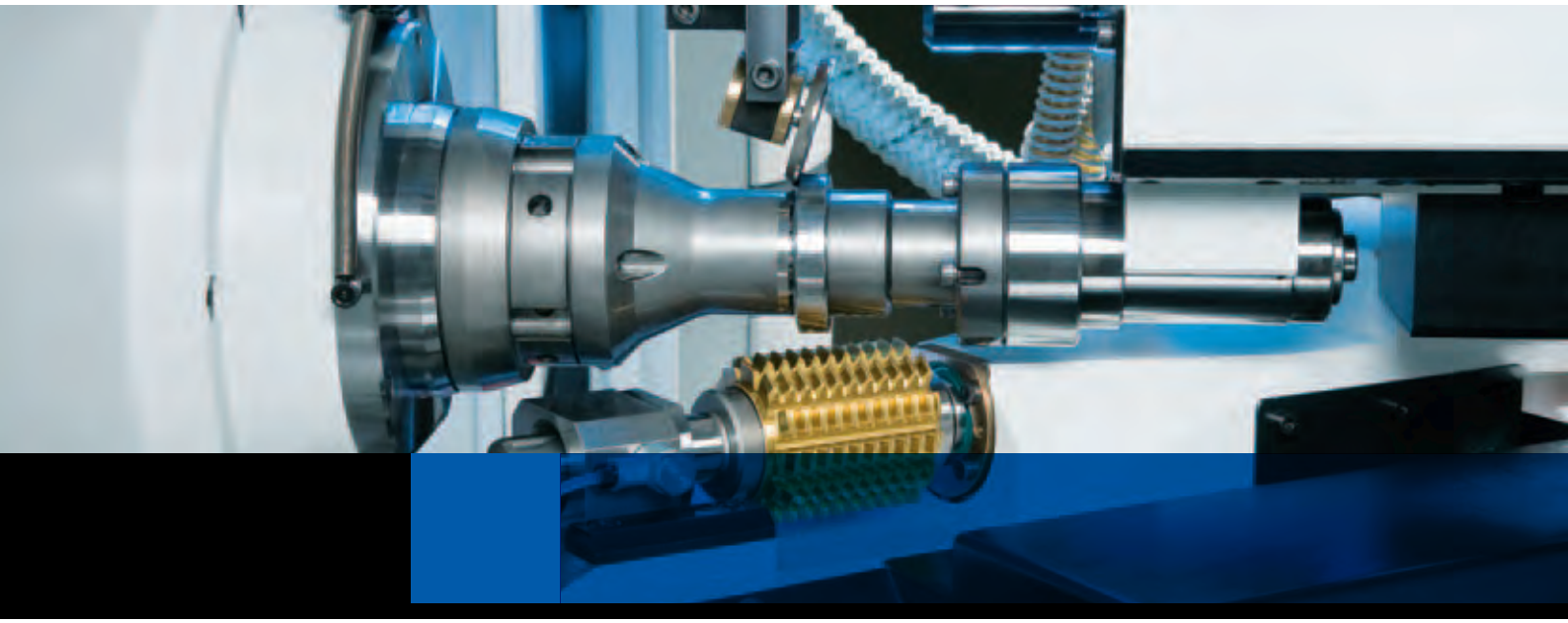
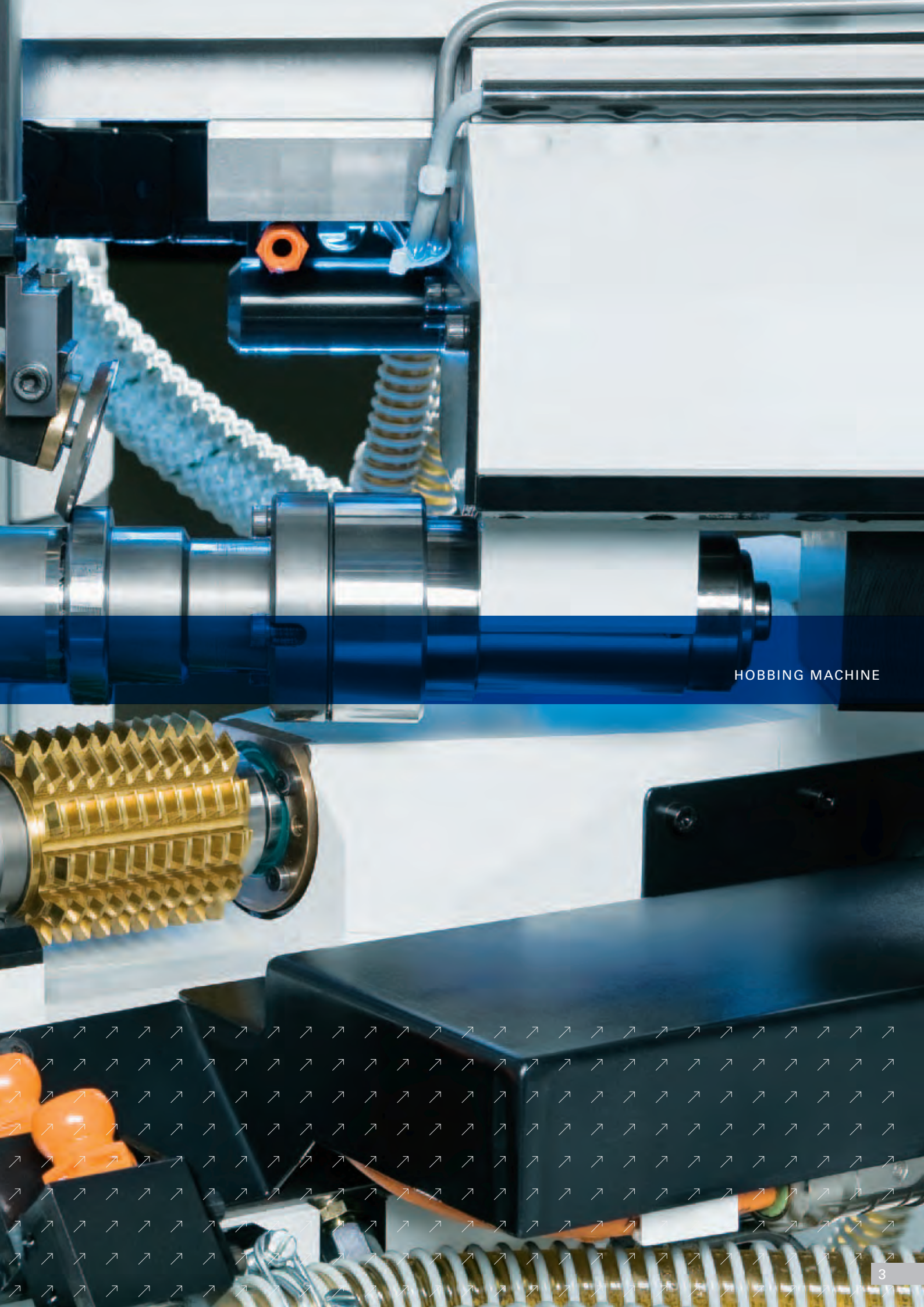
Hobbing Machine
200



