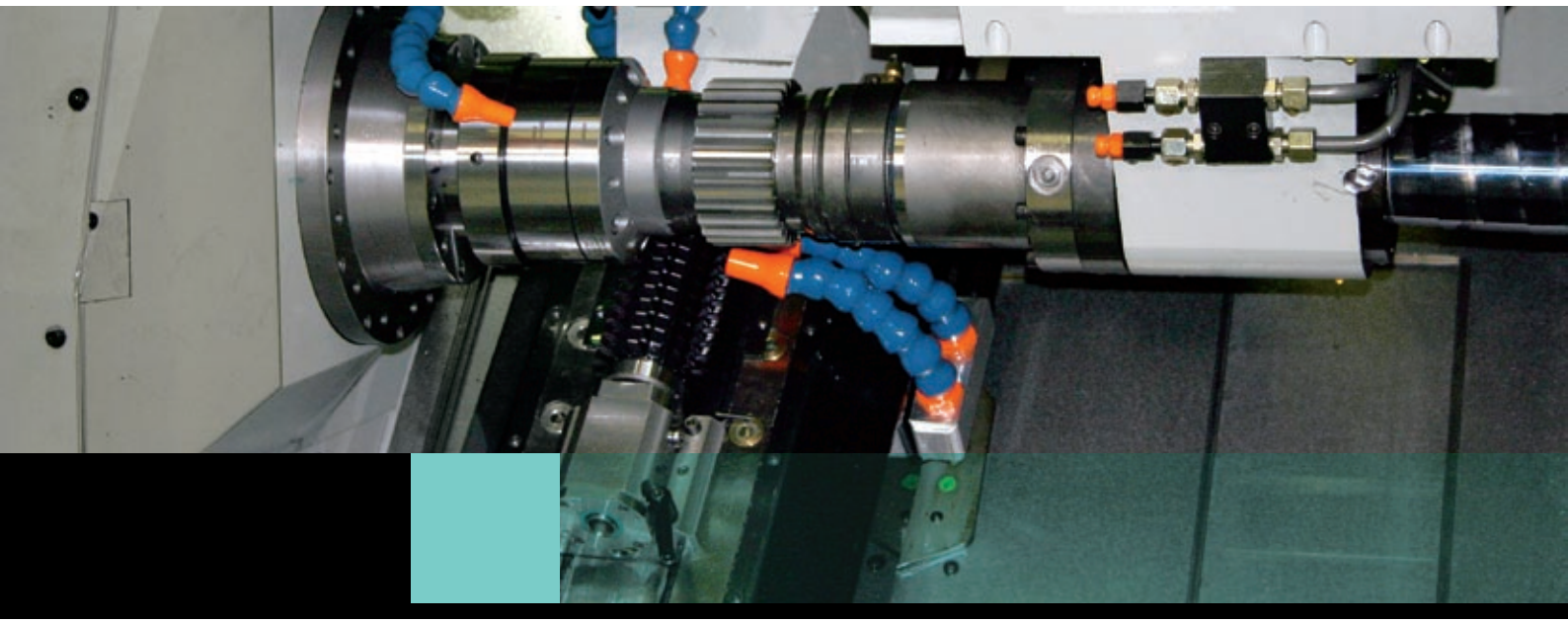
