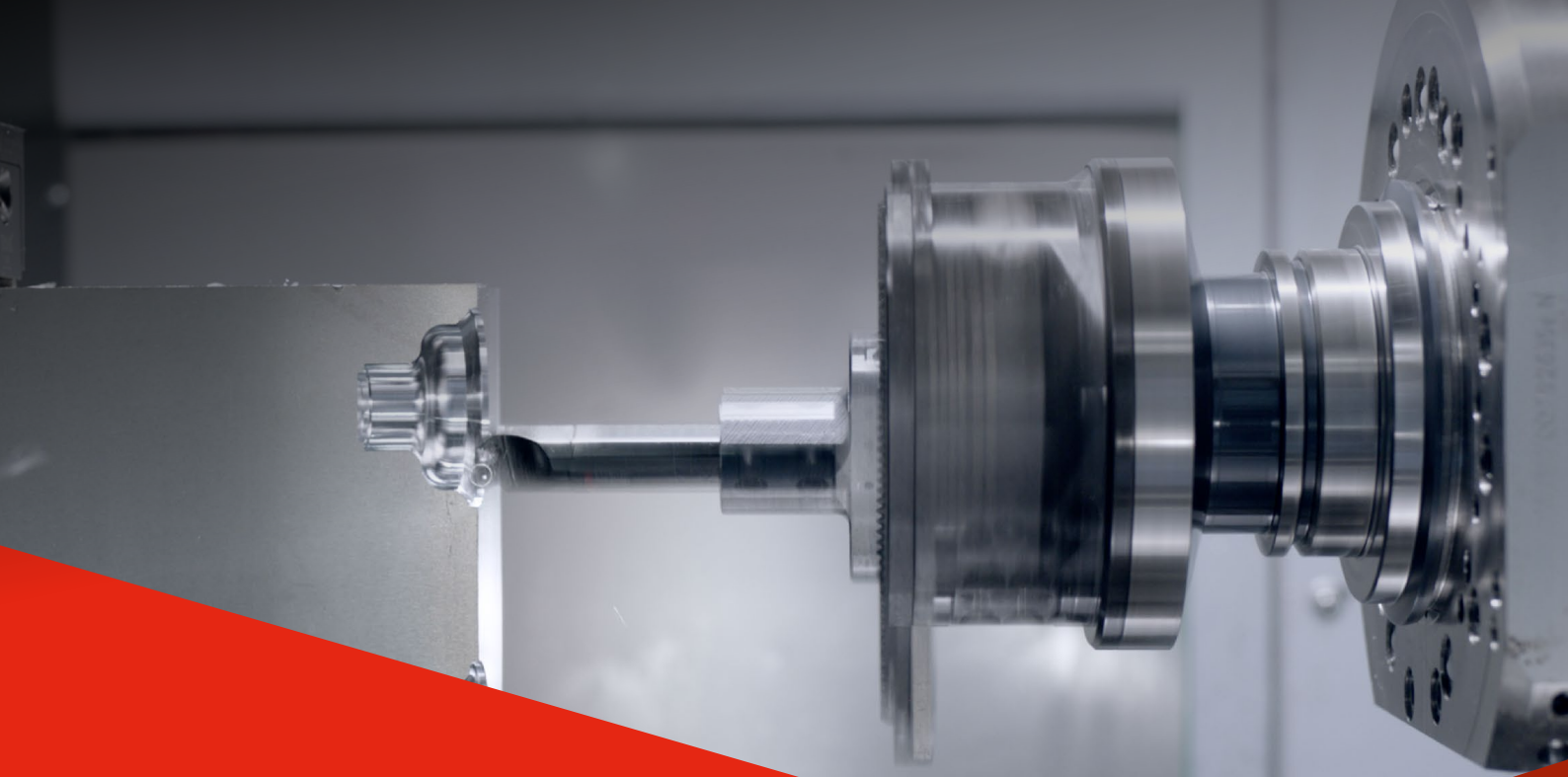




Contour- and face turning, grooving and wear compensation

The machine-integrated out-facing head
solution from HELLER and CERATIZIT –
everything from a single source.