KOEPFER
EMAG

The K 200 combines an innovative design principle with state-of-the-art manufacturing technology. It also offers access to a wealth of experience accumulated by generations working in gear cutting. The fully automated Hobbing Machine 200 with a minimum of eight active CNC axes is designed to solve all conceivable gearing problems.

K 200



HOBBING MACHINE

Manufacture of gear modules 0.3 to 3.0.

The newly developed milling head and its corresponding software ensure that every profile that can be milled is milled, using soft milling (axial and radial milling of spur gears, shafts and pinions; radial or tangential milling of worm gears) and hard machining operations on the same machine. The K 200 can be equipped with a shifting universal milling head that is extremely powerful but small and compact in design and ideal for the hobbing of spur gears and the milling of single- and multi-start worms. Its compact design also allows for it to be swung below the tailstock for the milling of worms using the indexing method.

Shifting universal milling head for the hobbing of spur gears and the milling of single- and multi-start worms

Angular milling head used as adaptor for shifting milling heads when milling single- and multi-start worms

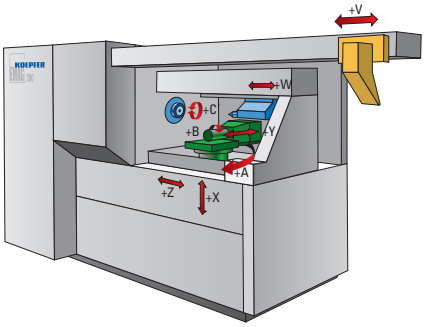
The K 200 lets you soft pre-mill spur gears and worms and then (after hardening) finish hard machine them using the skiving process. Or you can even hob the gear profile straight into the hardened (max. 54 HRC) blank. The advantage: highest quality in the shortest possible time!

