

GUHRING **HIGHLIGHTS**

Issue 01-2007

REAMING WITH MAXIMUM ACCURACY



Unique technologies for perfect, highly efficient reaming with PCD and CBN:

- patent pending diameter setting for two-step reamers
- patent pending coolant delivery via expanding screw directly to the cutting edge
- the expanding screw integrated in the tool point enables the machining of through and blind holes

REAMING WITH MAXIMUM ACCURACY

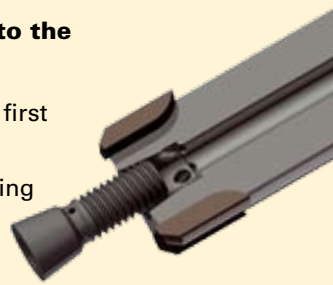
New and unique diameter setting and coolant delivery solutions from Guhring enable reaming operations with maximum accuracy, extreme tool life and simple application.

For reaming operations with PCD- or CBN-tipped tools, Guhring has developed unique solutions opening up completely new possibilities regarding accuracy and economic efficiency. Reaming tools with these technologies offer the user the following clear competitive advantages:

- simple, quick and highly accurate diameter setting for first and second step.
- both tool diameters can be re-adjusted when tool is in clamped condition.
- machining of through and blind holes thanks to the integrated expanding screw in the tool point.
- optimal coolant delivery to the cutting edges thanks to radial coolant exits in the expanding screw.
- highest feed rates thanks to several cutting edges.
- reduction in machining time.
- maximum accuracy and extreme tool life.

Patent applied for coolant delivery directly to the cutting edges via expanding screw

- quick, simple and highly accurate setting of the first tool step diameter.
- radial delivery of the coolant directly at the cutting edges via expanding screw.
- optimal tool lubrication.
- optimal chip evacuation from the hole.



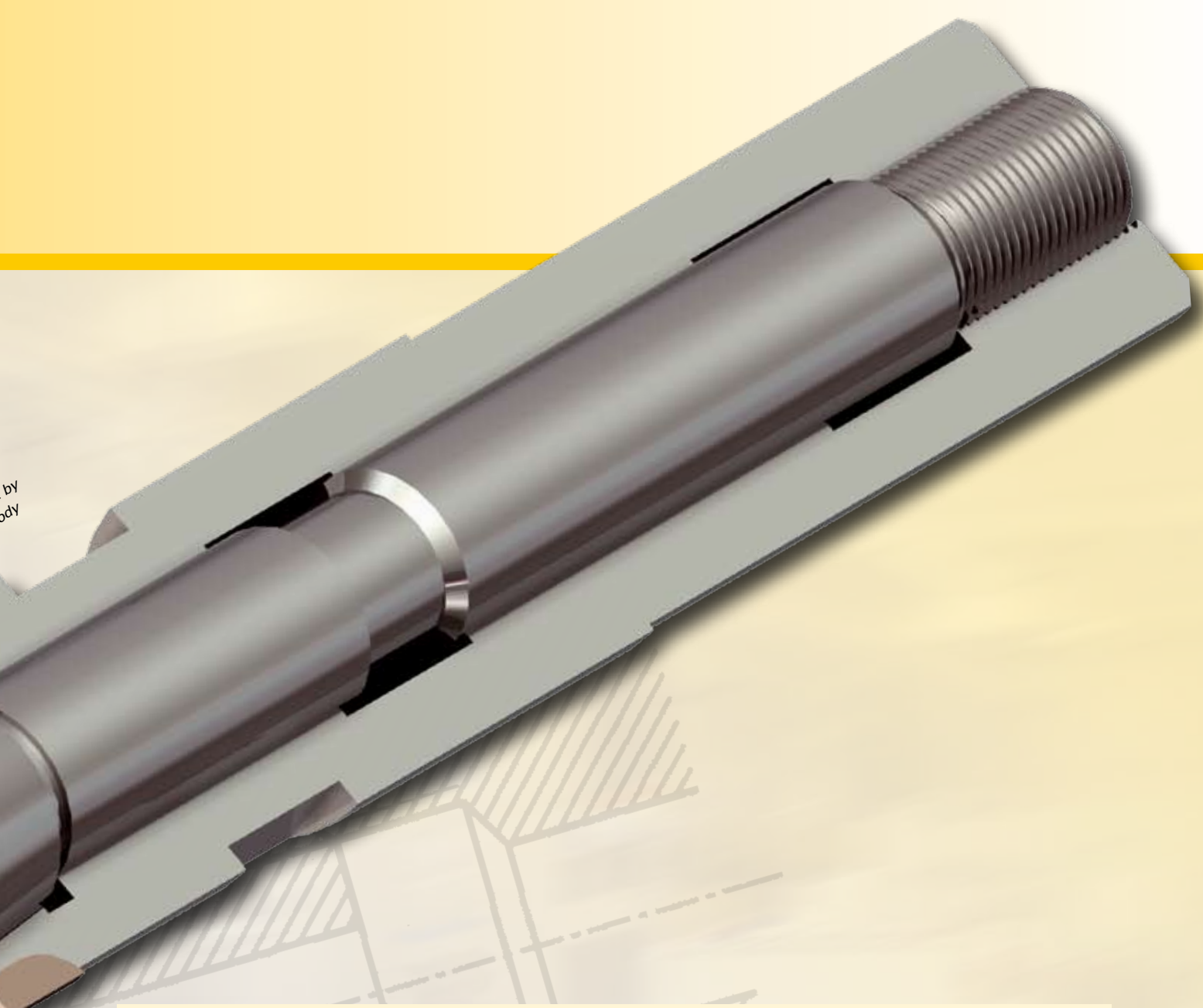
Step 1: simple adjustment via the expanding screw integrated in the tool head

