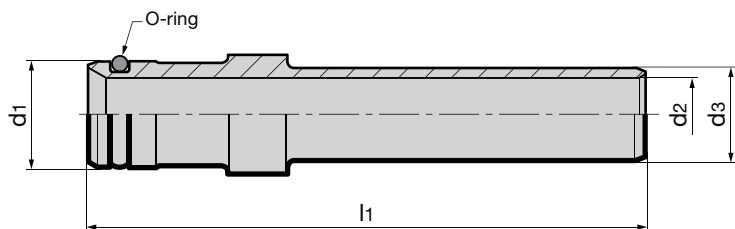
## Adaptor for GÜHROCLAMP MQL 4-point clamping sets

### Product information

- adaptor for direct installation in spindle and spindle adaptor (integrated) for coolant supply and sealing

### Scope of delivery

- complete as shown in illustration



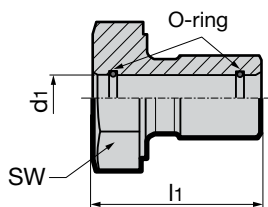
Series no. **4934**

| for HSK-C | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | O-ring     | Code no. | EDP Number    |
|-----------|-------------------|-------------------|-------------------|-------------------|------------|----------|---------------|
| 32        | 4.0               | 2.0               | 4.0               | 14                | 2.0 x 1.0  | 24.100   | 9049340241000 |
| 40        | 5.0               | 3.0               | 5.0               | 28                | 3.0 x 1.0  | 30.100   | 9049340301000 |
| 50        | 6.0               | 4.0               | 6.0               | 28                | 4.0 x 1.0  | 38.200   | 9049340382000 |
| 50        | 6.0               | 4.0               | 7.0               | 28                | 4.0 x 1.0  | 38.100   | 9049340381000 |
| 63        | 8.0               | 5.5               | 7.0               | 42                | 6.0 x 1.0  | 48.100   | 9049340481000 |
| 80        | 10.2              | 7.5               | 10.0              | 56                | 8.0 x 1.0  | 60.100   | 9049340601000 |
| 100       | 12.0              | 9.5               | 12.0              | 60                | 10.0 x 1.0 | 75.100   | 9049340751000 |

# Retention screw for GÜHROCLAMP MQL 4-point clamping sets

## Product information

- necessary for installation of MQL 4-point clamping set in spindle adaptors and module adaptor flange Series no. 4363, 4386, 4387 and 4713
- change against standard retention bolt



## Scope of delivery

- complete as shown in illustration



|           |                   |                   |    |          |          |           | Series no.    | 4935 |
|-----------|-------------------|-------------------|----|----------|----------|-----------|---------------|------|
| for HSK-C | d <sub>1</sub> mm | l <sub>1</sub> mm | SW | O-ring 1 | O-ring 2 | torque Nm | EDP Number    |      |
| 32        | 4.1               | 23.5              | 13 | 4x1.0    | 4x1.0    | 14        | 9049350240000 |      |
| 40        | 5.1               | 21                | 16 | 4.5x1.0  | 5x1.0    | 30        | 9049350300000 |      |
| 50        | 6.1               | 25                | 18 | 5.5x1.0  | 6x1.0    | 60        | 9049350380000 |      |
| 50        | 7.1               | 25                | 18 | 5.5x1.0  | 7x1.0    | 60        | 9049350381000 |      |
| 63        | 7.1               | 29                | 24 | 7x1.0    | 7x1.0    | 110       | 9049350480000 |      |
| 80        | 10.1              | 36                | 24 | 10x1.5   | 10x1.5   | 180       | 9049350600000 |      |
| 100       | 12.1              | 46.5              | 32 | 12x1.7   | 12x1.7   | 200       | 9049350750000 |      |

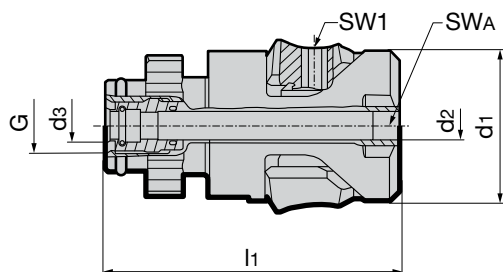
# M contour clamping sets for MQL and IC

## Product information

- HSK clamping sets compatible with M contour spindles and adaptors
- universal application for MQL and high-pressure IC
- the central coaxial MQL supply with constant internal diameter ensures a uninterrupted coolant supply to DIN 69090-2
- for a coolant pressure up to 160 bar
- for radial manual HSK tool clamping
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

## Scope of delivery

- incl. adaptor with through hole for uninterrupted coolant supply
- including installation and operating instructions
- order adaptor with spigot connection Series no. 4616 separately
- spindle connection dimensions on request
- order clamping set assembly/disassembly tool series no. 4624 separately
- order ejector assembly/disassembly tool series no. 4986 separately



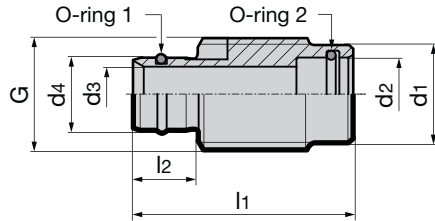
|       |                   |                   |                   |                   |       |     |                 | Series no.    | 4615 |
|-------|-------------------|-------------------|-------------------|-------------------|-------|-----|-----------------|---------------|------|
| HSK-C | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | l <sub>1</sub> mm | G     | SW1 | SW <sub>A</sub> | EDP Number    |      |
| 32    | 16.7              | 3.0               | 4.1               | 43.4              | M8x1  | 2.5 | 3               | 9046150240000 |      |
| 40    | 20.6              | 4.0               | 5.1               | 48.3              | M10x1 | 3   | 4               | 9046150300000 |      |
| 50    | 25.5              | 5.0               | 6.1               | 55.3              | M12x1 | 4   | 5               | 9046150381000 |      |
| 50    | 25.5              | 5.0               | 7.1               | 55.3              | M12x1 | 4   | 5               | 9046150380000 |      |
| 63    | 33.0              | 6.0               | 7.1               | 64.7              | M12x1 | 5   | 6               | 9046150480000 |      |
| 80    | 41.0              | 8.0               | 10.1              | 75.3              | M16x1 | 6   | 8               | 9046150600000 |      |
| 100   | 52.0              | 10.0              | 12.1              | 94.5              | M18x1 | 8   | 10              | 9046150750000 |      |

HSK clamping technology

## Adaptor with spigot transition for M contour clamping set

### Product information

- application on M contour clamping sets  
Series no. 4615 instead of adaptor with coolant transfer hole
- universal application for MQL and high-pressure IC
- for a coolant pressure up to 160 bar
- adaptor for spindles without coolant tube for uninterrupted coolant supply
- spindle connection dimensions on request

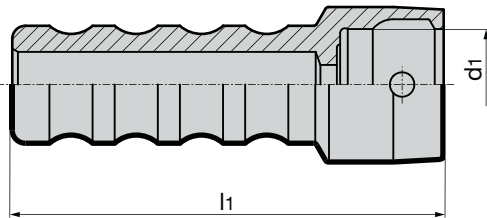


|           |                   |                   |                   |                   |                   |                   |          |          |       | Series no.    | 4616 |
|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------|----------|-------|---------------|------|
| for HSK-C | d <sub>1</sub> mm | d <sub>2</sub> mm | d <sub>3</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | O-ring 1 | O-ring 2 | G     | EDP Number    |      |
| 32        | -                 | 3.5               | 3                 | 5.00              | 14.4              | 5.4               | 3.5x1    | 3x1      | M8x1  | 9046160240000 |      |
| 40        | 7.7               | 4.5               | 4                 | 6.00              | 22.0              | 6.5               | 4.0x1    | 4x1      | M10x1 | 9046160300000 |      |
| 50        | 8.5               | 5.5               | 5                 | 8.00              | 23.0              | 7.5               | 5.5x1    | 6x1      | M12x1 | 9046160380000 |      |
| 63        | 10.6              | 7.0               | 6                 | 8.00              | 24.0              | 7.0               | 7.0x1    | 6x1      | M12x1 | 9046160480000 |      |
| 80        | -                 | 10.0              | 8                 | 11.30             | 23.3              | 8.3               | 10x1.5   | 8x1.5    | M12x1 | 9046160600000 |      |
| 100       | -                 | 12.0              | 10                | 13.80             | 30.6              | 9.6               | 12x1.5   | 12x1.5   | M18x1 | 9046160750000 |      |

## Tool for the assembly / disassembly of M contour clamping sets

### Product information

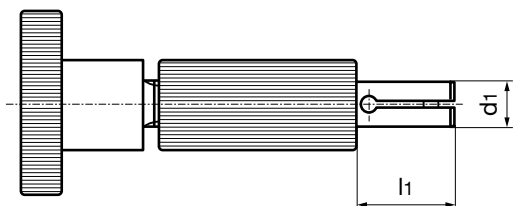
- for the assembly and disassembly of M contour clamping sets  
Series no. 4615



|         |                   |                   |               | Series no. | 4624 |
|---------|-------------------|-------------------|---------------|------------|------|
| for HSK | d <sub>1</sub> mm | l <sub>1</sub> mm | EDP Number    |            |      |
| 32      | 17                | 118.7             | 9046240320000 |            |      |
| 40      | 21                | 121.6             | 9046240400000 |            |      |
| 50      | 26                | 127.5             | 9046240500000 |            |      |
| 63      | 34                | 132               | 9046240630000 |            |      |
| 80      | 42                | 143               | 9046240800000 |            |      |
| 100     | 53                | 152               | 9046241000000 |            |      |

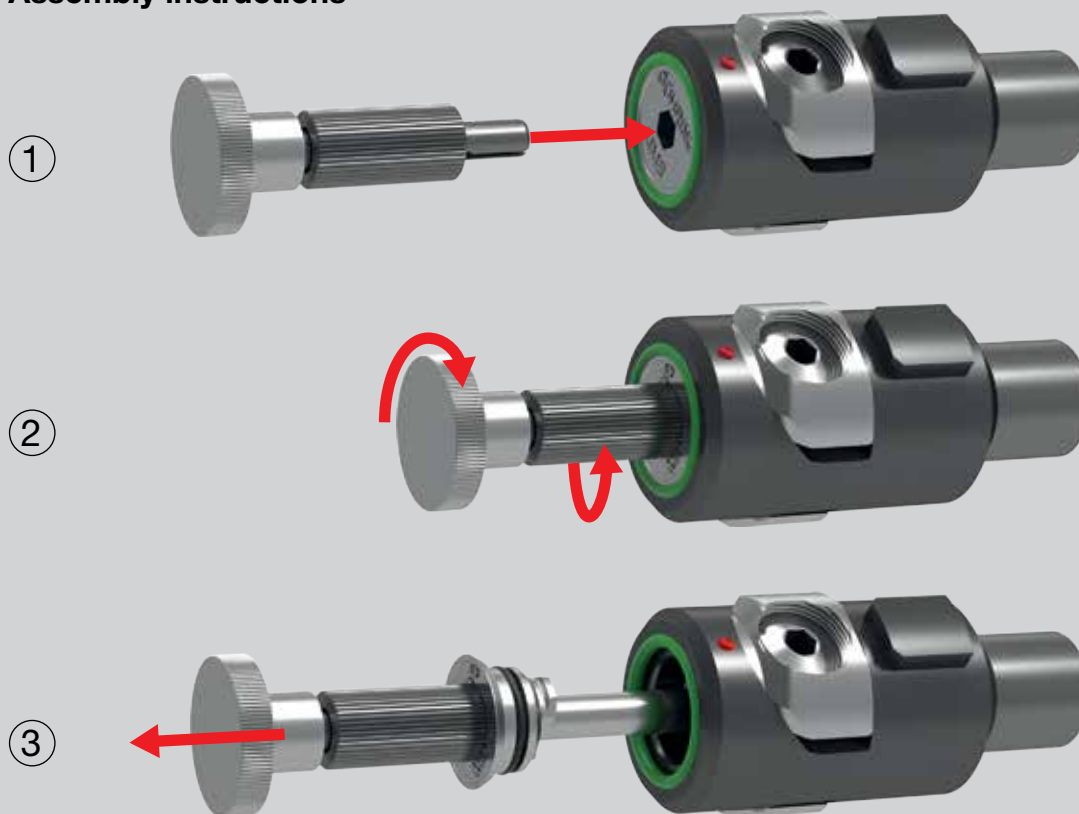
**Product information**

- for assembly and disassembly of ejectors of MQL clamping sets, Series no. 4930, and M contour clamping sets, Series no. 4615



|         |                   |                   |               | Series no. | 4986 |
|---------|-------------------|-------------------|---------------|------------|------|
| for HSK | d <sub>1</sub> mm | l <sub>1</sub> mm | EDP Number    |            |      |
| 32      | 3                 | 9                 | 9049860030320 |            |      |
| 40      | 4                 | 9                 | 9049860040400 |            |      |
| 50      | 5                 | 11                | 9049860050500 |            |      |
| 63      | 6                 | 12                | 9049860060630 |            |      |
| 80      | 8                 | 15                | 9049860080800 |            |      |
| 100     | 10                | 15                | 9049860100000 |            |      |

**Assembly instructions**



HSK  
 clamping technology

# THE 4-POINT CLAMPING TECHNOLOGY FOR CONVENTIONAL COOLING

## TECHNICAL INFORMATION AND ADVANTAGES

Conventional 4-point clamping sets offer enormous clamping force and optimal cooling lubricant supply. They are suitable for radial manual HSK tool clamping.



### Advantages:

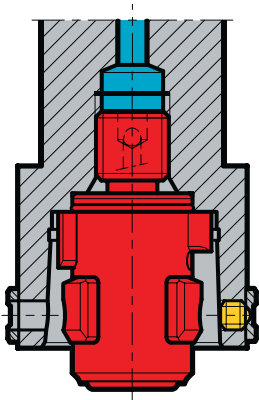
- simple and hence more economic spindle manufacture
- short, small diameter spindles with constricted spindle bearing spacing
- suitable for a pressure up to 80 bar

**General notes:** Our manual clamping sets must not be operated with motor-driven tools (impulse screwdriver or similar). The hexagonal key should not exceed the key size over its entire length. This largely prevents excessive torque being transferred. We recommend the T-handle hexagonal key, Series no. 4912. For accurate setting of the maximum torque and achieving the maximum interface rigidity, we recommend the application of a torque wrench, Series no. 4915 with hexagonal sockets, Series no. 4916. Removal of the locking ring is made by releasing the pressure ball screw. This is achieved with the use of an Allen key inserted through the opposite access hole and through the hollow threaded spindle and turned anticlockwise. Once released, the locking ring will slide axially off. Production drawings of the spindle contour to suit direct installation are available on request, including .dxf.

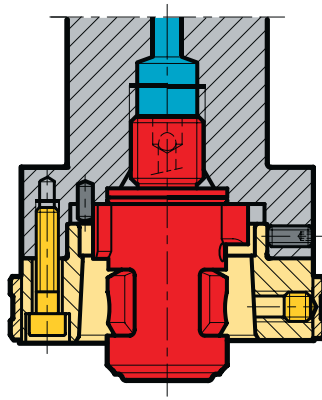
Application examples

Spindle interface

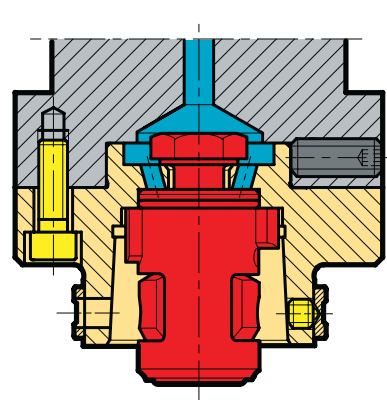
Direct installation in spindle



Spindle adaptor (integrated)

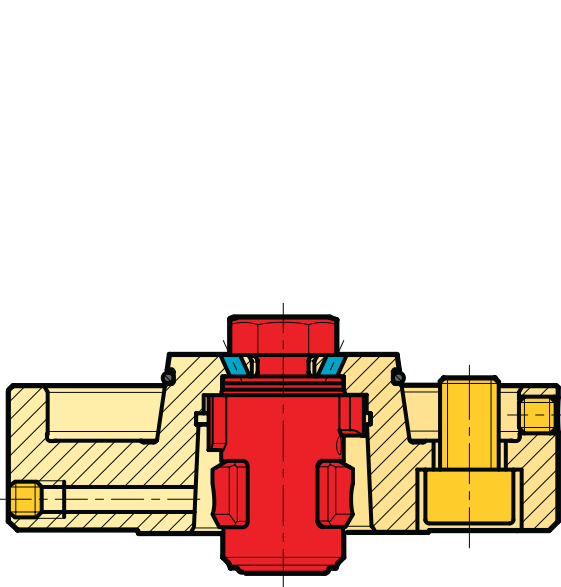


Spindle adaptor (in front)

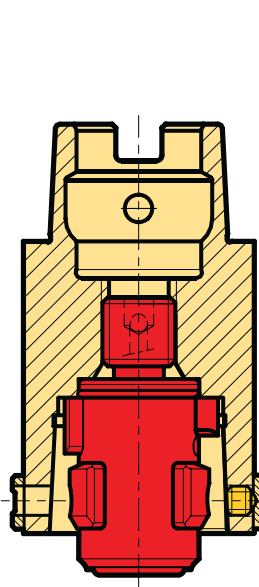


Adaptor

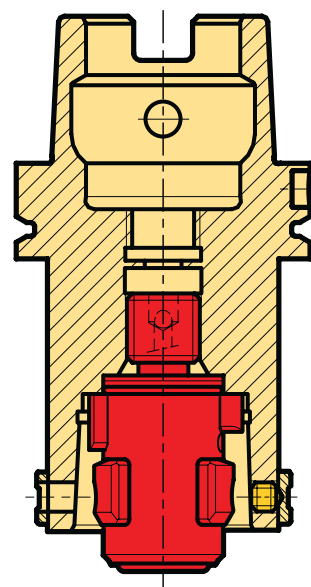
Basic adaptor for ISO taper spindles



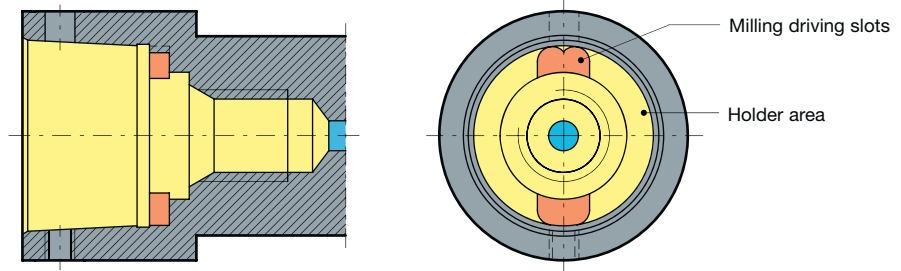
HSK-C extension



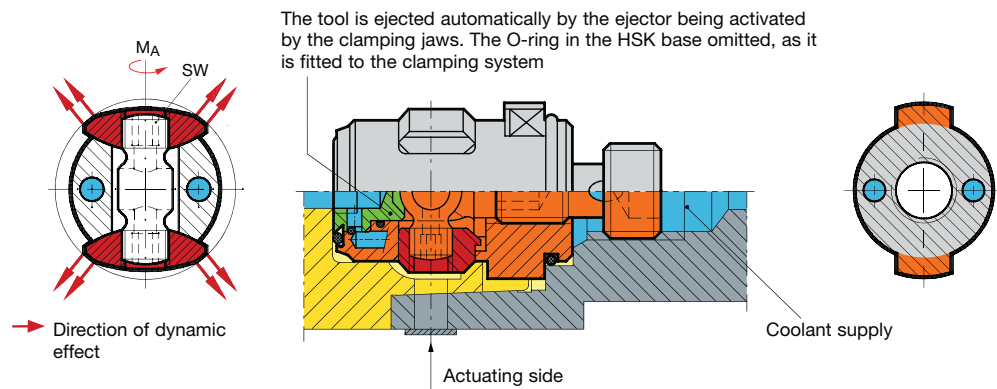
HSK-A reduction



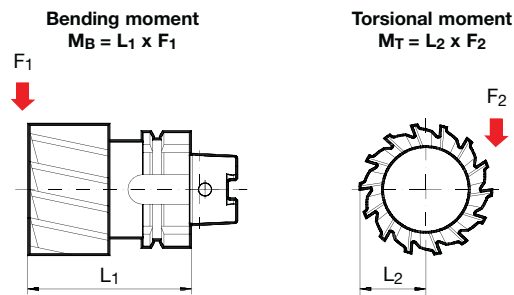
Internal contour of spindle



Installation and principle of operation



Bending torsional and tightening moment for 4-point clamping sets for conventional cooling



- ① We recommend  $M_A$  max. for rough machining and milling operations. For drilling and reaming operations a lower deviation of  $M_A$  max. up to 30% is permissible. Please check the torque with a torque wrench.
- ② Depending on temperature and lubricating conditions these values can be up to 15% lower.
- ③ Due to the screwed connection.  $M_T$  max. can be lower with adaptors.

| HSK-C | max. torque $M_A$ [Nm] ① | Key size | max. drawing force [kN] ② | max. linear bending moment $M_B$ [Nm] ② | max. transferrable torsional moment $M_T$ [Nm] ② ③ |
|-------|--------------------------|----------|---------------------------|---|--|
| 25    | 1.5                      | 2.5      | 4.5                       | 30                                      | 30   |
| 32    | 3.0                      | 2.5      | 7.0                       | 60                                      | 100  |
| 40    | 6.0                      | 3.0      | 12.0                      | 130                                     | 170  |
| 50    | 14.0                     | 4.0      | 20.0                      | 280                                     | 350  |
| 63    | 27.0                     | 5.0      | 28.0                      | 500                                     | 640  |
| 80    | 54.0                     | 6.0      | 40.0                      | 900                                     | 1330   |

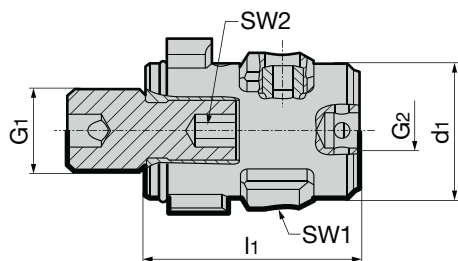
## 4-point clamping sets for conventional cooling

### Product information

- for a coolant pressure up to 80 bar
- for radial manual HSK tool clamping
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

