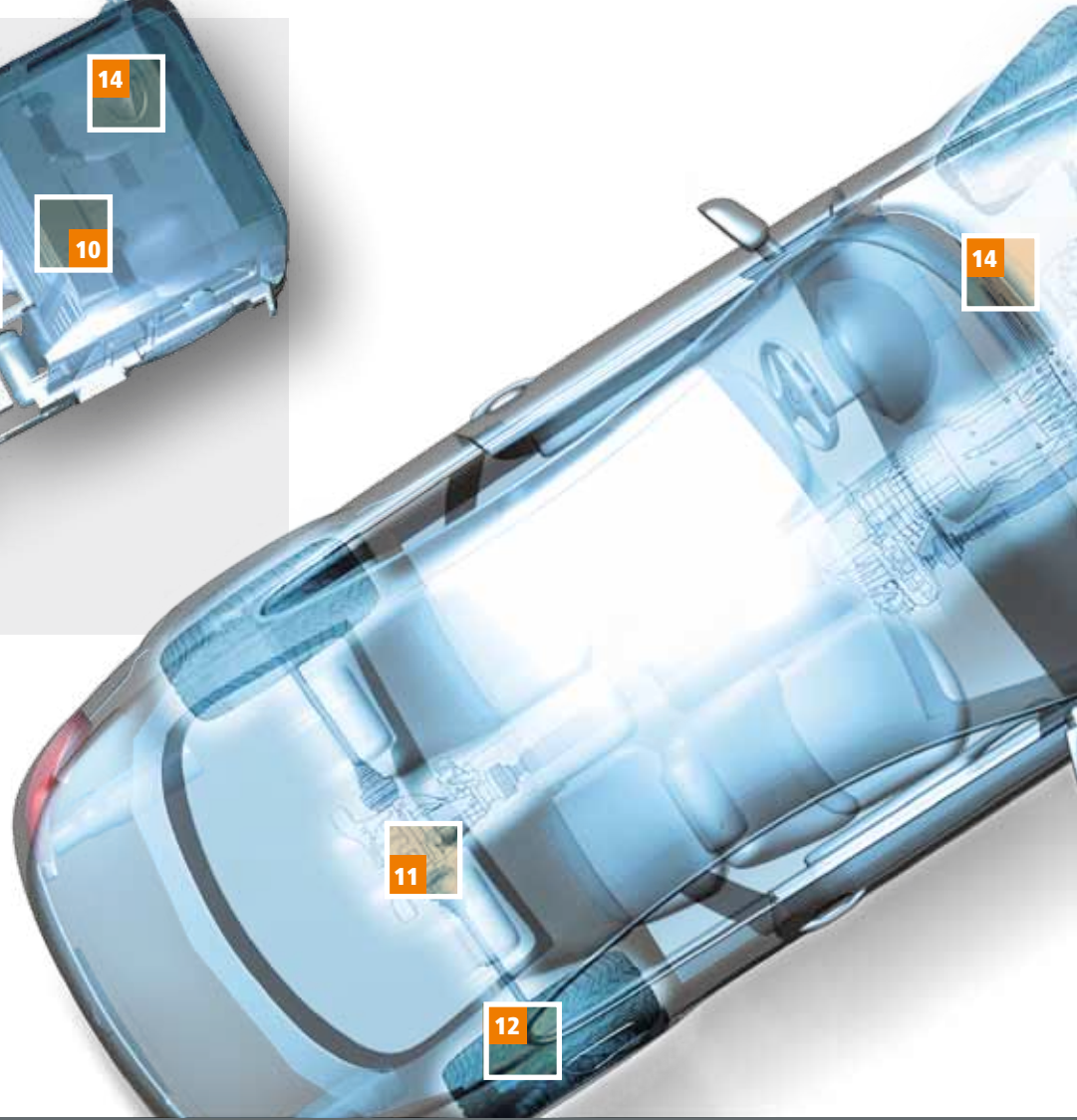
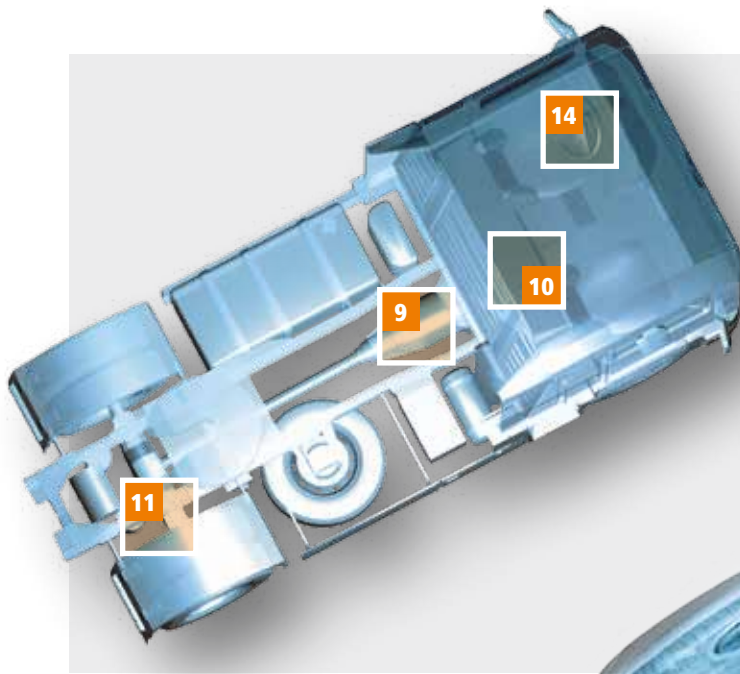