Step 2: simple adjustment rotating the inner tool body with integrated taper

The expanding screw is integrated in the tool head

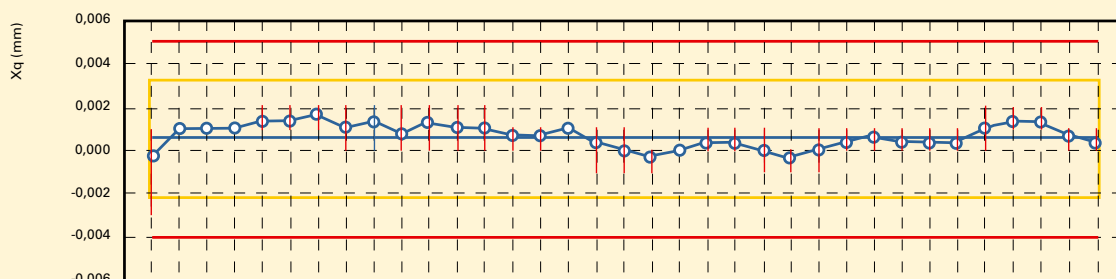
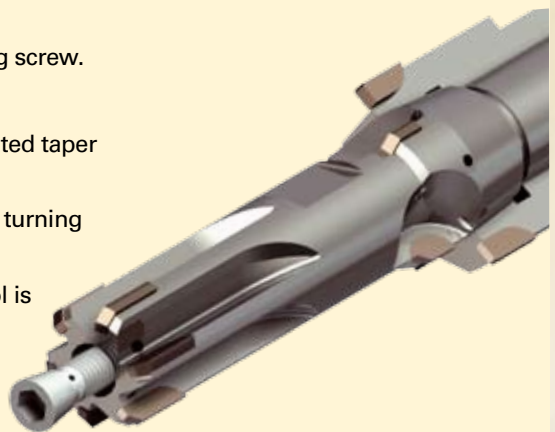
- the expanding screw is completely integrated in the tool head.
- the reamer operates - in contrast to conventional solutions with a protrusive expansion screw - down to the base of the hole without problem.
- it enables the machining of through holes as well as blind holes.





The patent pending stepped reamer diameter setting

- with two-step reamers the inner tool body acts as an expanding screw.
- inner tool body and outer unit are screwed together.
- the expansion of the step diameter is performed via the integrated taper of the inner tool body.
- the diameter setting of the second step is carried out by simply turning the inner tool body.
- the diameter setting can, therefore, be carried out when the tool is clamped.
- the ground flats on the inner tool body suit an adjusting wrench.