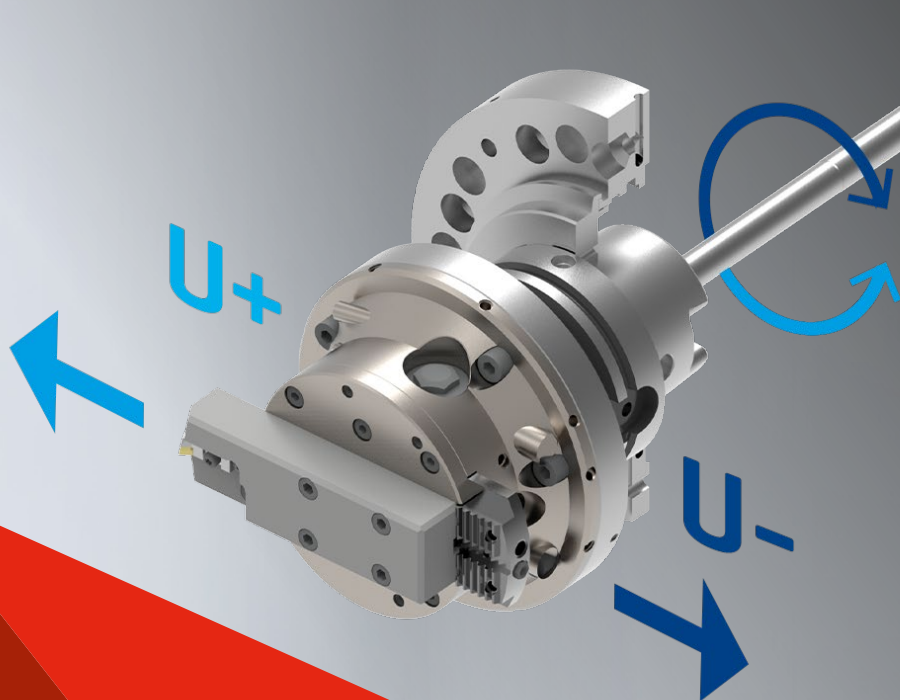
CERATIZIT is a high-technology engineering
group specialised in cutting tools and hard
material solutions.