KOMET GROUP
Project Management
Solutions for mobility



KOMET GROUP Project Management

Solutions for mobility

The mobility of people and goods is the deciding factor for life worldwide and is the motor for global economy. One of the greatest challenges of our time is to increase this speed and flexibility, while simultaneously organizing it economically and ecologically.

The project management of the KOMET GROUP accepts this challenge. Our knowledge, experience and expertise are focused upon optimizing your machining operations on parts and components, by applying the maximum technical finesse and economy.

We find potential for our customers where they least expect it: in the detail. For more mobility.

The project management of the KOMET GROUP sets standards and is the system partner for process optimization and tool design, right up to complex production solutions.

With the unique symbiosis of development, technical knowledge, experience and service, we have an interdisciplinary potential for finding solutions which are used by well-known companies and organizations in the automotive industry, throughout the world.



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Sub frame

Task

- Machining in a single clamping set-up
- Tool restrictions, due to component geometry and fixture
- Reduce cycletime

Solution

- Intelligent combined special tools
- Long, narrow but also stable design
- VABOS combinations with drill thread milling tools or PCD fine machining tools





1 Solid carbide drill

- Advanced cutting geometry
- Optimized radial land geometry

2 PCD milling cutters

- High performance aluminum geometry
- Maximum chip removal rate
- Maximum material removal rate

3 PCD VABOS

- Brazed PCD version for applications where indexable inserts are not sufficient

4 VABOS combination

- PCD drill reaming tool
- Drilling and fine machining in one pass

5 VABOS-K indexable spot face, chamfer tool

- Drill thread milling tool and spot face
- One tool, three combined features

6 MOREX thread forming tool

- No chip problems because of thread forming
- Long slim design
- Directly fitted in the shrink chuck

Cylinder block

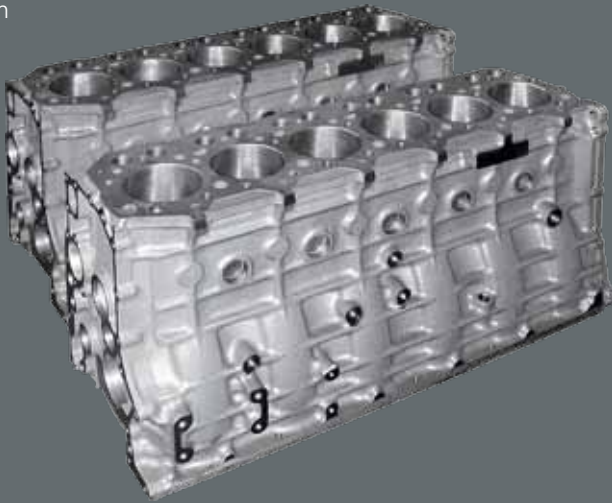
Task

Cylinder blocks in all sizes from compact car engine to large goods vehicle or ship's engine made of various materials.