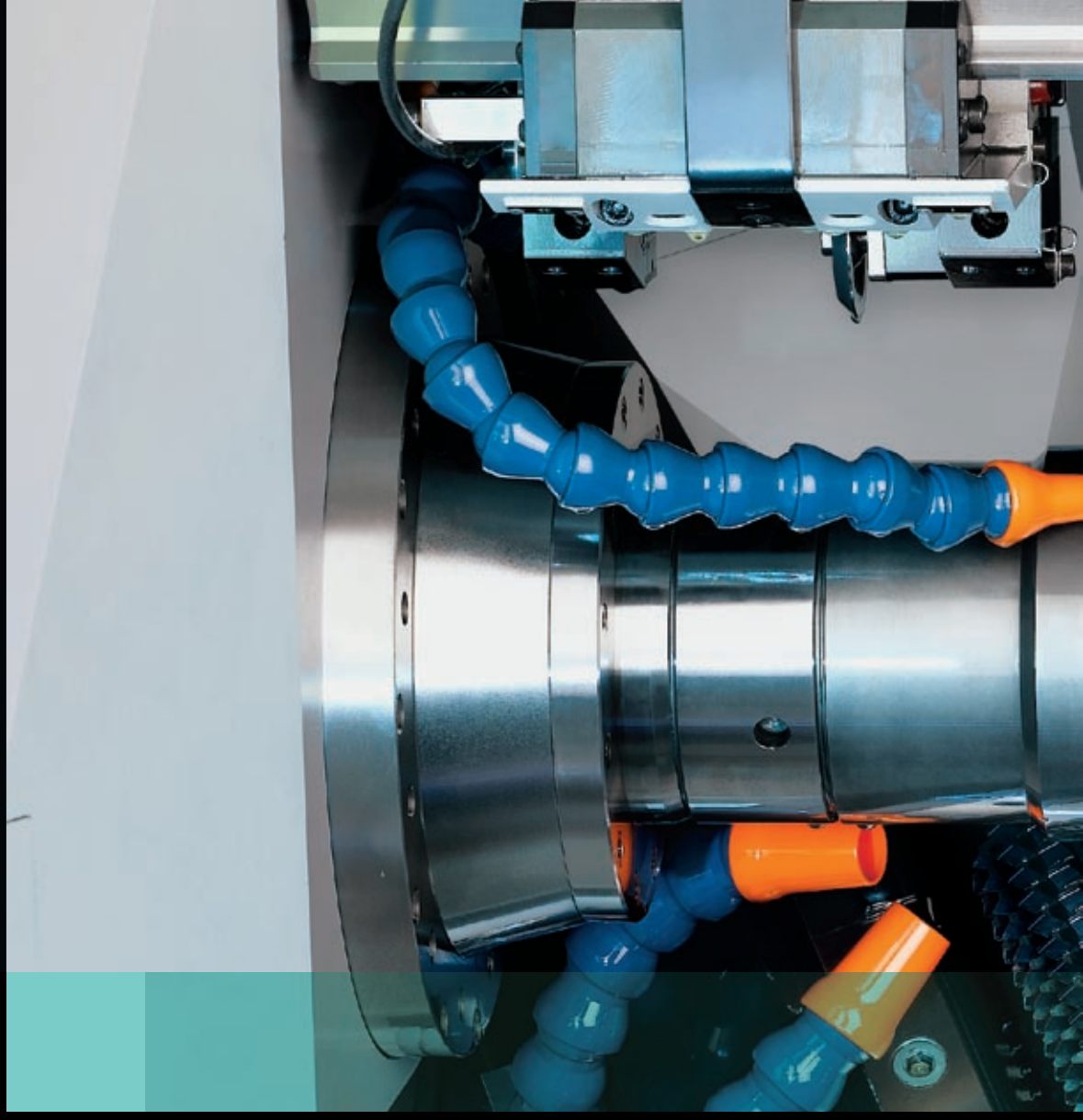
Hobbing Machine
300

