



For straightforward, highly precise setting of precision inserts
EasyAdjust-System



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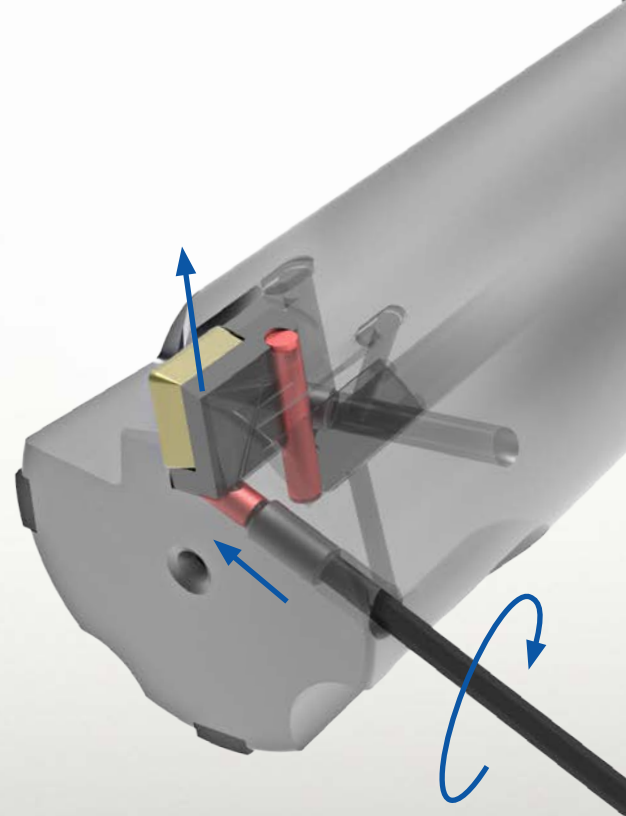
For straightforward, highly precise setting of precision inserts

The new, revolutionary, highly precise adjusting system for MAPAL precision inserts.

MAPAL precision inserts, fitted in single-bladed reamers or fine boring tools, guarantee the best possible surface finish, dimensional accuracy and long tool lives also thanks to the exact usage of the minor cutting edges.

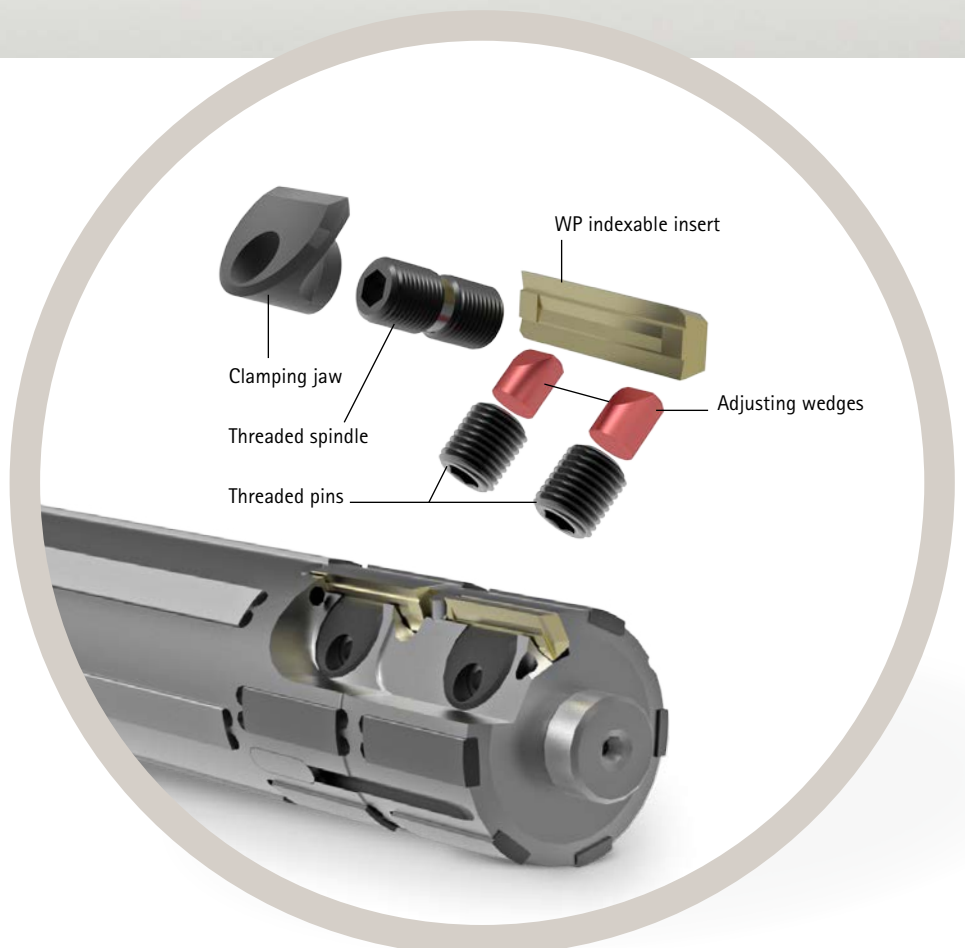
To achieve the optimal result, the insert must be set very precisely in both the diameter and the back taper. The back taper can be adjusted to the μ to suit the material to be machined.

The system with two setting elements has proven its worth over decades for setting the precision inserts. However, setting requires a certain amount of time and effort. To simplify this process and to shorten it significantly, MAPAL has developed the EasyAdjust-System.