Solution

Precision tools for specific machining of the following:

- Aluminum
- Cast iron
- CGI



1 Cylinder boring and finishing with M042

- The unique KomTronic® M042 system allows "closed loop" machining
- Automatic resetting on the machine
- Three cutting edges for semi-finish machining
- One cutting edge for finish machining during withdrawal

2 Cylinder bore roughing

- Inserts with guiding geometry
- Pitch up to 0.4 mm

3 Core plug bore

- Pre- and finish machining with one tool

4 Oil channel fine boring

- Short, compact design
- Triangular insert

5 KUB Trigon® Special stepped boring bar

- Proven drill design
- Insert with improved tool life

6 PCD face-milling cutter

- Ø 10 – 160 mm

1

2

3

4

5

6



Cylinder head

Task

Machining the cam shaft bore and the valve seat is a core task in cylinder head manufacturing.

- Dimensional repeatability in geometry, alignment and surface quality
- Different material strengths or offsets at the start of each partial bore

Solution

Tool concepts from the KOMET GROUP.

Valve seat

- Pre- and finish machining
- Valve guide reamers with multiple cutting edges for higher feed rates and longer tool life
- Reduced insert cost due to 9 cutting edges on 1 insert

Cam shaft bore

- Pilot and finish machining with multi-insert tools
- Patented replaceable head system reduces setup time and tool cost
- Selection of special cutting lead geometries according to machining requirements
- Wet and MQL processing possible





Suspension arm

Task

- Tool restrictions, limited work space and machining allowances characterize this component
- Short cycle times are an every-day challenge

Solution

- Modular combination tools with multi machining capability
- Maximum number of cutting edges for high cutting speeds
- Inserts with advanced tool life and maximum number of cutting edges for economic machining

1 Tangential technology

- Tangential inserts for milling and rough boring
- One insert concept for two machining processes
- Eight cutting edges for optimum tool design
- Optimized for machining cast materials

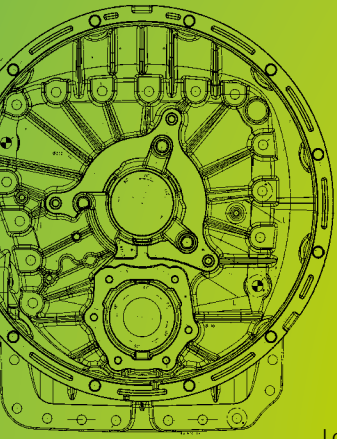
2 Machining without reclamping

- Modular reverse facing tool with adjustable chamfer
- High precision ABS® connection

3 Pre- and finish machining of bearing bore

- Inserted combination tool for pre-machining
- Modular reaming tool for finish machining
- High cutting speeds and feeds
- No setup time
- Minimal tool changes





Long reach required due to component geometry



Clutch housing

Task

- Optimized complete machining of a goods vehicle clutch housing in aluminum
- Need for shortest machining time with highest requirements for component quality

Solution

- Use of fine machining tools with multiple cutting edges
- Reduction of number of tools by using combination tools
- Finish milling large diameters instead of finish boring
- Tool holders with axial and radial adjustment

1 PCD monoblock reaming tool

- With replaceable PCD cartridge for different step lengths
- Reaming with multiple cutting edges to IT6 quality