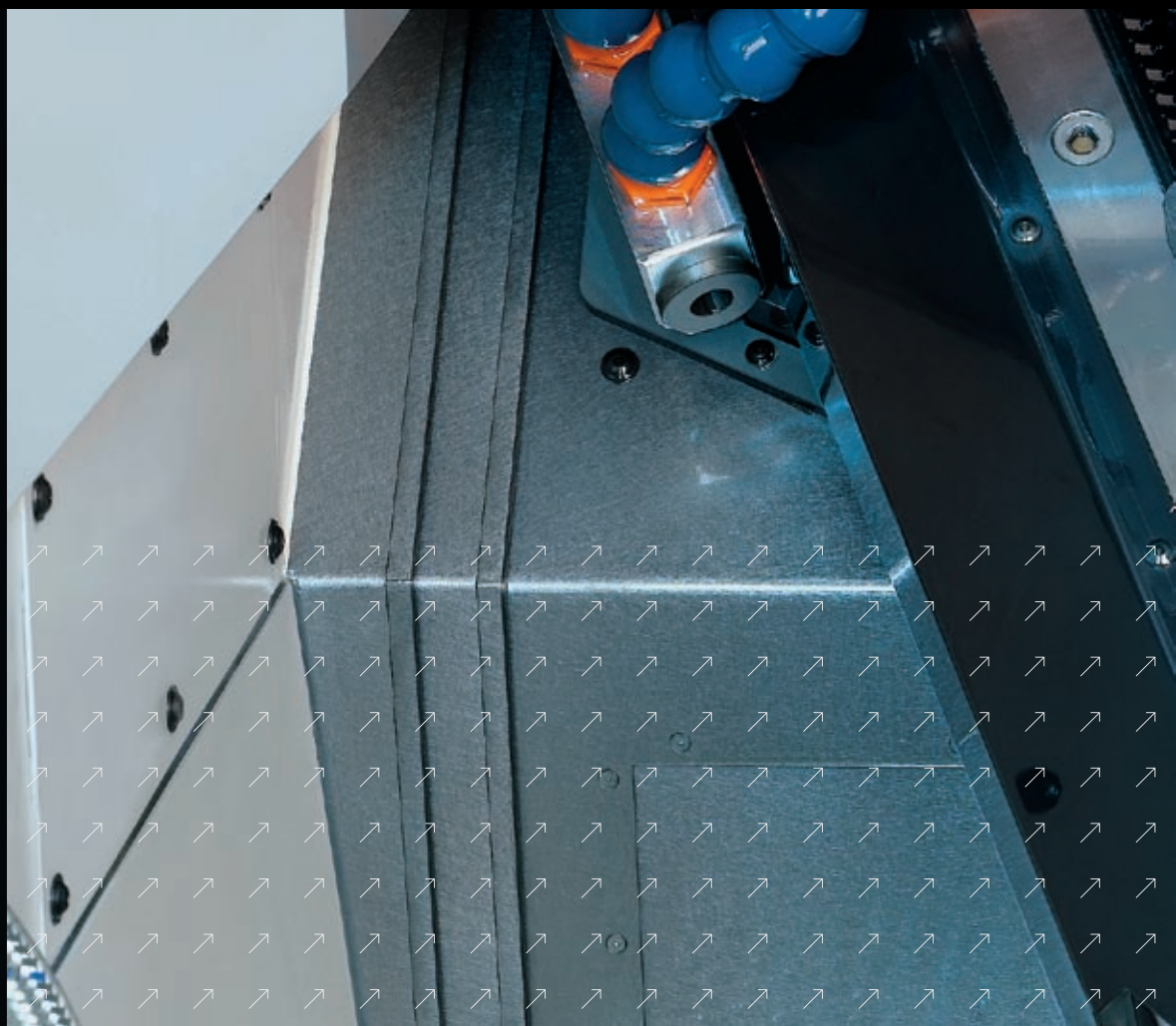


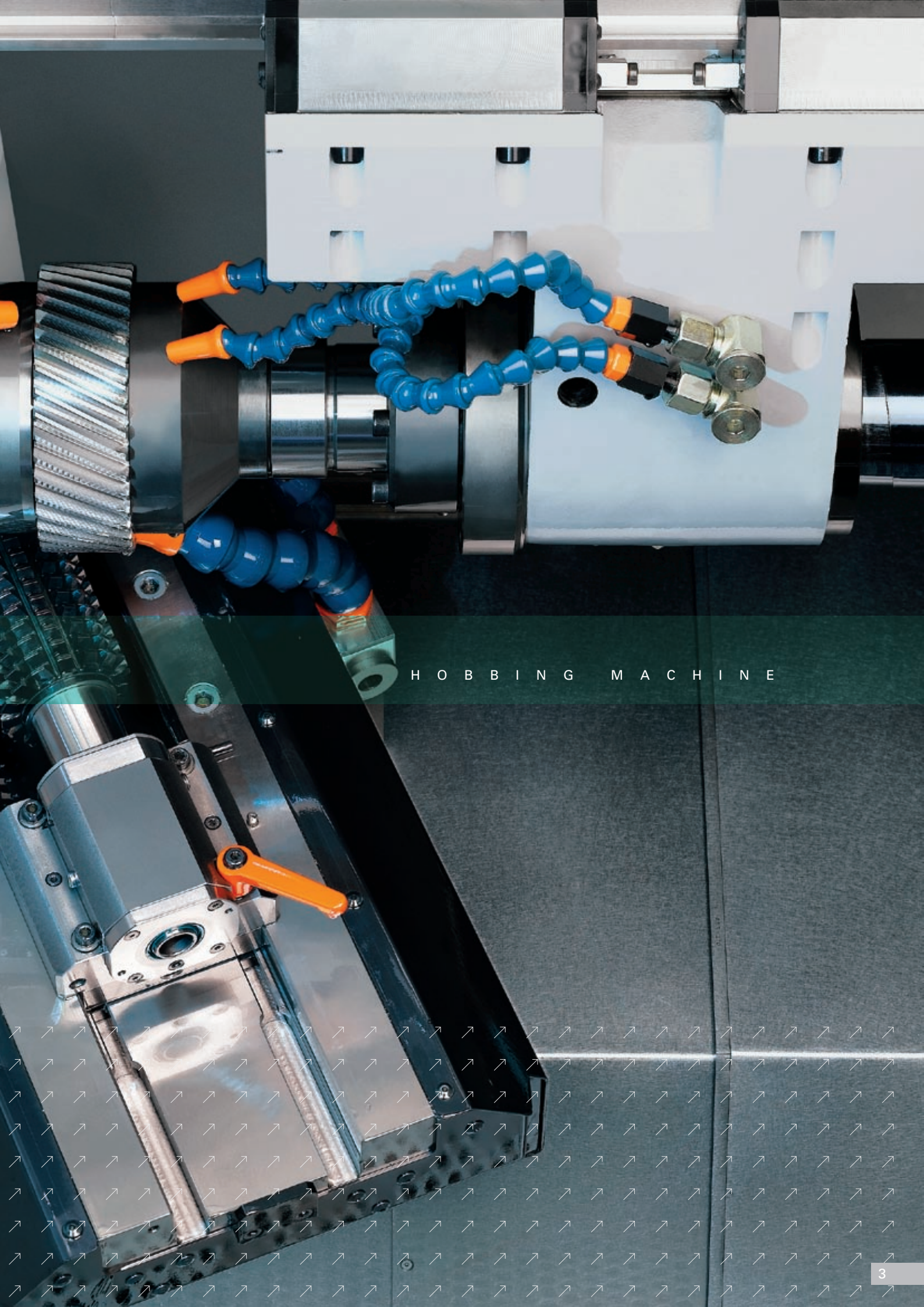
KOEPFER
EMAG

The Hobbing Machine 300 combines state-of-the-art technology with universality and great flexibility on a footprint of just 8 m² and is the solution to all sorts of gear cutting tasks. Its machining range covers wheel-shaped and shaft-type components. And a number of different automation systems are available to ensure that such workpieces can also be machined in larger quantities.

