

HELLER & KOMET

- **Contour turning**
- **Grooving**
- **Facing**
- **Wear compensation**



The transverse feed solution integrated in the machine – everything from one source.

The transverse feed solution from HELLER & KOMET GROUP

Exchangeable NC axes for machining centres

The freely programmable, rotatory-driven axis systems enable any contour and turning operations to be performed on cubical parts.

When combined with custom snap-on tools and indexable inserts, the machining of contours in bores as well as external machining becomes extremely easy, whilst also giving you improved surface quality and precision.

As no separate turning operations are required manufacturing times can be shortened thus increasing your throughput dramatically.

Benefits for you:

■ Lower investment costs

- Use of standard instead of special machines
- Reduction in number of tools
- No need for clamping devices for finish machining on turning machines

■ Reduced unit costs

- Complete machining on one machine.
- Reduction in machining and throughput times
- Savings on tool changes
- Replacement of time consuming circular machining operations
- Reduced holding times
- High cutting capacity

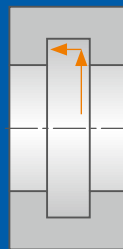
■ Lower operating costs

- Complete machining on one machine without the workpiece being rotated
- Minimum power consumption because of U-Axis systems

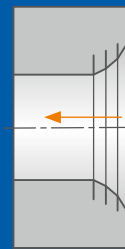
■ Flexible

- Exchangeable facing heads from the standard tool magazine

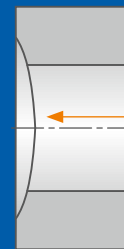
Machining examples



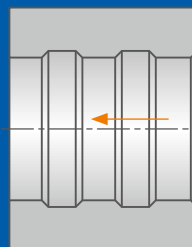
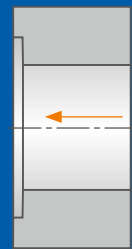
Grooving



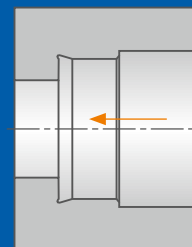
Turning valve seats



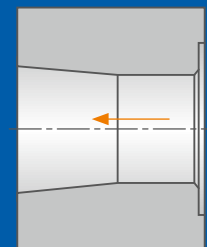
Undercutting differential housing



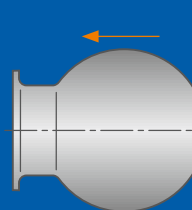
Bore with coolant passages



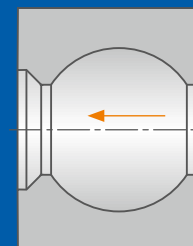
Bearing seat



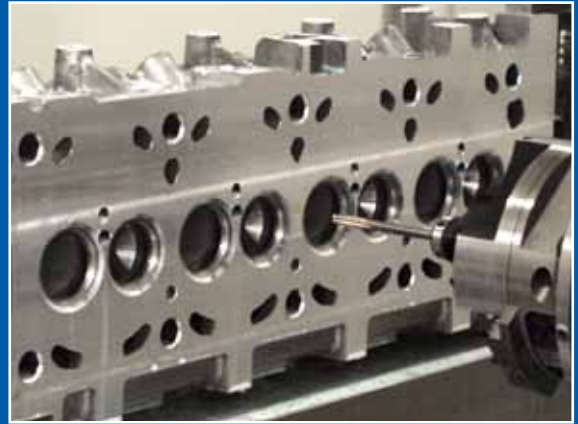
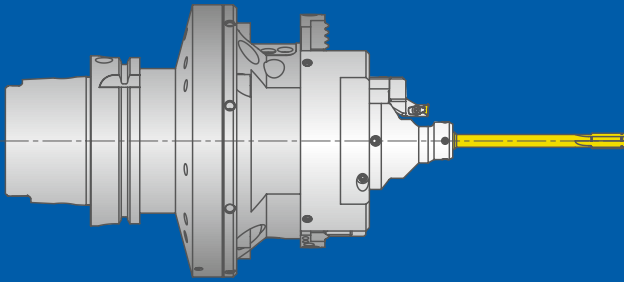
Tie rod