Tooling a Sustainable Future

ceratizit.com



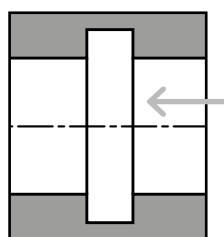
CERATIZIT
GROUP



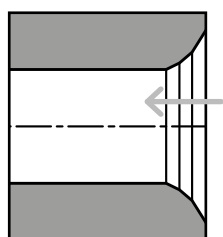
HELLER out-facing head system

The integrated drive
for actuating tools

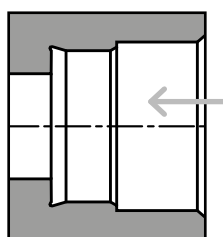
Machining examples



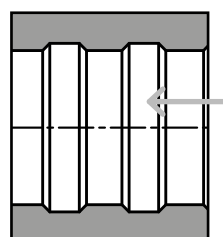
Grooving



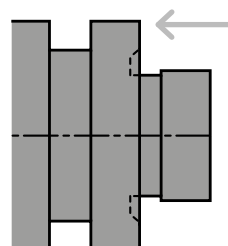
Turning valve seats



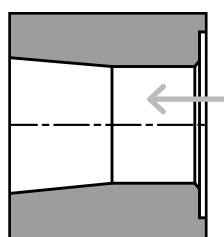
Bearing seat



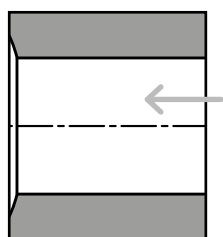
Bore with coolant
passages



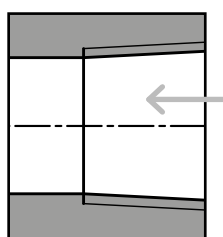
Grooving /
Undercut



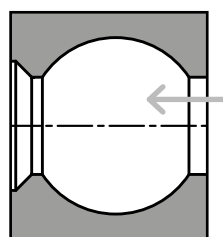
Tie rod



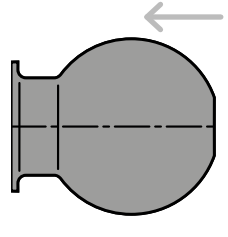
Undercutting
differential housing



Conical internal
thread



Internal contour
turning



External contour
turning

The transverse feed solution from HELLER & CERATIZIT 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.

Higher economy

- ▲ 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

- ▲ 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

Your Technical Sales Engineer will be happy to answer any further questions or please contact directly

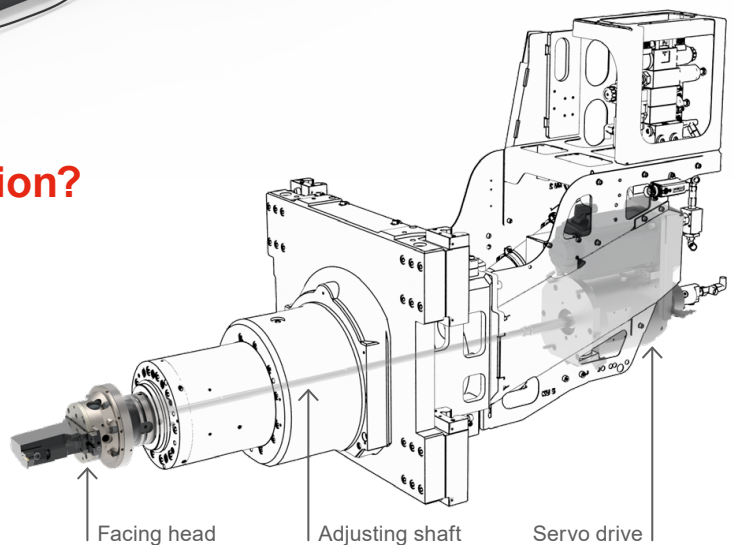
Offer.Actuatingtools@ceratizit.com



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



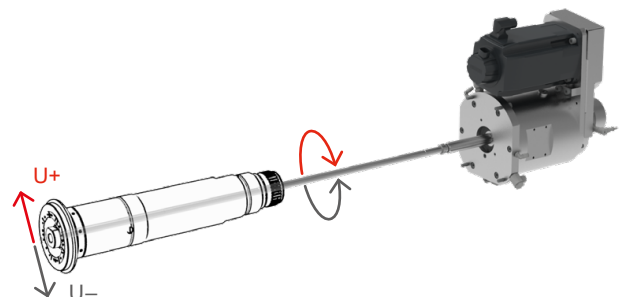
How does the transverse feed unit work?

U-axis in the control system

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

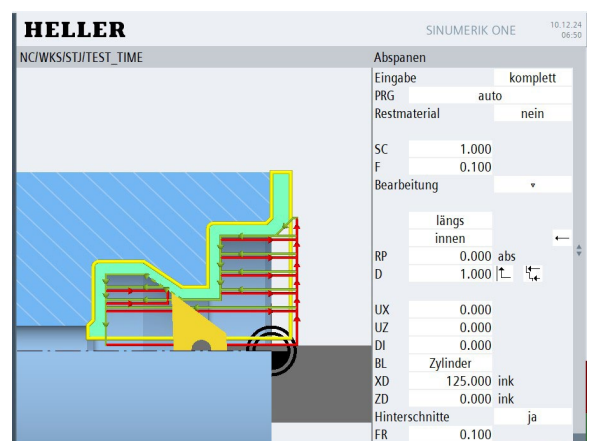
U-direction procedure

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



Easy to program turning sequences

- ▲ Can be used with Siemens and FANUC controllers
- ▲ Switch to out-facing head mode with M118
- ▲ Programming in G18 plane according to DIN
- ▲ Diameter programming in the X-axis like on turning machines
- ▲ For Siemens: Programming with Siemens turning cycles (see image)
- ▲ For Siemens: Create turning contours using the contour editor
- ▲ Create programs from CAM systems



