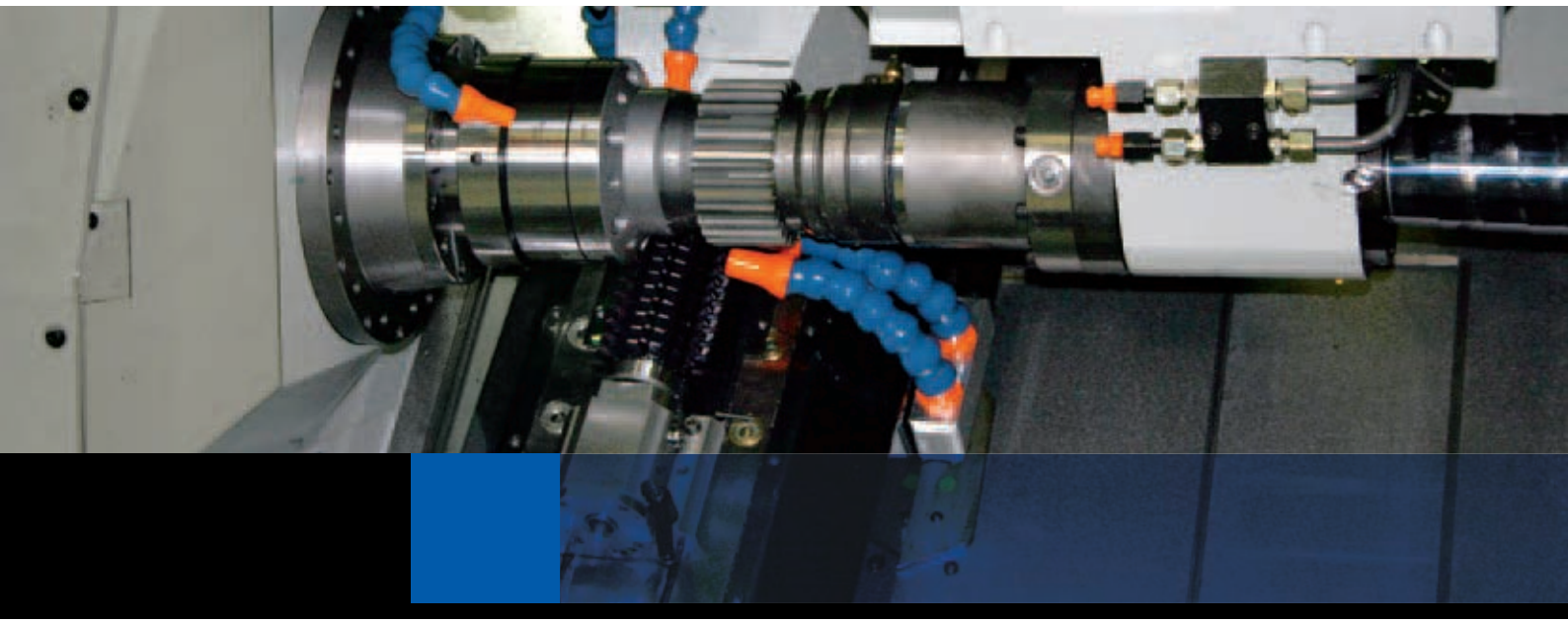
