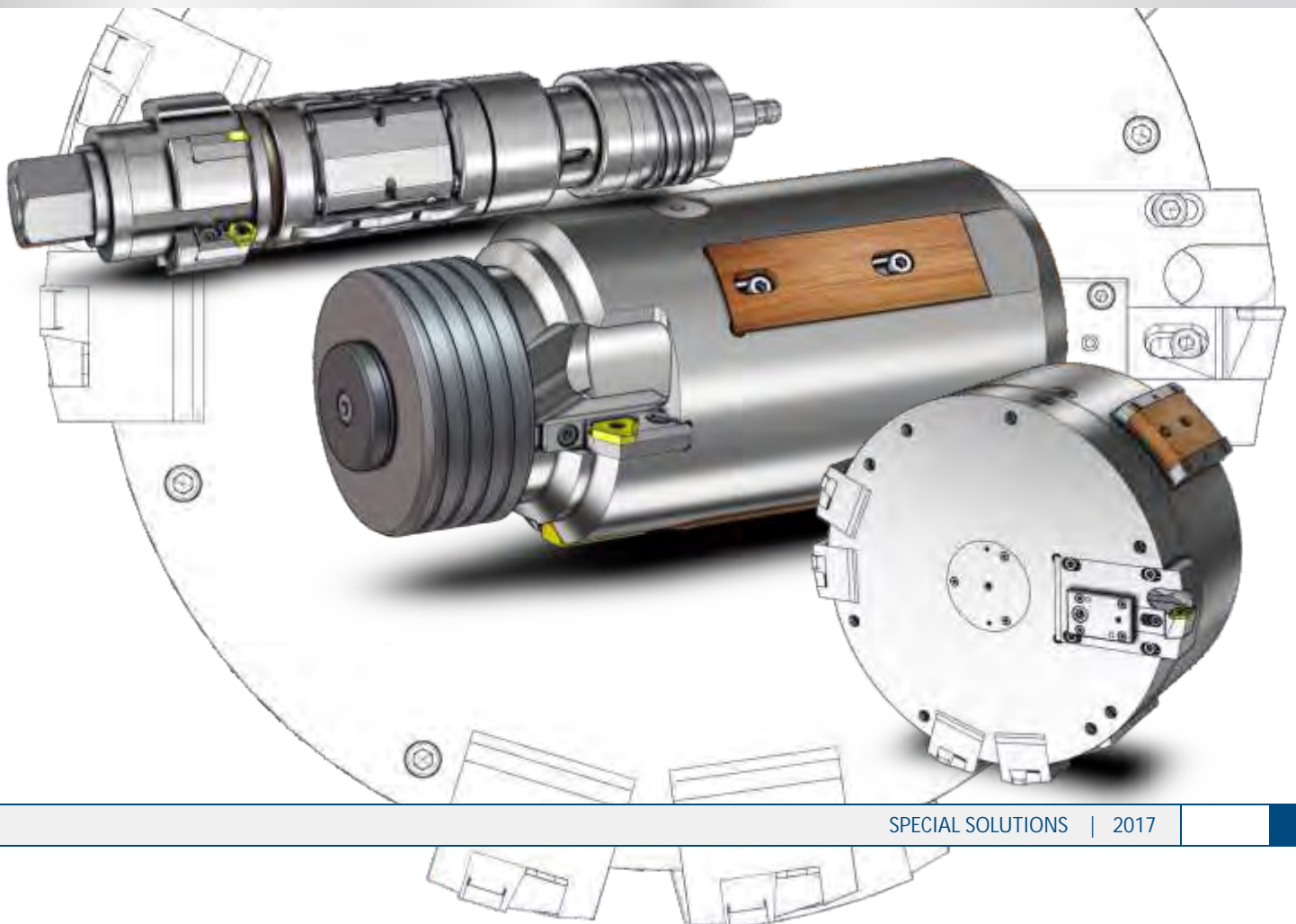




**TiefbohrSysteme**<sup>®</sup> GmbH  
DEEP HOLE BORING TECHNOLOGY | EQUIPMENT

# Counter Boring Tools

Special solutions



## Deep Hole Boring - An Inaccessible World

In today's production world, precision and production strategies are a significant constituent for success. The more complex the production process, the more important are these two factors. deep hole boring our company, BTA-Tiefbohrsysteme GmbH, is the essential partner for implementation even under difficult marginal conditions with high requirements. We are the only company in the world capable of offering our customers everything from inserts to complete, suitable equipment for deep hole boring machines. Our experienced experts are always at your side to ensure proper support from planning your deep hole boring project up to tool services. All this is aimed at your success.

In the company-owned application and research department we can test innovations and special designed tools, customize the tools to user-specific material and train their operators. You will receive tools customized for your application and benefit from our experience.