### Scope of delivery

- including installation and operating instructions

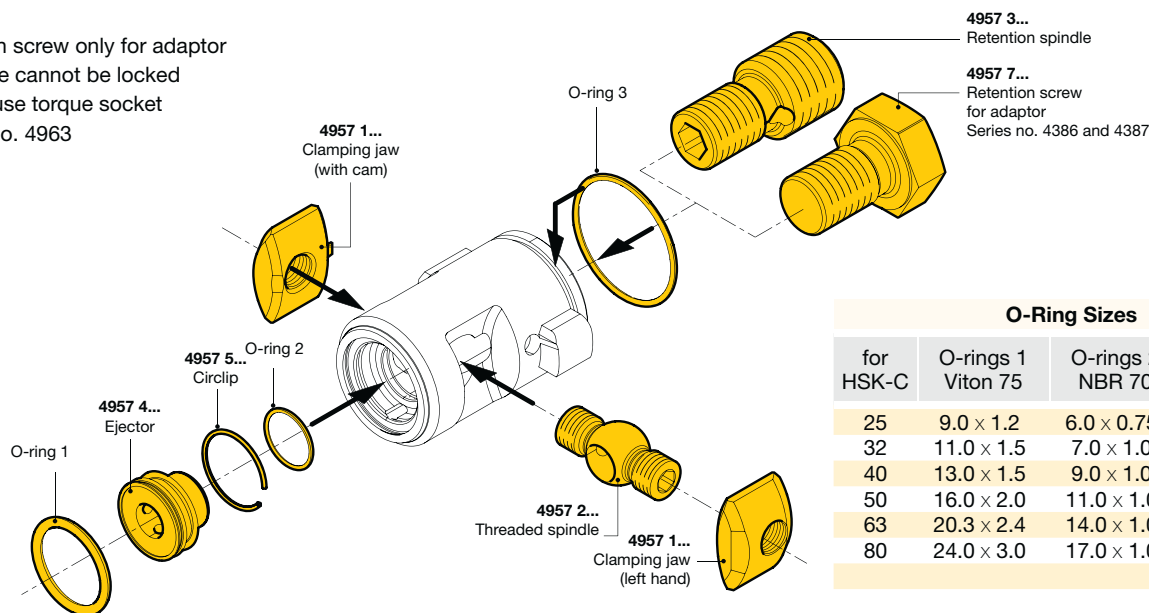


Series no. **4958**

| HSK-A/C | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | G1  | G2  | SW1 | SW2 | kg    | Code no. | EDP Number    |
|---------|----------------------|----------------------|-----|-----|-----|-----|-------|----------|---------------|
| 25      | 13.8                 | 30.30                | M 8 | M 4 | 2.5 | 3   | 0.025 | 19.000   | 9049580190000 |
| 32      | 16.7                 | 35.75                | M10 | M 5 | 2.5 | 4   | 0.050 | 24.000   | 9049580240000 |
| 40      | 20.6                 | 43.70                | M12 | M 6 | 3.0 | 5   | 0.080 | 30.000   | 9049580300000 |
| 50      | 25.5                 | 53.70                | M16 | M 8 | 4.0 | 6   | 0.150 | 38.000   | 9049580380000 |
| 63      | 33.0                 | 71.20                | M20 | M10 | 5.0 | 8   | 0.310 | 48.000   | 9049580480000 |
| 80      | 41.0                 | 90.10                | M24 | M12 | 6.0 | 10  | 0.640 | 60.000   | 9049580600000 |

## Component parts for 4-point clamping set Series no. 4958, separate or set

- retention screw only for adaptor
- if spindle cannot be locked please use torque socket Series no. 4963



### O-Ring Sizes

| for HSK-C | O-rings 1<br>Viton 75 | O-rings 2<br>NBR 70 | O-rings 3<br>NBR 70 |
|-----------|-----------------------|---------------------|---------------------|
| 25        | 9.0 × 1.2             | 6.0 × 0.75          | 11.0 × 1.0          |
| 32        | 11.0 × 1.5            | 7.0 × 1.0           | 14.0 × 1.0          |
| 40        | 13.0 × 1.5            | 9.0 × 1.0           | 17.0 × 1.0          |
| 50        | 16.0 × 2.0            | 11.0 × 1.0          | 22.0 × 1.5          |
| 63        | 20.3 × 2.4            | 14.0 × 1.0          | 28.0 × 1.5          |
| 80        | 24.0 × 3.0            | 17.0 × 1.0          | 35.0 × 1.5          |

HSK clamping technology

### EDP Numbers for Series 4957

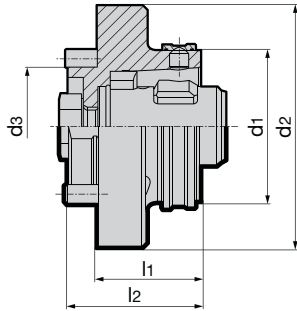
| for HSK-C | Clamping jaw set | Threaded spindle | Retention spindle | Ejector       | Circlip       | Retention screw | EDP Numbers   |
|-----------|------------------|------------------|-------------------|---------------|---------------|-----------------|---------------|
| 25        | 9049570010190    | 9049570020190    | 9049570030190     | 9049570040190 | 9049570050190 | 9049570070190   | 9049590190000 |
| 32        | 9049570010240    | 9049570020240    | 9049570030240     | 9049570040240 | 9049570050240 | 9049570070240   | 9049590240000 |
| 40        | 9049570010300    | 9049570020300    | 9049570030300     | 9049570040300 | 9049570050300 | 9049570070300   | 9049590300000 |
| 50        | 9049570010380    | 9049570020380    | 9049570030380     | 9049570040380 | 9049570050380 | 9049570070380   | 9049590380000 |
| 63        | 9049570010480    | 9049570020480    | 9049570030480     | 9049570040480 | 9049570050480 | 9049570070480   | 9049590480000 |
| 80        | 9049570010600    | 9049570020600    | 9049570030600     | 9049570040600 | 9049570050600 | 9049570070600   | 9049590600000 |

Set no. 4959

## HSK spindle adaptors (in front)

### Product information

- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration
- radially alignable
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893



### Scope of delivery

- incl. clamping set Series no. 4958 for conventional cooling
- incl. brass lock ring Series no. 4953
- incl. indexing pin and retention screws
- for MQL application order Series no. 4713



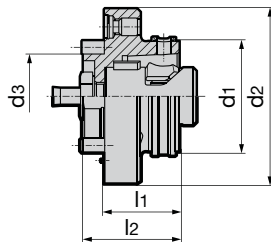
Series no. **4386**

| HSK-C<br>d <sub>1</sub> | d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | SW  | kg   | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------|----------------------|----------------------|-----|------|----------|---------------|
| 25                      | 45                   | 23                   | 20                   | 28                   | 2.5 | 0.22 | 19.000   | 9043860190000 |
| 32                      | 60                   | 30                   | 26                   | 36                   | 2.5 | 0.38 | 24.000   | 9043860240000 |
| 40                      | 70                   | 35                   | 30                   | 40                   | 3.0 | 0.60 | 30.000   | 9043860300000 |
| 50                      | 80                   | 40                   | 35                   | 45                   | 4.0 | 0.92 | 38.000   | 9043860380000 |
| 63                      | 100                  | 50                   | 43                   | 55                   | 5.0 | 1.75 | 48.000   | 9043860480000 |
| 80                      | 117                  | 60                   | 50                   | 62                   | 6.0 | 2.79 | 60.000   | 9043860600000 |

## Modul 4x4 HSK adaptor flange

### Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- suitable for MQL and conventional cooling
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893



### Scope of delivery

- incl. MQL 4-point clamping set Series no. 4930
- incl. clamping screw Series no. 4935
- incl. brass lock ring Series no. 4953
- incl. 6 angular alignment sets Series no. 4715
- incl. 6 clamping screws
- incl. intermediate tube Series no. 4716



Series no. **4713**

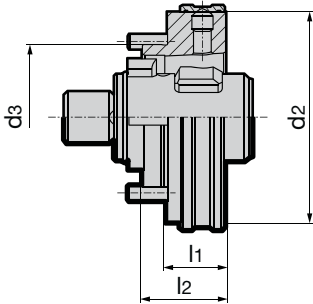
| HSK-C<br>d <sub>1</sub><br>mm | Module-Ø<br>d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | intermediate<br>sleeve tube<br>art. no. 4716 | Code no. | EDP Number    |
|-------------------------------|----------------------------------|----------------------|----------------------|----------------------|--|----------|---------------|
| 32                            | 60                               | 30                   | 26                   | 36                   | 24.060                                       | 24.060   | 9047130240600 |
| 40                            | 70                               | 35                   | 30                   | 40                   | 30.070                                       | 30.070   | 9047130300700 |
| 50                            | 80                               | 40                   | 35                   | 45                   | 238.080                                      | 38.080   | 9047130380800 |
| 63                            | 100                              | 50                   | 43                   | 55                   | 48.100                                       | 48.100   | 9047130481000 |
| 80                            | 117                              | 60                   | 50                   | 62                   | 60.117                                       | 60.117   | 9047130601170 |
| 100                           | 140                              | 80                   | 75                   | 87                   | 75.140                                       | 75.140   | 9047130751400 |

**MQL**  
BY GÜHRING

# Short HSK spindle adaptors (integrated)

## Product information

- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration
- radially alignable
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893



## Scope of delivery

- incl. clamping set Series no. 4958 for conventional cooling (nom. Size 100 Series no. 4930)
- incl. brass lock ring Series no. 4953
- incl. indexing pin and retention screws
- for MQL design order code no. xxx.100



Series no. **4385**

| for HSK-C | d2 mm | d3 mm | l1 mm | l2 mm | SW  | kg   | Code no. | EDP Number    |
|-----------|-------|-------|-------|-------|-----|------|----------|---------------|
| 32        | 40    | 27.0  | 12.5  | 16    | 2.5 | 0.14 | 24.000   | 9043850240000 |
| 40        | 50    | 33.5  | 15.0  | 20    | 3.0 | 0.26 | 30.000   | 9043850300000 |
| 50        | 63    | 42.0  | 17.5  | 25    | 4.0 | 0.48 | 38.000   | 9043850380000 |
| 63        | 80    | 55.0  | 22.5  | 32    | 5.0 | 0.99 | 48.000   | 9043850480000 |
| 80        | 100   | 68.0  | 27.5  | 40    | 6.0 | 1.88 | 60.000   | 9043850600000 |
| 100       | 125   | 88.0  | 30.0  | 50.5  | 8.0 | 3.50 | 75.000   | 9043850750000 |



with MQL clamping set Series no. 4930

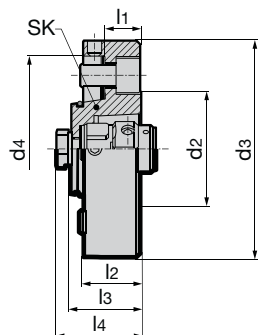
|     |     |      |      |      |     |      |        |               |
|-----|-----|------|------|------|-----|------|--------|---------------|
| 32  | 40  | 27.0 | 12.5 | 16   | 2.5 | 0.14 | 24.100 | 9043850241000 |
| 40  | 50  | 33.5 | 15.0 | 20   | 3.0 | 0.26 | 30.100 | 9043850301000 |
| 50  | 63  | 42.0 | 17.5 | 25   | 4.0 | 0.48 | 38.100 | 9043850381000 |
| 63  | 80  | 55.0 | 22.5 | 32   | 5.0 | 0.99 | 48.100 | 9043850481000 |
| 80  | 100 | 68.0 | 27.5 | 40   | 6.0 | 1.88 | 60.100 | 9043850601000 |
| 100 | 125 | 88.0 | 30.0 | 50.5 | 8.0 | 3.50 | 75.100 | 9043850751000 |

**Product information**

- for the conversion of SK to HSK-A/C interfaces to ISO 12163-1/DIN 69893-1

**Scope of delivery**

- incl. clamping set Series no. 4958 for conventional cooling
- incl. retention screws



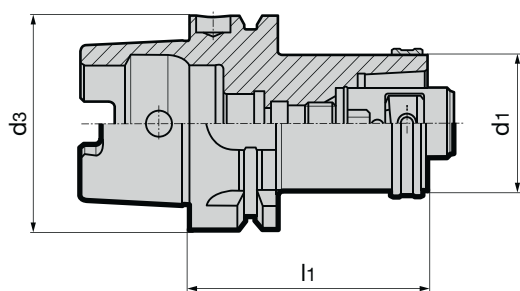
Series no. **4387**

| for ISO taper | HSK-C | d <sub>2</sub> mm | d <sub>3</sub> mm | d <sub>4</sub> mm | l <sub>1</sub> mm | l <sub>2</sub> mm | l <sub>3</sub> mm | l <sub>4</sub> mm | SW | kg   | Code no. | EDP Number    |
|---------------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----|------|----------|---------------|
| 30            | 40    | 50                | 85                | 69.83             | 25                | 35                | 37.0              | 39.0              | 3  | 1.08 | 30.030   | 9043870300300 |
| 40            | 50    | 63                | 100               | 88.88             | 20                | 30                | 39.5              | 46.5              | 4  | 1.40 | 40.038   | 9043870400380 |
| 50            | 63    | 80                | 150               | 128.57            | 25                | 40                | 48.5              | 58.5              | 5  | 1.96 | 50.048   | 9043870500480 |
| 50            | 80    | 100               | 150               | 128.57            | 40                | 55                | 61.1              | 71.1              | 6  | 2.20 | 50.060   | 9043870500600 |

HSK-A/HSK-C reductions

**Scope of delivery**

- incl. clamping set Series no. 4958 for conventional cooling
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



Series no. **4355**

| HSK-A d <sub>3</sub> | HSK-C d <sub>1</sub> | l <sub>1</sub> mm | SW  | kg   | Code no. | EDP Number    |
|----------------------|----------------------|-------------------|-----|------|----------|---------------|
| 40                   | 32                   | 60                | 2.5 | 0.42 | 32.040   | 9043550320400 |
| 50                   | 32                   | 60                | 2.5 | 0.54 | 32.050   | 9043550320500 |
| 50                   | 40                   | 70                | 3.0 | 0.69 | 40.050   | 9043550400500 |
| 63                   | 32                   | 60                | 2.5 | 1.08 | 32.063   | 9043550320630 |
| 63                   | 40                   | 70                | 3.0 | 1.15 | 40.063   | 9043550400630 |
| 63                   | 50                   | 80                | 4.0 | 1.23 | 50.063   | 9043550500630 |
| 80                   | 50                   | 90                | 4.0 | 2.00 | 50.080   | 9043550500800 |
| 80                   | 63                   | 100               | 5.0 | 2.69 | 63.080   | 9043550630800 |
| 100                  | 50                   | 90                | 4.0 | 2.80 | 50.100   | 9043550501000 |
| 100                  | 63                   | 100               | 5.0 | 3.31 | 63.100   | 904355063.000 |
| 100                  | 80                   | 120               | 6.0 | 5.20 | 80.100   | 9043550801000 |

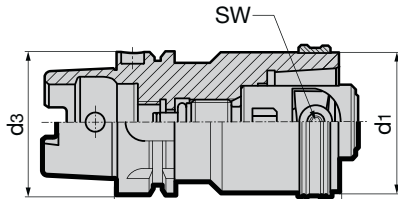
## HSK-A/HSK-C extensions with MQL 4-point clamping sets

### Product information

- suitable for MQL
- for single channel systems
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1

### Scope of delivery

- incl. MQL 4-point clamping set Series no. 4930 and adaptor for extensions
- incl. brass lock ring Series no. 4953
- order coolant supply set Series no. 4949 separately:
- order MQL coolant supply set separately:
  - for automatic tool change Series no. 4939 (HSK32 Series no. 4508)
  - for manual tool change Series no. 4940 (HSK32 Series no. 4513)



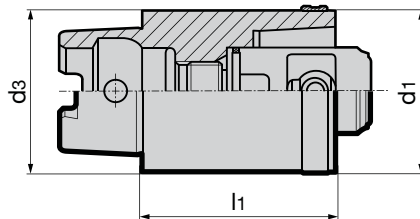
Series no. **4350**

| HSK-A/HSK-C<br>d <sub>1</sub> / d <sub>3</sub> | l <sub>1</sub><br>mm | SW  | kg   | Code no. | EDP Number    |
|--|----------------------|-----|------|----------|---------------|
| 32   | 60                   | 2.5 | 0.30 | 60.032   | 9043500600320 |
| 40   | 80                   | 3.0 | 0.70 | 80.040   | 9043500800400 |
| 50   | 80                   | 4.0 | 1.00 | 80.050   | 9043500800500 |
| 50   | 100                  | 4.0 | 1.30 | 100.050  | 9043501000500 |
| 63   | 100                  | 5.0 | 2.10 | 100.063  | 9043501000630 |
| 63   | 140                  | 5.0 | 3.10 | 140.063  | 9043501400630 |
| 80   | 120                  | 6.0 | 4.20 | 120.080  | 9043501200800 |
| 80   | 160                  | 6.0 | 5.70 | 160.080  | 9043501600800 |
| 100  | 140                  | 8.0 | 7.70 | 140.080  | 9043501401000 |

## HSK-C extensions

### Product information

- incl. clamping set Series no. 4958 for conventional cooling
- incl. brass lock ring Series no. 4953
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



Series no. **4351**

| HSK-C<br>d <sub>1</sub> / d <sub>3</sub> | l <sub>1</sub><br>mm | SW  | kg   | Code no. | EDP Number    |
|--|----------------------|-----|------|----------|---------------|
| 25                                       | 40                   | 2.5 | 0.14 | 40.025   | 9043510400250 |
| 32                                       | 40                   | 2.5 | 0.22 | 40.032   | 9043510400320 |
| 40                                       | 50                   | 3.0 | 0.44 | 50.040   | 9043510500400 |
| 50                                       | 60                   | 4.0 | 0.81 | 60.050   | 9043510600500 |
| 63                                       | 80                   | 5.0 | 1.74 | 80.063   | 9043510800630 |



# PROCESS RELIABILITY

## RATHER THAN NERVE TINGLING

Gühring inspection and measuring instruments



- ⇒ simple, quick and accurate measuring of the clamping force of your chucks
- ⇒ direct measuring of the coolant flow pressure and volume
- ⇒ wireless determination of the MQL response times

Please request our "GM 300 inspection and measuring instruments" brochure.

# POWERCLAMP

## TECHNICAL INFORMATION AND ADVANTAGES

Gühring's PowerClamp system is designed for universal applications in transfer lines, machining centres, turning centres and setting equipment.

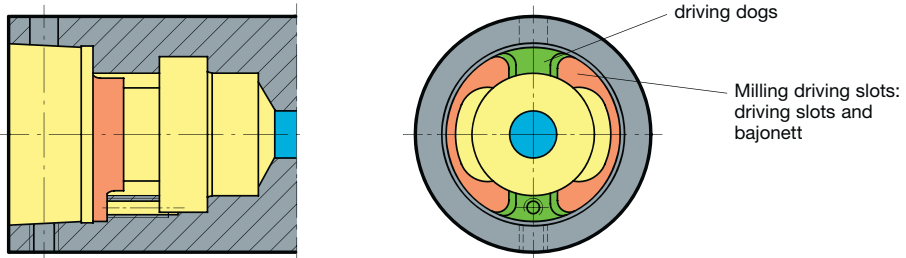
Due to high pull forces the PowerClamp is suitable for low-speed operations in heavy machining.



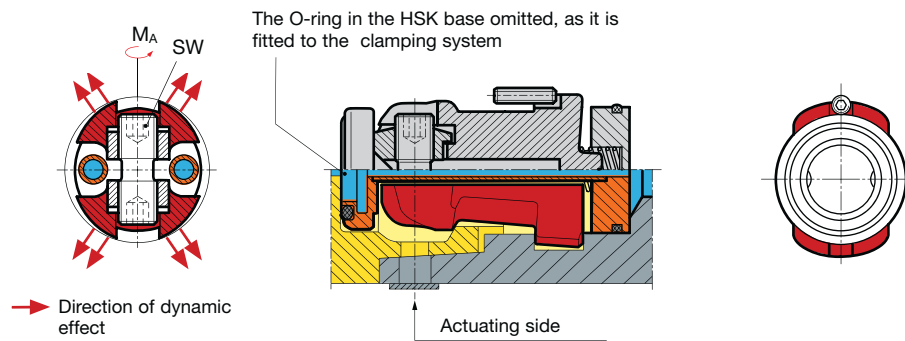
### Advantages:

- simple assembly thanks to uncomplicated spindle contour
- few moving components, therefore optimal force transmission
- high clamping force, therefore excellent bending resistance
- secure ejector function
- internal coolant supply
- coolant sealing from  $p > 6$  bar to max. 80 bar

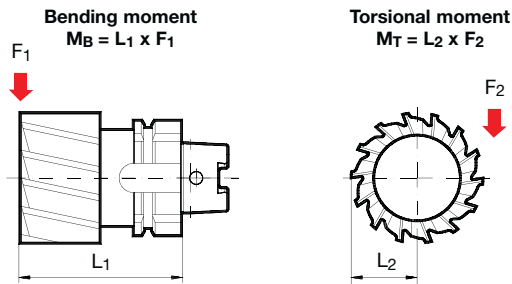
Internal contour of spindle



Installation and principle of operation



Bending torsional and tightening moment for PowerClamp



- ① We recommend  $M_A$  max. for rough machining and milling operations. For drilling and reaming operations a lower deviation of  $M_A$  max. up to 30% is permissible. Please check the torque with a torque wrench.
- ② Depending on temperature and lubricating conditions these values can be up to 15% lower.
- ③ Due to the screwed connection.  $M_T$  max. can be lower with adaptors.

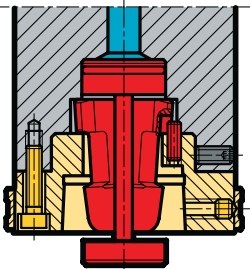
| HSK-C | max. torque $M_A$ [Nm] ① | Key size | max. drawing force [kN] ② | max. linear bending moment $M_B$ [Nm] ② | max. transferrable torsional moment $M_T$ [Nm] ② ③ |
|-------|--------------------------|----------|---------------------------|---|--|
| 25    | 1.5                      | 2.0      | 5                         | 45                                      | 50   |
| 32    | 2.5                      | 2.5      | 8                         | 74                                      | 120  |
| 40    | 6.0                      | 3.0      | 18                        | 213                                     | 360  |
| 50    | 10.0                     | 4.0      | 27                        | 431                                     | 1000   |
| 63    | 15.0                     | 5.0      | 35                        | 703                                     | 1300   |
| 80    | 25.0                     | 6.0      | 50                        | 1100                                    | 2800   |
| 100   | 50.0                     | 8.0      | 60                        | 1620                                    | 4800   |

**General notes:** Our manual clamping sets must not be operated with motor-driven tools (impulse screwdriver or similar). The hexagonal key should not exceed the key size over its entire length. This largely prevents excessive torque being transferred. We recommend the T-handle hexagonal key, Series no. 4912. For accurate setting of the maximum torque and achieving the maximum interface rigidity, we recommend the application of a torque wrench, Series no. 4915 with hexagonal sockets, Series no. 4916. Production drawings of the spindle contour to suit direct installation are available on request, including .dxf.