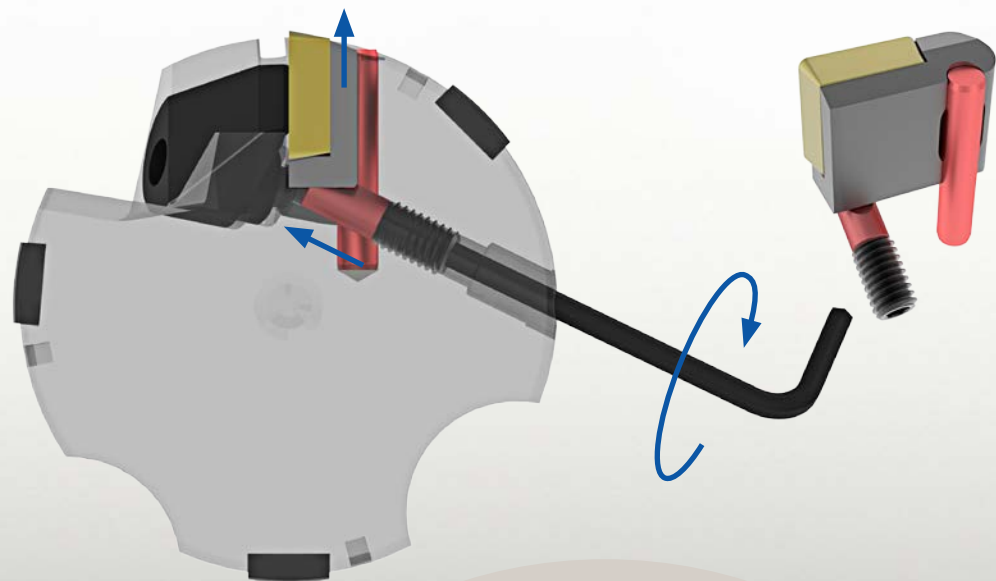
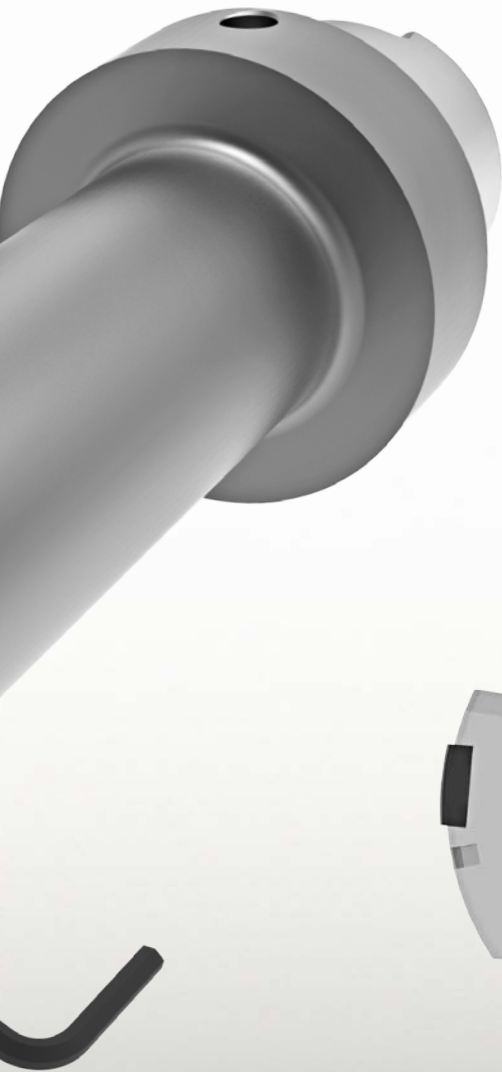
Proven MAPAL system with two adjusting screws

Setting of tool diameter and back taper necessary



FEATURES OF THE EasyAdjust-System:

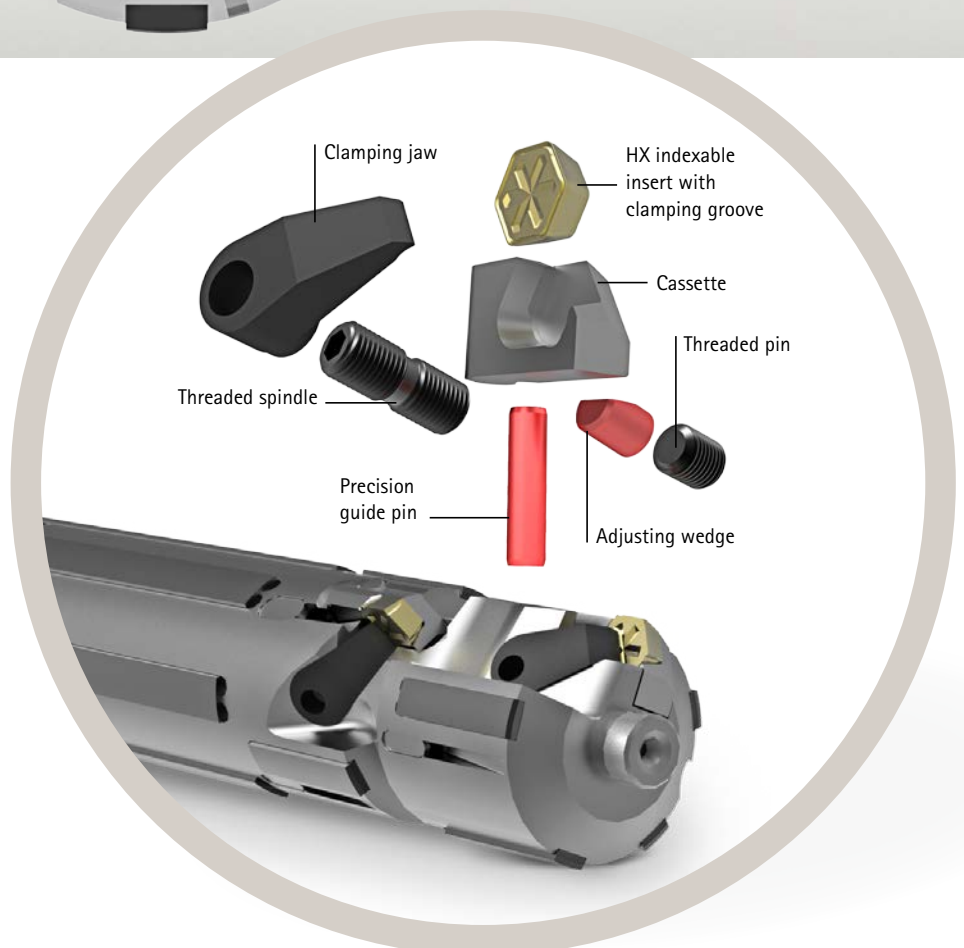
- Insert mounted in a cassette
- Cassette can be adjusted radially to the μ
- Exact, radial guiding of the cassette due to a highly precise and stably positioned guide pin
- Variation of the back taper by changing the cassettes with corresponding positioning of the inserts in the cassettes
- Production of defined roughnesses thanks to different back tapers
- Optimal cutting material utilisation due to indexable inserts with four and six cutting edges