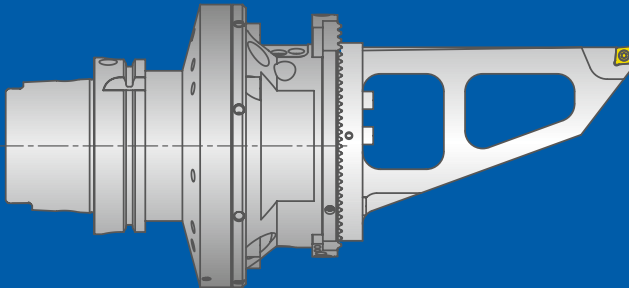
Contour turning, external and internal contour turning



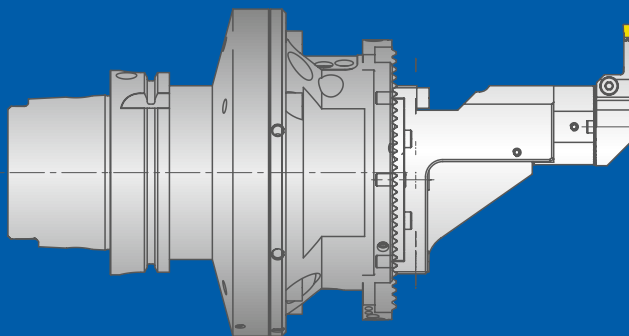
Contour turning



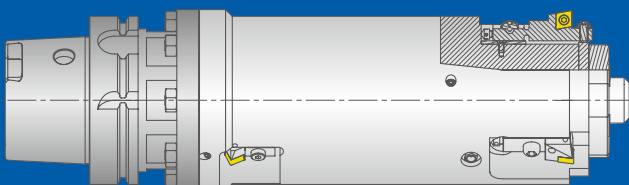
Facing



Grooving



Wear compensation



The transverse feed solution from HELLER & KOMET GROUP

Many advantages

Benefits for you:

- **Everything from a single source**
 - Transverse feed drive integrated in the work unit
 - U-axis integrated in the machine control system
 - Ideally matched interfaces
- **No restriction on operation without facing head**
 - No additional disruptive contours in the work space
 - No speed limitation
 - Coolant supply up to 50 bar
- **Process reliability**
 - Tool and drive physically separated
 - Drive outside the area of the chipping and coolant
 - No open interfaces in the work space
- **Flexibility**
 - Complete NC-axis functionality
 - Exchangeable facing heads from the standard tool magazine
- **Retrofit possible**

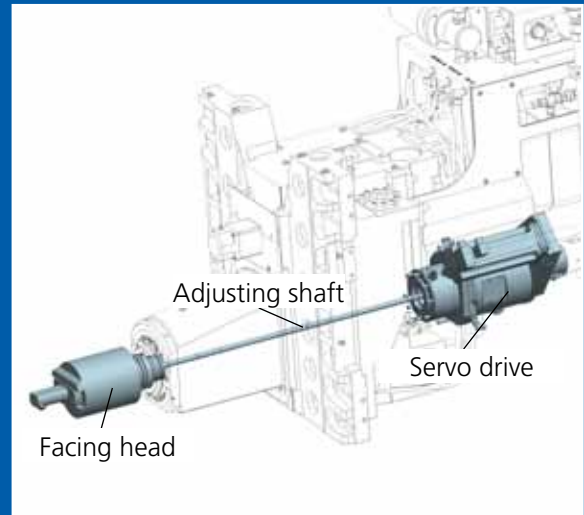
System overview

	■ H2000 – H4000	■ H5000 – H6000	■ MCH 350 – 460
Machine			
Spindle	■ HSK-A63	■ HSK-A100	■ HSK-A100
Unit	■ Power Cutting	■ Transmission	■ Transmission

	■ Radial stroke (mm)	■ Stroke (mm/rev)	■ Precision
Facing head	Standard 22/50/70 Special >70 on request	Standard: 0.2 Special: depending on precision requirements	Tolerances \geq IT6 or on request

The transverse feed solution from HELLER & KOMET

What is a transverse feed solution?



■ The transverse feed solution from a single source

- Drive integrated in the unit
- Adjusting shaft integrated in the spindle
- U-axis integrated in the control system

How does the HELLER & KOMET GROUP transverse feed unit work?