Our tool systems offer you the following advantages:

- Tools designed for various processes (solid boring, trepanning, counter boring and skiving) with the same effective elements, especially such as inserts and guides. This results in extremely low stocks and simple handling.
- Suitable selection possibilities for tools, corresponding to required boring quality, from simple solid boring to form boring.
- Custom layout of tools for various production requirements to straightness, surface, material and constant wall thickness.
- Equipment matched to the deep hole boring process - from workpiece clamping to vibration damping.
- Production-optimized machinery layout for reducing setup and conversion times.

Here are a few results from production boring with our tools:

- Surface Ra < 0.1 µm e.g. by skiving and roller burnishing
- Mismatch of axes < 0.1mm/m e.g. by pull counter boring
- Hole accuracy < IT8 e.g. by skiving

Benefit from these advantages by cooperating with a strong partner.

BTA-Tiefbohrsysteme GmbH



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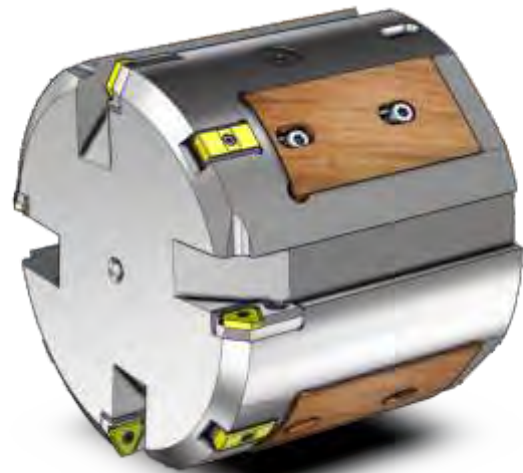
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## Counter Boring Tools