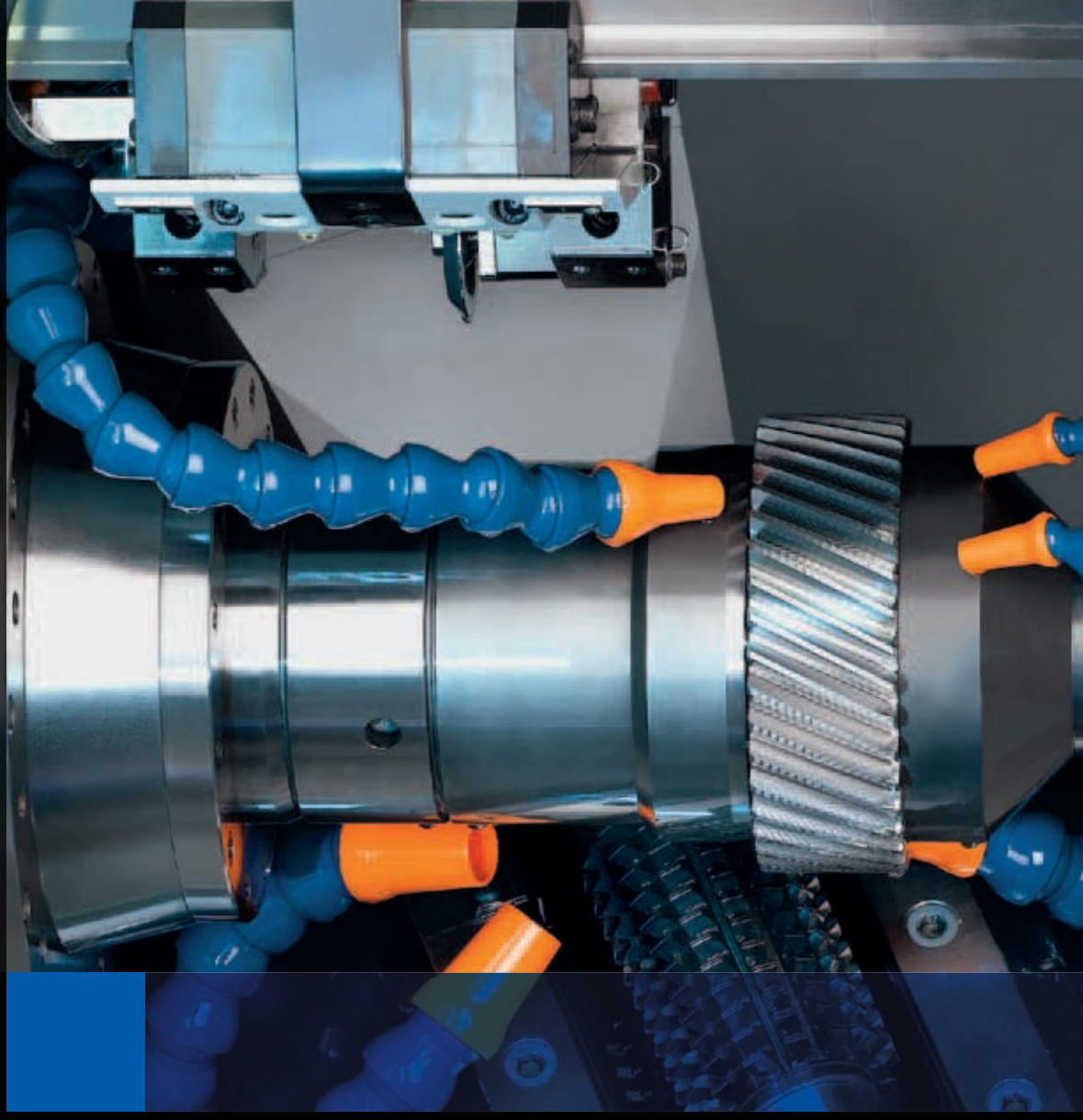
Hobbing Machine
300