Many advantages

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 70 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

Machine overview



H 2000 –
H 4000

Spindle:
HSK-A63
Unit:
Motor spindles

H 8000 –
H 16000

Spindle:
HSK-A100
Unit:
Motor spindles
Drive spindles



H 5000 –
H 6000

Spindle:
HSK-A100
Unit:
Drive spindles
Motor spindles

HF 3500
HF 5500

Spindle:
HSK-A63
HSK-A100
Unit:
Motor spindles



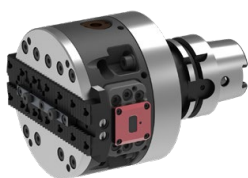
Standardised facing heads

- ▲ Radial actuating stroke per revolution of the adjusting shaft, default: 0.2 mm
Special: depending on precision requirements
- ▲ Achievable tolerance of the entire system, default: $\geq$ IT6, special: on request
- ▲ Special versions of facing heads on request

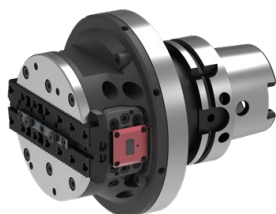
- ▲ Use the KOMET KOMlife maintenance indicator to record split-second operating data autonomously



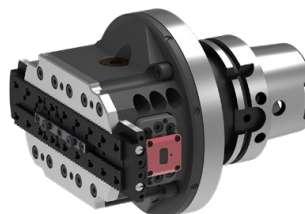
cutting.tools/int/en/komlife



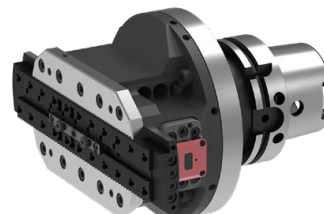
HSK-A63
Stroke 22 mm ($\pm$ 11 mm)
External dia. 115 mm /
max. external dia. 159 mm
Weight 5.6 kg
Coolant pressure 25 bar



HSK-A100
Stroke 22 mm ($\pm$ 11 mm)
External dia. 160 mm /
max. external dia. 159 mm
Weight 11.3 kg
Coolant pressure 25 bar



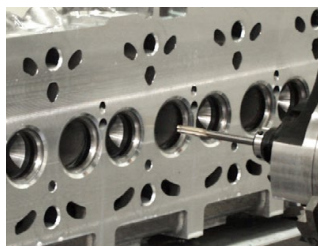
HSK-A100
Stroke 50 mm ($\pm$ 25 mm)
External dia. 198 mm /
max. external dia. 248 mm
Weight 11 kg
Coolant pressure 25 bar



HSK-A100
Stroke 70 mm ($\pm$ 35 mm)
External dia. 238 mm /
max. external dia. 310 mm
Weight 11.9 kg
Coolant pressure 25 bar

Area of application

Contour turning



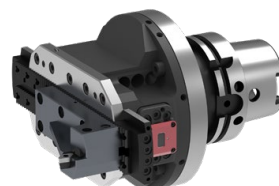
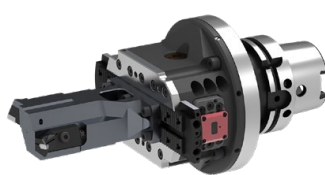
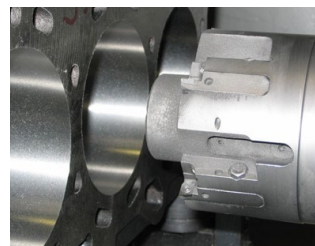
Grooving