2 PCD face-milling cutter and PCD milling head

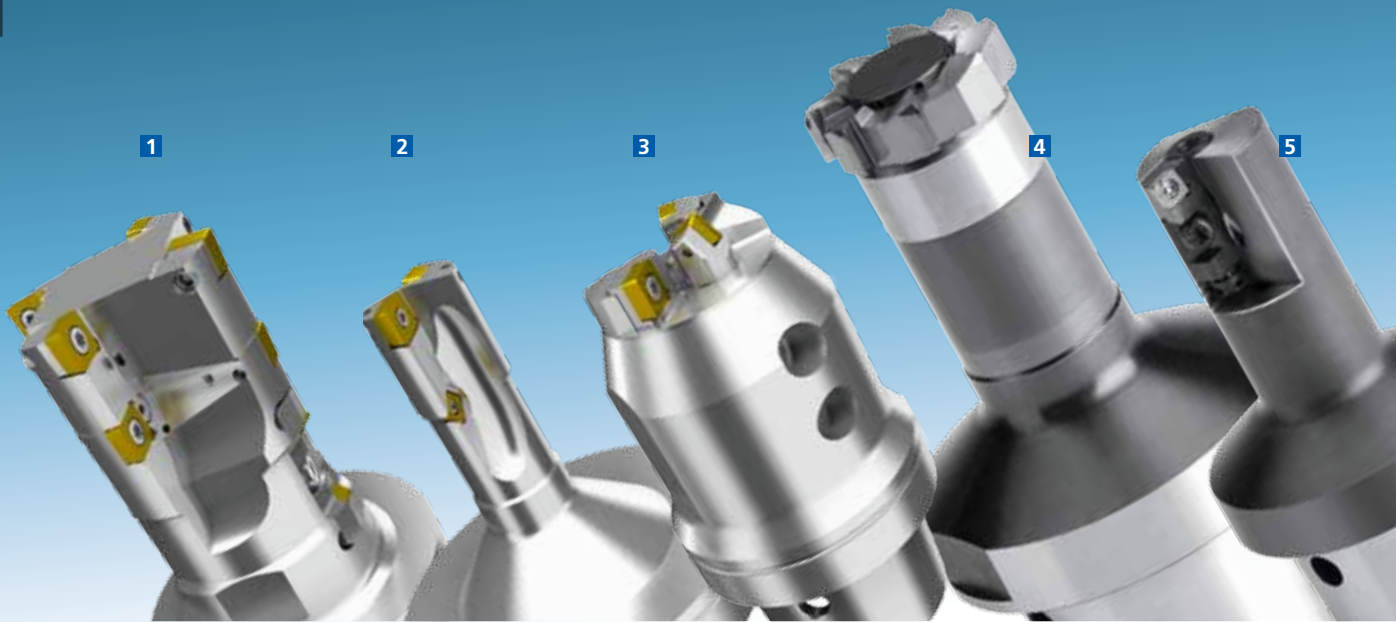
- Replaceable head with taper/face contact for rigid, low vibration machining
- Standard Ø 10 to 160 mm

3 Solid carbide tools

- Easier step boring and thread cutting operations with solid carbide tools held in standard extensions from the ABS® program

4 Positioning holes

- The positioning holes required for the 2nd clamping position are finished with 1 tool, machining time approx. 1 second