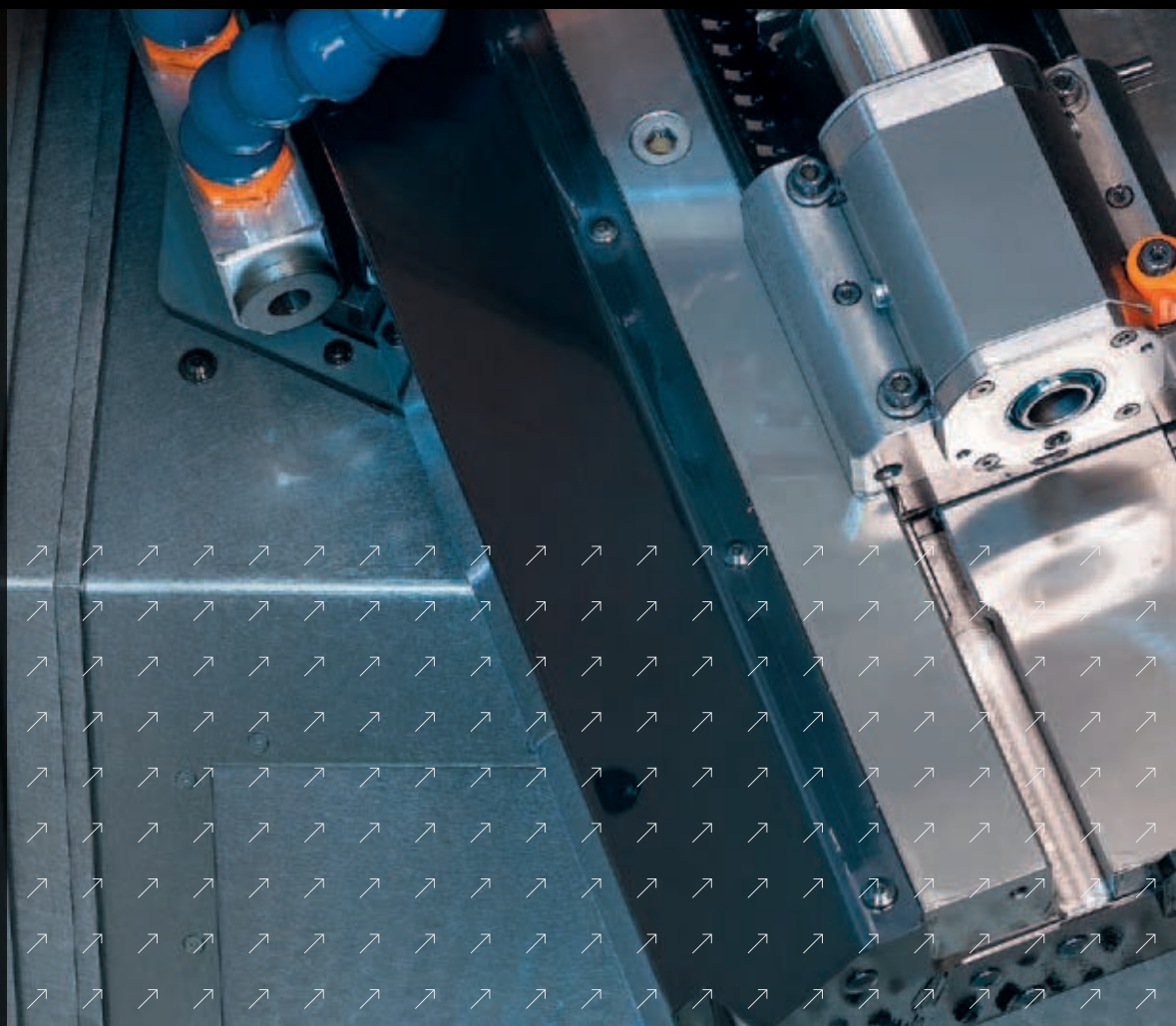


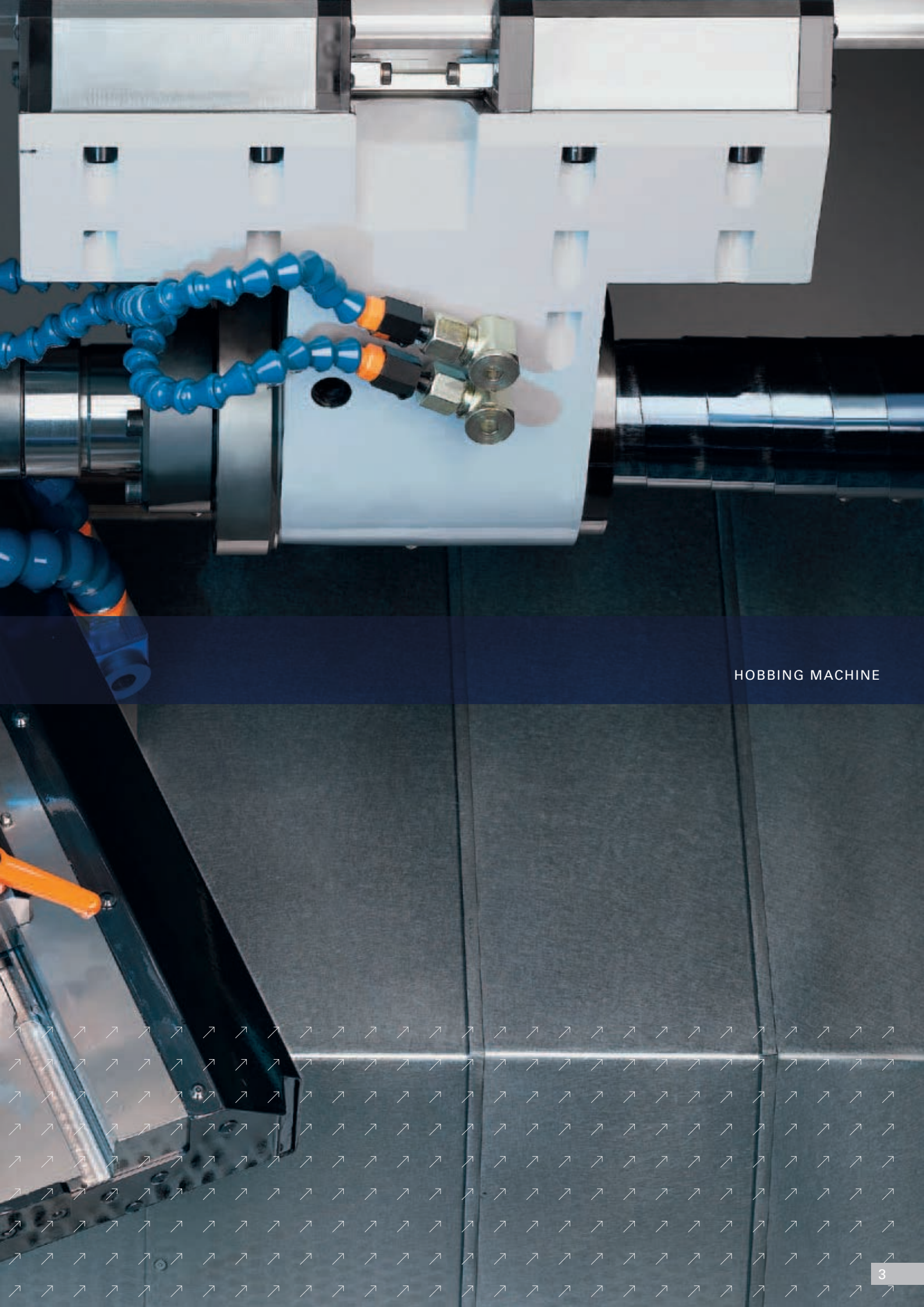
KOEPFER
EMAG

The K 300 Hobbing Machine combines state-of-the-art technology with universality and flexibility, and has a floor plan that requires just 86 sq ft. The K 300 is the solution to numerous gear cutting tasks. The machining range covers wheel-shaped and shaft-type components. A number of different automation systems are also available to ensure that workpieces can also be machined in larger quantities.