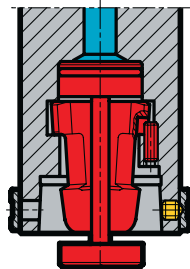
Application examples

Spindle interface

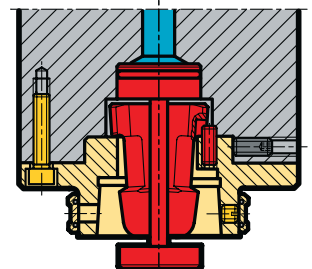
integrated spindle adaptor



Direct installation in spindle

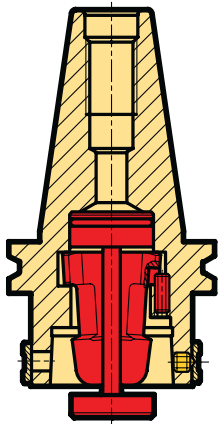


Spindle adaptor (in front)

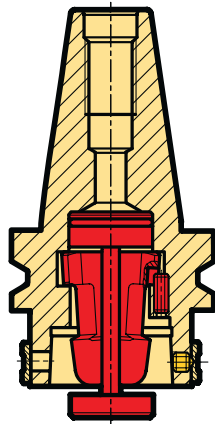


Adaptor

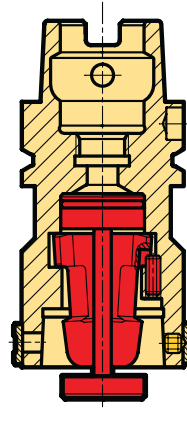
DIN ISO 7388-1 form AD



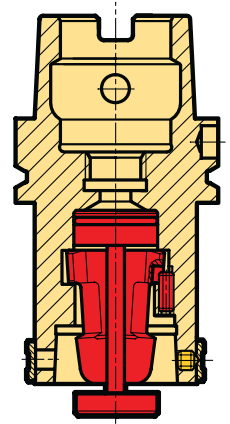
MAS/BT



HSK-A extension

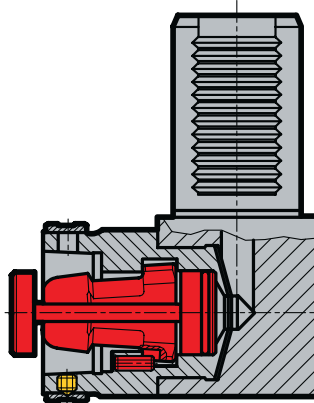


HSK-A reduction

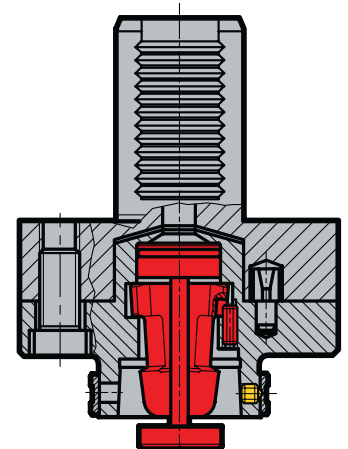


Tool holder for turning centers

adaptor (in front) on VDI angle holder



adaptor (in front) on VDI vertical holder



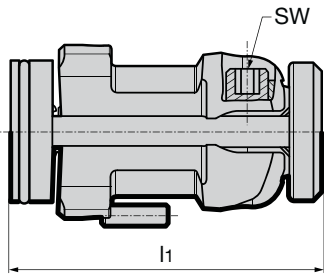
## PowerClamp sets

### Product information

- the internal coolant supply is via the cage. It is floating mounted and ensures a coolant seal above 6 bar pressure.
- for a coolant pressure up to 80 bar
- the coolant sets are not suitable for MQL
- for clamping HSK-A/C shanks to ISO 12164-1/DIN 69893

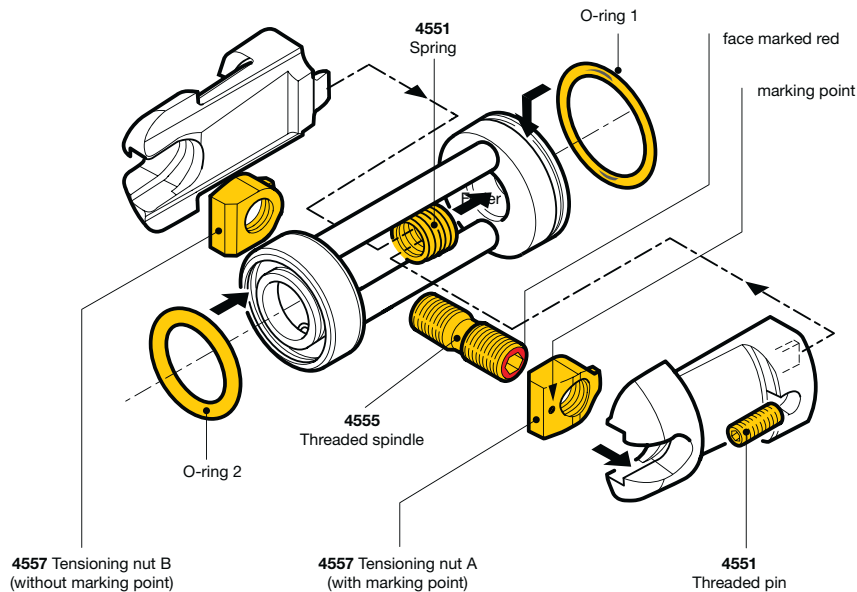
### Scope of delivery

- including installation and operating instructions
- incl. threaded pin Series no. 4551



|       |             |     |      |          | Series no.    | 4554 |
|-------|-------------|-----|------|----------|---------------|------|
| HSK-C | $l_1$<br>mm | SW  | kg   | Code no. | EDP Number    |      |
| 25    | 32.1        | 2.0 | 0.02 | 19.000   | 9045540190000 |      |
| 32    | 41.6        | 2.5 | 0.05 | 24.000   | 9045540240000 |      |
| 40    | 49.7        | 3.0 | 0.09 | 30.000   | 9045540300000 |      |
| 50    | 62.2        | 4.0 | 0.18 | 38.000   | 9045540380000 |      |
| 63    | 74.1        | 5.0 | 0.37 | 48.000   | 9045540480000 |      |
| 80    | 96.1        | 6.0 | 0.73 | 60.000   | 9045540600000 |      |
| 100   | 117.0       | 8.0 | 1.36 | 75.000   | 9045540750000 |      |

## Component parts for PowerClamp sets Series no. 4554



|       |            | Series no. | 4557               | 4555             | 4551                    |
|-------|------------|------------|--------------------|------------------|-------------------------|
| HSK-C | O-ring 1   | O-ring 2   | Tensioning nut set | Threaded spindle | Spring and threaded pin |
|       | mm         | mm         | EDP Number         | EDP Number       | EDP Number              |
| 25    | 11.5 × 1.0 | 7.0 × 2.0  | 9045570010190      | 9045550020190    | 9045510030190           |
| 32    | 14.0 × 1.5 | 10.0 × 2.5 | 9045570010240      | 9045550020240    | 9045510030240           |
| 40    | 18.0 × 1.5 | 12.5 × 2.5 | 9045570010300      | 9045550020300    | 9045510030300           |
| 50    | 22.0 × 1.5 | 16.0 × 3.0 | 9045570010380      | 9045550020380    | 9045510030380           |
| 63    | 28.0 × 2.0 | 21.0 × 3.0 | 9045570010480      | 9045550020480    | 9045510030480           |
| 80    | 36.0 × 3.0 | 25.0 × 4.0 | 9045570010600      | 9045550020600    | 9045510030600           |
| 100   | 45.0 × 3.0 | 32.0 × 5.0 | 9045570010750      | 9045550020750    | 9045510030750           |

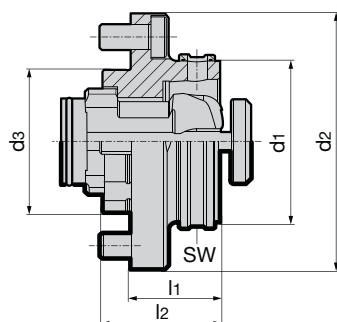
## HSK adaptors (in front)

### Product information

- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration.
- for conventional cooling from 6 to max. 80 bar
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893
- radially alignable

### Scope of delivery

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953
- incl. indexing pin and retention screws



Series no. **4581**

| HSK-C<br>d1 | d2<br>mm | d3<br>mm | l1<br>mm | l2<br>mm | SW  | kg   | Code no. | EDP Number    |
|-------------|----------|----------|----------|----------|-----|------|----------|---------------|
| 25          | 45       | 23       | 20.0     | 26.5     | 2.0 | 0.17 | 19.000   | 9045810190000 |
| 32          | 55       | 28       | 17.5     | 23.0     | 2.5 | 0.22 | 24.000   | 9045810240000 |
| 40          | 63       | 36       | 22.5     | 29.0     | 3.0 | 0.40 | 30.000   | 9045810300000 |
| 50          | 80       | 46       | 27.5     | 36.0     | 4.0 | 0.74 | 38.000   | 9045810380000 |
| 63          | 100      | 56       | 35.0     | 46.0     | 5.0 | 1.50 | 48.000   | 9045810480000 |
| 80          | 125      | 66       | 45.0     | 58.0     | 6.0 | 2.94 | 60.000   | 9045810600000 |
| 100         | 160      | 86       | 57.0     | 72.0     | 8.0 | 5.90 | 75.000   | 9045810750000 |

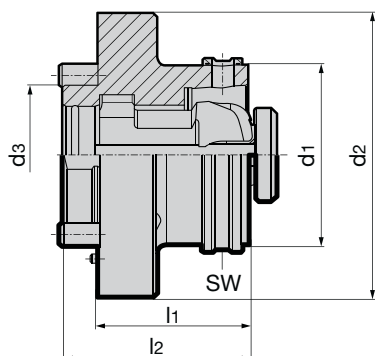
## HSK spindle adaptors (in front)

### Product information

- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration.
- for conventional cooling from 6 to max. 80 bar
- radially alignable
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893

### Scope of delivery

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953
- incl. indexing pin and retention screws

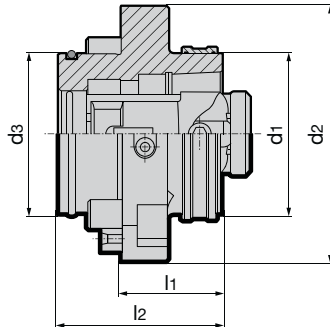


Series no. **4586**

| HSK-C<br>d1 | d2<br>mm | d3<br>mm | l1<br>mm | l2<br>mm | SW | kg   | Code no. | EDP Number    |
|-------------|----------|----------|----------|----------|----|------|----------|---------------|
| 40          | 70       | 35       | 32.5     | 42.5     | 3  | 0.55 | 30.000   | 9045860300000 |
| 50          | 80       | 40       | 43.0     | 53.0     | 4  | 1.00 | 38.000   | 9045860380000 |
| 63          | 100      | 50       | 53.0     | 65.0     | 5  | 1.90 | 48.000   | 9045860480000 |
| 80          | 117      | 60       | 73.0     | 85.0     | 6  | 3.60 | 60.000   | 9045860600000 |
| 100         | 140      | 80       | 94.0     | 106.0    | 8  | 7.20 | 75.000   | 9045860750000 |

## Product information

- for fixed tools
- incl. setting element to eliminate drive play with vertical tools
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration.
- for conventional cooling from 6 to max. 80 bar
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



## Scope of delivery

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953
- incl. indexing pin and retention screws



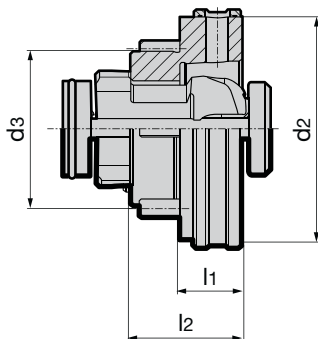
Series no. **4582**

| HSK-C<br>d <sub>1</sub> | d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | l <sub>3</sub><br>mm | SW | kg   | Version | Code no. | EDP Number    |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----|------|---------|----------|---------------|
| 50                      | 84                   | 50                   | 35                   | 55.0                 | 55                   | 4  | 0.98 | left    | 38.100   | 9045820381000 |
| 50                      | 84                   | 50                   | 35                   | 55.0                 | 55                   | 4  | 0.98 | right   | 38.200   | 9045820382000 |
| 63                      | 100                  | 63                   | 40                   | 64.5                 | 70                   | 5  | 1.74 | left    | 48.100   | 9045820481000 |
| 63                      | 100                  | 63                   | 40                   | 64.5                 | 70                   | 5  | 1.74 | right   | 48.200   | 9045820482000 |

## Short HSK spindle adaptors (integrated)

## Product information

- with larger axial plane
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration.
- for conventional cooling from 6 to max. 80 bar
- radially alignable
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



## Scope of delivery

- incl. clamping set. Series no. 4554
- incl. brass lock ring Series no. 4953
- incl. threaded pin Series no. 4551 and tensioning screws



Series no. **4584**

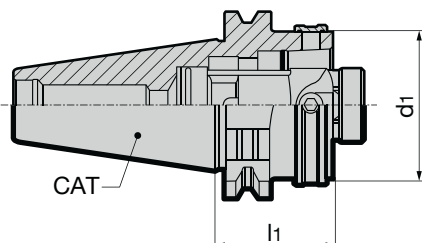
| for<br>HSK-C | d <sub>2</sub><br>mm | d <sub>3</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | SW  | kg   | Code no. | EDP Number    |
|--------------|----------------------|----------------------|----------------------|----------------------|-----|------|----------|---------------|
| 32           | 40                   | 27.0                 | 12.5                 | 21.10                | 2.5 | 0.16 | 24.000   | 9045840240000 |
| 40           | 50                   | 33.5                 | 15.0                 | 25.70                | 3.0 | 0.28 | 30.000   | 9045840300000 |
| 50           | 63                   | 42.0                 | 17.5                 | 32.10                | 4.0 | 0.55 | 38.000   | 9045840380000 |
| 63           | 80                   | 55.0                 | 22.5                 | 40.05                | 5.0 | 1.14 | 48.000   | 9045840480000 |
| 80           | 100                  | 68.0                 | 27.5                 | 51.40                | 6.0 | 2.20 | 60.000   | 9045840600000 |
| 100          | 125                  | 88.0                 | 30.0                 | 64.00                | 8.0 | 4.00 | 75.000   | 9045840750000 |

HSK  
clamping technology

## SK / HSK-C basic adaptors

### Product information

- ISO taper to DIN 69871 form AD
- Form AF on request
- EDP Number 50.100 only applies to pre-setting unit
- for conventional cooling from 6 to max. 80 bar
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



### Scope of delivery

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953



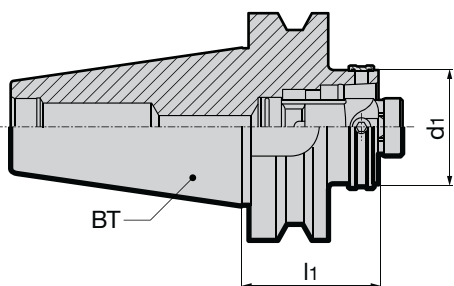
Series no. **4512**

| SK taper | HSK-C d <sub>1</sub> | l <sub>1</sub> mm | SW  | kg   | Code no. | EDP Number    |
|----------|----------------------|-------------------|-----|------|----------|---------------|
| 40       | 32                   | 40                | 2.5 | 0.89 | 40.032   | 9045120400320 |
| 40       | 40                   | 40                | 3.0 | 0.90 | 40.040   | 9045120400400 |
| 40       | 50                   | 40                | 4.0 | 0.91 | 40.050   | 9045120400500 |
| 40       | 63                   | 70                | 5.0 | 1.38 | 40.063   | 9045120400630 |
| 50       | 32                   | 40                | 2.5 | 2.65 | 50.032   | 9045120500320 |
| 50       | 40                   | 40                | 3.0 | 2.67 | 50.040   | 9045120500400 |
| 50       | 50                   | 40                | 4.0 | 2.71 | 50.050   | 9045120500500 |
| 50       | 63                   | 40                | 5.0 | 2.73 | 50.063   | 9045120500630 |
| 50       | 80                   | 70                | 6.0 | 3.70 | 50.080   | 9045120500800 |
| 50       | 100                  | 100               | 8.0 | 4.87 | 50.100   | 9045120501000 |

## MAS/BT / HSK-C basic adaptors

### Product information

- MAS/BT to DIN ISO 7388-2 form JD
- for conventional cooling from 6 to max. 80 bar
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893-1



### Scope of delivery

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953



Series no. **4514**

| BT | HSK-C d <sub>1</sub> | l <sub>1</sub> mm | SW | kg   | Code no. | EDP Number    |
|----|----------------------|-------------------|----|------|----------|---------------|
| 40 | 40                   | 40                | 3  | 0.92 | 40.040   | 9045140400400 |
| 40 | 50                   | 40                | 4  | 0.95 | 40.050   | 9045140400500 |
| 40 | 63                   | 80                | 5  | 2.00 | 40.063   | 9045140400630 |
| 50 | 40                   | 50                | 3  | 2.90 | 50.040   | 9045140500400 |
| 50 | 50                   | 60                | 4  | 3.15 | 50.050   | 9045140500500 |
| 50 | 63                   | 60                | 5  | 3.69 | 50.063   | 9045140500630 |

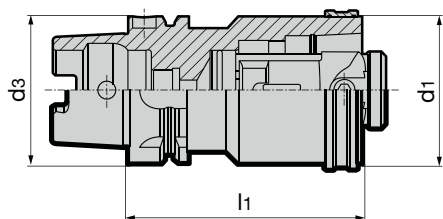


## Product information

- incl. clamping set Series no. 4554
- incl. brass lock ring Series no. 4953
- for conventional cooling from 6 to max. 80 bar
- HSK-A to ISO 12164-1/DIN 69893
- for holding HSK-A/C shanks to ISO 12164-1/DIN 69893

## Scope of delivery

- order coolant supply set Series no. 4949 separately



| Series no. 4549                                 |                      |     |       |          |               |
|---|----------------------|-----|-------|----------|---------------|
| HSK-A/ HSK-C<br>d <sub>1</sub> / d <sub>3</sub> | l <sub>1</sub><br>mm | SW  | kg    | Code no. | EDP Number    |
| 32  | 60                   | 2.5 | 0.26  | 60.032   | 9045490600320 |
| 40  | 80                   | 3.0 | 0.65  | 80.040   | 9045490800400 |
| 50  | 80                   | 4.0 | 0.90  | 80.050   | 9045490800500 |
| 50  | 100                  | 4.0 | 1.13  | 100.050  | 9045491000500 |
| 63  | 100                  | 5.0 | 1.84  | 100.063  | 9045491000630 |
| 63  | 140                  | 5.0 | 2.30  | 140.063  | 9045491400630 |
| 80  | 120                  | 6.0 | 3.90  | 120.080  | 9045491200800 |
| 80  | 160                  | 6.0 | 5.40  | 160.080  | 9045491600800 |
| 100   | 140                  | 8.0 | 7.80  | 140.100  | 9045491401000 |
| 100   | 200                  | 8.0 | 10.54 | 200.100  | 9045492001000 |

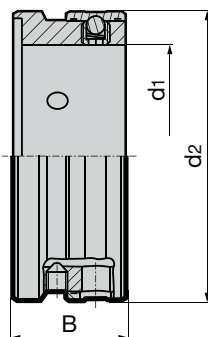
# Skid rings for short spindles to DIN 69002-3

## Product information

- for short spindles to DIN 69002-3

## Scope of delivery

- incl. clamping screws and brass locking ring



| Series no. 4976 |                      |   |                      |      |               |
|-----------------|----------------------|---|----------------------|------|---------------|
| nom. size       | d <sub>1</sub><br>mm | DIN 69002-1<br>revolution n min <sup>-1</sup><br>max. | d <sub>2</sub><br>mm | B    | EDP Number    |
| 25x20           | 25                   | 10.000  | 35.0                 | 15.7 | 9049760200150 |
| 32x25           | 32                   | 9.000   | 42.5                 | 19.7 | 9049760250190 |
| 32x30           | 32                   | 9.000   | 43.5                 | 19.7 | 9049760300190 |
| 40x35           | 40                   | 8.000   | 54.0                 | 21.7 | 9049760350210 |
| 50x45           | 50                   | 7.000   | 68.0                 | 24.7 | 9049760450240 |
| 63x55           | 63                   | 6.000   | 82.0                 | 31.7 | 9049760550310 |

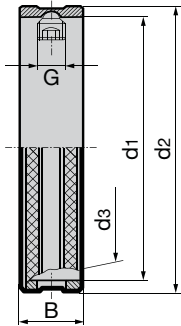
# Brass locking rings

## Product information

- the pressure ball screw must be secured with Loctite 222

## Scope of delivery

- incl. pressure ball screw  
Series no. 4961

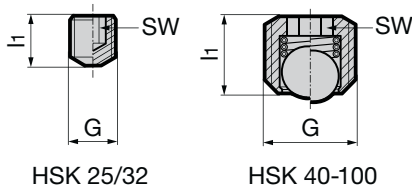


|          |                                |                                |                   |      |  |      |            | Series no.    | 4953 |
|----------|--------------------------------|--------------------------------|-------------------|------|--|------|------------|---------------|------|
| HSK-form | for HSK-size d <sub>1</sub> mm | taper nom.-Ø d <sub>3</sub> mm | d <sub>2</sub> mm | B mm | incl. pressure ball screw art. no.4961 | G    | rev. limit | EDP Number    |      |
| C        | 25                             | 19                             | 28.0              | 7    | 3.500                                  | M3.5 | 38.000     | 9049530250000 |      |
| C        | 32                             | 24                             | 35.0              | 7    | 4.000                                  | M4   | 28.000     | 9049530320000 |      |
| C        | 40                             | 30                             | 43.5              | 9    | 5.000                                  | M5   | 22.500     | 9049530400000 |      |
| C        | 50                             | 38                             | 54.0              | 11   | 6.000                                  | M6   | 17.350     | 9049530500000 |      |
| C        | 63                             | 48                             | 68.0              | 14   | 8.000                                  | M8   | 13.750     | 9049530630000 |      |
| C        | 80                             | 60                             | 85.0              | 17   | 10.000                                 | M10  | 11.850     | 9049530800000 |      |
| C        | 100                            | 75                             | 105.0             | 23   | 12.000                                 | M12  | 9.250      | 9049531000000 |      |
|          |                                |                                |                   |      |  |      |            |               |      |
| D        | 32                             | 19                             | 35.0              | 7    | 3.500                                  | M3.5 | 28.000     | 9049530320190 |      |
| D        | 40                             | 24                             | 43.5              | 9    | 4.000                                  | M4   | 22.500     | 9049530400240 |      |
| D        | 50                             | 30                             | 54.0              | 11   | 5.000                                  | M5   | 17.350     | 9049530500300 |      |
| D        | 63                             | 38                             | 68.0              | 14   | 6.000                                  | M6   | 13.750     | 9049530630380 |      |
| D        | 80                             | 48                             | 85.0              | 17   | 8.000                                  | M8   | 11.850     | 9049530800480 |      |
| D        | 100                            | 60                             | 105.0             | 23   | 10.000                                 | M10  | 9.250      | 9049531000600 |      |
| D        | 125                            | 75                             | 130.0             | 23   | 12.000                                 | M12  | 6.100      | 9049531250750 |      |

# Pressure ball screws

## Product information

- Minimum order quantity 5



|         |                   |      |     | Series no.    | 4961 |
|---------|-------------------|------|-----|---------------|------|
| for HSK | l <sub>1</sub> mm | G    | SW  | EDP Number    |      |
| 25      | 3.4               | M3.5 | 2.0 | 9049610035000 |      |
| 32      | 4.3               | M4   | 2.0 | 9049610040000 |      |
| 32      | 4.0               | M4   | 2.0 | 9049610040010 |      |
| 40      | 4.6               | M5   | 2.5 | 9049610050000 |      |
| 50      | 5.4               | M6   | 3.0 | 9049610060000 |      |
| 63      | 7.0               | M8   | 4.0 | 9049610080000 |      |
| 80      | 9.2               | M10  | 5.0 | 9049610100000 |      |
| 100     | 11.4              | M12  | 6.0 | 9049610120000 |      |

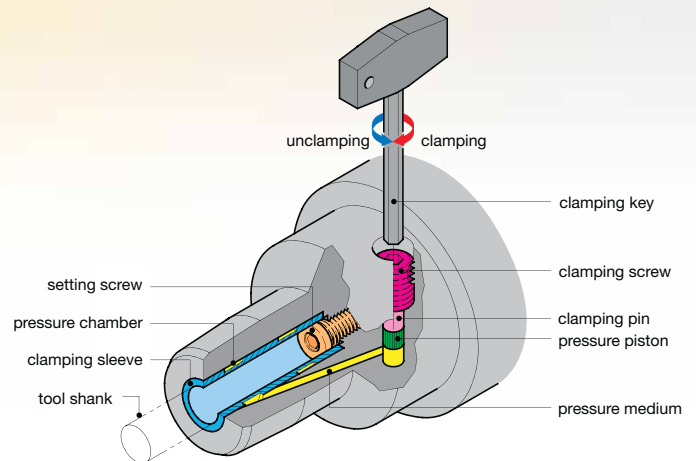
HSK clamping technology

## Hydraulic Chuck Repair Service

### Losing Your Grip?

If your hydraulic chuck is leaking fluid or allowing the cutting tool to turn even slightly within the chuck, it's time to have it repaired. Guhring repairs hydraulic chucks - both our competitors' chucks and our own - at our facility in Brookfield, Wisconsin. Guhring can repair or replace the hydraulic components within most hydraulic chucks, restoring them to like-new functionality.