K 300





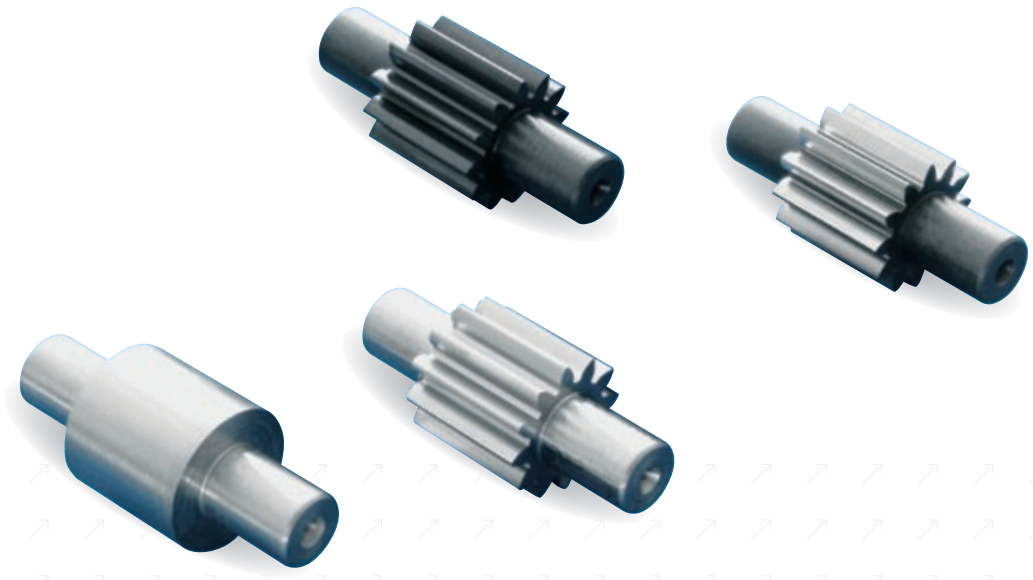


H O B B I N G M A C H I N E

Saving costs with 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, … This makes it possible to configure the machine to suit individual manufacturing requirements. And the ability to combine these technologies offers further rationalisation potential.

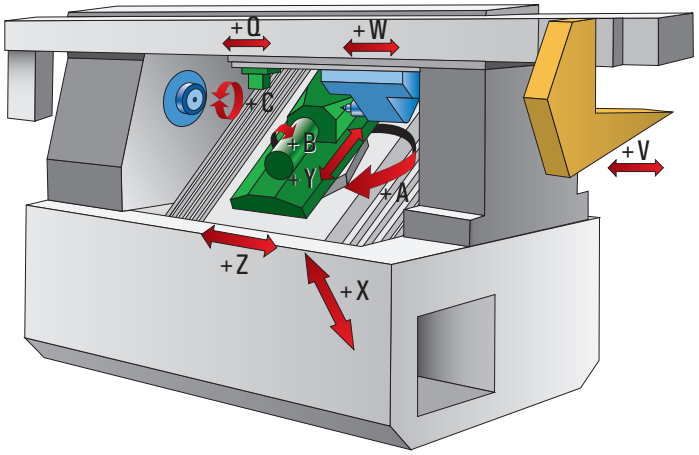
The main advantage is, however, that the use of finish-hobbing technologies eliminates complete processes. For instance, a fully automated K 300 Hobbing Machine makes it possible to soft finish-hob pump pinions module 4.0 to quality class 6 (DIN 3960/62), making it unnecessary to shave the gear profile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




KOEPFER
EMAG
300

The perfect basis for precision and productivity.

A fully automated Hobbing Machine 300 features nine active CNC axes. The machine base in a mineral cast compound, and the linear axes, ensure the static, dynamic and thermal stability of the machine. The closed-loop frame construction offers the highest possible degree of rigidity for tailstock and work spindle, even when subjected to massive clamping and cutting forces. And the diagonal alignment of the hobbing head guarantees ideal chip flow conditions for both dry and wet machining operations.