K 300



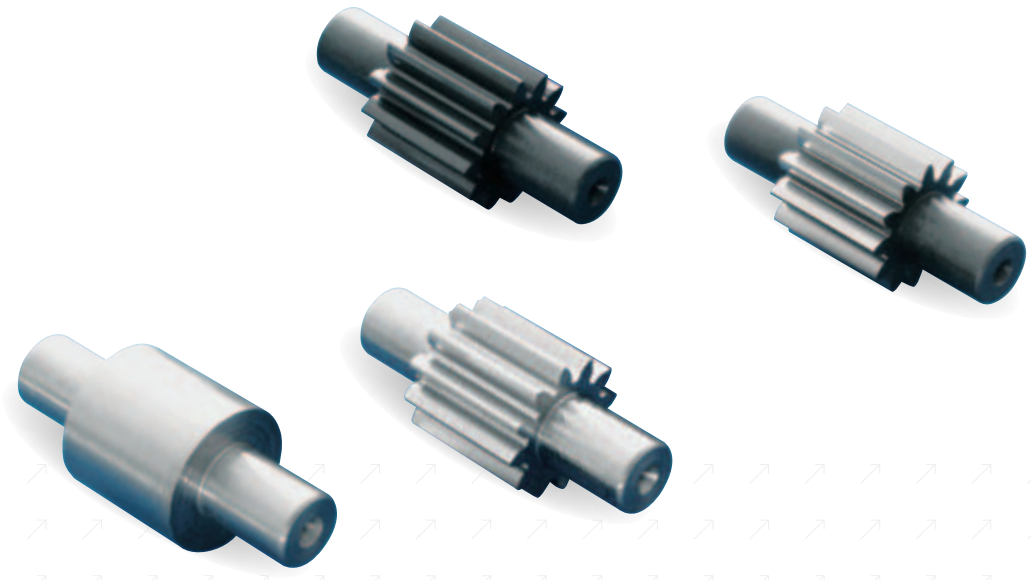


HOBBING MACHINE

Cost savings due to process stream consolidation.

The K 300 Hobbing Machine employs a variety of gear cutting technologies: soft and hard machining, skiving, high speed hobbing, radial hobbing, tangential hobbing, etc. This makes it possible to configure the machine to suit individual manufacturing requirements. And the ability to combine these technologies offers further rationalization potential.

The main advantage is that the use of finish-hobbing technologies eliminates complete processes. For instance, a fully automated K 300 Hobbing Machine makes it possible to soft finish-hob pump pinions module 4.0 to quality class 6 (DIN 3960/62), making it unnecessary to shave the gear profile in a subsequent operation.

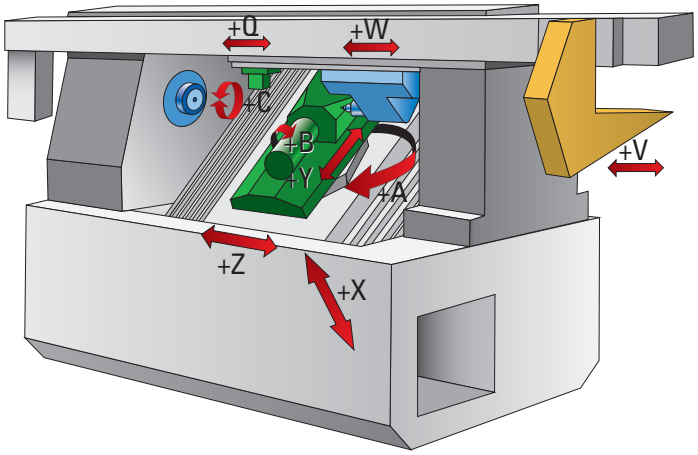



KOEPFER
EMAG 300

The perfect source for precision and productivity.

A fully automated Hobbing Machine 300 features nine active CNC axes.

The machine base is made of MINERALIT® polymer concrete with roller bearings in the linear axes to provide a statically, dynamically and thermally stable base for the K 300 machine.
The closed frame design provides maximum rigidity in the tailstock and main spindle areas even if maximum clamping and machining forces are applied. The angled position of the milling head ensures the best possible chip removal for both dry and wet machining.