EasyAdjust-System with one adjusting screw

Only has to be set the tool diameter

NEW

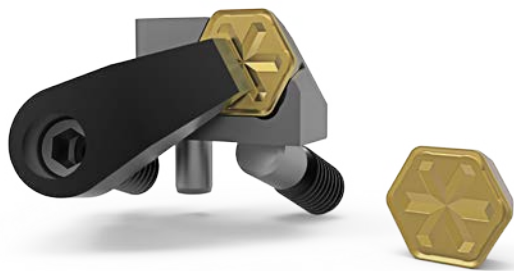


Two indexable insert variants

The EasyAdjust-System is available for through bores and blind bores with two different indexable insert types:



HX indexable insert



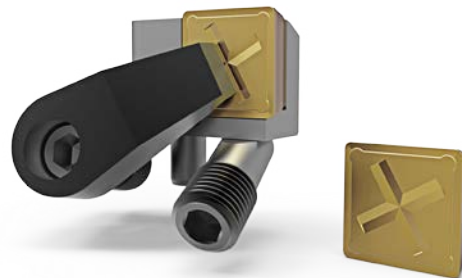
Six cutting edges for high cost-effectiveness



Through bore

Suitable for open bores. Not suitable for machining shoulders if 90° are required.

TEC indexable insert



Four cutting edges with different lead geometries



Blind bore and face shoulder bore

Suitable for closed bores and machining shoulders taking into account the cutting edge length.

For all materials



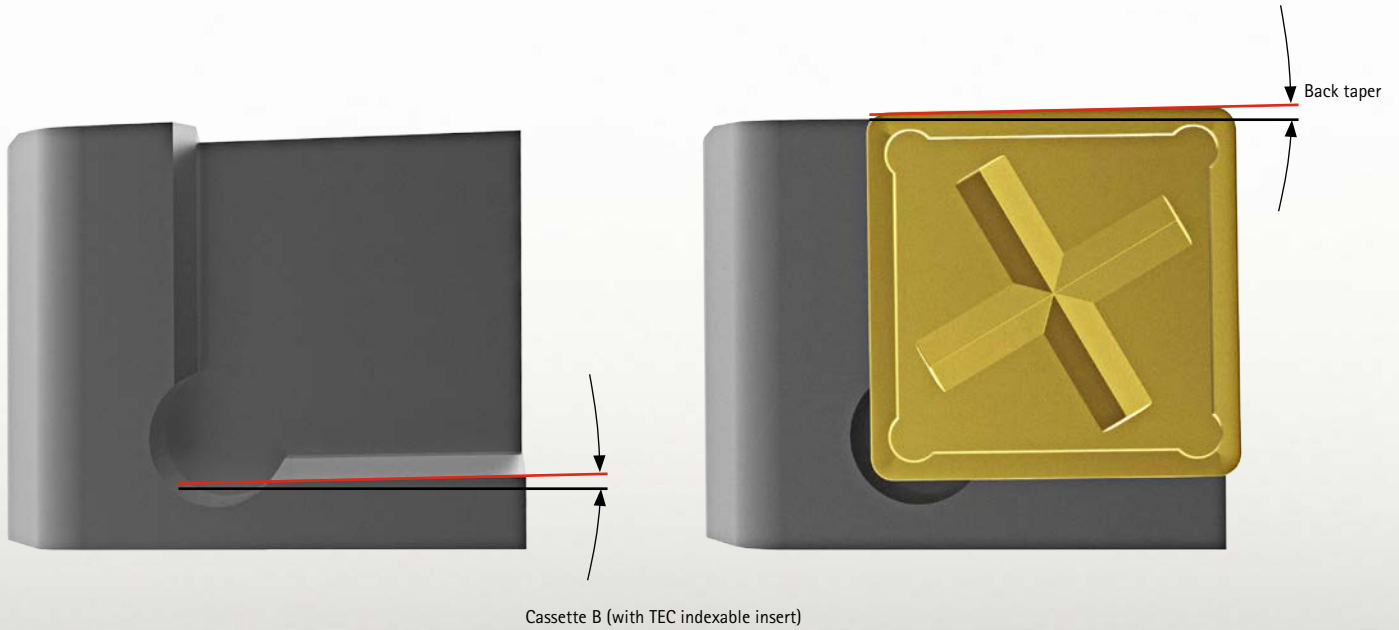
The applications for the indexable inserts range from machining cast irons and steel, through the machining of demanding, high-alloy materials such as titanium or Inconel, to aluminium.