A worn out toolholder can result in excessive runout, premature tool wear and even broken tools or damaged work pieces. Don't wait until damage has occurred - check your hydraulic clamping pressure with a gauge such as the Guhring Senso 3000 (or other gauge).

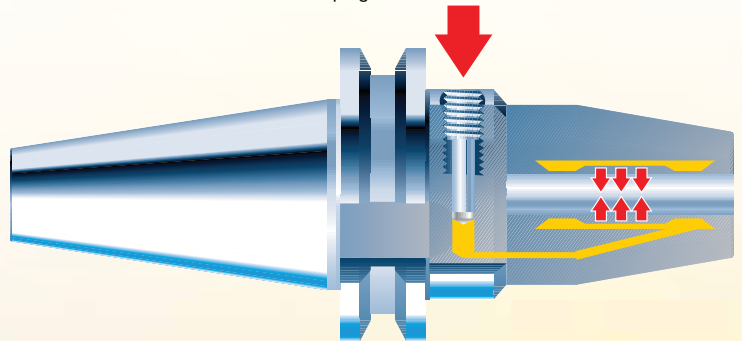


Hydraulic chucks create clamping pressure by increasing the hydraulic force around the sleeve (in blue), which causes the sleeve to tighten around the shank of the cutting tool. This forms a secure and even grip on the cutting tool in the chuck.



Guhring's Senso 3000 offers a quick and precise measurement of the clamping force of hydraulic chucks.

Consistent operation: Hydraulic oil is compressed via a screw and pressure piston ensuring accurate and consistent clamping of the tool.



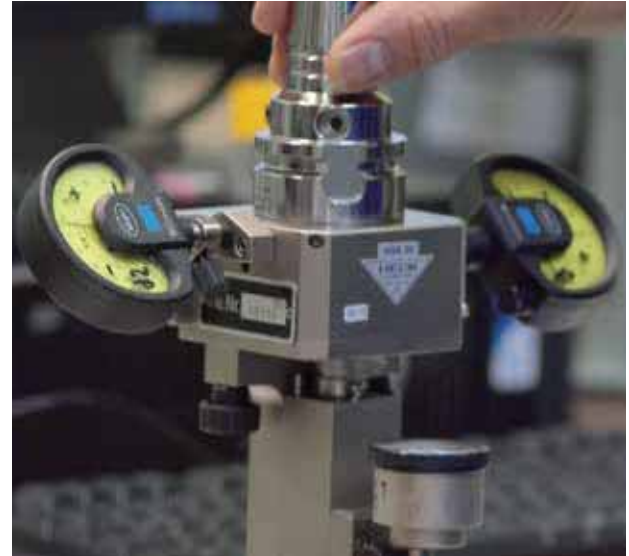


MEASURING INSTRUMENTS  
AND GENERAL ACCESSORIES



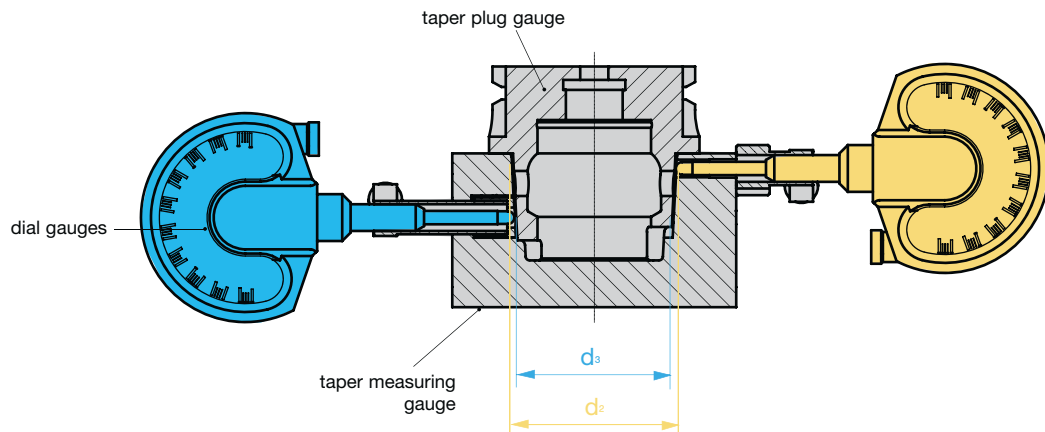
## Measuring gauges for HSK tool shanks

To ensure sustained accuracy at HSK interfaces, we recommend comparison measuring of the geometry of HSK tool shanks and spindles at regular intervals. These checks should become more frequent with an increased change rate at the interface.



### Measuring gauges for HSK tool shanks

for nominal taper diameter  $d_2$  and  $d_3$



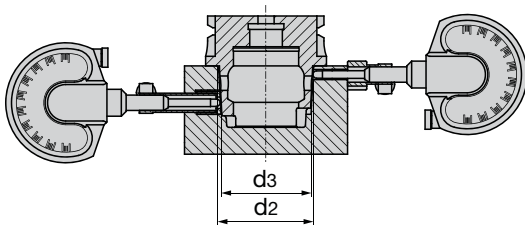
## Taper measuring gauges for HSK tool shanks

### Product information

- calibration on request

### Scope of delivery

- incl. calibrated taper plug gauge and measuring instructions
- supplied in wooden case with inspection protocol



Series no.

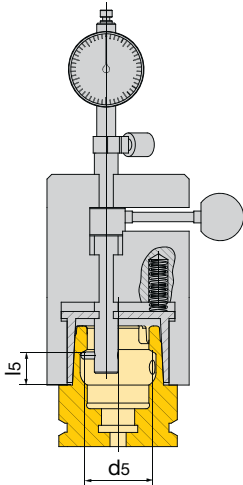
4968

| for HSK | $d_2$<br>mm | $d_3$<br>mm | EDP Number    |
|---------|-------------|-------------|---------------|
| 25      | 19          | 18.4        | 9049680191000 |
| 32      | 24          | 23.2        | 9049680241000 |
| 40      | 30          | 29.0        | 9049680301000 |
| 50      | 38          | 36.9        | 9049680381000 |
| 63      | 48          | 46.5        | 9049680481000 |
| 80      | 60          | 58.1        | 9049680601000 |
| 100     | 75          | 72.6        | 9049680751000 |

## Measuring gauges for HSK clamping shoulders

### Product information

- calibration on request



### Scope of delivery

- incl. calibrated setting gauge and measuring instructions
- supplied in plastic case with inspection protocol



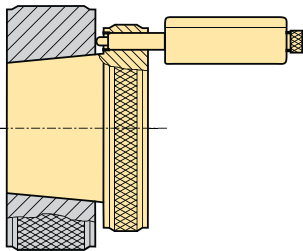
Series no. **4978**

| for HSK A/C/E | $l_5$ mm | $d_5$ mm | EDP Number    |
|---------------|----------|----------|---------------|
| 25            | 7.21     | 15       | 9049780190000 |
| 32            | 8.92     | 19       | 9049780240000 |
| 40            | 11.42    | 23       | 9049780300000 |
| 50            | 14.13    | 29       | 9049780380000 |
| 63            | 18.13    | 37       | 9049780480000 |
| 80            | 22.85    | 46       | 9049780600000 |
| 100           | 28.56    | 58       | 9049780750000 |

## Measuring gauges for HSK spindles

### Product information

- calibration on request



### Scope of delivery

- incl. calibrated setting gauge and measuring instructions
- supplied in a sturdy case with inspection protocol



Series no. **4969**

| for HSK | kg   | EDP Number    |
|---------|------|---------------|
| 25      | 0.60 | 9049690190000 |
| 32      | 0.91 | 9049690240000 |
| 40      | 1.13 | 9049690300000 |
| 50      | 1.60 | 9049690380000 |
| 63      | 3.02 | 9049690480000 |
| 80      | 4.94 | 9049690600000 |
| 100     | 8.10 | 9049690750000 |

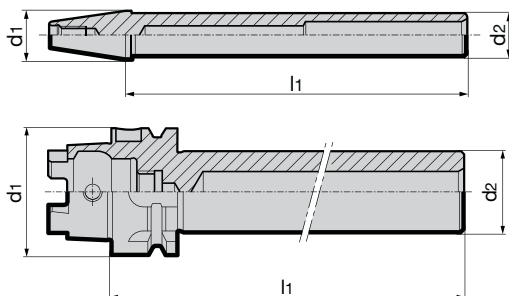
## Taper proofing bars HSK/ISO

### Product information

- for concentricity testing at machine spindles
- calibration on request
- Series no. 4971 125,025 only in form E
- HSK-A shank similar to ISO 12164-1/DIN 69893
- SK shank similar to DIN ISO 7388-1

### Scope of delivery

- supplied in wooden case for vertical storage with inspection protocol
- order pull studs separately



| Series no. |       |       | 4970          | 4971          |
|------------|-------|-------|---------------|---------------|
| d1         | d2 mm | l1 mm | EDP Number    | EDP Number    |
| SK-40      | 40    | 320   | 9049703000400 |               |
| SK-50      | 40    | 320   | 9049703000500 |               |
| HSK-E25    | 20    | 140   |               | 9049711250250 |
| HSK-E32    | 24    | 180   |               | 9049711500320 |
| HSK-A40    | 24    | 180   |               | 9049711500400 |
| HSK-A50    | 32    | 236   |               | 9049712000500 |
| HSK-A63    | 40    | 346   |               | 9049713000630 |
| HSK-A80    | 40    | 346   |               | 9049713000800 |
| HSK-A100   | 40    | 349   |               | 9049713001000 |

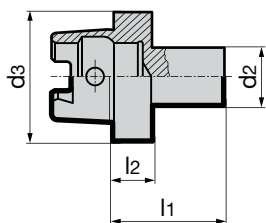
## Balancing masters for HSK spindles

### Product information

- for balancing HSK spindle clamping systems: holds the clamping elements in the clamped position
- balancing quality: G2.5 / 30,000 rev./min or U < 0.5 gmm
- HSK-C to ISO 12164-1/DIN 69893-1
- calibration on request

### Scope of delivery

- supplied in wooden case with inspection protocol



| Series no. |       |       |       | 4975          |
|------------|-------|-------|-------|---------------|
| HSK-C d3   | d2 mm | l1 mm | l2 mm | EDP Number    |
| 25         | 12    | 23    | 8     | 9049750250000 |
| 32         | 12    | 25    | 10    | 9049750320000 |
| 40         | 12    | 25    | 10    | 9049750400000 |
| 50         | 20    | 37.50 | 12.5  | 9049750500000 |
| 63         | 20    | 37.50 | 12.5  | 9049750630000 |
| 80         | 20    | 46    | 16    | 9049750800000 |
| 100        | 20    | 46    | 16    | 9049751000000 |

## Clamping force measuring instrument for HSK / SK clamping systems

The accuracy of the HSK connection does not only depend on the geometry but also on the drawing force of the HSK clamping system which plays an important part in ensuring a powerful and dimensionally accurate connection.

To ensure operational safety, a regular clamping force check of the HSK interface is recommended. An entirely mechanical clamping force measuring instrument is now available from Gühring. Its operation is based on components, which are linear adjustable in length and positioned proportional to the force.

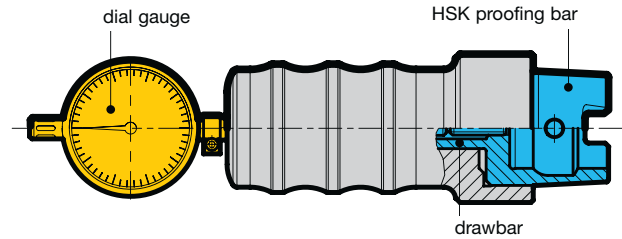
A force is associated with the alteration in length which is displayed via an analogue dial gauge.

Specifications:

- few components, therefore cost-efficient
- robust design
- battery or mains connection not required
- patented operating principle which is also adaptable to other spindle designs

### Min. required pull forces for clamping systems

|                        |        |
|------------------------|--------|
| taper size HSK25       | 2.8 kN |
| taper size HSK32       | 5 kN   |
| taper size HSK40       | 6.8 kN |
| taper size HSK50       | 11 kN  |
| taper size HSK63       | 18 kN  |
| taper size HSK80       | 28 kN  |
| taper size HSK100      | 45 kN  |
| taper size SK/BT/CAT30 | 6 kN   |
| taper size SK/BT/CAT40 | 12 kN  |
| taper size SK/BT/CAT50 | 25 kN  |



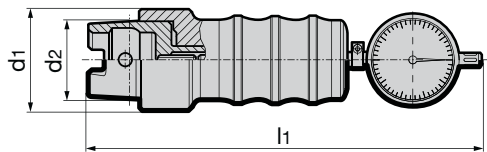
## Clamping force measuring instrument

### Product information

- mechanical clamping force inspection instrument for HSK/SK/BT/CAT clamping systems in machine tool spindles
- calibration on request

### Scope of delivery

- supplied in wooden case with inspection protocol, calibrated, with measuring instructions
- order pull studs separately



| Series no.      |                 |                      |          |          | 4973          | 4974          |
|-----------------|-----------------|----------------------|----------|----------|---------------|---------------|
| HSK-A/C/E<br>d1 | HSK-B/D/F<br>d1 | ISO taper/<br>BT/CAT | d2<br>mm | l1<br>mm | EDP Number    | EDP Number    |
|                 |                 | 30                   | 32       | 216      | 9049730300000 |               |
|                 |                 | 40                   | 44       | 248      | 9049730400000 |               |
|                 |                 | 50                   | 69       | 285      | 9049730500000 |               |
| 25              | -               | -                    | 19       | 187      |               | 9049740190000 |
| 32              | 40              | -                    | 24       | 192      |               | 9049740240000 |
| 40              | 50              | -                    | 30       | 196      |               | 9049740300000 |
| 50              | 63              | -                    | 38       | 203      |               | 9049740380000 |
| 63              | 80              | -                    | 48       | 235      |               | 9049740480000 |
| 80              | 100             | -                    | 60       | 250      |               | 9049740600000 |
| 100             | 125             | -                    | 75       | 260      |               | 9049740750000 |

## Clamping force proofing instrument Senso 3000

The hydraulic clamping technology is a well-known, proven and reliable method for the clamping of tools. Thanks to its completely closed design the system is sealed and impervious, requires extremely low maintenance and guarantees longevity. Following many years of general use, however, thermal and mechanical influences can lead to a reduction in clamping force. The result can be a poor tool life and a diminished surface quality including expensive tool breakages during machining operations.

Determining the loss of clamping force was until now extremely costly and inaccurate. It involved either determining the number of clamping screw rotations or the torque with the assistance of a proofing bar and a torque key or the expansion rate applying an accurate internal measuring instrument.

The new Gühring SENSO 3000 measuring instrument offers a precise, quick and simple as well as consistent method of measuring the clamping force. An added advantage is the mobility of the system, i.e. for measuring within machines and fixtures.

SENSO 3000 determines the clamping force of the hydraulic chuck via a pressure sensitive plug gauge. The entire length of the plug gauge is clamped in the hydraulic chuck so that when tightening the clamping screw the clamping pressure of the chuck is optimally applied. The clamping force measurement instrument displays the clamping force as a percentage value in relation to the Gühring Master recording.

The delivery scope includes the following components:

- clamping force measuring instrument with pressure sensitive plug gauge
- operation instructions
- CR 2430 type battery
- Master record for review on request



## Senso 3000

### Scope of delivery

- Clamping force measuring instrument with pressure sensitive plug gauge
- Operation instructions
- CR 2430 type battery
- Master recording on request
- Inch sizes available upon request



|                         |      | Series no. | 4038          |
|-------------------------|------|------------|---------------|
| clamping diameter<br>mm |      | EDP Number |               |
|                         | 6.0  |            | 9040380060000 |
|                         | 8.0  |            | 9040380080000 |
|                         | 10.0 |            | 9040380100000 |
|                         | 12.0 |            | 9040380120000 |
|                         | 14.0 |            | 9040380140000 |
|                         | 16.0 |            | 9040380160000 |
|                         | 18.0 |            | 9040380180000 |
|                         | 20.0 |            | 9040380200000 |
|                         | 25.0 |            | 9040380250000 |
|                         | 32.0 |            | 9040380320000 |

## Flow rate measuring instrument PQ 3000

Gühring's PQ 3000 enables quick and simple measuring of pressure and volume of coolant flow directly in the machine using the actual tool applied.

Gühring has developed the PQ 3000 instrument for quick, simple and direct measuring of the existing coolant pressure and rate of flow for tools with internal cooling.



PQ 3000 enables the measuring of pressure and rate of flow of coolant when the actual tool is clamped directly in the stationary tool spindle. This way, it is possible to establish the real conditions of the relevant machine and tool configuration and measure the resulting actual rate of flow.

PQ 3000 provides the following information:

- pressure and volume flow of the coolant pump, the so-called P/Q characteristic curve
- possible pump or seal wear as well as rotary transmission losses
- possible narrowed cross sections in the line through machine, spindle and tool holder
- possible blocked filters
- possible narrowed cross sections resulting from deposits on the surface of the coolant ducts in the tool
- the coolant duct layout in the tool.

to identify and rectify possible weak points in the overall system, this way, the tool life of the applied tool can be optimised preventing tool breakage as well as chip congestion and jamming!

PQ 3000 provides data of sensors and indicates the measuring results on the display fixture. A data interface enables an evaluation via software on your PC (interface and software are available on request).

## PQ 3000

### Product information

- pressure checking range: 1 to 120 bar
- rate of flow checking range: 2 to 40 l/min
- diameter holder shank: 16 mm
- diameter range tool holder: ER 32 / 6 to 20 mm
- display for existing pressure P in bar also rate of flow volume Q in l/min

### Scope of delivery

- clamping fixture and checking instrument
- display fixture with grip and connection socket
- checking data cable with connector plug, length 3 m
- ER 32 collet holder and sealing washer set for standard shanks with collets from 6 to 20 mm diameter
- clamping key for tensioning nut



| Series no.                                 | 4068          |
|--|---------------|
|  | EDP Number    |
| case complete<br>interface and PC-Software | 9040680100000 |
|  |               |
|  |               |
|  |               |
|  |               |

## Coolant supply measuring instrument CC 3000

With Gühring's CC 3000 you can quickly and simply check the filtering efficiency of the coolant system.

Gühring has developed the CC 3000 inspection instrument for quick, simple and direct check of the coolant filtering efficiency.

Thanks to replaceable stainless steel filters, the user can adapt the instrument specifically to the filtering of the coolant system. CC 3000 establishes the present condition of the individual system and displays the actual filter efficiency.

In order to analyse and rectify possible weak points of the filter system, the following information is provided:

- perfect operation of the coolant filtering system
- defective filters
- insufficient filtering for the applied tool

In addition, it is possible to determine the oil concentration of the applied soluble oil with the included refractometer.

Thus, it is possible to optimize the tool life of the applied tool, to prevent tool breakage and subsequent production downtime!