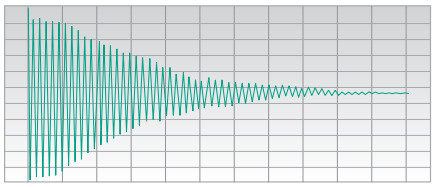
NC axes:
A – Hobbing head swivel movement
B – Hob rotation
C – Workpiece rotation
W – Tailstock travel
X – Radial movement of hobbing head
Y – Tangential movement of hob (shifting)
Z – Axial movement
V – Gantry loader travel
Q – Auxiliary tool holder travel

The machine base.

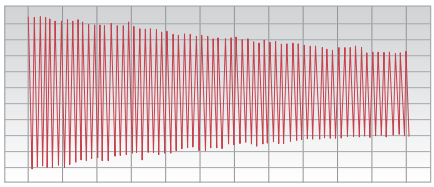
The machine body is made of high-grade MINERALIT® polymer concrete and provides excellent damping properties. This results in better surface quality and long tool service lives.

The advantages:

- Excellent vibration damping, resulting in extended tool life and superb surface finishes
- MINERALIT® polymer concrete is thermally stable which ensures constant production results



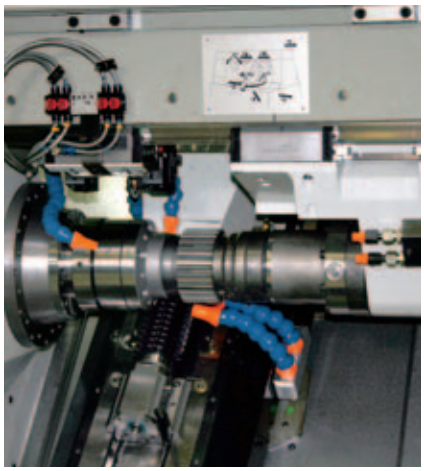
Vibration damping effect on EMAG machine base made from MINERALIT® polymer concrete



In comparison to: Vibration damping effect on machine bases in cast iron

The machining area.

Maintenance-free direct drives for tool and workpiece ensure the best and most consistent machining quality over the lifetime of the machine. The sturdy construction of the work spindle with its pre-loaded precision bearings, and the hydraulic quick-clamping system, ensure that both wheel-shaped and shaft-type components can be clamped safely and help maintain precision. Draw-type clamping through the spindle and clamping with expanding mandrels are both methods that benefit when machining larger workpieces.



The control system.

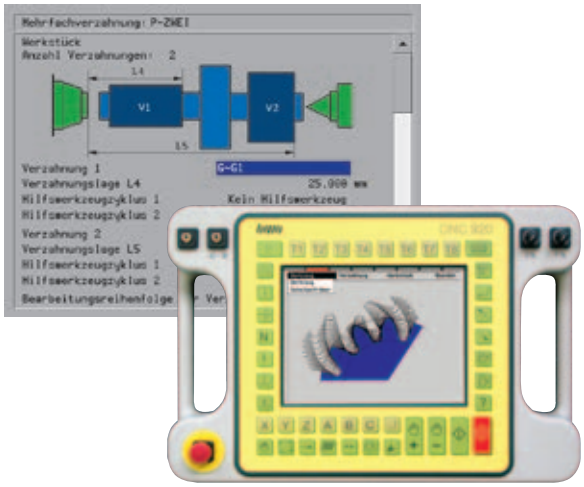
The K 300's control system is the latest generation and has the following characteristics:

Its PC-operating control features a touchscreen panel instead of a keyboard and mouse. The control has an integral program memory with a capacity of 1 MB (sufficient for over 750 different workpieces).

The user interface Windows "Look and Feel" is similar to that of office PCs.

The extensive KOEPFER dialogue software allows for the easy generation of complex programs. The software is continuously developed to ensure that it is always cutting edge.