Back taper

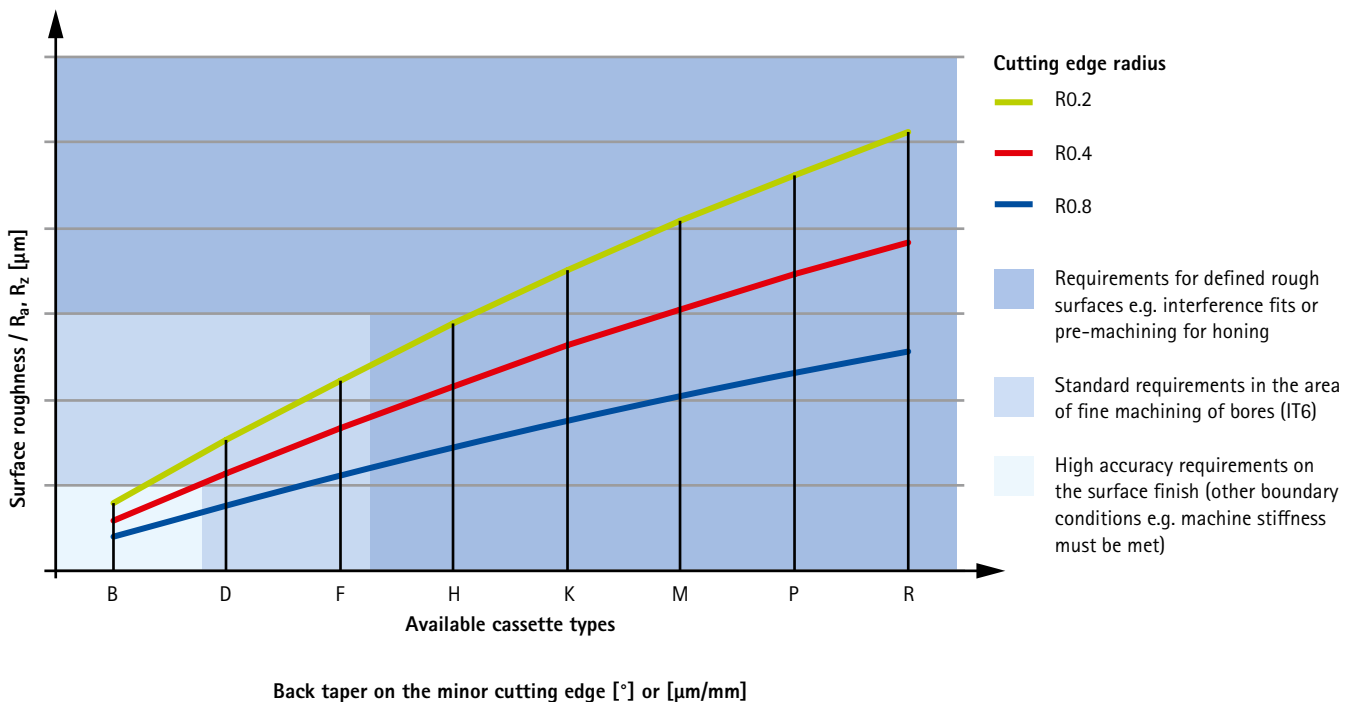
The back taper on the insert has a major influence on the bore quality. MAPAL selects the optimal cassette back taper for the machining application according to the demands of the material and the feed.

Selection based on part requirements in consultation with MAPAL depending on:

- Surface finish requirement (post machining e.g. honing)
- Material
- Feed
- Lead geometry of the cutting edge
- Stock removal



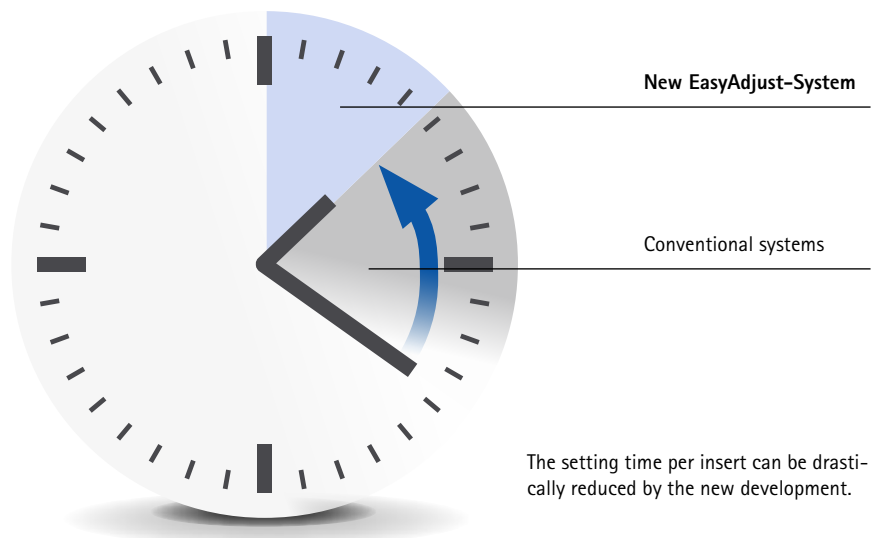
Influence of the back taper on the surface finish with constant feed per tooth