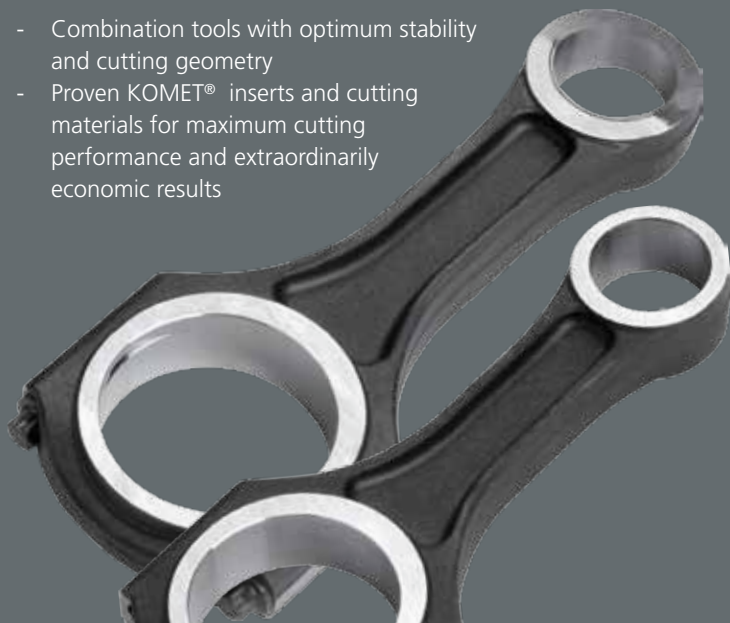
Connecting rod

Task

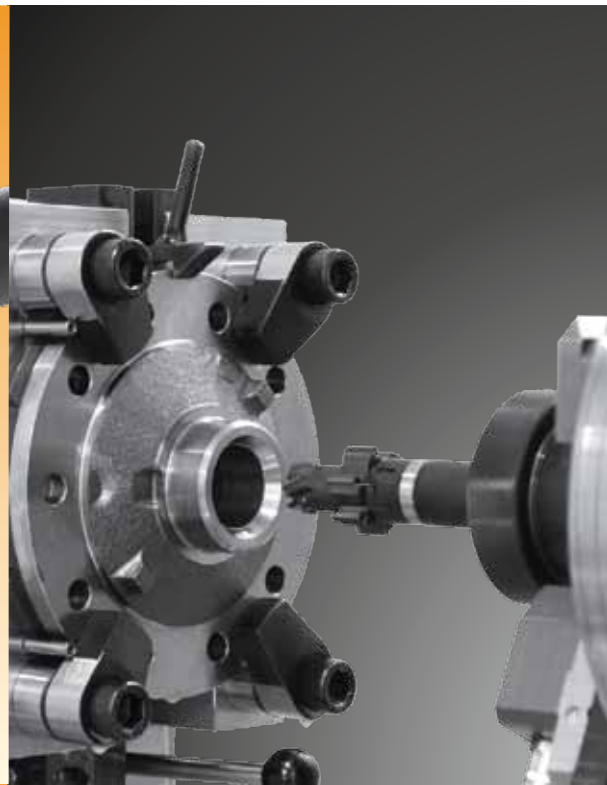
- Pre- and finish machining for large and small bore
- Use of minimal lubrication or conventional wet machining
- For process development on machining centres
- Batch production on special machines
- Optimized process design:
Development and testing on trial machines, then transfer of design to mass production
- Use of multi-spindle machining centres and special machines

Solution

- Combination tools with optimum stability and cutting geometry
- Proven KOMET® inserts and cutting materials for maximum cutting performance and extraordinarily economic results



- 1** Roughing of large bore with a four insert tool, with an adjustable cartridge solution for machining chamfers
- 2** Reliable solid drilling and deburring of small bore
- 3** Starter bore, even under difficult conditions, with SOEX inserts
- 4** Reamax® reaming tool for feed rates of > 1 mm/rev
- 5** Finish boring with standard PCD inserts



Differential housing

Task

- Differential housings are mass-produced parts in the automotive industry
- Machining process determined by quality and functionality of parts

Solution

- KOMET® special tools for machining on special machines
- u-axis tools for machining centres

1 Using FEM analysis

- Optimized tool cross section possible using FEM analysis
- Reverse turning of complete contour with one u-axis tool

2 Tools with body mounted inserts for the special machine

- High precision insert pocket seats manufactured with the latest production methods
- No adjustment required
- Fast and reliable

3 Reaming tools with multiple cutting edges

reduce cycle time. No setup required.



Brake caliper

Task

- Brakes are safety components made in very large quantities
- Lowering component costs while remaining reliable is a daily challenge
- High requirements for surface finish and accuracy

Solution

- Tool concepts for aluminum and cast iron
- Constantly developing cutting materials and geometry for maximum cutting performance



On-going development

- Inserts with guided technology
- Micro-adjustability
- Rough and finish machining of piston bore with just one tool

u-axis-systems for machining centres

- Finish reaming for piston bore
- Machining seal groove similar to a lathe
- Solution with KomTronic® u-axis-systems

Circular interpolating grooving tool

- Seal ring and dust groove
- Modern machining centres allow new machining methods
- Circular interpolating grooving tool as an alternative to circular milling

- 1** Piston boring, finishing
a) Cast b) PCD for aluminum
- 2** Piston boring scrubbing and end face processing
- 3** Piston boring, scrubbing layers in one tool with KOMET® PreciKom
- 4** Circular milling of sealing ring and dust cap groove
a) Cast b) PCD for aluminum
- 5** Piston boring end face and axial cut-in
- 6** Finishing piston boring as well as sealing ring and dust cap groove
a) Cast b) PCD for aluminum