The control system also offers extensive diagnostics functions including online access to the controls by KOEPFER service personnel.



Flexible automation.

The KOEPFER loading system, equipped with V-grippers, can hold workpieces up to 5 kg in weight, and forms the basis of the automation system

A number of blank and finished component magazines – such as chain magazines, oscillating conveyors, and workpiece storage systems – are available to cover a variety of components. A gravity-type loading rail with a conveyor belt for the unloading of components is the standard solution.

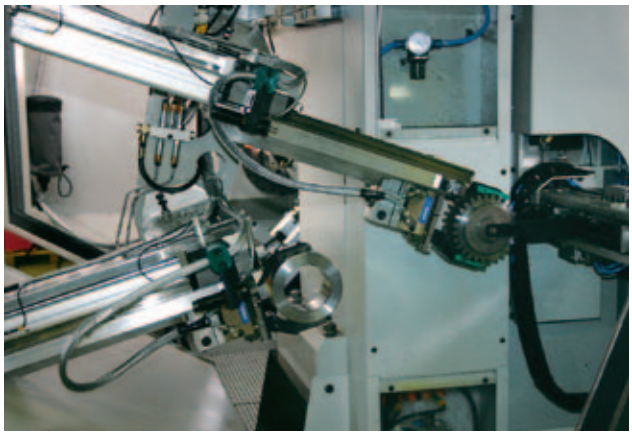
K 300

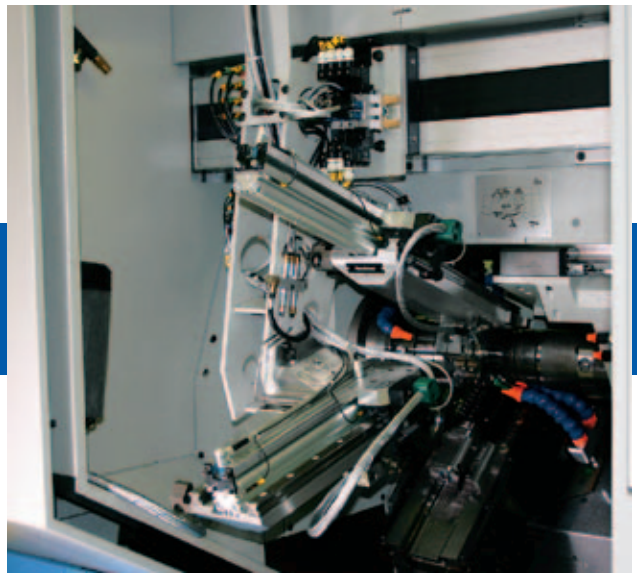
Rear view,
with guard open

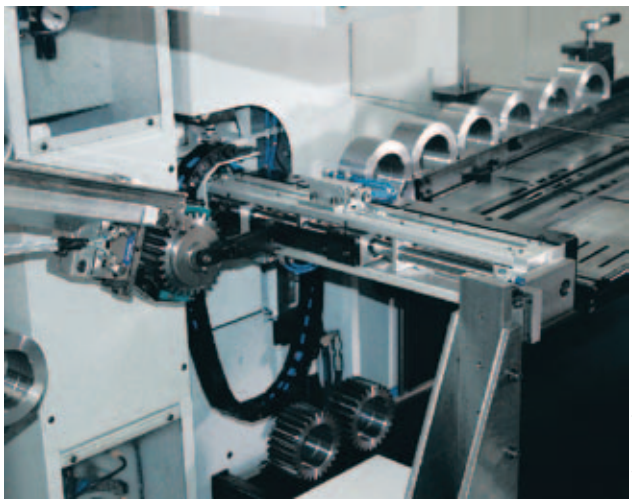
The question of automation solved.

The capacity of a universal, gravity-based magazine – and the autonomy of the machine – can be increased with the use of multiple feeding rails.