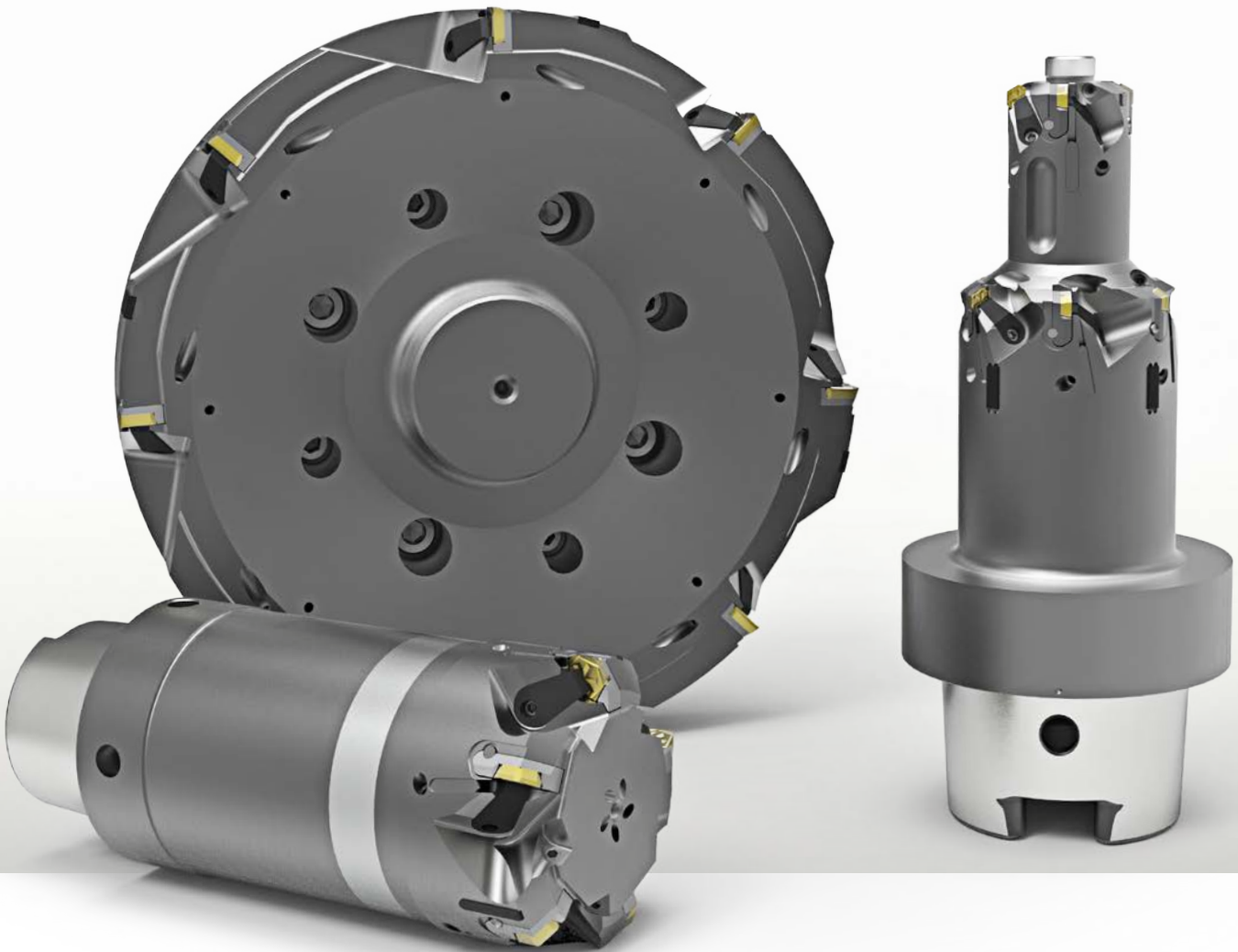


Comparison of the setting times

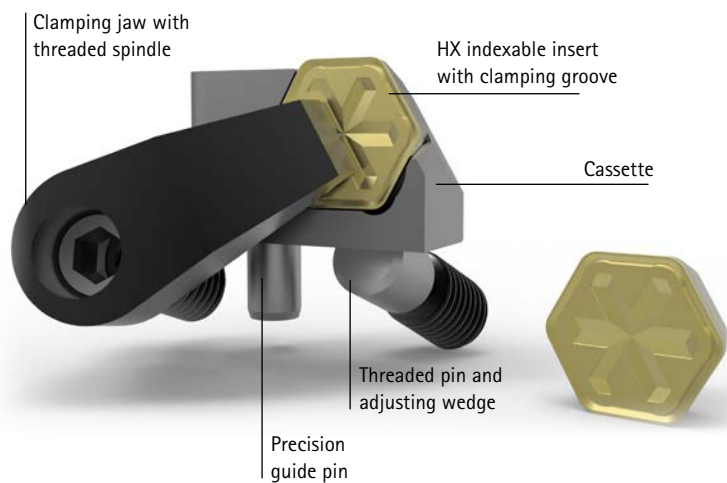
The objective during the development of the EasyAdjust-System was to drastically reduce the setting effort for tools with guide pad technology.



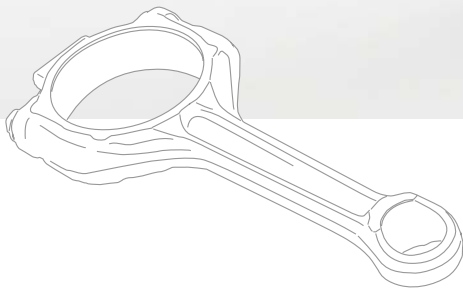
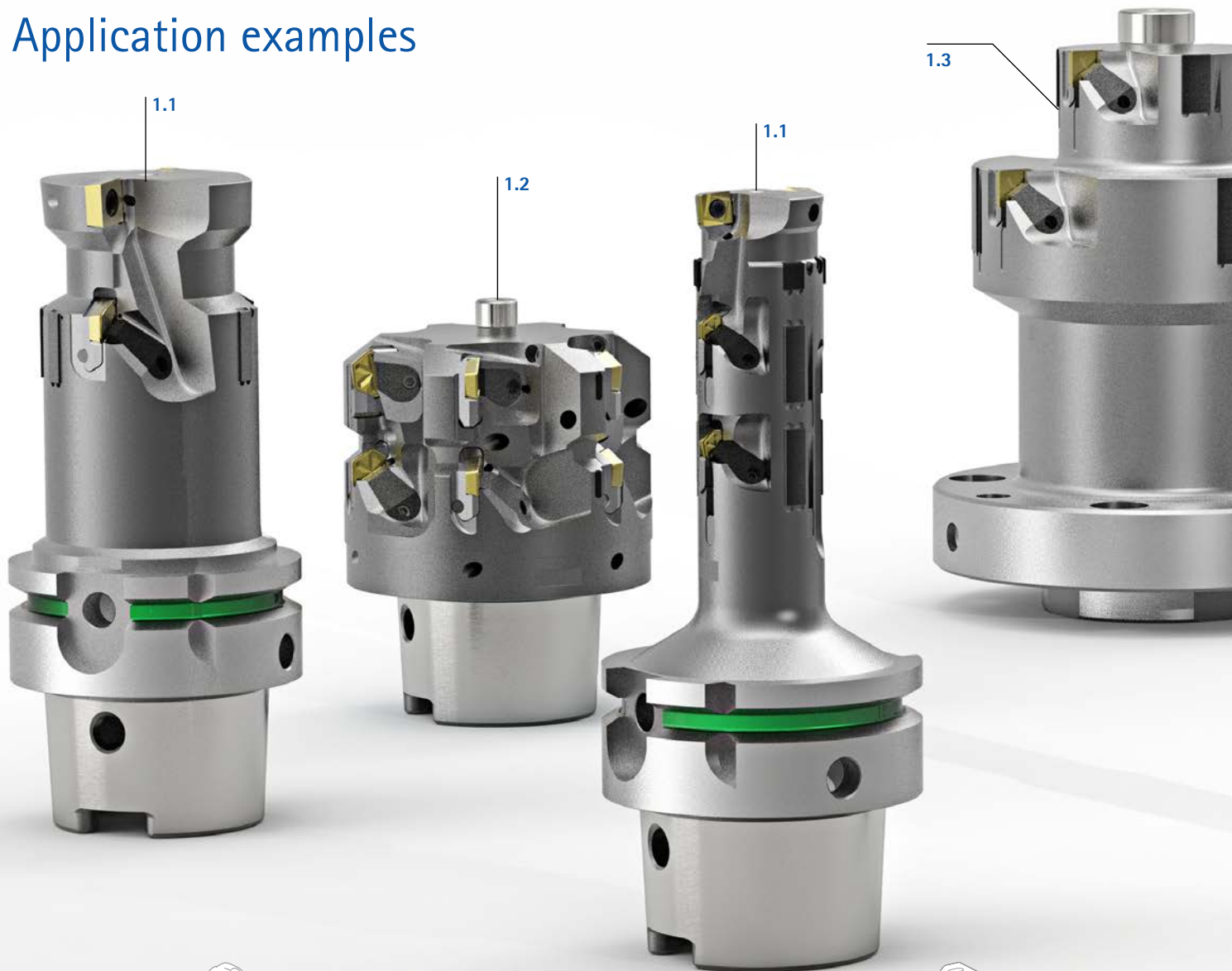
Multi-bladed fine machining with EasyAdjust-System