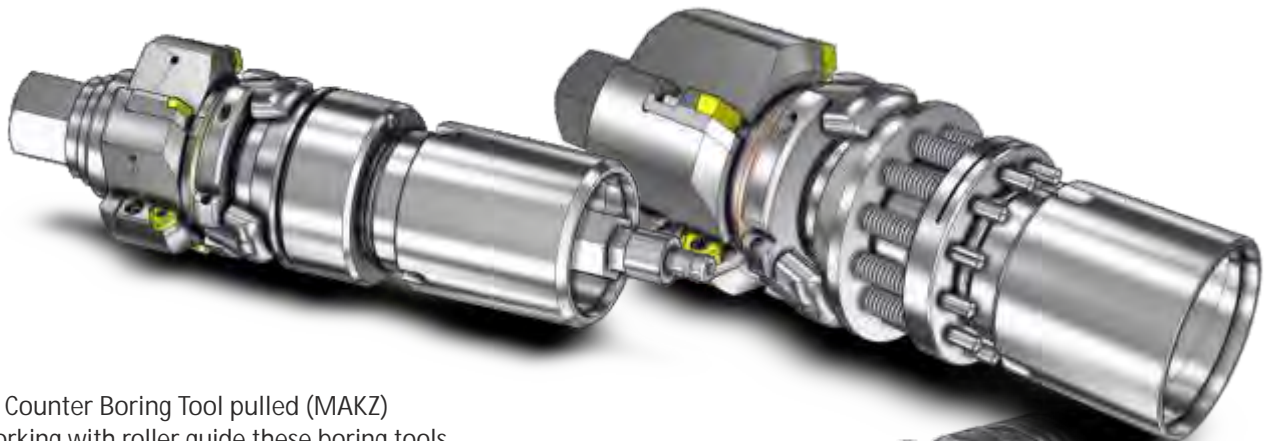
MAK



Multi Cutter Counter Boring Tool (MAK) „pushed“  
Through the use of several cuttings higher feed per minute are possible. Application areas are counter boring operations in short workpieces with an oversize 4 - 20 mm in diameter.



MAKZ



Multi Cutter Counter Boring Tool pulled (MAKZ)  
By pulling working with roller guide these boring tools follow the existing boring. Several cutting permit higher feed per minute. To use these counter boring tools come for example in the machining of centrifugally cast tubes .





## Counter Boring Tools

Stepped-AK

Stepped Counter Boring Tool (Stepped-AK)  
For producing several diameter



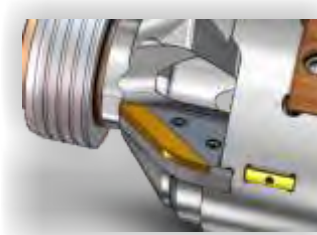
Stepped-AK with Roller Guide

Stepped Counter Boring Tool with Roller Guide  
(Stepped-AK with Roller Guide)  
To produce bores extending concentric with each other  
having different diameters



Form-AK with/without Roller Guide

To produce bevels and chamfers in the hole...



...and at the hole bottom.



## Counter Boring Tools

Form-AK



Form Counter Boring Tools (Form-AK)  
With roughing and finishing cutters for machining  
large geometric elements in the bore