## CC 3000

### Product information

- Master recording range of application 50 - 500 min-1
- suitable for coolant pressure up to 80 bar

### Scope of delivery

- Measuring instrument with straight shank 16h6 and HB/HE clamping surfaces
- inspection instrument with HSK 63-A interface
- high-grade steel filter sizes 100, 200 and 300 µm
- refractometer including accessories
- magnifying glass, 8-fold magnification
- order high-grade steel filter size 60 µm separately
- in addition to the HSK holder we can also offer a tool holder with a 16 mm shank as a special



|   | Series no. | 4076          | 4077          |
|---|------------|---------------|---------------|
|   |            | EDP Number    | EDP Number    |
| case complete                                     |            | 9040760100630 |               |
| high-grade steel filter size 60, Series no. 4077  |            |               | 9040770600000 |
| high-grade steel filter size 100, Series no. 4077 |            |               | 9040771000000 |
| high-grade steel filter size 200, Series no. 4077 |            |               | 9040772000000 |
| high-grade steel filter size 300, Series no. 4077 |            |               | 9040773000000 |

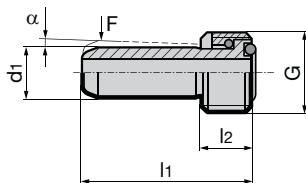
## Coolant supply sets for conventional cooling

### Product information

- leak-proof screwed connection tested to 80 bar
- to DIN 69895
- $F$  = angle movability  $\pm 1^\circ$
- for HSK-A and HSK-E shanks

### Scope of delivery

- incl. union nut and O-rings



Series no.

4949

| for HSK-A | d <sub>1</sub> mm | α°  | F  | G       | l <sub>1</sub> mm | l <sub>2</sub> mm | EDP Number    |
|-----------|-------------------|-----|----|---------|-------------------|-------------------|---------------|
| 32        | 6                 | 1.2 | 5N | M10x1.0 | 26.0              | 5.5               | 9049490100320 |
| 40        | 8                 | 1.4 | 5N | M12x1.0 | 29.5              | 7.5               | 9049490120400 |
| 50        | 10                | 1.3 | 6N | M16x1.0 | 33.0              | 9.5               | 9049490160500 |
| 63        | 12                | 1.3 | 6N | M18x1.0 | 36.5              | 11.5              | 9049490180630 |
| 80        | 14                | 1.4 | 7N | M20x1.5 | 40.0              | 13.5              | 9049490200800 |
| 100       | 16                | 1.4 | 7N | M24x1.5 | 44.0              | 15.5              | 9049490241000 |

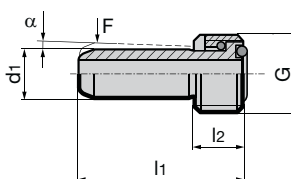
## Coolant supply sets for conventional cooling with filter

### Product information

- leak-proof screwed connection tested to 80 bar
- similar DIN 69895
- with filter for contamination-free cooling
- protects against tool breakage and eases error analysis
- $F$  = angle movability  $\pm 1^\circ$
- for HSK-A and HSK-E shanks

### Scope of delivery

- incl. union nut and O-rings
- 100μ stainless steel fabric filter



Series no.

4979

| for HSK-A | d <sub>1</sub> mm | α°  | F  | G       | l <sub>1</sub> mm | l <sub>2</sub> mm | EDP Number    |
|-----------|-------------------|-----|----|---------|-------------------|-------------------|---------------|
| 32        | 6                 | 1.2 | 5N | M10x1   | 26.0              | 5.5               | 9049790100320 |
| 40        | 8                 | 1.4 | 5N | M12x1   | 29.5              | 7.5               | 9049790120400 |
| 50        | 10                | 1.3 | 6N | M16x1   | 33.0              | 9.5               | 9049790160500 |
| 63        | 12                | 1.3 | 6N | M18x1   | 36.5              | 11.5              | 9049790180630 |
| 80        | 14                | 1.4 | 7N | M20x1.5 | 40.0              | 13.5              | 9049790200800 |
| 100       | 16                | 1.4 | 7N | M24x1.5 | 44.0              | 15.5              | 9049790241000 |

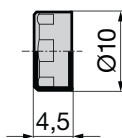
## Data coding chip

### Product information

- Identification systems BIS C
- for installation space to DIN 69 873
- data carrier read/write
- 511 bytes
- operating temperature 0...+70
- protection class to IEC
- product data exchange acc. to DIN 4000
- glued in bore Ø10 H11

### Scope of delivery

- data coding chip
- installation in chuck and additional balancing can be ordered separately



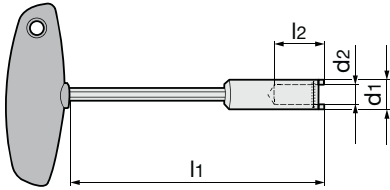
Series no.

4955

| coding chip BIS C-122-04/L | EDP Number    |
|----------------------------|---------------|
| 10 x 4.5                   | 9049550100000 |

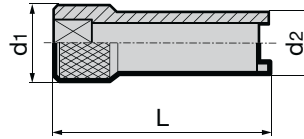
## Product information

- with T-handle
- for coolant supply sets for conventional cooling and MQL coolant supply unit



## Product information

- suitable for torque wrench  
Series no. 4915, drive 3/8"
- for coolant supply sets



Series no. 4911

| for HSK | d1 mm | d2 mm | l1 mm | l2 mm | EDP Number    |
|---------|-------|-------|-------|-------|---------------|
| 32      | 11,0  | 6,1   | 128   | 23,0  | 9049110240000 |
| 40      | 13,0  | 8,1   | 134   | 26,0  | 9049110300000 |
| 50      | 15,0  | 10,1  | 134   | 28,0  | 9049110380000 |
| 63      | 17,0  | 12,1  | 135   | 31,5  | 9049110480000 |
| 80      | 20,0  | 14,1  | 138   | 32,0  | 9049110600000 |
| 100     | 22,5  | 16,1  | 138   | 35,0  | 9049110750000 |

Series no. 4910

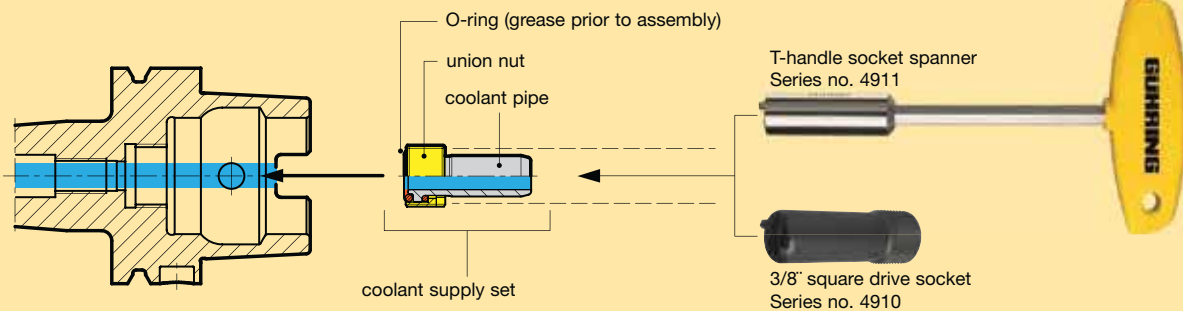
| for HSK | MA Nm | d1 mm | d2 mm | L mm | EDP Number    |
|---------|-------|-------|-------|------|---------------|
| 32      | 7     | 20    | 14    | 60   | 9049100240000 |
| 40      | 11    | 20    | 16    | 60   | 9049100300000 |
| 50      | 15    | 20    | 18    | 60   | 9049100380000 |
| 63      | 20    | 20    | 18    | 60   | 9049100480000 |
| 80      | 25    | 20    | 20    | 75   | 9049100600000 |
| 100     | 30    | 22    | 22    | 80   | 9049100750000 |

## Installation of coolant supply sets 4949/4979

1. The HSK holder must be clean, free of swarf and undamaged.
2. Grease the O-rings prior to assembly.
3. Centrally insert the complete coolant supply set (coolant pipe, union nut and 2 O-rings) in the HSK with the assistance of the socket spanner.
4. Screw in the coolant supply set/coolant supply unit and tighten (see table for torque figures)
5. Check coolant pipe for radial mobility.

## Torque figures

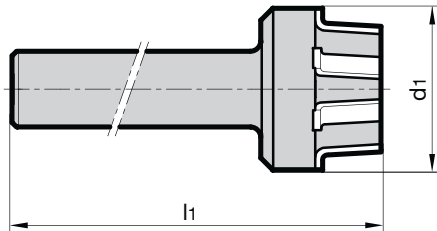
| for HSK | MA Nm |
|---------|-------|
| 32      | 7     |
| 40      | 11    |
| 50      | 15    |
| 63      | 20    |
| 80      | 25    |
| 100     | 30    |



## HSK cleaning mandrels

### Product information

- for cleaning internal tapers and the end faces on HSK
- by cleaning the contact surfaces accuracy, clamping torque and tool life of interfaces are improved
- the taper wipers are available in 3 designs, suitable for HSK and SK spindles and HPC precision chucks



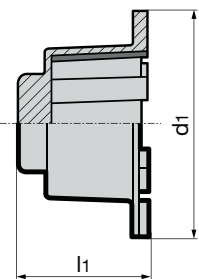
Series no. **4914**

| taper type  | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | EDP Number    |
|-------------|----------------------|----------------------|---------------|
| HSK-A/C-25  | 33                   | 114                  | 9049140190000 |
| HSK-A/C-32  | 35                   | 138                  | 9049140240000 |
| HSK-A/C-40  | 45                   | 142                  | 9049140300000 |
| HSK-A/C-50  | 53                   | 152                  | 9049140380000 |
| HSK-A/C-63  | 66                   | 168                  | 9049140480000 |
| HSK-A/C-80  | 93                   | 178                  | 9049140600000 |
| HSK-A/C-100 | 103                  | 199                  | 9049140750000 |
| HPC 14      | 24                   | 160                  | 9049140140000 |
| HPC 20      | 24                   | 156                  | 9049140200000 |
| HPC 25      | 40                   | 195                  | 9049140250000 |
| HPC 32      | 42                   | 170                  | 9049140320000 |
| SK/BT30     | 35                   | 168                  | 9049140300300 |
| SK/BT40     | 48                   | 188                  | 9049140400000 |
| SK/BT50     | 75                   | 240                  | 9049140500000 |

## HSK cleaning caps

### Product information

- for cleaning the external taper and face



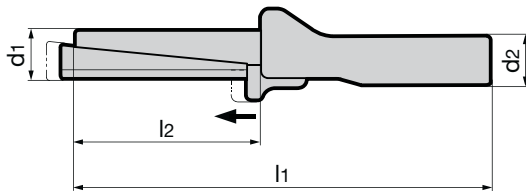
Series no. **4947**

| for<br>HSK-A/C/E | d <sub>1</sub><br>mm | l <sub>1</sub><br>mm | EDP Number    |
|------------------|----------------------|----------------------|---------------|
| 40               | 53                   | 36                   | 9049470010400 |
| 50               | 66                   | 42                   | 9049470010500 |
| 63               | 83                   | 53                   | 9049470010630 |
| 80               | 103                  | 58                   | 9049470010800 |
| 100              | 125                  | 77                   | 9049470011000 |

## Cylindrical cleaning mandrels

### Product information

- for cleaning the bore of the tool holder
- i.e. hydraulic, shrink fit and HPC clamping chucks



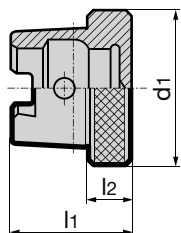
Series no. **4918**

| $d_1$<br>mm | $d_2$<br>mm | $l_2$<br>mm | $l_1$<br>mm | EDP Number    |
|-------------|-------------|-------------|-------------|---------------|
| 6           | 24          | 37          | 158         | 9049180060000 |
| 8           | 24          | 37          | 158         | 9049180080000 |
| 10          | 24          | 47          | 168         | 9049180100000 |
| 12          | 24          | 47          | 168         | 9049180120000 |
| 14          | 24          | 47          | 168         | 9049180140000 |
| 16          | 24          | 70          | 176         | 9049180160000 |
| 18          | 24          | 70          | 176         | 9049180180000 |
| 20          | 24          | 70          | 176         | 9049180200000 |
| 25          | 24          | 80          | 186         | 9049180250000 |
| 32          | 30          | 100         | 221         | 9049180320000 |
| 40          | 30          | 105         | 226         | 9049180400000 |

## HSK-C sealing plugs

### Product information

- with high coolant pressure applications, it is imperative to seal the spindle with the sealing plug for safety reasons when the machine spindle is not fitted with a tool.
- The sealing plug protects the spindle from contamination.



Series no. **4985**

| HSK-C | $d_1$<br>mm | $l_1$<br>mm | $l_2$<br>mm | kg   | EDP Number    |
|-------|-------------|-------------|-------------|------|---------------|
| 32    | 34          | 26.0        | 10.0        | 0.07 | 9049850320000 |
| 40    | 42          | 30.0        | 10.0        | 0.11 | 9049850400000 |
| 50    | 52          | 37.5        | 12.5        | 0.23 | 9049850500000 |
| 63    | 65          | 44.5        | 12.5        | 0.39 | 9049850630000 |
| 80    | 82          | 56.0        | 16.0        | 0.81 | 9049850800000 |
| 100   | 102         | 66.0        | 16.0        | 1.36 | 9049851000000 |

## Tool setting fixture

### Product information

- for HSK shanks HSK 32, 40, 50 and 63, form A, C, E and F
- the HSK shanks are clamped vertically and horizontally at the collar. Therefore, all tapers with the same diameter of the collar can be clamped with one fixture.

### Scope of delivery

- incl. holder adaptors



Series no. **4946**

| for shanks     | length mm | width mm | height mm | kg | EDP Number    |
|----------------|-----------|----------|-----------|----|---------------|
| HSK-32-A+C+E   | 260       | 130      | 160       | 9  | 9049464500320 |
| HSK-40-A+C+E+F | 260       | 130      | 160       | 9  | 9049464500400 |
| HSK-50-A+C+E+F | 260       | 130      | 160       | 9  | 9049464500500 |
| HSK-63-A+C+E+F | 260       | 130      | 160       | 9  | 9049464500630 |
|                |           |          |           |    |               |
|                |           |          |           |    |               |

## Tool setting fixture

### Product information

- the HSK shank remains in vertical position in the tool setting fixture by its own weight. The torque is transmitted through tang at the end of the taper.
- All taper types of equal size, as e.g. DIN 69871 /DIN 2080 /MASBT and D-BT can be clamped without changing the adaptors only through axial adjusting of the clamping spindle

### Scope of delivery

- incl. interchangeable discs  
Series no. 4991



Series no. **4990**

| for shanks  | length mm | width mm | height mm | kg | EDP Number    |
|-------------|-----------|----------|-----------|----|---------------|
| BT-/SK-40   | 260       | 130      | 160       | 9  | 9049904000400 |
| BT-/SK-50   | 260       | 130      | 160       | 9  | 9049904000500 |
| HSK-63-A+C  | 260       | 130      | 160       | 9  | 9049904500630 |
| HSK-80-A+C  | 260       | 130      | 160       | 9  | 9049904500800 |
| HSK-100-A+C | 260       | 130      | 160       | 9  | 9049904501000 |
|             |           |          |           |    |               |
|             |           |          |           |    |               |

## Interchangeable discs

### Product information

- for tool setting fixture,  
Series no. 4990

### Scope of

- 1 pair



Series no. **4991**

| for shanks     | for Series no. | kg   | EDP Number    |
|----------------|----------------|------|---------------|
| BT-/SK-40      | 4990           | 1.50 | 9049914001000 |
| BT-/SK-50      | 4990           | 1.50 | 9049914002000 |
| HSK-32-A+C+E+F | 4946           | 0.82 | 9049914501000 |
| HSK-32-A+C+E+F | 4946           | 0.85 | 9049914502000 |
| HSK-32-A+C+E+F | 4946           | 0.09 | 9049914503000 |
| HSK-63-A+C     | 4990           | 0.12 | 9049914504000 |
| HSK-80-A+C     | 4990           | 0.27 | 9049914505000 |
| HSK-100-A+C    | 4990           | 0.46 | 9049914506000 |
|                |                |      |               |
|                |                |      |               |

## Torque wrenches

### Product information

- with ratchet
- torque range 1...200 Nm; with automatic short distance release; can be heard, seen and felt when the set value is reached.  
Release accuracy  $\pm 4\%$  of the scale value.
- type "D" is pre-set to 10 Nm suitable for our HPC chucks Series no. 4300, 4301, 4243, 4244



type A

type D

type E

type B

type C

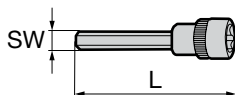
|      |       |      |           | Series no.     |               |               |               |
|------|-------|------|-----------|----------------|---------------|---------------|---------------|
|      |       |      |           | 4915           | 4987          | 4988          | 4989          |
| type | drive | L mm | torque Nm | EDP Number     | EDP Number    | EDP Number    | EDP Number    |
| A    | 1/4"  | –    | 0.4-1     | 9049150010010  |               |               |               |
| A    | 1/4"  | 142  | 0.5-2     | 9049150020000  |               |               |               |
| A    | 1/4"  | –    | 1.5-3     | 9049150030000* |               |               |               |
| A    | 1/4"  | 160  | 0.8-5     | 9049150050010  |               |               |               |
| A    | 1/4"  | –    | 2.0-7     | 9049150080000  |               |               |               |
| D    | 1/4"  | –    | 10        |                | 9049870100000 |               |               |
| E    | 1/4"  | –    | 0.4-14    |                |               | 9049880140000 |               |
| B    | 3/8"  | 390  | 10-50     |                |               |               | 9049890500000 |
| C    | 1/2"  | 514  | 40-200    |                |               |               | 9049892000000 |

\*Includes 4mm hex wrench

## Socket/attachments

### Product information

- for hexagon socket screws
- Type D for HPC clamping chuck



Type A



Type B



Type C



Type D



Type A: 1/4"-hexagon drive

Type B: 3/8"-square drive

Type C: 1/2"-square drive

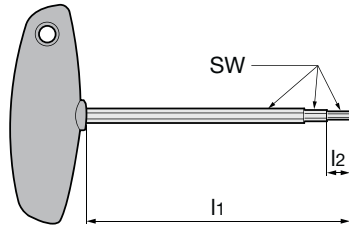
Type D: 1/4"-square drive

|     |       |      |                      |               | Series no. |  |
|-----|-------|------|----------------------|---------------|------------|--|
|     |       |      |                      |               | 4916       |  |
| SW  | drive | L mm | torque wrenches type | EDP Number    |            |  |
| 2   | 1/4"  | 50   | A                    | 9049160020190 |            |  |
| 2.5 | 1/4"  | 50   | A                    | 9049160025240 |            |  |
| 3   | 1/4"  | 50   | A                    | 9049160030300 |            |  |
| 3   | 3/8"  | 52   | B                    | 9049160030380 |            |  |
| 4   | 1/4"  | 55   | D                    | 9049160040000 |            |  |
| 4   | 3/8"  | 100  | B                    | 9049160040380 |            |  |
| 5   | 3/8"  | 100  | B                    | 9049160050480 |            |  |
| 6   | 3/8"  | 100  | B                    | 9049160060600 |            |  |
| 8   | 3/8"  | 100  | B                    | 9049160080750 |            |  |
| 6   | 1/2"  | 120  | C                    | 9049160060380 |            |  |
| 8   | 1/2"  | 120  | C                    | 9049160080480 |            |  |
| 10  | 1/2"  | 140  | C                    | 9049160100600 |            |  |
| 12  | 1/2"  | 140  | C                    | 9049160120000 |            |  |

## Hexagon clamping keys

### Product information

- for hexagon socket screws
- with ergonomic handle for the safe handling of our clamping devices
- special key EDP Number 4912 4.600 for HPC clamping chuck

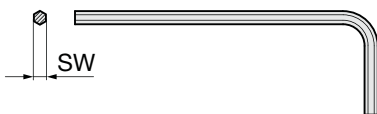


|         |       |       |      | Series no.    | 4912 |
|---------|-------|-------|------|---------------|------|
| SW      | l1 mm | l2 mm | Type | EDP Number    |      |
| 2.0     | 100   | 100   | A    | 9049120020000 |      |
| 2.5     | 100   | 100   | A    | 9049120025000 |      |
| 3.0     | 100   | 100   | A    | 9049120030000 |      |
| 3/4/5/6 | 100   | 100   | C    | 9049120034560 |      |
| 4.0     | 100   | 100   | A    | 9049120040000 |      |
| 4/6     | 100   | 100   | C    | 9049120046000 |      |
| 5.0     | 100   | 100   | A    | 9049120050000 |      |
| 6.0     | 100   | 100   | A    | 9049120060000 |      |
| 8.0     | 100   | 100   | A    | 9049120080000 |      |
| 10.0    | 100   | 100   | A    | 9049120100000 |      |
| 12.0    | 100   | 100   | A    | 9049120120000 |      |
| 2.5     | 200   | 200   | A    | 9049120025010 |      |
| 3.0     | 200   | 200   | A    | 9049120030010 |      |
| 4.0     | 200   | 200   | A    | 9049120040010 |      |
| 5.0     | 200   | 200   | A    | 9049120050010 |      |
| 6.0     | 200   | 200   | A    | 9049120060010 |      |
| 7.0     | 200   | 200   | A    | 9049120070010 |      |
| 8.0     | 200   | 200   | A    | 9049120080010 |      |
| 1.5     | 150   | 2.5   | B    | 9049120015000 |      |
| 2.0     | 150   | 2.5   | B    | 9049120020010 |      |
| 2.5     | 120   | 3.0   | B    | 9049120025020 |      |
| 3.0     | 150   | 3.8   | B    | 9049120030020 |      |
| 4.0     | 150   | 4.5   | B    | 9049120040020 |      |
| 2.5     | 57    | 57    | C    | 9049120025090 |      |