■ U-axis in the control system

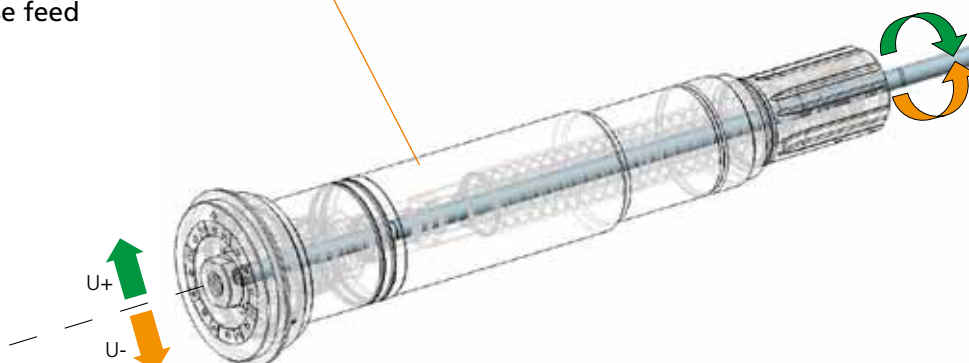
- Full-value machine axis
- Interpolation movements with other axes possible



■ U-direction procedure

- Performed using the adjusting shaft
- The direction of rotation determines the drive direction of the U-axis

Transverse feed



KOMET KomTronic® U-Axis system Machining examples

Workpiece: differential housing

Benefits for you:

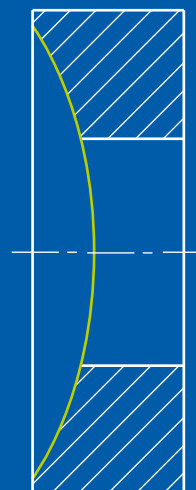
- Flexibility
- Saves on expensive blanking
- Replaces separate machining on a lathe and thus eliminates the need for a clamping device
- Increase in quality



Machining: turning an inside radius

Cutting speed $v_c = 80 \text{ m/min}$
Feed $f = 0,1 \text{ mm/rev.}$
Cutting width 1st cut $a_p = 1,5 \text{ mm}$
2nd cut $a_p = 0,2 \text{ mm}$

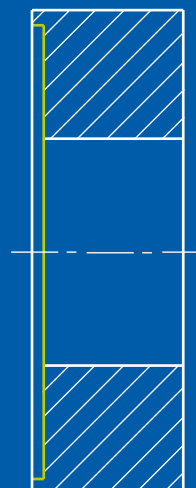
Radial stroke 10 mm



Machining: rear planing

Cutting speed $v_c = 80 \text{ m/min}$
Feed $f = 0,12 \text{ mm/rev.}$
Cutting width $a_p = 0,3 \text{ mm}$

Radial stroke 14,5 mm



Recesses and turning contour elements

Cutting data:

Drilling D140
 $f_u = 0.18 \text{ mm}$
 $n = 400 \text{ rpm}$
 Depth = 130 mm

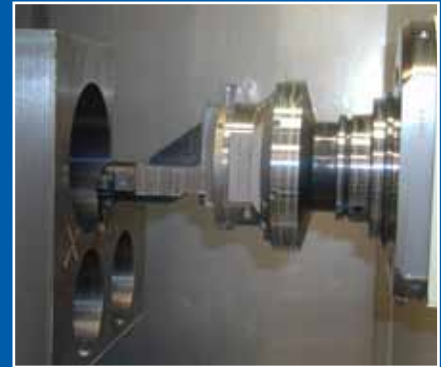
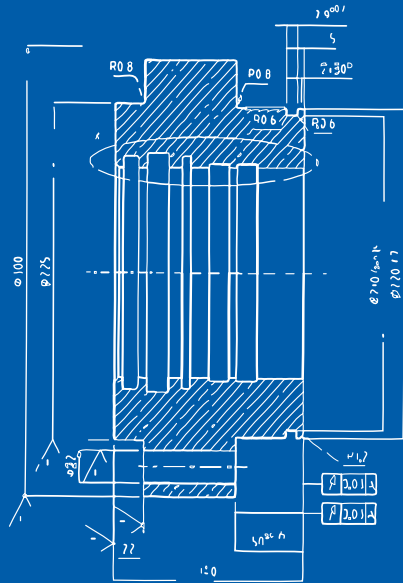
Boring holes:
 $n=300 \text{ rpm}$ $f_u=0.15 \text{ mm}$
 Roughing recesses:
 $n=400 \text{ rpm}$ $f_u=0.20 \text{ mm}$