Roughing Cutter



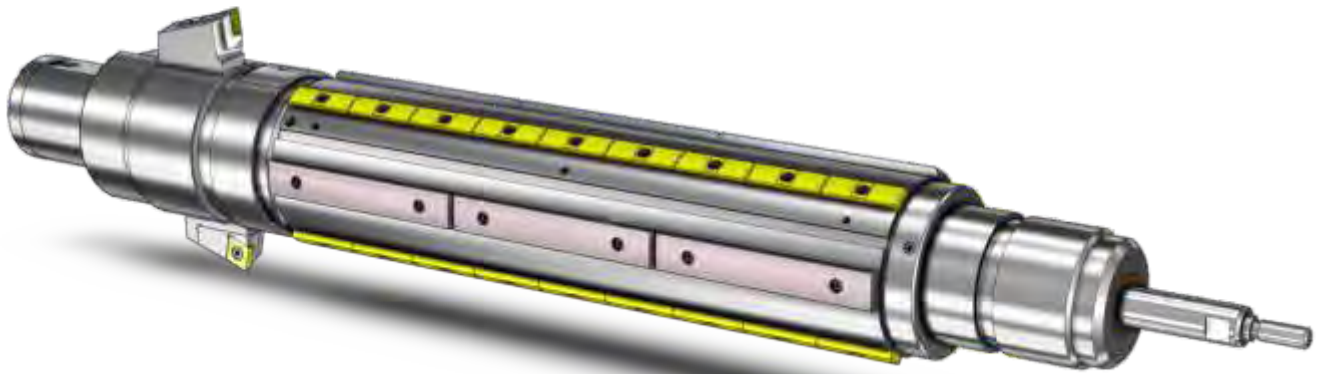
Finishing Cutter



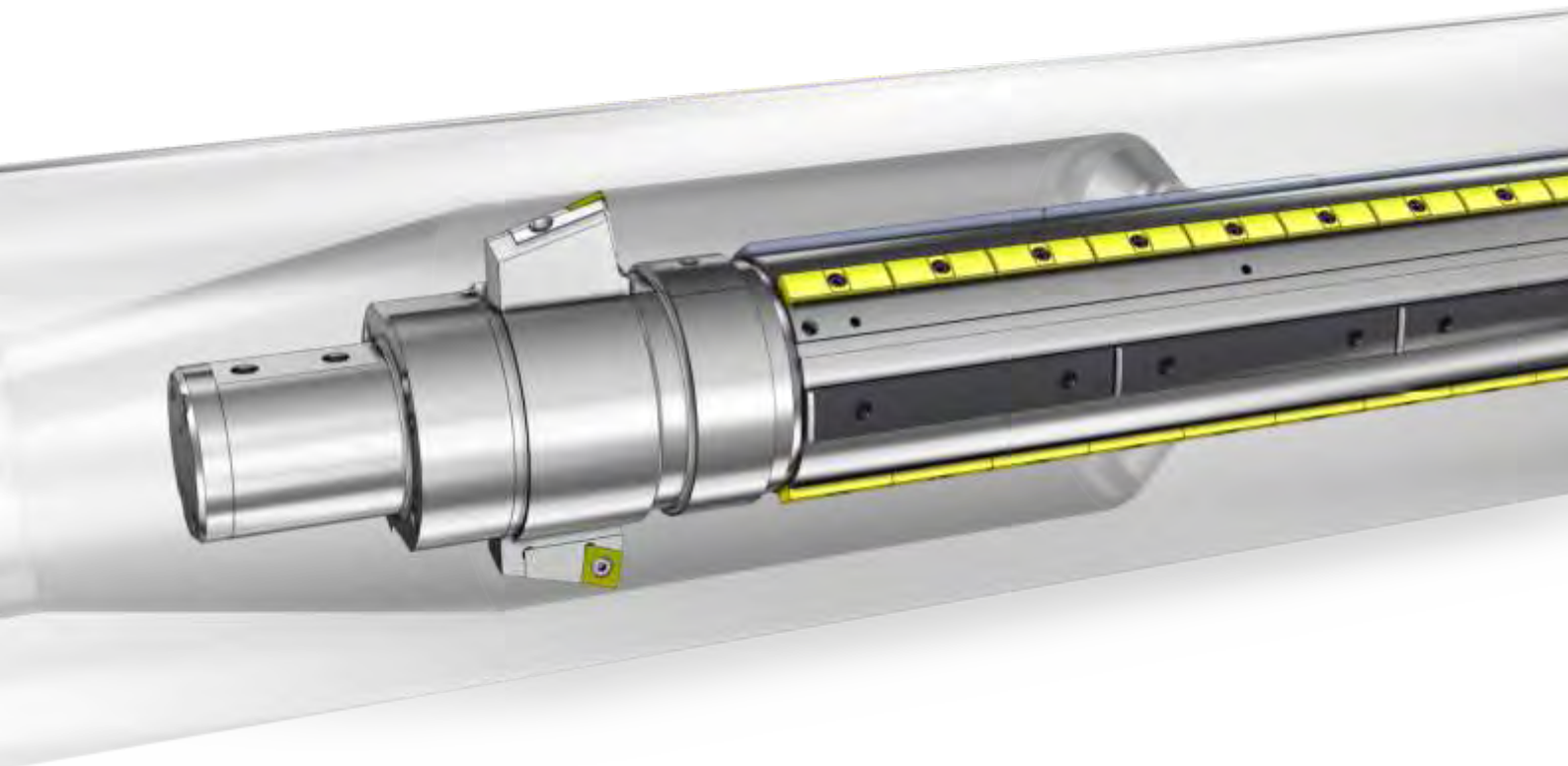


## Counter Boring Tools

Chamber boring



In this processing method can be used externally controlled tools. They are actuated by a push rod which is guided within the drill tube. It is driven by a linear actuator, which receives its commands from an additional axis CNC control the deep hole drilling machine. Guided the tool in a precise pilot boring. The procedure is usually pulling. Diameter changes and transitions can thus be produced in certain diameter ranges.





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