## Hexagon clamping key

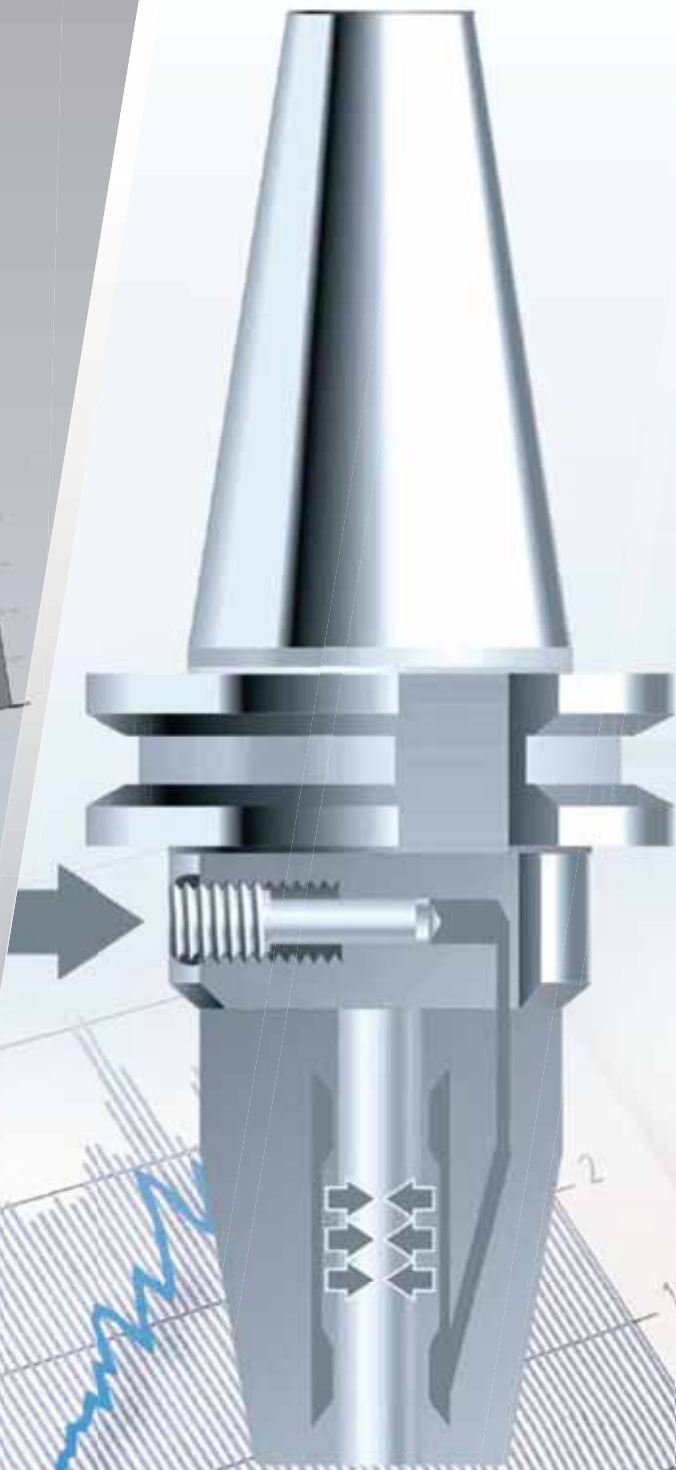
### Product information

- for hexagon socket screws



|                                  |     | Series no.    | 4921 |
|----------------------------------|-----|---------------|------|
| for threaded pin Series no. 4551 | SW  | EDP Number    |      |
| HSK 25                           | 0.9 | 9049210009000 |      |
| HSK 32                           | 1.3 | 9049210013000 |      |
| HSK 40                           | 1.5 | 9049210015000 |      |





TECHNICAL INFORMATION



## Comparison of tool holder characteristics

| Clamping chucks / tool holders for straight shank tools                            | TSG 3000 / shrink fit chucks / shrink fit extensions  | Hydraulic chucks / HMC 3000 / reduction sleeves  |
|--|---|--|
|  |    |  |
| <b>Characteristics</b>   | maximum concentricity;<br>very slender non-interference;<br>good rigidity; high clamping force;<br>modular lengthening;<br>patented dampening screw ensures concentricity | high dampening with maximum concentricity;<br>simple handling;<br>flexible application thanks to reduction bushes also with GÜHROJET |
| <b>Main application</b>  | drilling, countersinking,<br>milling, reaming,<br>universal and HSC applicatio  | reaming, drilling,<br>countersinking,<br>HSC application, light milling  |
| <b>Main feature</b>  | accurate and universal; slender;<br>high clamping force   | simple handling  |
| <b>Concentricity</b>   | $< 3\mu\text{m}$  | $< 3\mu\text{m}$   |
| <b>with 5xD</b>  | $< 5\mu\text{m}$  | $< 5\mu\text{m}$   |
| <b>Clamping force</b>  | very high   | very high  |
| <b>Rigidity</b>  | very high   | high   |
| <b>Dampening</b>   | low   | very high  |
| <b>Interference contour</b>  | small / minimal   | medium   |
| <b>Handling</b>  | good  | very good / very flexible  |
| <b>Actuation</b>   | shrink fit device<br>e.g. GSS 2000 Series no. 4742  | hexagon key<br>e.g. Series no. 4912  |

| HPC precision power chucks / clamping sleeves  | Straight shank holders<br>“Weldon” /<br>“Whistle-Notch”  | Collet chucks<br>ER  |
|--|--|--|
|    |                       |                                |
| <p>maximum clamping force and rigidity thanks to mechanical clamping transmission; high accuracy and balancing quality; flexible application thanks to clamping sleeves also with GÜHROJET</p> | <p>robust, cost-efficient clamping chuck for heavy machining in the lower speed and accuracy range</p> | <p>very flexible clamping chuck for various shank dimensions and tolerances; for lower level machining tasks</p> |
| <p>heavy HPC and fast accurate HSC milling, drilling, universal application</p>  | <p>roughing, milling, drilling</p>   | <p>light machining, centering, chamfering, drilling, threading; intermediate shank dimensions</p>                |
| <p>highest clamping force and rigidity</p>   | <p>simple operation; secure clamping</p>   | <p>highly flexible</p>   |
| <p>&lt; 3µm</p>  | <p>&lt; 10µm</p>   | <p>&lt; 10µm</p>   |
| <p>&lt; 8µm</p>  | <p>&lt; 25µm</p>   | <p>&lt; 20µm</p>   |
| <p>extremely high</p>  | <p>very safe</p>   | <p>medium</p>  |
| <p>extremely high</p>  | <p>very high</p>   | <p>low</p>   |
| <p>high</p>  | <p>low</p>   | <p>high</p>  |
| <p>medium</p>  | <p>large</p>   | <p>large<br/>(mini = small)</p>  |
| <p>very good / flexible</p>  | <p>good</p>  | <p>good</p>  |
| <p>hexagon key / torque wrench<br/>e.g. Series no. 4915 + 4916 type D</p>  | <p>hexagon key<br/>torque: information at clamping screw Series no. 4903</p>                           | <p>hook spanner<br/>max. torque: information at clamping screw Series no. 4903</p>                               |

# The HSK interface

## TECHNICAL INFORMATION AND ADVANTAGES



Fig. 1:  
HSK-A 63 interface,  
automatic tool change

The HSK interface of our GM 300 modular tooling system was developed for both rotating and static tooling applications in 1987. Standardization was obtained in 1991 (DIN 69893) and 2001 (ISO 12164-1/-2). The unique design is an ideal interface for both automatic clamping in a machine spindle (fig 1), as well as manual clamping in a tooling system or tool holder.

### HSK Advantages are as follows:

- High Rigidity in both static and dynamic applications
- Radial and axial forces generated in clamping provide extreme rigidity (fig 2)

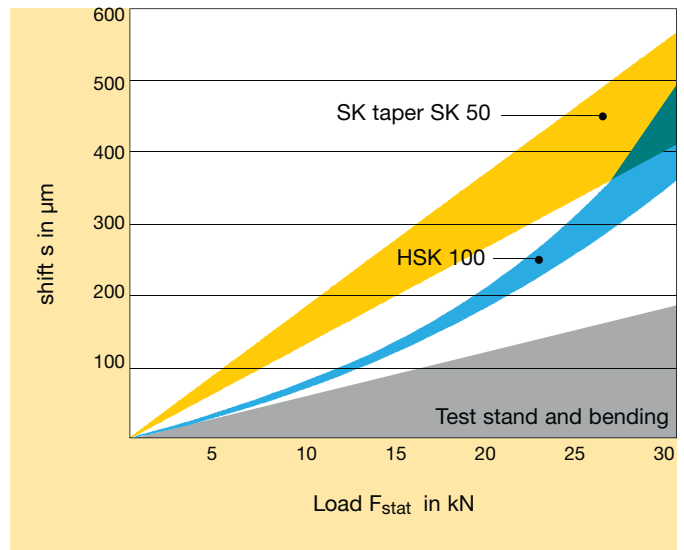
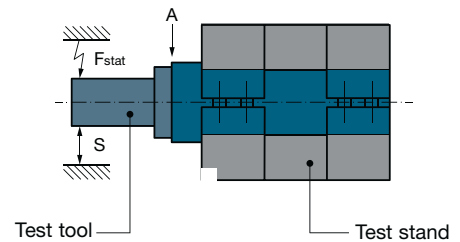


Fig. 2  
Static deflection: Comparison between ISO taper 50  
and automatic interface HSK-A 100 (A)

| SK taper<br>DIN 2080<br>DIN ISO 7388-1 | HSK<br>form A/C/(E)<br>DIN 69893 part 1 | HSK<br>form B/D/(F)<br>DIN 69893 part 2 |
|--|---|---|
| -                                      | HSK 40                                  | HSK 50                                  |
| SK30                                   | HSK 50                                  | HSK 63                                  |
| SK40                                   | HSK 63                                  | HSK 80                                  |
| SK45                                   | HSK 80                                  | HSK 100                                 |
| SK50                                   | HSK 100                                 | HSK 125                                 |

# The HSK interface

## TECHNICAL INFORMATION AND ADVANTAGES

### High Torque transmission and accurate radial positioning

- Drive keys engage tool holder for no-slip torque transmission
- Centrifugal force increases clamping force by design
- Interference fit in pre-clamped position eliminates radial play (fig. 3)

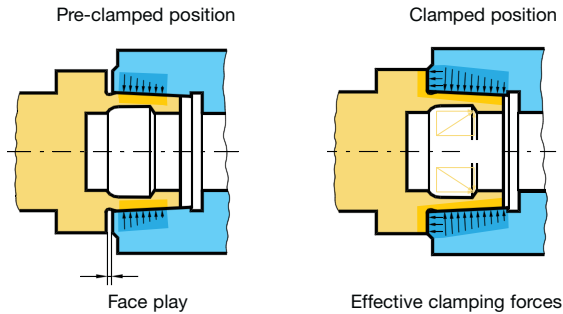
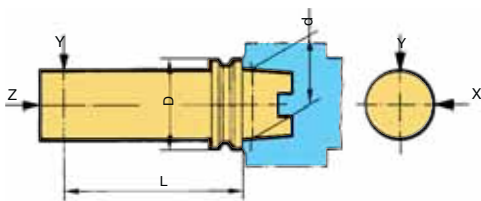


Fig. 3  
Prestressing and frictional forces of hollow taper shank at the interface.

### Short tool change time due to:

- Short tool shank (1/3 of steep taper tooling)
- Light weight (50% of steep taper tooling)



| HSK-size<br>D | d<br>mm | L<br>mm | X<br>mm | Y<br>mm | Z<br>mm |
|---------------|---------|---------|---------|---------|---------|
| 32            | 24      | 50      | 0.002   | 0.002   | 0.002   |
| 40            | 30      | 60      | 0.002   | 0.002   | 0.002   |
| 50            | 38      | 75      | 0.002   | 0.002   | 0.002   |
| 63            | 48      | 100     | 0.002   | 0.002   | 0.002   |
| 100           | 75      | 150     | 0.002   | 0.002   | 0.002   |

Fig. 4  
Radial and axial repeatability of interface for manual and automatic clamping

### Simple, cost effective shank design

#### Coding and identification

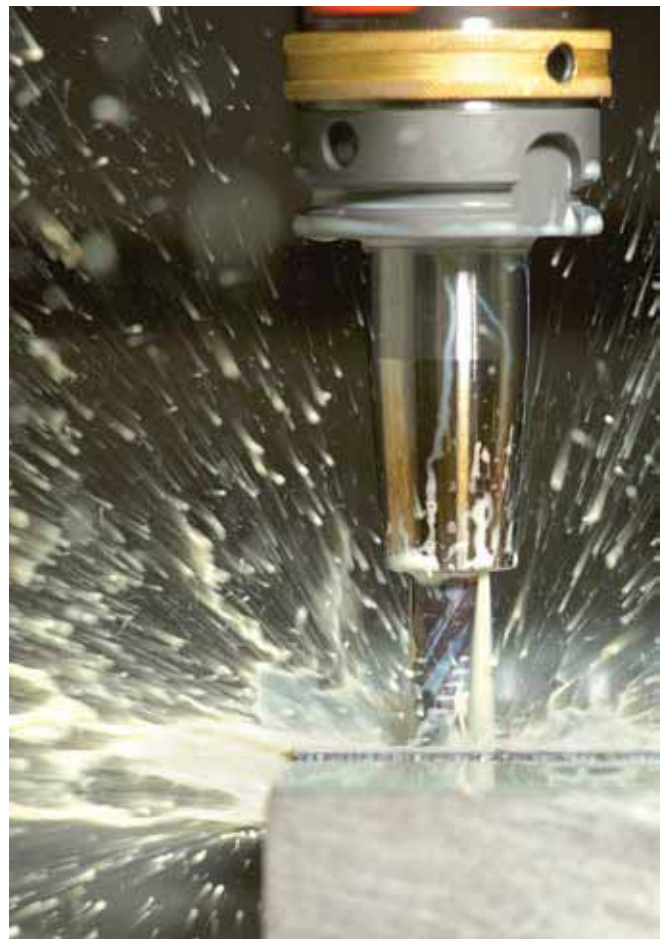
- 10MM diameter x 4.5mm deep pocket for data coding chips

#### Standardization

- Hollow taper shanks (HSK) conform to ISO 12164-1 and DIN 698936 standards
- Form "E" with access hole for manual clamping

#### Coolant feed

- Automatic tool change applications use a coolant tube. Manual tool change applications to be used with coolant filler. Both systems provide sealing to prevent coolant and debris from contaminating clamping surfaces.
- Coolant supply sets must be ordered separately and installed by the customer

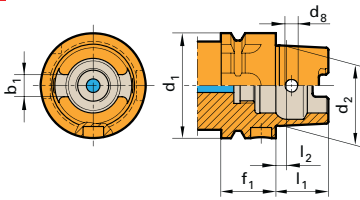


# The HSK interface

## GENERAL OVERVIEW OF HSK SHANKS ISO 12164-1/DIN 69893

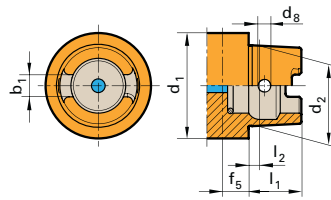
### Form A ISO 12164-1/DIN 69893-1

HSK-sizes 25...160



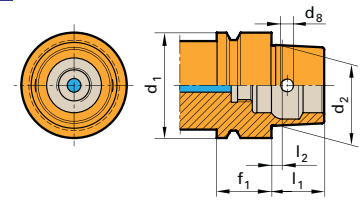
### Form C ISO 12164-1/DIN 69893-1

HSK-sizes 25...160



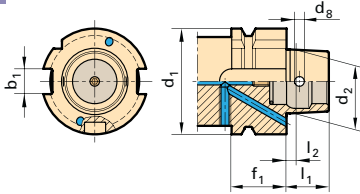
### Form E DIN 69893-5

HSK-sizes 20...63



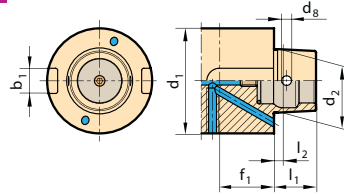
### Form B DIN 69893-2

HSK-sizes 40...160



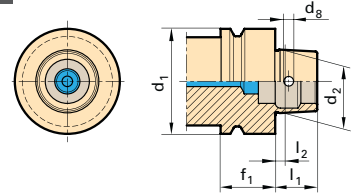
### Form D DIN 69893-2

HSK-sizes 40...160



### Form F DIN 69893-6

HSK-sizes 50...80



HSK for **automatic** tool change with gripper groove and index notch. Manual operation is via access hole in taper. Form B relies on driving dogs on the joint face as shank isn't slotted. Torque is transmitted through highly accurate connection.

HSK for **manual** tool change. Operation is via access hole in taper. Form D relies on driving dogs on the joint face as shank isn't slotted. Torque is transmitted through highly accurate connection.

HSK for **automatic** tool change. Torque is transmitted through highly accurate connection. Version with access hole acc. to DIN 69893-1 by arrangement. HSK-E/F by Gühring are supplied with access holes.

| HSK form <b>A C E</b>             |                      |                      |                      |                      |                      |                      |                      |
|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Nominal Ø<br>d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | f <sub>1</sub><br>mm | f <sub>5</sub><br>mm | d <sub>8</sub><br>mm | b <sub>1</sub><br>mm |
| 20                                | 15.203               | 10                   | 2.0                  | 8                    | -                    | -                    | -                    |
| 25                                | 19.006               | 13                   | 2.5                  | 10                   | -                    | -                    | -                    |
| 32                                | 24.007               | 16                   | 3.2                  | 20                   | 10.0                 | 4.0                  | 7.05                 |
| 40                                | 30.007               | 20                   | 4.0                  | 20                   | 10.0                 | 4.6                  | 8.05                 |
| 50                                | 38.009               | 25                   | 5.0                  | 26                   | 12.5                 | 6.0                  | 10.54                |
| 63                                | 48.010               | 32                   | 6.3                  | 26                   | 12.5                 | 7.5                  | 12.54                |
| 80                                | 60.012               | 40                   | 8.0                  | 26                   | 16.0                 | 8.5                  | 16.04                |
| 100                               | 75.013               | 50                   | 10.0                 | 29                   | 16.0                 | 12.0                 | 20.02                |
| 125                               | 95.016               | 63                   | 12.5                 | 29                   | -                    | -                    | 25.02                |
| 160                               | 120.016              | 90                   | 16.0                 | 31                   | -                    | -                    | 30.02                |

| HSK form <b>B F</b>               |                      |                      |                      |                      |                      |                      |
|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Nominal Ø<br>d <sub>1</sub><br>mm | d <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>2</sub><br>mm | f <sub>1</sub><br>mm | d <sub>8</sub><br>mm | b <sub>1</sub><br>mm |
| 25                                | -                    | -                    | -                    | -                    | -                    | -                    |
| 32                                | -                    | -                    | -                    | -                    | -                    | -                    |
| 40                                | 24.007               | 16                   | 3.2                  | 20                   | 4.0                  | 10                   |
| 50                                | 30.007               | 20                   | 4.0                  | 26                   | 4.6                  | 12                   |
| 63                                | 38.009               | 25                   | 5.0                  | 26                   | 6.0                  | 16                   |
| 80                                | 48.010               | 32                   | 6.3                  | 26                   | 7.5                  | 18                   |
| 100                               | 60.012               | 40                   | 8.0                  | 29                   | 8.5                  | 20                   |
| 125                               | 75.013               | 50                   | 10.0                 | 29                   | 12.0                 | 25                   |
| 160                               | 95.016               | 63                   | 12.5                 | 31                   | 12.0                 | 32                   |

The chart to the right lists max RPM guidelines of the different HSK system sizes :

|             |                    |
|-------------|--------------------|
| HSK-A/C 25  | to 60.000 rev./min |
| HSK-A/C 32  | to 50.000 rev./min |
| HSK-A/C 40  | to 42.000 rev./min |
| HSK-A/C 50  | to 30.000 rev./min |
| HSK-A/C 63  | to 25.000 rev./min |
| HSK-A/C 80  | to 20.000 rev./min |
| HSK-A/C 100 | to 16.000 rev./min |

# The HSK interface

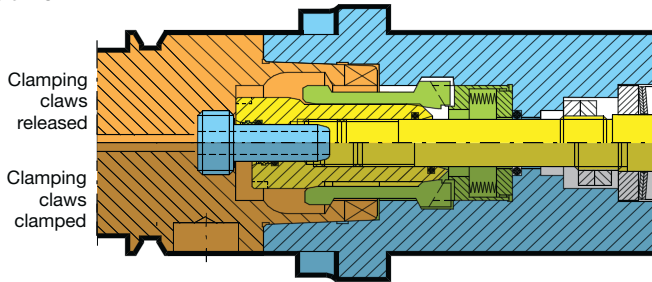
## AUTOMATIC TOOL CLAMPING

In automatic tool clamping, the clamping forces are applied axially via a draw bar inside the machine spindle. A taper simultaneously applies radial movement of the clamping jaws, which engage on the internal clamping shoulder of the tool shank. When the tool holder has been pulled completely into the spindle connection, the result is rigid and without any free play. The geometry on the clamping mechanism and HSK interface increase drawbar force by a factor of 3.5.

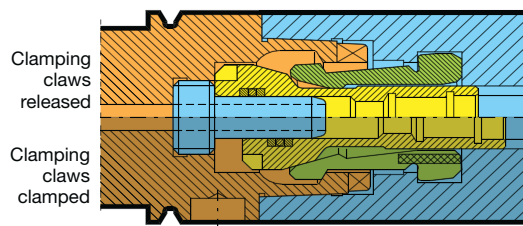
Below are some examples of Automatic HSK spindle interfaces (Fig 6).

Fig. 6  
Spindle interfaces with clamping devices

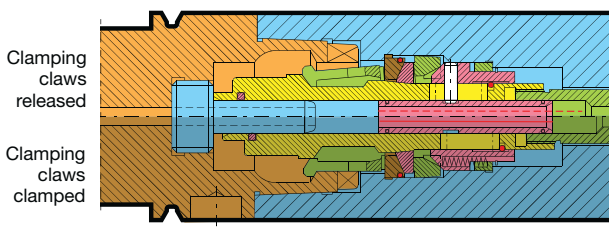
System OTT



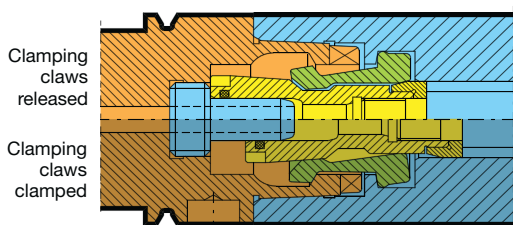
System ORTLIEB (licence Fa. Gühring)



System BERG (licence Fa. Gühring)

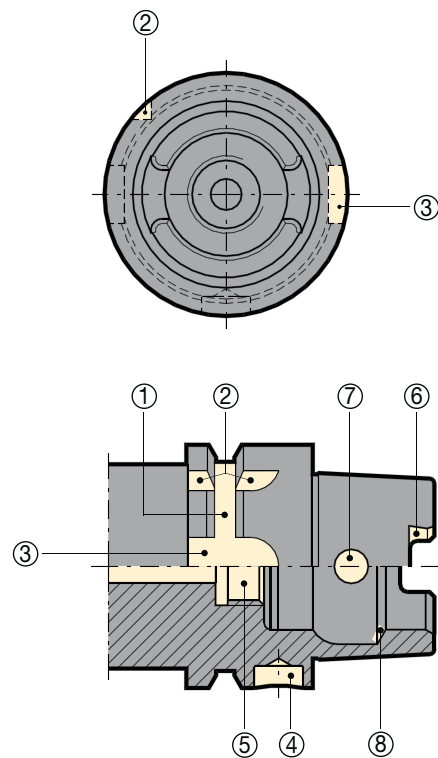


System RÖHM (licence Fa. Gühring)



### Term definitions of HSK-A interface for automatic tooling systems

- ① Gripper groove: circular groove
- ② Index notch: sickle-shaped notch across gripper groove
- ③ Keyway on collar: index notch or for attachment in tool magazine or grippers. With HSK-B/D also provides form closed torque transmission to spindle
- ④ Coding/identification: bore in collar for attachment of identification system (coding chip)
- ⑤ Thread for coolant supply set
- ⑥ Keyway on taper shank for torque transmission to spindle
- ⑦ Radial bore in taper shank: necessary for manual clamping systems
- ⑧ Clamping shoulder: circular chamfer for drawing in the tool



### Note:

We like to point out, that HSK-A can be used alternatively to HSK-C with manual clamping systems e.g. 4-point clamping set or PowerClamp. The only difference is the overall length, which is slightly longer. That is why we have decided to have certain tool holders only as form A as standard.