Result:

Concentricity: $< 10 \mu\text{m}$
 Surface Ra: $< 2 \mu\text{m}$
 Machining time: 6.4min

Material:

Spheroidal graphite cast iron –
 GGG40



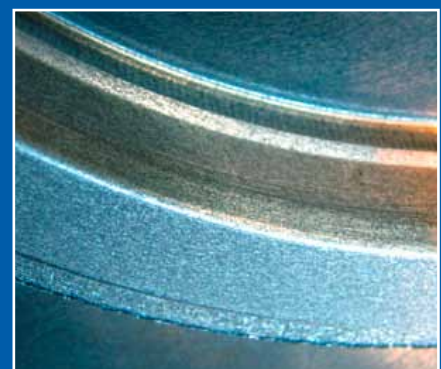
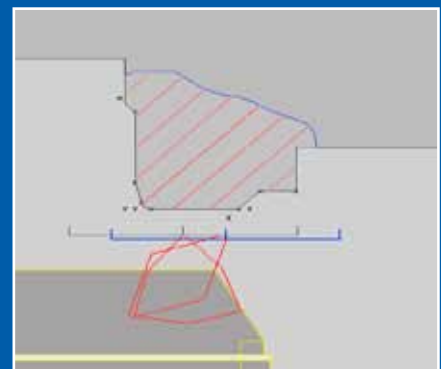
Facing off a sealing surface

Cutting data:

f_u 0.1 $< f_u < 0.2 \text{ mm}$
 $n=$ 400 rpm
 a_p 0.5 $< a_p < 1.0 \text{ mm}$
 D 158 $< \text{Ø} < 180 \text{ mm}$

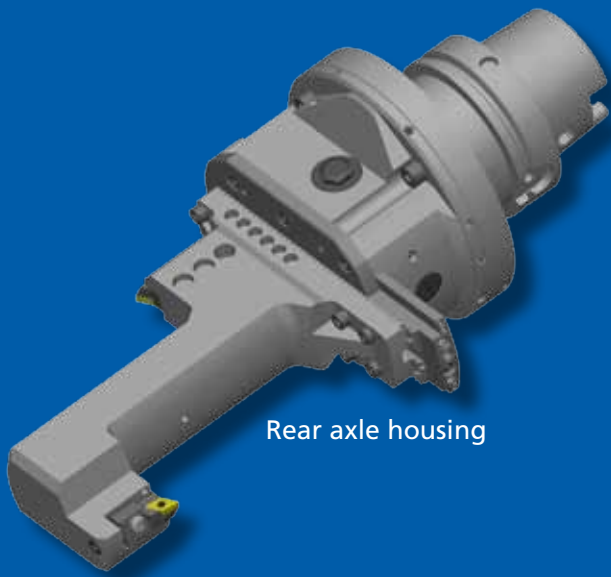
Material:

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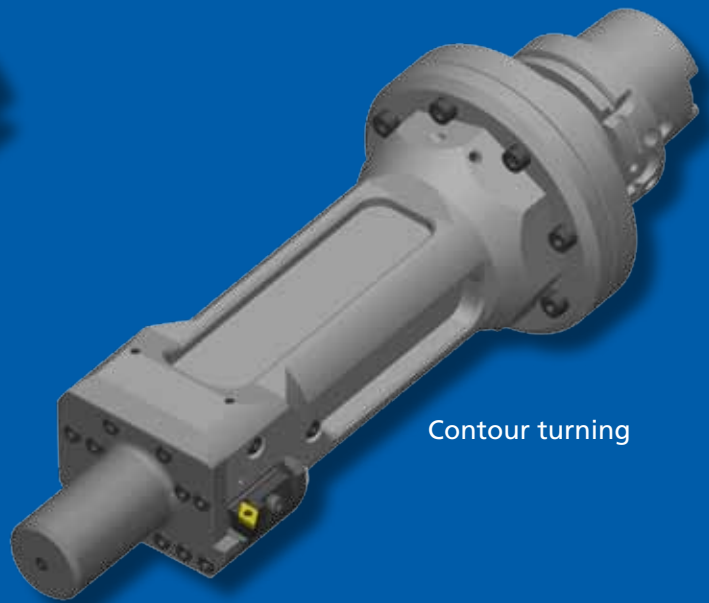