NC axes:

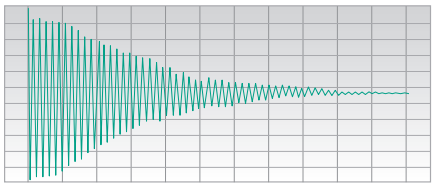
A – Hobbing head swivel movement
B – Hob rotation
C – Workpiece rotation
W – Tailstock travel
X – Radial movement of hobbing head
Y – Tangential movement of hob (shifting)
Z – Axial movement
V – Gantry loader travel
Q – Auxiliary tool holder travel

The machine base.

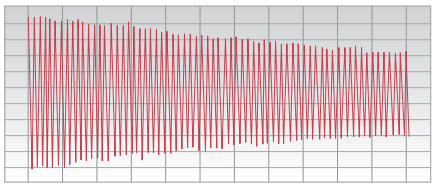
The machine base in high-grade MINERALIT® has outstanding damping qualities. This results in improved surface finishes and extended tool life.

The advantages:

- Excellent vibration damping, resulting in extended tool life and superb surface finishes
- MINERALIT® is a thermally very stable material and guarantees consistently good machining results



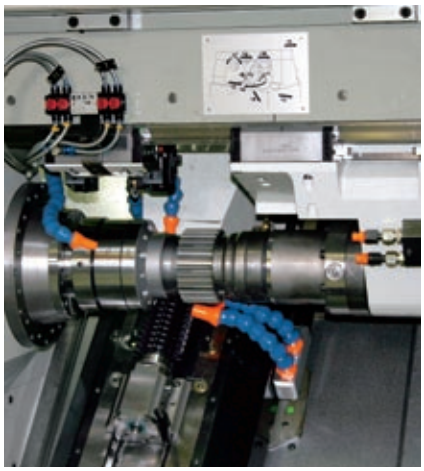
Vibration damping effect on EMAG machine base made from MINERALIT® polymer concrete



In comparison: vibration damping effect on machine bases made from 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 with great precision. Draw-type clamping through the spindle and clamping with expanding mandrels are both methods of particular benefit in the machining of larger workpieces.



The control system.

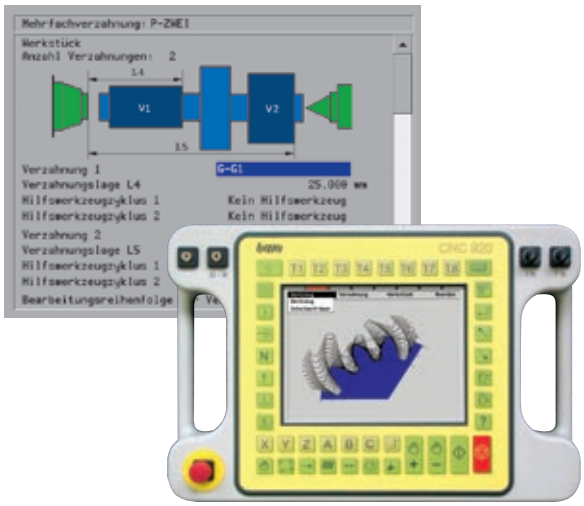
The K 300's control system is of the latest generation and has the following characteristics:

Its PC-operating control features a touch-screen panel in lieu of 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 continuously developing, already extensive KOEPFER dialogue software allows for the easy generation of complex programs.