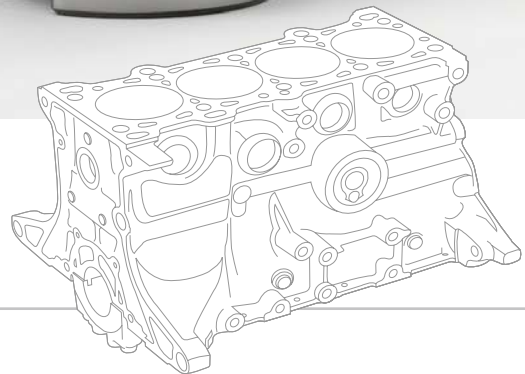
By means of the adaptation of the innovative EasyAdjust-System to the principle of multi-bladed reamers, MAPAL once again increased the cost-effectiveness of reaming to a new level. Low cutting material costs due to multiple cutting edges per indexable insert, the highest precision due to the setting features, a small number of tools in circulation, low reconditioning costs due to pure indexable insert change: MAPAL is now combining the significant advantages of indexable insert technology with the high performance of multi-bladed tools and is in this way again increasing the cost-effectiveness of fine machining.



Application examples



1.1



1.2

1 Fine boring tools and single-bladed tools

1.1

Combination tools for rough machining and fine machining of the large and small pin bores. With ISO inserts for pre-machining and the EasyAdjust-System for fine machining, defined R_z values are achieved.

1.2

Tool with six cutting edges and distribution of the cut 4+2 (4 pre-machining cutting edges and 2 fine machining cutting edges) with EasyAdjust-System and HX indexable inserts for machining a cylinder bore.

1.3

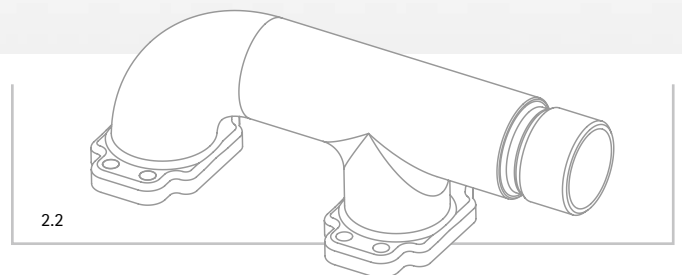
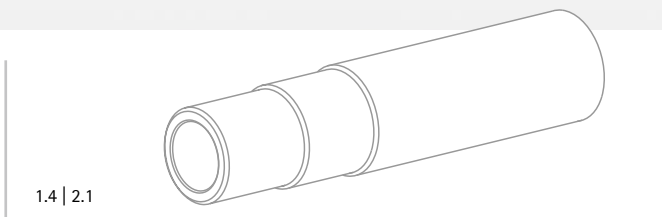
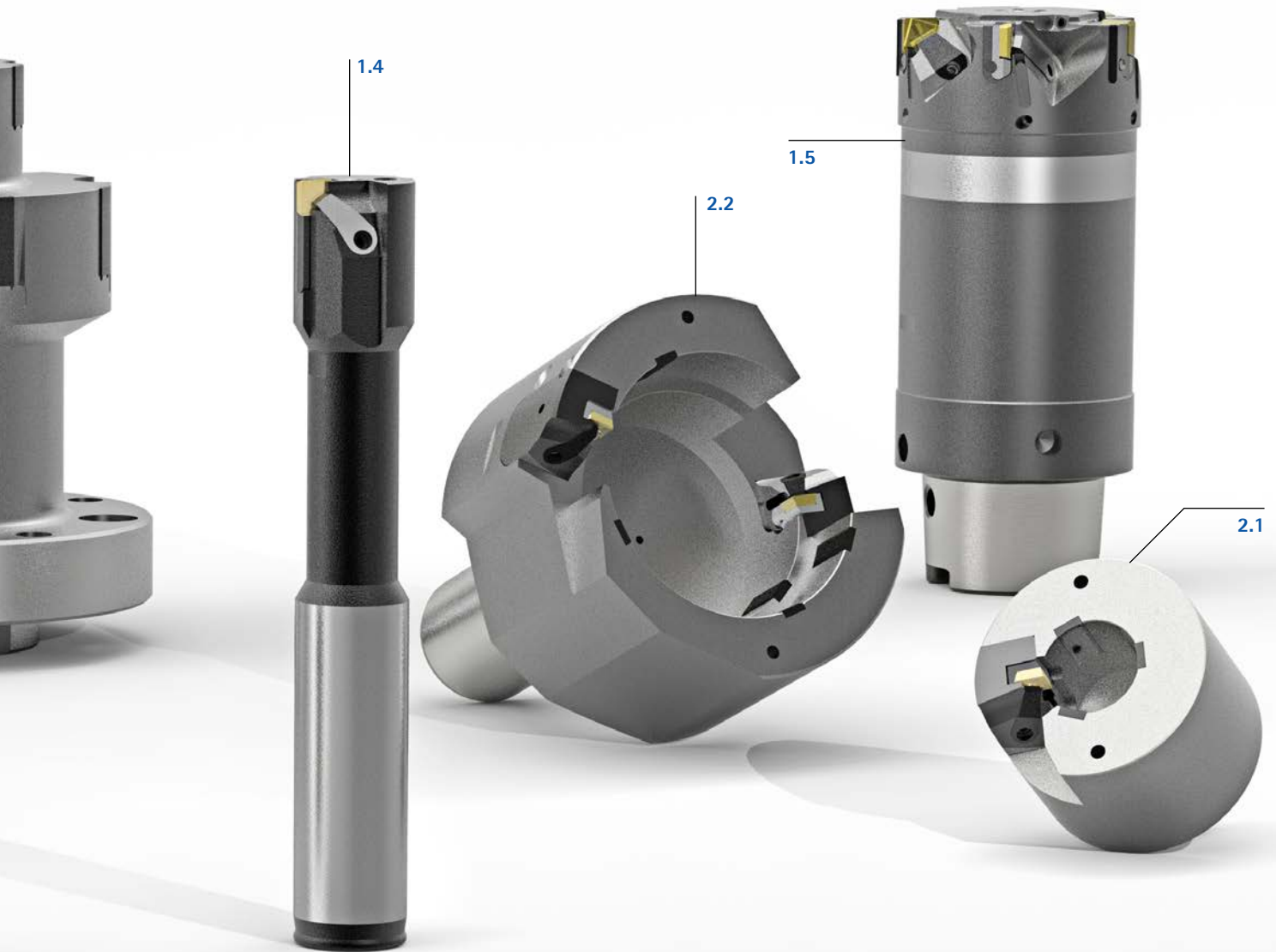
Multi-stepped fine boring tool with EasyAdjust-System and TEC indexable inserts for machining the blind bore in gearbox and valve housings with IT5 and IT6 requirements on the dimensional accuracy.