The transverse feed solution from HELLER & KOMET GROUP

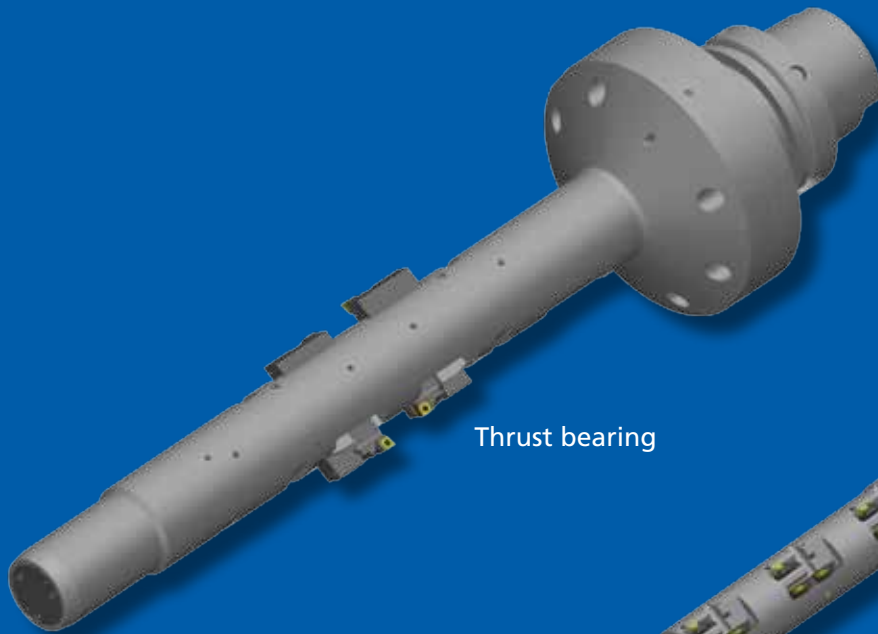
Tool examples



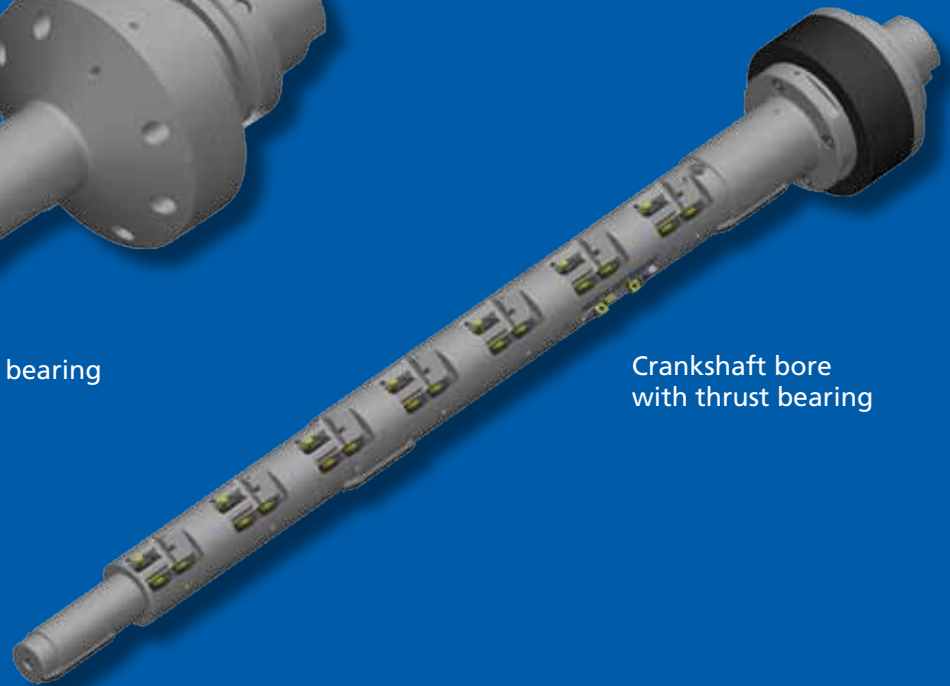
Rear axle housing



Contour turning



Thrust bearing



Crankshaft bore
with thrust bearing



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