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

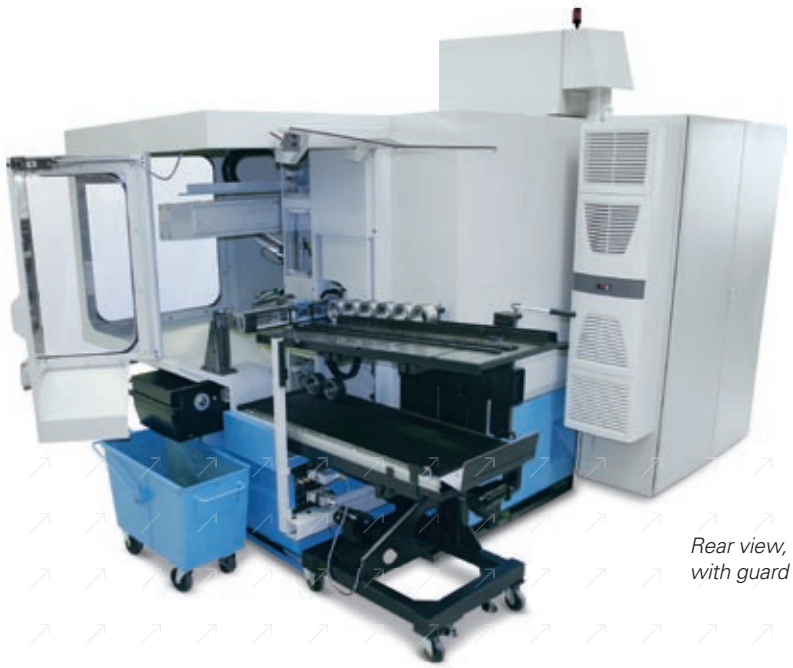


Highly flexible automation.

The KOEPFER loading system, equipped with V-grippers that can hold workpieces of up to 5 kg in weight, 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 great variety of components. A gravity-type loading rail with a belt conveyor for unloading of the components constitutes the standard solution.