1a



1b



2



3



4a



4b



5



6a



6b





Main brake cylinder

Task

- High surface quality and accuracy
- Unfavorable L/D ratios
- Short cycle times

Solution

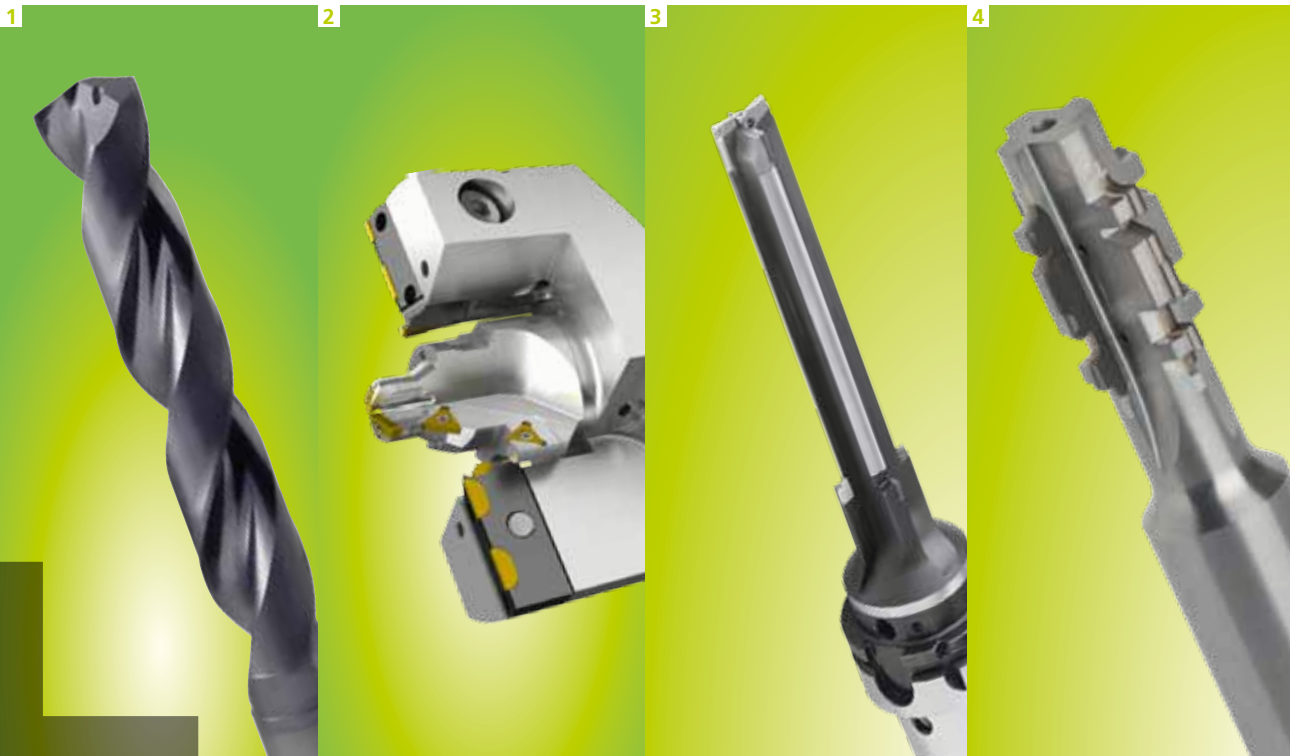
- Combination tools reduce cycle time and increase productivity

1 KUB® Drillmax
Efficient solid carbide drill

2 Turning tool
For simultaneous machining of external and internal diameter

3 Finish machining
Multi-blade PCD step tool for finish machining main bore

4 Circular interpolating grooving tool
PCD circular milling tool for the multi-spindle production of oil chambers of the main brake cylinder.
Allows machining on a machining centre with the same surface quality as if machined on a turning machine.