Continued maximum accuracy: For 10,000 holes inspected the max. scattering was 2 µm.

PCD-TOOL DESIGNS AND THEIR APPLICATION POSSIBILITIES

Various PCD or CBN reamer designs

- multi-fluted reamer with solid brazed PCD or CBN inserts and nominal diameters from 10 to 52 mm.
- no. of flutes dependent on tool diameter.
- six flutes from 10 mm diameter.
- internal cooling with radial coolant exits directly at the cutting edge.
- tool design with one or two steps.
- simple, quick and accurate adjustment of first as well as second step diameter with expanding screw principle.
- for the machining of through and blind holes.
- hole quality IT 6.

PCD-tools and their performance data

Stepped PCD-reamer

Multi-fluted two-step PCD-reamer with step diameters 17 mm and 27 mm

Performance data:

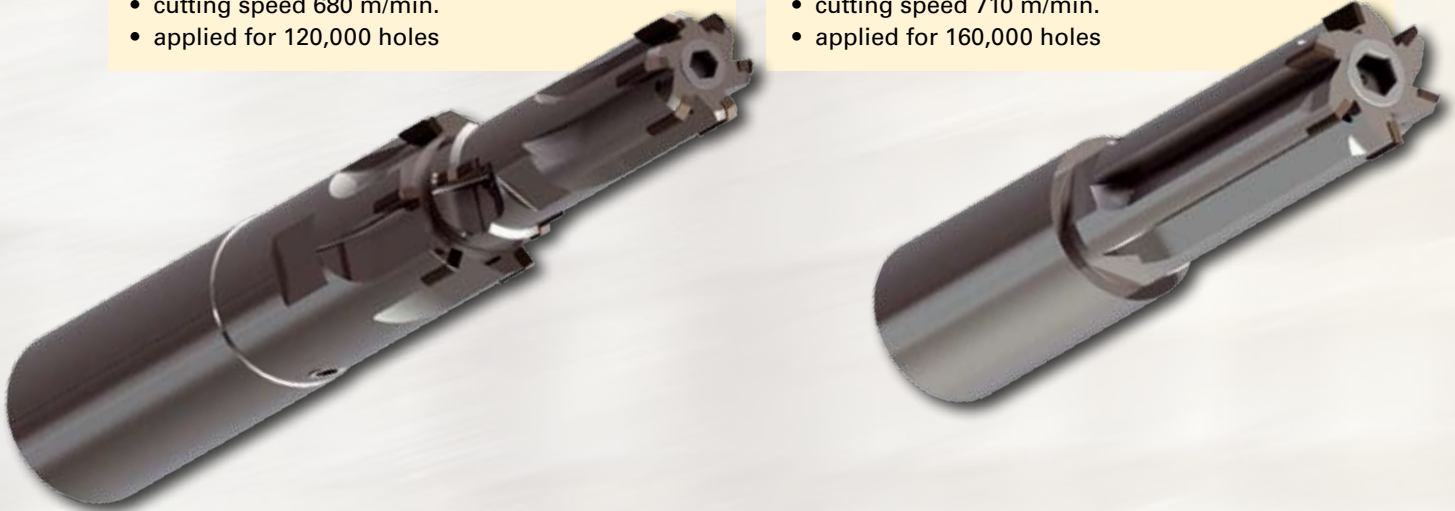
- hole quality IT 6
- concentricity 2 μm
- feed rate 2800 mm/min.
- cutting speed 680 m/min.
- applied for 120,000 holes

PCD-reamer without step

Multi-fluted PCD-reamer with diameter 28 mm

Performance data:

- hole quality IT 5
- concentricity 2 μm
- feed rate 2900 mm/min.
- cutting speed 710 m/min.
- applied for 160,000 holes



Application possibilities of Guhring's unique reamer technology are, for example, the machining of holes in transmission casings, cylinder heads, crankcases, ABS housings, pump housings etc.. Please contact us for further information !

Guhring oHG

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