1.4

Single-bladed reamer with EasyAdjust-System for play-free, stable connection of the indexable inserts with four or six cutting edges for machining precise bores.

1.5

Multi-bladed tool ($z=5$) for machining the bearing cover on cast iron axle housings.



2 External reaming tools

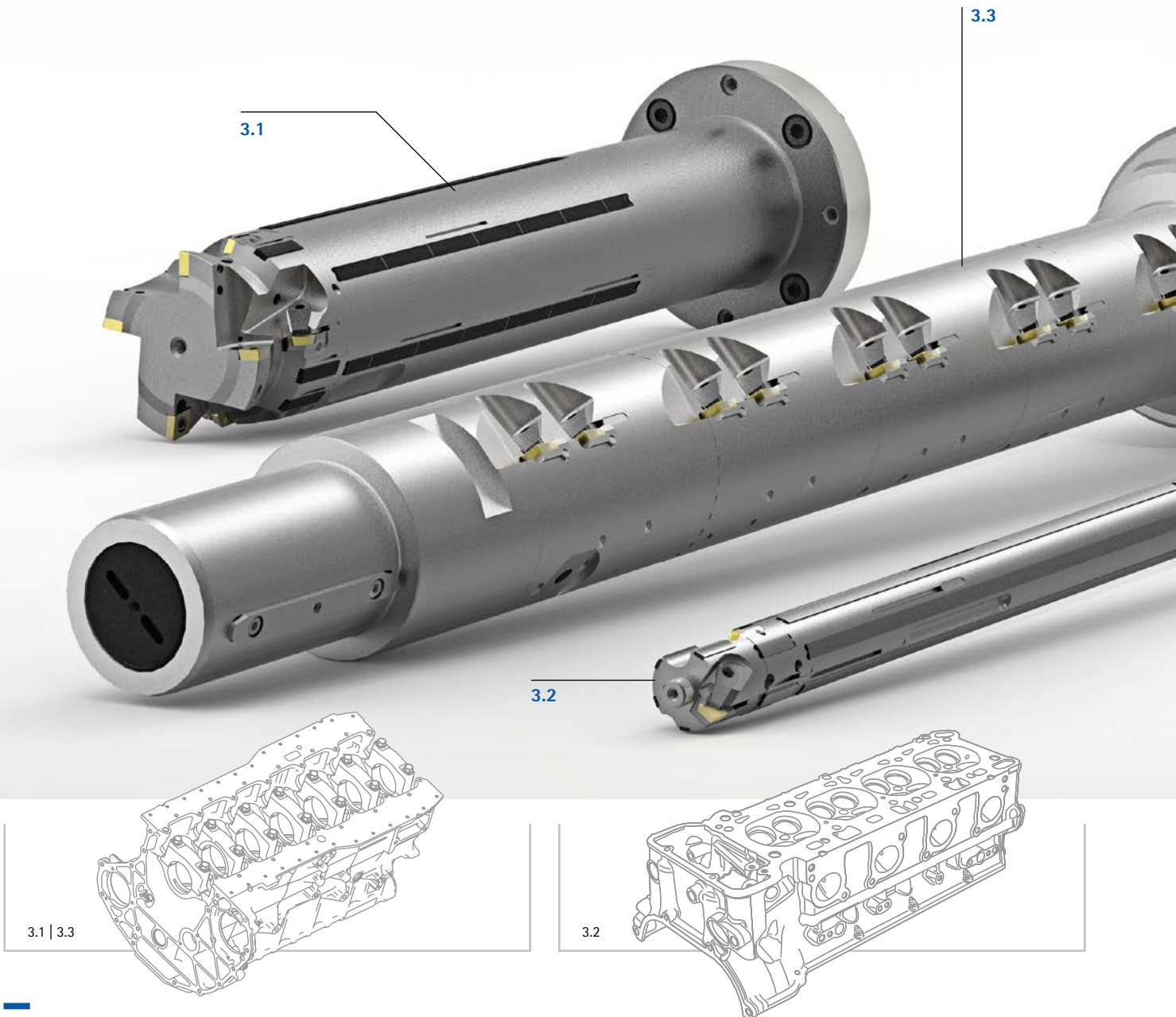
2.1

External reamer with EasyAdjust-System and TEC indexable inserts replaces the turning of a part made of GJS and also produces better dimensional accuracy. The combination with the adaptive MAPAL floating holder corrects the axis offset and increases the tool lives, the part quality and therefore the process reliability. (Used on a lathe)