Facing



Wear compensation



References

Differential housing

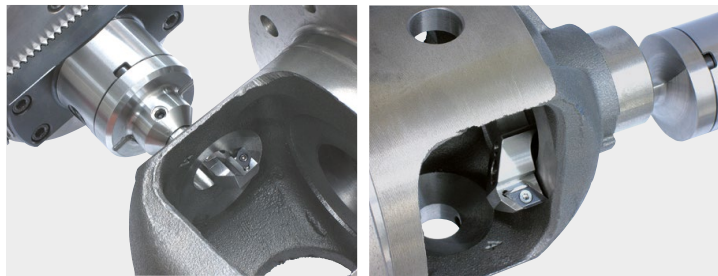
- ▲ Flexibility
- ▲ Saves on expensive blanking
- ▲ Replaces separate machining on a lathe and thus eliminates the need for a clamping device
- ▲ Increase in quality

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 dia. 140 mm

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

Boring holes:

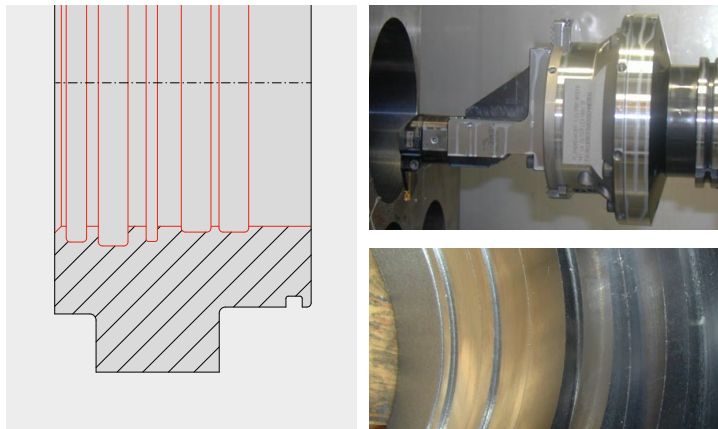
$n = 300 \text{ rpm}$, $f_u = 0.15 \text{ mm}$
Roughing recesses:
 $n = 400 \text{ rpm}$, $f_u = 0.20 \text{ mm}$

Result:

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

Material:

Spheroidal graphite cast iron – GGG40



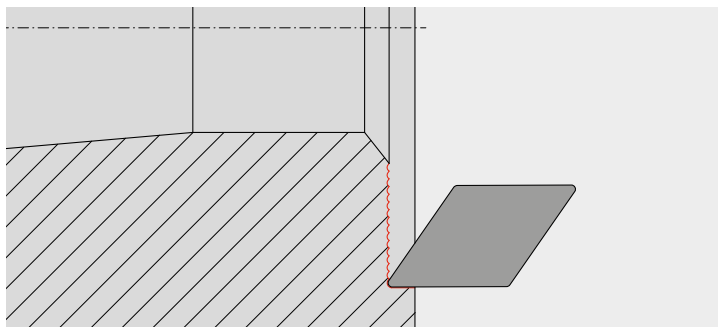
Facing off a sealing surface

Cutting data:

$f_u 0.1 \text{ mm} < f_u < 0.2 \text{ mm}$
 $n = 400 \text{ rpm}$
 $a_p 0.5 \text{ mm} < a_p < 1.0 \text{ mm}$
Dia. $158 \text{ mm} < \varnothing < 180 \text{ mm}$

Material:

Spheroidal graphite cast iron – GGG40



Sales site

CERATIZIT Deutschland GmbH
Zeppelinstr. 12 \ 87437 Kempten
T. +49 831 57010-0
E. info.deutschland@ceratizit.com
www.ceratizit.com

Gebr. Heller Maschinenfabrik GmbH
Gebrüder-Heller-Straße 15 \ 72622 Nürtingen
T. +49 7022 77-0
E. info@heller.biz
www.heller.biz

We reserve the right to make technical changes for improvement of the product.



HELLER