K 300

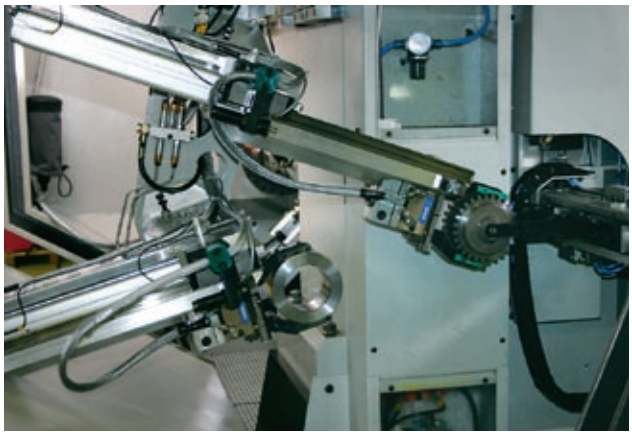


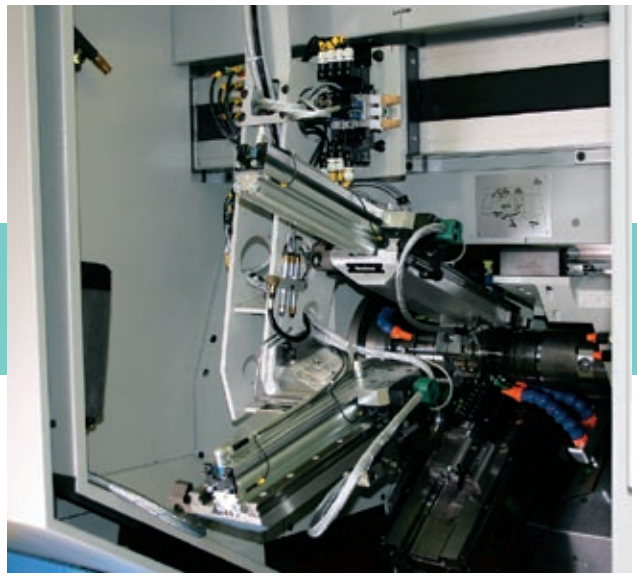
Rear view,
with guard open

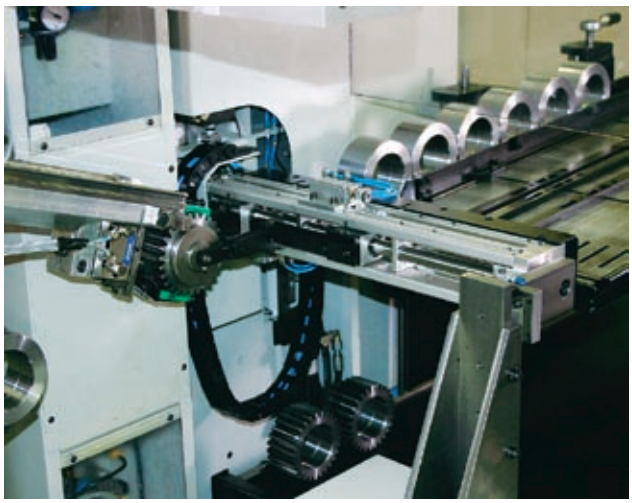
The question of automation solved.

The capacity of a universal, gravity-based magazine – and thus the autonomy of the machine – can be greatly 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 accommodate a multitude of workpiece lengths.



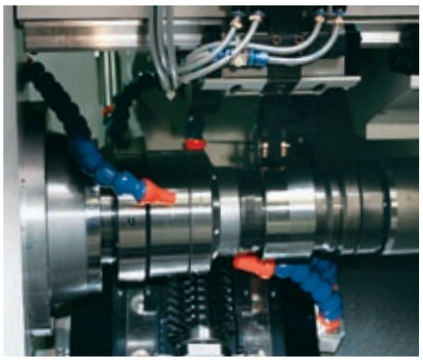




Options.

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

Apart from being used for the deburring with 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.



K 300

Options:

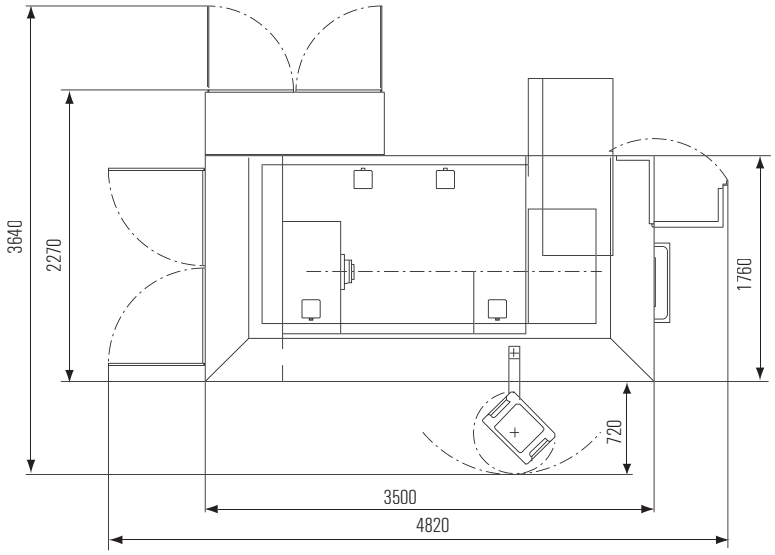
- Milling hob arbours
- Hydraulic expansion chucks for the clamping of shank hobs
- Workholding with expanding mandrels
- Deburring device (vibration damper, holder for sensor) in single- or twin-head configuration
- Oil mist extractor
- Suction device for dry hobbing operations
- Automatic orientation 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	140
Option (for automatic loading)	mm	195
Max. hobbing length	mm	300
Max. workpiece length		
Standard (for automatic loading)	mm	300
Option (for automatic loading)	mm	500
Max. work spindle speed	rpm	800
Hobbing speed range	rpm	200 / 2,000
optional	rpm	400 / 4,000
Distance between work and tool spindle	mm	20 – 130
Work spindle capacity	mm	60
Max. clamping force tailstock	kN	15
Max. hob dia.	mm	100
Max. hob width	mm	200
Max. hob shift	mm	160
Swivel angle of hobbing head		± 45°

Floor plan K 300

Measurements in mm



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