2.2

External reamer with EasyAdjust-System and TEC indexable inserts combined with a MAPAL hydraulic chuck for machining the connection on an exhaust manifold. (Used on a machining centre)

Anwendungsbeispiele



3 Line boring bars / long fine boring tools

3.1

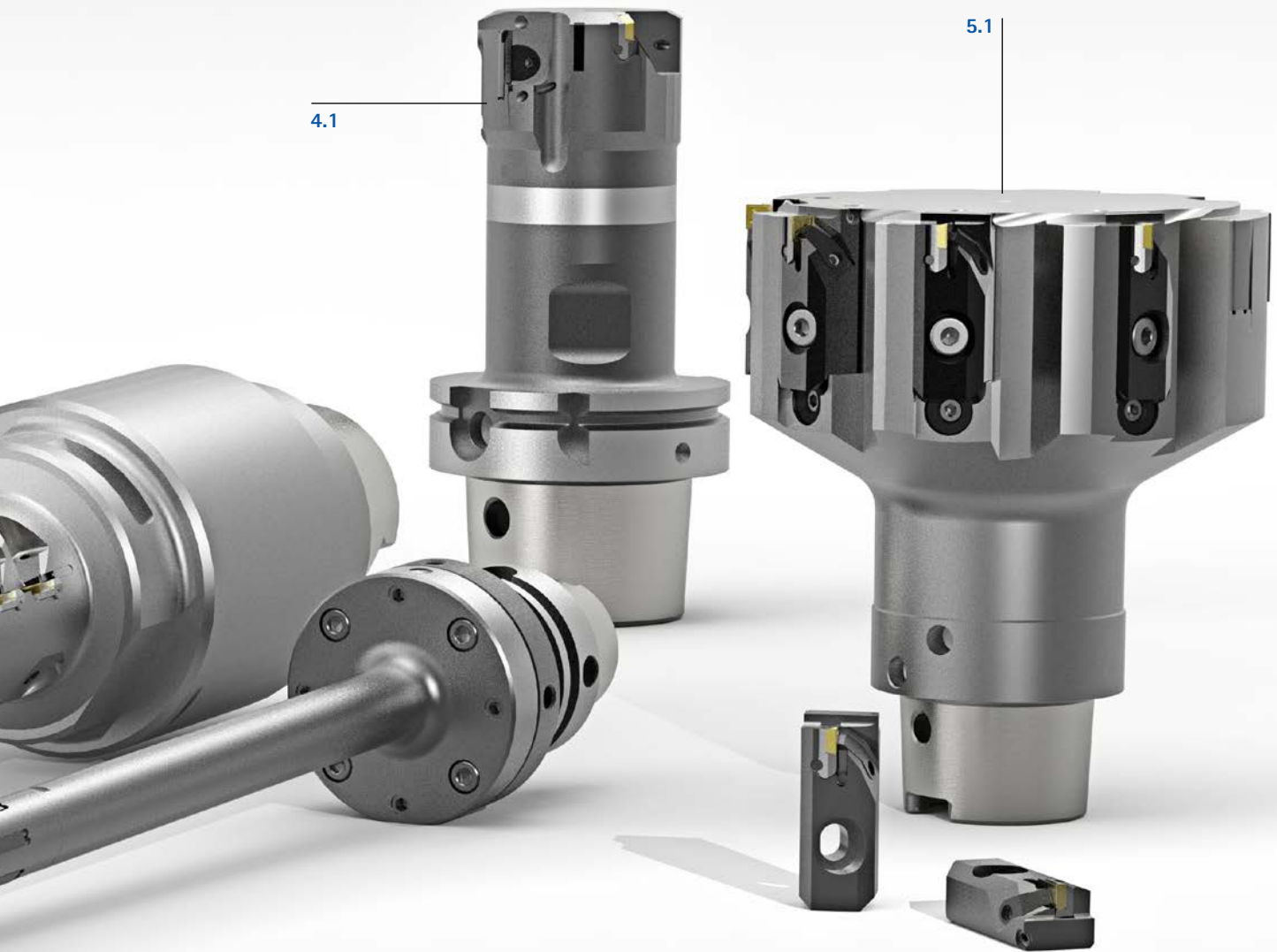
Semi-finishing and finish machining of the bi-metal crankshaft bearing bore (aluminium-GJL).

3.2

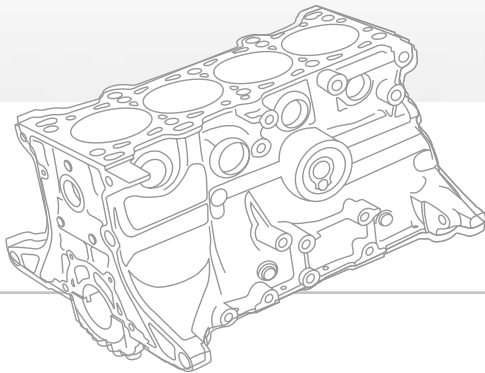
Semi-finishing and finish machining of the camshaft bearing bore made of aluminium for highest accuracies and dimensional accuracy.

3.3

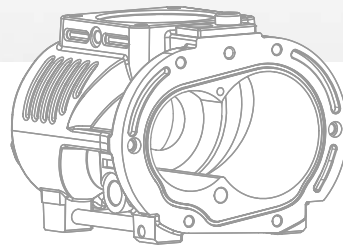
Line boring bar for semi-finishing and finish machining of the crankshaft bearing bore on a special jig with additional bearing. Short machining time and straight axes are ensured.



4.1



5.1



4 Fine boring tool in special design

4.1

Special tool for roughing an aluminium cylinder bore before a thermal spray coating is applied. Machining of the cylinder diameter with defined stock removal. The comb insert machines the rectangular profile, the forming ball generates an undercut for the mechanical serration of the spray coating.

5 Clamping cartridges

5.1

Special tool with EasyAdjust-System with four TEC indexable inserts ($z=4$) and guide pads arranged on one side for machining a heavily interrupted cut in a pump housing made of GJS-400.



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