# The HSK interface

## MANUAL TOOL CLAMPING

### Operating instructions for manual tool clamping

- Do not exceed the maximum torque figures for the clamping screw of the 4-point clamping set and the PowerClamp system.
- The thread of the clamping screw of the manual clamping set is supplied pre-greased. Following prolonged operating periods it may be necessary grease otherwise the require clamping force cannot be obtained.
- At tool changing the plane surface and spindle has to be cleaned. Dirt will restrain the perfect function of the tool system. The inner taper of the spindle can be cleaned with cleaning unit, Series no. 4914.
- The spindle should be sealed with a plug, Series no. 4985, when running without tool to prevent impurities in the clamping sets and HSK tool systems.

Exemplary interface design



### Spindle connection dimensions see page 296/297

Detailed drawings of the spindle connection contours are available on request for the following:

|  |  |   |  |
|--|--|---|--|
| Series no. 4385<br>Short HSK adaptor                             |  | Series no. 4554<br>PowerClamp clamping set  |  |
| Series no. 4386<br>HSK adaptor (in front)                        |  | Series no. 4958<br>4-point clamping set     |  |
| Series no. 4582<br>HSK adaptor (in front)<br>for turning centres |  | Series no. 4930<br>MQL 4-point clamping set |  |
| Series no. 4584<br>HSK adaptors<br>(integrated axial plane)      |  | Series no. 4953<br>Brass collar             |  |
| Series no. 4586<br>HSK adaptor (in front)                        |  | Series no. 4953<br>Brass collar             |  |

# SK taper DIN ISO 7388-1 and MAS/BT DIN ISO 7388-2

## TECHNICAL INFORMATION AND ADVANTAGES

ISO taper and MAS-BT tool holders are produced in a special, alloyed case hardened steel with a minimum tensile strength at the core of 900 N/mm<sup>2</sup>, hardened in a low distortion hardening process to HRC 58 at a case hardening depth of 0.8 to 1.0 mm. For reasons of longevity, the surface of the tool holder is subjected to an abrasive blasting process and protected against corrosion.

### Quality through precision

Gühring's demand for highest precision also applies to tool holders. Therefore, SK taper and MAS-BT chucks are precision ground: in the vicinity of the ISO taper to  $R_a \leq 0.2$ , at the holder face to  $R_a \leq 0.4$ . The taper tolerance is better than AT 3 with a measuring accuracy of  $\leq 1 \mu\text{m}$ .

Detailed information regarding the form and positional tolerances can be found for the individual tool holders on the respective pages in the catalogue. The tolerances of the holder bore and the spigot are approximately 2/3 of the DIN tolerance.

### Balancing

Tool holders suitable for increased speeds are generally pre-balanced. For this purpose, we have determined the imbalance and entered the balancing areas as well as balancing bores on the drawings. This levels out the imbalance to a large extent and up to approximately 8000 rev./min precision balancing is unnecessary. For higher revolutions, the pre-balanced tool holders must be precision balanced to G 6.3 or G 2.5 respectively.

### Type AD/B

ISO taper tool holders generally produced are type AD/B. Supplied is type AD, the coolant bores at the collar are sealed with screws.

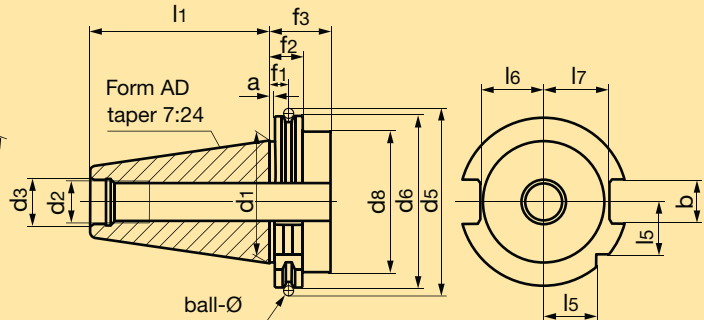
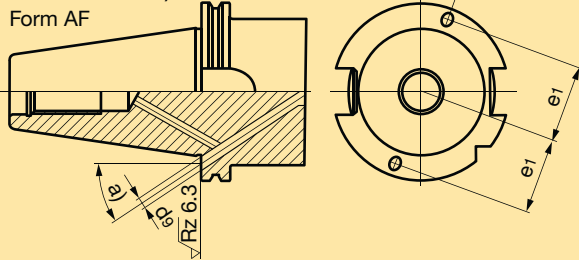
### General dimensions and tolerances

The following dimensions apply to our ISO taper and MAS-BT tool holders:

#### SK DIN ISO 7388-1

(old SK DIN 69871)

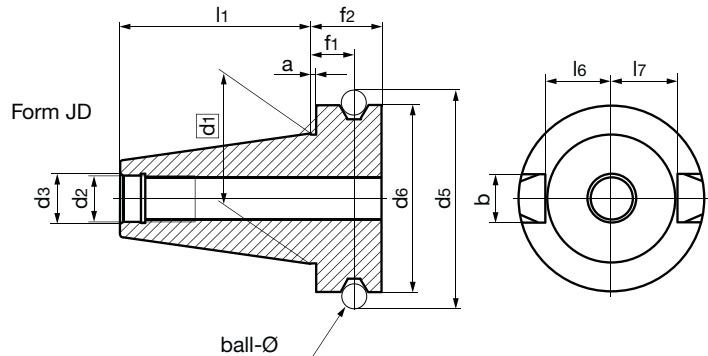
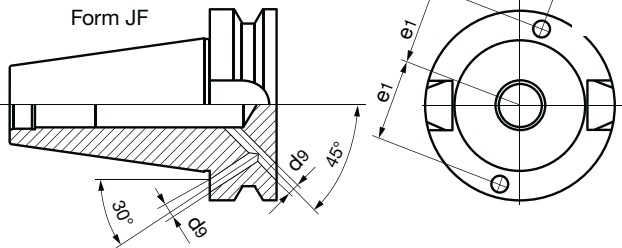
Form AF



#### MAS/BT DIN ISO 7388-2

(corresponds MAS/BT JIS B 6339)

Form JF



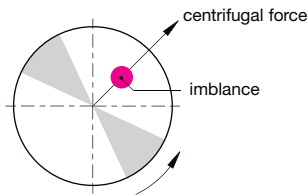
| ISO taper | a mm | ball-Ø mm | b mm | d1 mm | d2 mm | d3 mm | d5 mm  | d6 mm  | d8 mm | d9 mm | e1 mm | f1 mm | f2 mm | f3 mm | l1 mm  | l5 mm | l6 mm | l7 mm |
|-----------|------|-----------|------|-------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| SK30      | 3.2  | 7         | 16.1 | 31.75 | M12   | 13    | 59.3   | 50.00  | 45    | 4     | 21    | 11.1  | 19.1  | 35    | 47.80  | 15.00 | 16.4  | 19.0  |
| SK40      | 3.2  | 7         | 16.1 | 44.45 | M16   | 17    | 72.3   | 63.55  | 50    | 4     | 27    | 11.1  | 19.1  | 35    | 68.40  | 18.5  | 22.8  | 25.0  |
| SK50      | 3.2  | 7         | 25.7 | 69.85 | M24   | 25    | 107.25 | 97.50  | 80    | 6     | 42    | 11.1  | 19.1  | 35    | 101.75 | 30.0  | 35.5  | 37.7  |
| BT30      | 2.0  | 8         | 16.1 | 31.75 | M12   | 12.5  | 56.03  | 46.00  | -     | -     | -     | 13.6  | 22.0  | -     | 48.40  | -     | 16.3  | 16.3  |
| BT40      | 2.0  | 10        | 16.1 | 44.45 | M16   | 17    | 75.56  | 63.00  | -     | 4     | 27    | 16.6  | 27.0  | -     | 65.4   | -     | 22.6  | 22.6  |
| BT50      | 3.0  | 15        | 25.7 | 69.85 | M24   | 25    | 118.89 | 100.00 | -     | 5.4   | 42    | 23.2  | 38.0  | -     | 101.8  | -     | 35.4  | 35.4  |

## Imbalance

An imbalance produces a centrifugal force during the rotation of the spindle impeding the smooth running of the tool. This imbalance influences the working process and the life span of the spindle bearings.

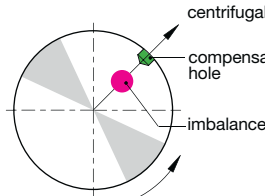
The centrifugal force  $F$  increases linear with the imbalance  $U$  and squared with the number of revolutions according to the formula below.

$$c = U \cdot \omega^2$$



## Counter balancing

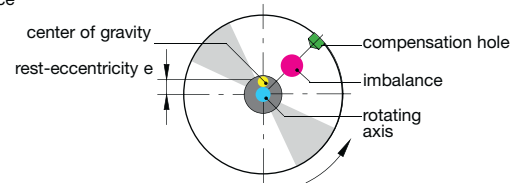
To compensate for unwanted centrifugal forces, the symmetrical distribution of mass must be restored with the aim of eliminating any centrifugal forces influencing the spindle bearing. Tool holders generally have compensation holes or areas which assist in directing the total amount of all centrifugal forces influencing the axis towards zero (see DIN ISO 21940-11).



## Eccentricity of center of gravity

The imbalance of a spindle causes its center of gravity to deviate a certain distance from the rotating axis in direction of the imbalance. This distance is called rest-eccentricity  $e$  or eccentricity of center of gravity. The heavier the weight of the balance body mass  $m$ , the greater the rest-imbalance  $U$  permissible.

$$e = \frac{U}{m}$$



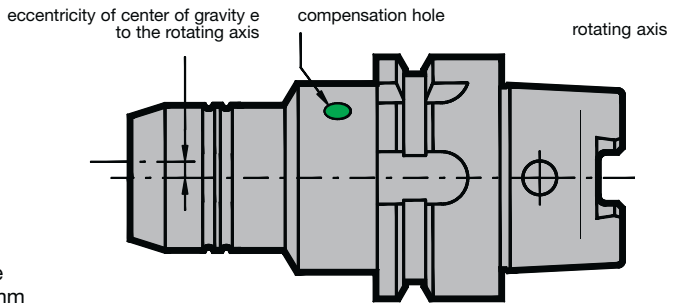
## Calculation imbalance

Imbalance is a measure, specifying how much unsymmetrical distributed mass deviates radially from the rotating axis.

Imbalance is measured in gmm. The measure of distance  $e$  determines the distance of the center of gravity of an element to the rotating axis. Imbalance is calculated as follows:

$$U = m \cdot e$$

- $c$  = centrifugal force
- $U$  = imbalance in gmm
- $e$  = eccentricity of center of gravity in  $\mu\text{m}$
- $m$  = mass in kg
- $s$  = speed  $\text{min}^{-1}$
- $\omega$  = angular velocity ( $\omega = 2 \cdot \pi \cdot n$ )



## Balancing limits

In accordance with DIN ISO 21940-11 the balance grade is denoted with  $G$  as well as the units gmm/kg or  $\mu\text{m}$  respectively and is relative to the number of revolutions. At a speed of 15.000 rev./min and a weight of 1 kg, G6.3 corresponds with a permissible center deviation between rotational axis and center of gravity axis of the spindle of 4  $\mu\text{m}$ .

At twice the speed of 30,000 rev./min it would be 2  $\mu\text{m}$ . If the tool holder was only half the weight, i.e. 0.5 kg, the permissible counter balancing tolerance is also halved.

Aim of counter balancing is to find a compromise between the technically feasible and the economically efficient. Because the radial interchange accuracy for a brand-new HSK holder can be 2 to 3  $\mu\text{m}$  and for an ISO taper shank holder

can be 5 to 10  $\mu\text{m}$ , it means an initial quality limit of G2.5 or G6.3 respectively at 10,000 rev./min.

The following diagram shows the quality grades to DIN ISO 21940-11, i.e. the permissible rest imbalance in relation to the balance body mass for different counter balance qualities  $G$  relative to the maximum operating speed.



# Shrink fit chucks and shrink fit systems

## TECHNICAL INFORMATION AND ADVANTAGES

Gühring's shrink fit chucks ensure an optimal connection between shrink fit chuck and shank tool.

While some manufacturers use conventional case hardened steel, Gühring applies a special, application orientated tool steel. The result is an increased expansion rate as well as improved temperature adaptability. There is no limit to the number of shrink fit insertion or withdrawal operations.

### Advantages:

- short shrink fit times
- maximum clamping force
- shrink fit chucks available for tool shank diameters from 3 mm to 32 mm
- longevity

These advantages are of particular interest in the field of HSC milling, difficult and rough cutting operations, drilling, reaming and internal grinding operations as well as for woodworking.

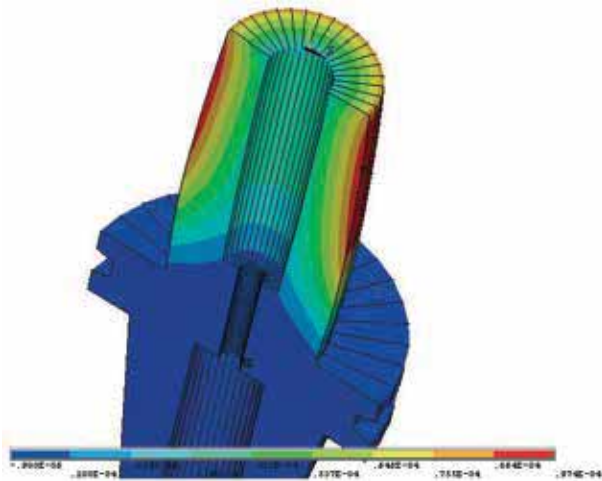
### Convincing characteristics:

- excellent concentricity
- extreme clamping force and rigidity
- improved tool life
- insignificant imbalance through rotation symmetry
- economic efficiency

### A gripping principle

When shrink fitting tools in shrink fit chucks, the decisive factors for ensuring the safe clamping of the tool in the tool holder are solely the heating and cooling of the tool holder. The heating process expands the shrink fit chuck enabling a tool to be inserted or withdrawn respectively. During the cooling process it contracts again and clamps the inserted tool with maximum clamping force.

Because the shrink fit chucks can become extremely hot in localised areas during the heating process and the tools shrink fitted for insertion or withdrawal respectively possess very sharp cutting edges, it is paramount that the operator wears Kevlar gloves during the shrink fit operation to prevent burns and cuts to the hands.



### Shrink fit extensions: Increase performance

Shrink fit extensions increase the scope of a tool's performance and reduce tool surface imperfections. As with shrink fit chucks, the tool is clamped in the shrink fit extension and ideally in an hydraulic chuck. Naturally, shrink fit extensions can also be clamped in shrink fit chucks.

### Perfect team: Gühring shrink fit chucks and shrink fit systems

For the shrink fitting for withdrawal and insertion of tools in our shrink fit chucks we offer various shrink fit systems to satisfy individual customer requirements: From high-tech solutions with integrated, highly accurate length pre-setting and special shrink fit systems for extra long tools to the multi-faceted GSS 2000 with various equipment options:

- GSS 5000
- GSS 3001
- GSS 2000

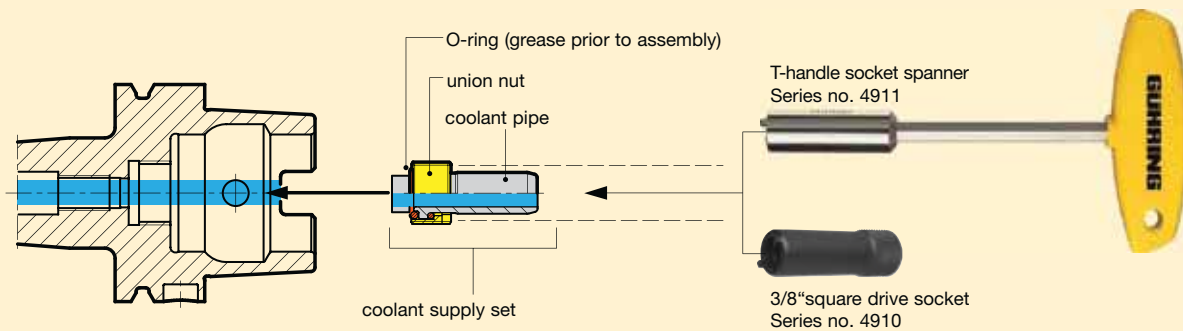


1. The HSK holder must be clean, free of swarf and undamaged.
2. Grease the O-rings prior to assembly.
3. Centrally insert the complete coolant supply set (coolant pipe, union nut and 2 O-rings) in the HSK with the assistance of the socket spanner. When inserting the MQL coolant supply unit, it is paramount to ensure that the MQL pipe is inserted centrally and undamaged into the MQL length setting screw (do not kink).
4. Screw in the coolant supply set/coolant supply unit and tighten (see table for torque figures)
5. Check coolant pipe for radial mobility.

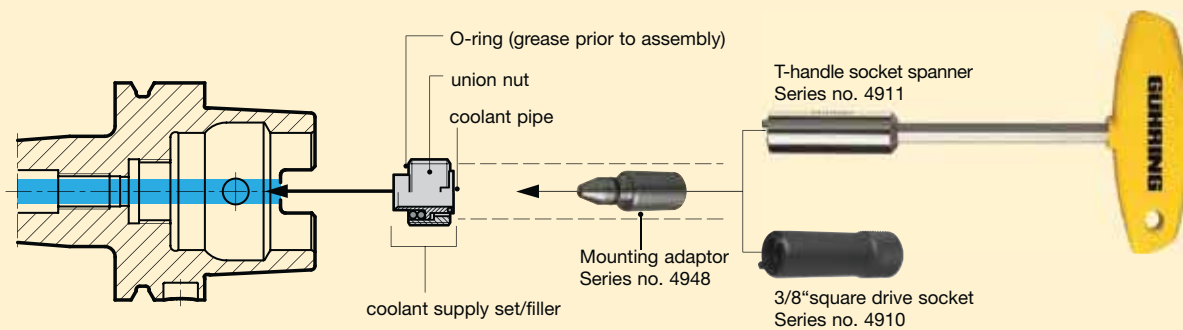
Torque figures

| for HSK | MA Nm |
|---------|-------|
| 32      | 7     |
| 40      | 11    |
| 50      | 15    |
| 63      | 20    |
| 80      | 25    |
| 100     | 30    |

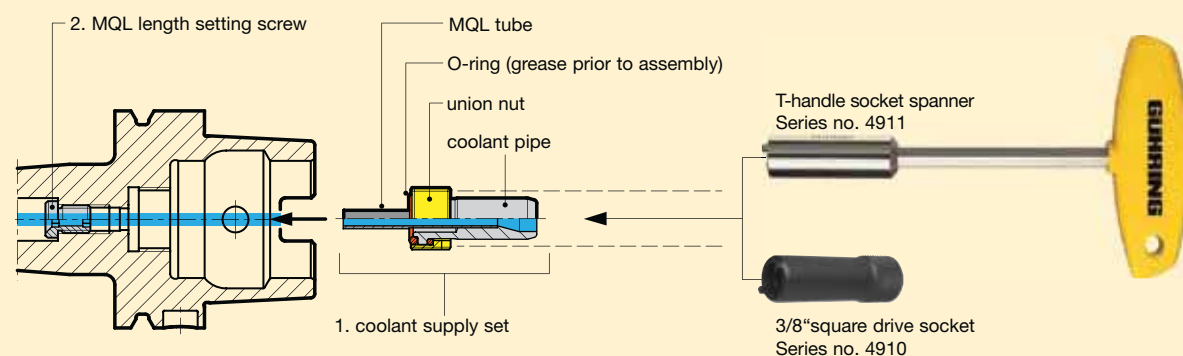
## Installation of MQL coolant supply set Series no. 4939



## Installation of MQL coolant supply set filler Series no. 4940



## Installation of MQL coolant supply unit Series no. 4623/4924



# Operating instructions for Hydraulic chucks

## TECHNICAL INFORMATION AND ADVANTAGES

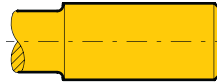
### Clamping standard tool shanks to DIN 6535 in hydraulic chucks

Direct clamping  
of tool preferred  
run-out  $\leq 0.003$  mm

**Form HA**  $\varnothing 6 \dots 20$  mm



**Form HA**  $\varnothing 25 \dots 32$  mm



**Form HB**  $\varnothing 6 \dots 20$  mm

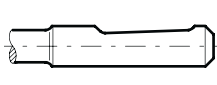


Clamping of tool shank  
only with reduction bushes  
run-out  $\leq 0.005$  mm

**Form HB**  $\varnothing 25 \dots 32$  mm



**Form HE**  $\varnothing 6 \dots 20$  mm



**Form HE**  $\varnothing 25 \dots 32$  mm



#### General notes:

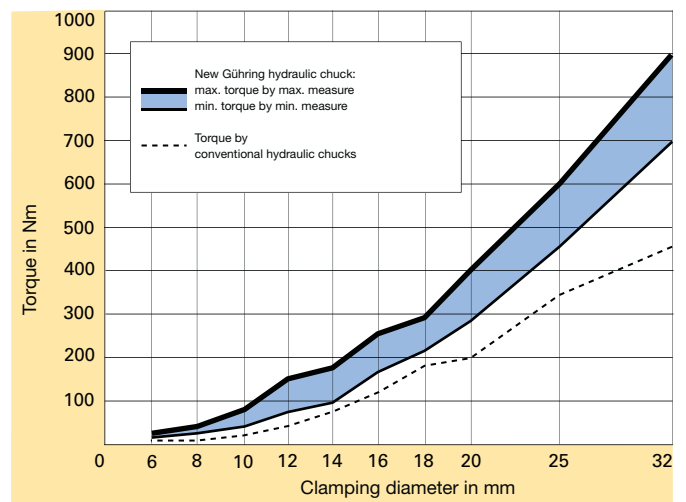
Our hydraulic chucks must not be operated with motor-driven tools (impulse screwdrivers or similar). The hexagonal key should not exceed the key size over its entire length, this largely prevents excessive torque being transferred. We recommend the hexagon clamping key, Series no. 4912. A tightening moment of 10 Nm must not be exceeded.