The triple distributor system can also be used as a twin or even a single feeder. The grippers are adjustable and can accommodate a multitude of workpiece lengths.



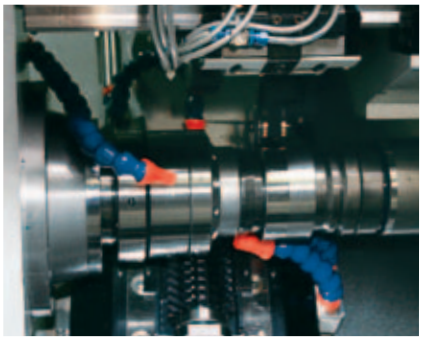




Options.

The advantages offered by this machine include accessibility to its ergonomically designed machining area and an NC auxiliary tool holder, available in a single- or a twin-head configuration. The twin-head configuration can be used, for instance, to position and debur workpieces simultaneously.

Apart from being used for the deburring for the wheel or cutting tool, the auxiliary tool holder can also be employed as a holder for the sensor used to automatically position the workpieces, or for special applications, such as holding driven deburring tools.



Options:

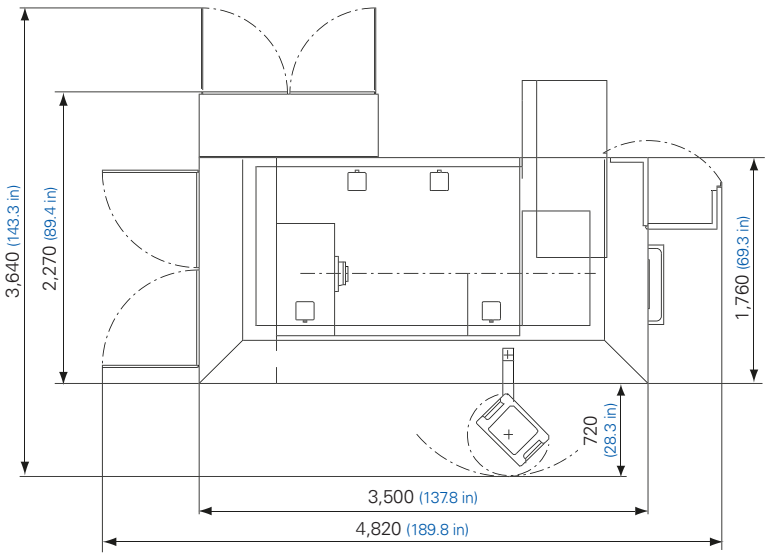
- Milling hob arbours
- Hydraulic expansion chucks for the clamping of shank hobs
- Workholding with expanding mandrels
- Deburring device (vibration damper, holder for sensor) in single- or twin-head configuration
- Oil mist extractor
- Suction device for dry hobbing operations
- Automatic orientation for skiving operations
- Software containing special commands, e.g. for the skipping of damaged sectors on the hob, or for various positioning tasks, etc.
- A selection of magazines for blanks and finish-machined components
- Workhandling with robots

Technical data.

Capacity		K 300
Largest module		4
Max. workpiece dia.		
Standard (for automatic loading)	mm in	140 5.5
Option (for automatic loading)	mm in	195 7.7
Max. hobbing length	mm in	300 11.8
Max. workpiece length		
Standard (for automatic loading)	mm in	300 11.8
Option (for automatic loading)	mm in	800 31.5
Max. work spindle speed	rpm	800
Hobbing speed range	rpm	200 / 2,500
optional	rpm	400 / 4,000
Distance between work and tool spindle	mm in	20 – 130 0.8 – 5.1
Work spindle capacity	mm in	60 2.4
Max. clamping force tailstock	kN lbf	15 3,372
Max. hob dia.	mm in	100 3.9
Max. hob width	mm in	250 9.8
Max. hob shift	mm in	160 6.3
Swivel angle of hobbing head		± 45°

Floor plan K 300

Dimensions in mm



Subject to technical changes

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