- 1** TOMILL PCD thread milling tool with special deburring insert. No additional machining required.
- 2** Internal and external machining with one tool
- 3** Multiple cutting edges for maximum feed rates
- 4** Combination tools reduce tool changes

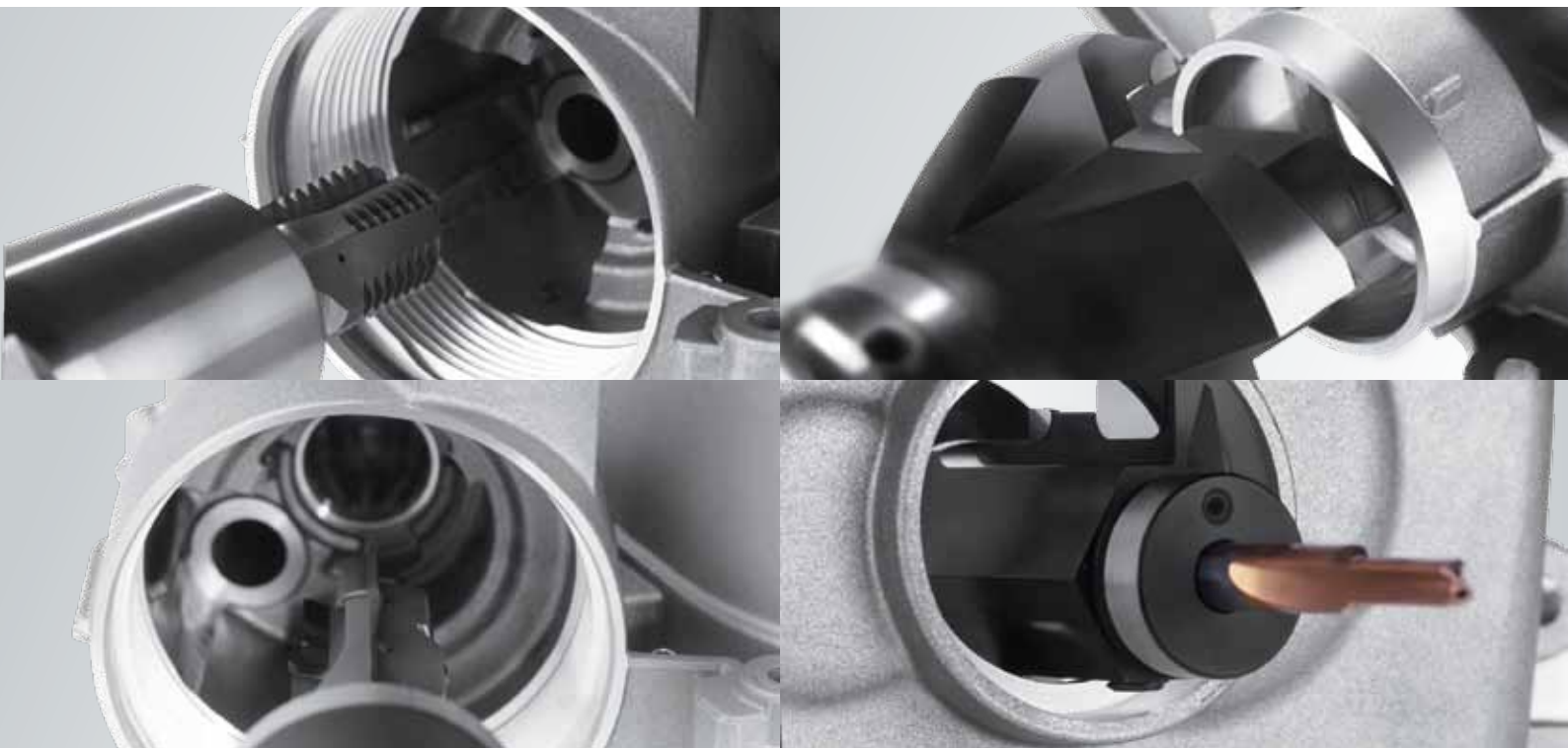
Timing case

Task

- Precision parts
- Large quantity

Solution

- Optimum combination of PCD tools
- Forward and reverse machining with one tool
- Finish machining in one pass
- Fixed PCD tools eliminate setup time
- Saving tools by using combinations



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