## Gühring Hydraulic chucks with increased clamping force

Hydraulic chucks are suitable for clamping rotary symmetrical tools or workpieces. Straight shank tools without drive flats may be clamped up to  $\varnothing 32$  mm, but also shanks according to DIN 6535 form HA and HB up to  $\varnothing 20$  mm without reduction sleeves. The given values in the table below are not to be exceeded. If the inserted length is less than the given minimum insertion depth or other tool shanks than specified above are applied, lower accuracy and breakage may occur!

Above all it is the high revolutions with High-Speed-Cutting operations that puts special demands on the tool holder. The clamping of the tool in a hydraulic chuck is, therefore, especially significant. Gühring has developed a hydraulic chuck that offers reliable and powerful clamping with higher torque figures, guaranteeing excellent tool clamping in the tool holder.

Combined with precise concentricity (max.  $3 \mu\text{m}$  deviation from concentricity), a very fast and simple tool change as well as the vibration cushioning effect of the pressure chamber, the new hydraulic chuck can tackle the most demanding of machining tasks. The result is optimal tool life and excellent surface qualities or dimensional accuracy of the workpiece respectively.



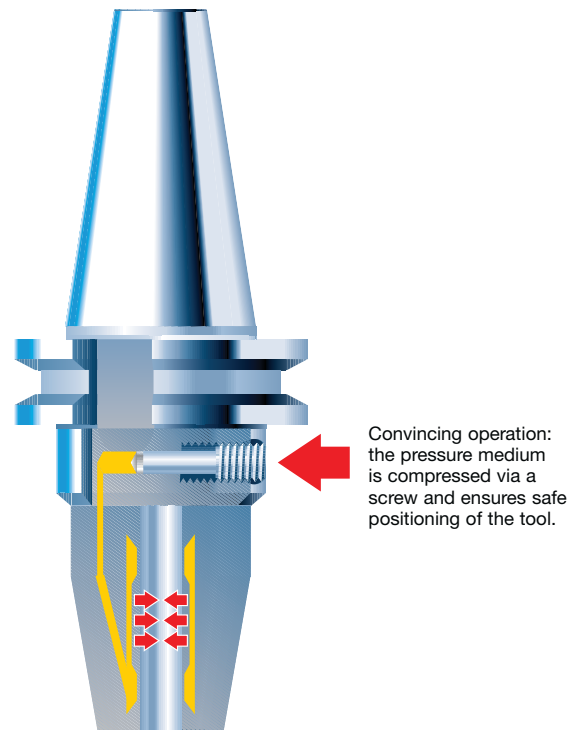
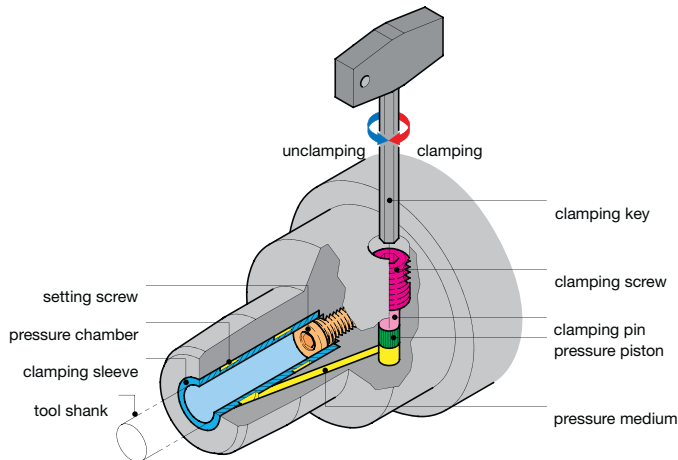
Considerably higher:  
The clamping force of Gühring's new HSK-A hydraulic chuck in comparison to conventional chucks.

## TECHNICAL INFORMATION AND ADVANTAGES

Modern machining processes place heavy demands on tool holding. Hydraulic chucks provide excellent clamping characteristics combined with precise concentricity. Furthermore, they enable a simple and fast tool change, with the assistance of a special extraction key. Turning the pressure screw generates sufficient pressure in the pressure chamber resulting in an elastic deformation of the clamping bush, providing powerful tool clamping and precise concentricity. A safe and powerful fit is guaranteed. If reduction sleeves are applied that are able to hold varying tool diameters, the tool application may be extended without problem. If such bushes are not applied, it is essential to observe the minimum clamping length!

### A summary of the advantages:

- precise tool clamping with a maximum 3 µm deviation from concentricity
- transmission of high torque through (excellent clamping) optimised bush clamping system
- high speed compatibility (no centrifugal forces from clamping segments)
- precise concentricity, therefore excellent surface qualities and dimensional accuracy of the workpiece
- rapid tool change thanks to simple operation of the clamping screw
- optimal tool life
- hydraulic cushioning has vibration absorbing effect

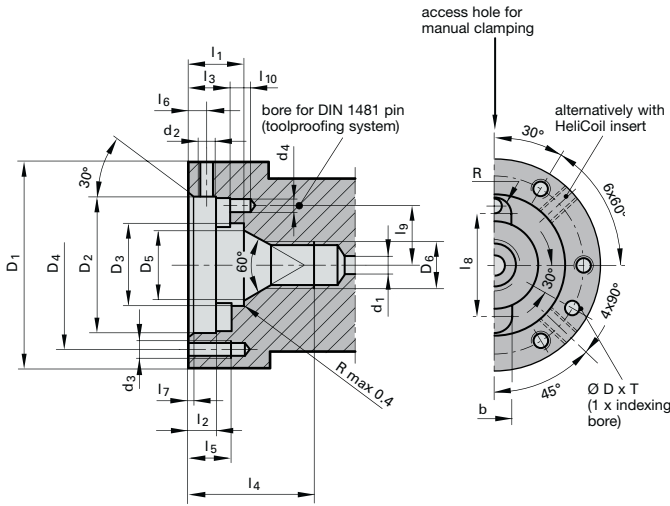


| for shank-Ø<br>in mm | max.<br>r.p.m.<br>in 1/min | max.<br>transferable torque<br>in Nm | min.<br>insertion depth<br>in mm | max.<br>adjustment l <sub>3</sub><br>mm | max. rad. force F on chuck<br>with 50 mm from the nose<br>in N | operating<br>temperature<br>in °C | max. coolant<br>pressure<br>in bar |
|----------------------|----------------------------|--------------------------------------|----------------------------------|---|--|-----------------------------------|------------------------------------|
| 3 h6                 | 50 000                     | 2.5                                  | 27                               | 7                                       | 25   | 20 - 50                           | 80                                 |
| 4 h6                 | 50 000                     | 6                                    | 27                               | 7                                       | 40   | 20 - 50                           | 80                                 |
| 5 h6                 | 50 000                     | 10                                   | 27                               | 7                                       | 65   | 20 - 50                           | 80                                 |
| 6 h6                 | 50 000                     | 16                                   | 27                               | 10                                      | 225  | 20 - 50                           | 80                                 |
| 8 h6                 | 50 000                     | 26                                   | 27                               | 10                                      | 370  | 20 - 50                           | 80                                 |
| 10 h6                | 50 000                     | 50                                   | 31                               | 10                                      | 540  | 20 - 50                           | 80                                 |
| 12 h6                | 50 000                     | 82                                   | 36                               | 10                                      | 650  | 20 - 50                           | 80                                 |
| 14 h6                | 50 000                     | 125                                  | 36                               | 10                                      | 900  | 20 - 50                           | 80                                 |
| 16 h6                | 50 000                     | 190                                  | 39                               | 10                                      | 1410   | 20 - 50                           | 80                                 |
| 18 h6                | 50 000                     | 275                                  | 39                               | 10                                      | 1580   | 20 - 50                           | 80                                 |
| 20 h6                | 50 000                     | 310                                  | 41                               | 10                                      | 1860   | 20 - 50                           | 80                                 |
| 25 h6                | 25 000                     | 520                                  | 47                               | 10                                      | 4400   | 20 - 50                           | 80                                 |
| 32 h6                | 25 000                     | 770                                  | 51                               | 10                                      | 6500   | 20 - 50                           | 80                                 |

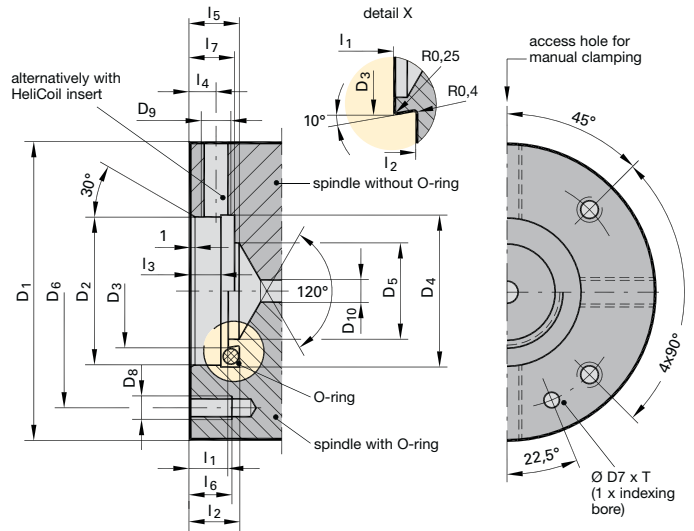
# INSTALLATION DIMENSIONS FOR HSK ADAPTOR

Detailed production drawing on request

## Short spindle adaptor (integr.) series no. 4385



## HSK adaptor (in front) series no. 4386/4586



### Short spindle adaptor (integr.) series no. 4385

| for HSK/Code no. | D1  | D2   | D3   | D4   | D5   | D6   | d1   | d2  | d3  | d4 |
|------------------|-----|------|------|------|------|------|------|-----|-----|----|
| 32 24,000        | 40  | 27.0 | 16.7 | 32.0 | 12.5 | M 10 | 4.0  | M 3 | M 3 | 2  |
| 40 30,000        | 50  | 33.5 | 20.6 | 40.5 | 16.0 | M 12 | 5.0  | M 4 | M 4 | 3  |
| 50 38,000        | 63  | 42.0 | 25.5 | 52.0 | 20.0 | M 16 | 6.0  | M 5 | M 5 | 4  |
| 63 48,000        | 80  | 55.0 | 33.0 | 66.0 | 25.0 | M 20 | 8.0  | M 6 | M 6 | 4  |
| 80 60,000        | 100 | 68.0 | 41.0 | 82.0 | 32.0 | M 24 | 10.2 | M 8 | M 8 | 5  |

### Short spindle adaptor (integr.) series no. 4385 continuation

| for HSK/Code no. | clamping depth l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | l <sub>8</sub> | l <sub>9</sub> | l <sub>10</sub> | b    | R   | D   | T   | locating pin DIN 1481 |
|------------------|-------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|------|-----|-----|-----|-----------------------|
| 32 24,000        | 9.0                           | 4.0            | 6.5            | 22             | 10             | 2.5            | 0.6            | 20.5           | 11.5           | 3.5             | 7.0  | 3.0 | 3.5 | 3.0 | 2 x 6                 |
| 40 30,000        | 12.0                          | 5.5            | 8.7            | 30             | 11             | 3.5            | 0.6            | 25.0           | 14.5           | 5.0             | 8.0  | 4.0 | 4.0 | 3.5 | 3 x 8                 |
| 50 38,000        | 16.0                          | 8.0            | 12.0           | 36             | 12             | 5.0            | 0.8            | 31.5           | 18.3           | 6.0             | 10.5 | 5.0 | 4.0 | 3.5 | 4 x 10                |
| 63 48,000        | 20.0                          | 10.0           | 15.0           | 48             | 15             | 6.0            | 1.0            | 41.0           | 22.5           | 5.0             | 12.5 | 6.0 | 4.0 | 3.5 | 4 x 10                |
| 80 60,000        | 25.6                          | 13.0           | 19.3           | 60             | 14             | 7.5            | 1.0            | 50.0           | 28.0           | 6.0             | 16.0 | 7.5 | 5.0 | 4.5 | 5 x 12                |

### HSK adaptor (in front) series no. 4386

| for HSK/Code no. | D1  | D2 | D3   | D4 | D5 | D6 | D7 | D8 | D9    | D10  | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | T   | O-ring |
|------------------|-----|----|------|----|----|----|----|----|-------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------|
| 25 19,000        | 45  | 23 | 16.5 | 24 | -  | 35 | -  | M5 | M5    | 3.2  | 8.2            | 9.5            | 6.2            | 4.5            | -              | 14             | 9              | -   | 16x2   |
| 32 24,000        | 60  | 30 | 23.5 | 31 | -  | 44 | 5  | M5 | M8x1  | 4.0  | 10.3           | 12.4           | 8.3            | 7.0            | -              | 11             | 12             | 3.5 | 23x3   |
| 40 30,000        | 70  | 35 | 28.5 | 36 | 22 | 53 | 5  | M6 | M8x1  | 5.0  | 10.3           | 12.4           | 8.3            | 7.0            | 12             | 14             | 12             | 3.5 | 28x3   |
| 50 38,000        | 80  | 40 | 30.5 | 41 | 26 | 63 | 5  | M6 | M8x1  | 6.0  | 10.3           | 13.3           | 8.3            | 7.0            | 12             | 14             | 12             | 3.5 | 30x4   |
| 63 48,000        | 100 | 50 | 38.5 | 51 | 34 | 79 | 5  | M8 | M10x1 | 8.0  | 12.3           | 16.1           | 10.3           | 8.0            | 15             | 15             | 14             | 3.5 | 38x5   |
| 80 60,000        | 117 | 60 | 47.5 | 61 | 38 | 96 | 6  | M8 | M10x1 | 10.2 | 12.3           | 16.1           | 10.3           | 8.0            | 20             | 15             | 14             | 4.5 | 47x5   |

### HSK adaptor (in front) series no. 4586

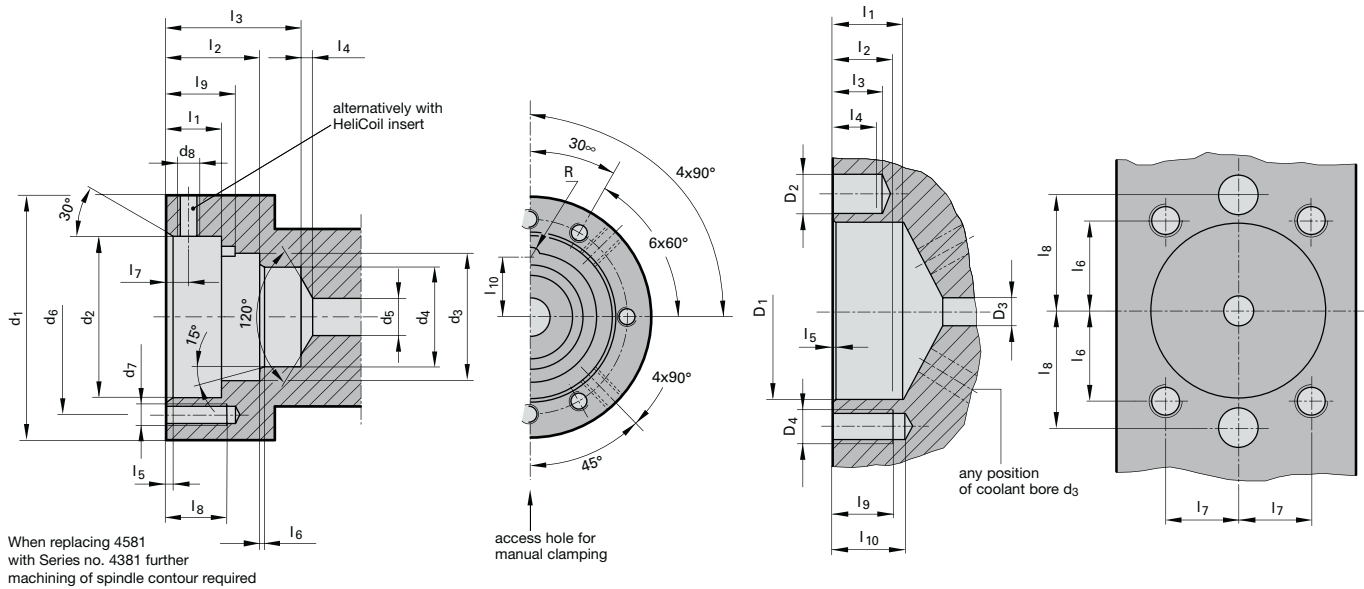
| for HSK/Code no. | D1  | D2 | D3   | D4 | D5 | D6  | D7 | D8  | D9    | D10  | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | T   | O-ring |
|------------------|-----|----|------|----|----|-----|----|-----|-------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|--------|
| 40 30,000        | 70  | 35 | 28.5 | 36 | 22 | 53  | 5  | M6  | M8x1  | 5.0  | 10.3           | 12.4           | 8.3            | 7.0            | 12             | 14             | 12             | 3.5 | 28x3   |
| 50 38,000        | 80  | 40 | 30.5 | 41 | 26 | 63  | 5  | M6  | M8x1  | 6.0  | 10.3           | 13.3           | 8.3            | 7.0            | 12             | 14             | 12             | 3.5 | 30x4   |
| 63 48,000        | 100 | 50 | 38.5 | 51 | 34 | 79  | 5  | M8  | M10x1 | 8.0  | 12.3           | 16.1           | 10.3           | 8.0            | 15             | 15             | 14             | 3.5 | 38x5   |
| 80 60,000        | 117 | 60 | 47.5 | 61 | 38 | 96  | 6  | M8  | M10x1 | 10.2 | 12.3           | 16.1           | 10.3           | 8.0            | 20             | 15             | 14             | 4.5 | 47x5   |
| 100 75,000       | 140 | 80 | 65.0 | 81 | 53 | 119 | 6  | M10 | M10x1 | 12.0 | 12.3           | 16.1           | 10.3           | 8.0            | 20             | 18             | 14             | 4.5 | 45x5   |

# INSTALLATION DIMENSIONS FOR HSK ADAPTOR

Detailed production drawing on request

## HSK adaptor (in front) series no. 4581/4584

## HSK adaptor (in front) series no. 4582



### HSK adaptor (in front) series no. 4581

| for HSK/Code no.  | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | d <sub>6</sub> | d <sub>7</sub> | d <sub>8</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | l <sub>8</sub> |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>25</b> 19,000  | 45             | 23             | -              | -              | 5              | 35             | M5             | M4             | 6.8            | -              | -              | 1.5            | 1              | -              | 3.5            | min.8          |
| <b>32</b> 24,000  | 55             | 28             | 21.12          | 17             | 6.4            | 43.5           | M6             | M4             | 6              | 9.75           | 16.75          | 2              | 1              | 0.6            | 3.5            | 11             |
| <b>40</b> 30,000  | 63             | 36             | 26.4           | 21             | 8              | 51.5           | M6             | M4             | 7              | 11.3           | 19.9           | 2.5            | 1              | 1              | 4              | 12             |
| <b>50</b> 38,000  | 80             | 46             | 33             | 26             | 10             | 65             | M8             | M5             | 9              | 14.7           | 25.5           | 3              | 1.5            | 1              | 5              | 12             |
| <b>63</b> 48,000  | 100            | 56             | 42.5           | 34             | 16             | 81.5           | M10            | M6             | 12             | 17.8           | 30             | 3.5            | 1.5            | 1              | 6              | 16             |
| <b>80</b> 60,000  | 125            | 66             | 52.8           | 42             | 16             | 103            | M12            | M8             | 14             | 22.7           | 39.8           | 4              | 2              | 1.5            | 8              | 16             |
| <b>100</b> 75,000 | 160            | 86             | 66             | 53             | 20             | 130            | M16            | M10            | 16             | 27.4           | 49             | 4.5            | 2              | 2              | 10             | 16             |

### HSK adaptor (in front) series no. 4584

| for HSK/Code no.  | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | d <sub>6</sub> | d <sub>7</sub> | d <sub>8</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | l <sub>8</sub> | l <sub>9</sub> | l <sub>10</sub> | R   |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----|
| <b>32</b> 24,000  | 40             | 27.0           | 21.12          | 17             | 6.4            | 32.0           | M 3            | M 4            | 8.8            | 14.80          | 21.75          | 2.0            | 1.0            | 0.6            | 3.5            | 10.0           | 11.9           | 10.10           | 2.0 |
| <b>40</b> 30,000  | 50             | 33.5           | 26.40          | 21             | 8.0            | 40.5           | M 4            | M 4            | 11.0           | 18.85          | 27.40          | 2.5            | 1.0            | 1.0            | 4.0            | 12.0           | 13.9           | 12.40           | 2.0 |
| <b>50</b> 38,000  | 63             | 42.0           | 33.00          | 26             | 10.0           | 52.0           | M 5            | M 5            | 15.0           | 24.75          | 35.50          | 3.0            | 1.5            | 1.0            | 5.0            | 12.0           | 18.4           | 15.50           | 2.5 |
| <b>63</b> 48,000  | 80             | 55.0           | 42.50          | 34             | 16.0           | 66.0           | M 6            | M 6            | 17.9           | 30.35          | 42.50          | 3.5            | 1.5            | 1.0            | 6.0            | 16.0           | 23.9           | 20.00           | 3.0 |
| <b>80</b> 60,000  | 100            | 68.0           | 52.80          | 42             | 16.0           | 82.0           | M 8            | M 8            | 24.3           | 40.25          | 57.30          | 4.0            | 2.0            | 1.5            | 8.0            | 16.0           | 32.9           | 24.80           | 3.5 |
| <b>100</b> 75,000 | 125            | 88.0           | 66.00          | 53             | 20.0           | 106.0          | M10            | M10            | 34.4           | 54.45          | 76.00          | 4.5            | 1.5            | 2.0            | 10.0           | 16.0           | 42.4           | 31.40           | 4.5 |

### HSK adaptor (in front) series no. 4582

| for HSK/Code no. | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | l <sub>1</sub> | l <sub>2</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> | l <sub>8</sub> | l <sub>9</sub> | l <sub>10</sub> |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| <b>50</b> 38,000 | 50             | 7.95           | 10             | M10            | 20.55          | 20             | 15             | 11             | 1              | 27.44          | 19.22          | 33.5           | 20             | 25              |
| <b>63</b> 48,000 | 63             | 14.00          | 10             | M12            | 25.00          | 21             | 18             | 16             | 1              | 31.70          | 26.00          | 41.0           | 22             | 26              |



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SERIES NO. INDEX

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**Guhring, Inc. Main Office**  
1445 Commerce Avenue  
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Tel (262) 784-6730 (800) 776-6170  
Fax (262) 784-9096

**West Coast Distribution Center and  
Reconditioning Facility**  
15581 Computer Ln  
Huntington Beach, CA 92649

**Michigan Manufacturing and  
Reconditioning Facility**  
24975 Trans-X Road  
Novi, MI 48375

**Guhring Corp. (Canada)**  
20 Steckle Place, Unit #14  
Kitchener, ON N2E 2C3  
Tel (519) 748-9664 (800) 463-5555  
Fax (519) 748-2954