The perfect basis for precision and productivity.

The Hobbing Machine 200 combines modern technology with the highest degree of universality and flexibility. The machine provides the solution for all conceivable gear cutting tasks. Fully automated, the Hobbing Machine 200 features a minimum of eight active CNC axes.

Regardless of whether the K 200 is manually loaded or equipped with a unique, highly flexible automation system, it represents the answer to the machining of an increasing number of component variants in ever smaller batch sizes, coupled with the necessity to react quickly to changes in customer requirements.

Its closed-loop frame construction prevents deflection of the tailstock-main spindle axis even under highest possible clamping and machining pressures.



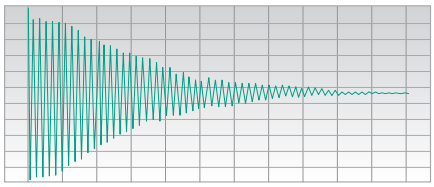
NC axes:
A – Hobbing head swivel movement
B – Hob rotation
C – Workpiece rotation
W – Tailstock travel
X – Radial movement of hobbing head
Y – Tangential movement of hob (shifting)
Z – Axial movement
V – Gantry loader travel

The machine base.

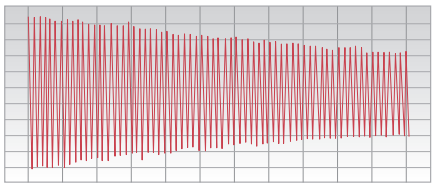
The machine body is made of high-grade MINERALIT® polymer concrete and provides excellent damping properties. This results in better surface quality and long tool service lives.

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 bases in MINERALIT® polymer concrete



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

The machining area.

The high-precision, pre-loaded, adjustable indexing mechanism makes certain that the gear profiling quality is the best and most consistent over the lifetime of the machine. The sturdy construction of the work spindle with its pre-loaded precision bearings, and the highly flexible, modular clamping system, guarantee that both wheel-shaped and shaft-type components can be clamped safely and with great precision. Draw-type clamping through the spindle ensures that bearings and guideways are not under stress, a particular advantage in the machining of larger workpieces and those with large angles of inclination.

The control system.

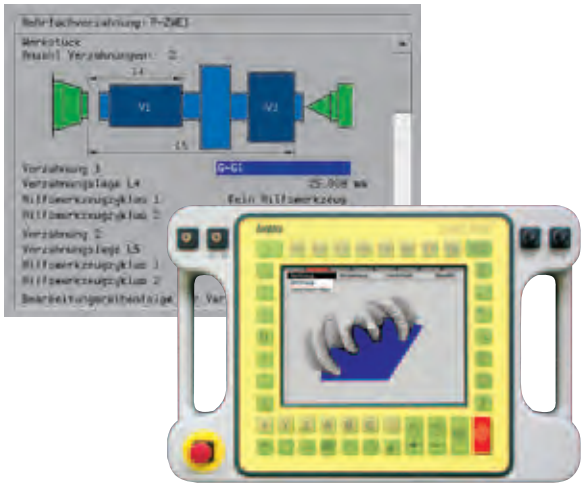
The K 200's control system is of the latest generation and has the following characteristics:

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.

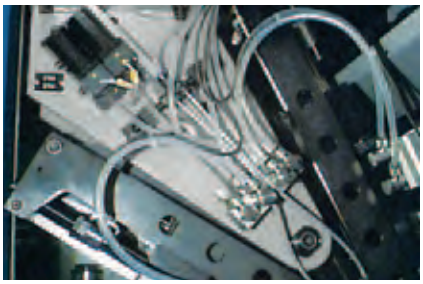
The control system also offers extensive diagnostics functions including online access to the controls by KOEPFER service personnel.



Highly flexible automation.

The KOEPFER gantry loader, equipped with V-grippers, forms the basis of the automation system. A number of blank and finished component magazines are available to cover a great variety of components. A combination of "ramp" and belt conveyor constitutes the standard solution.

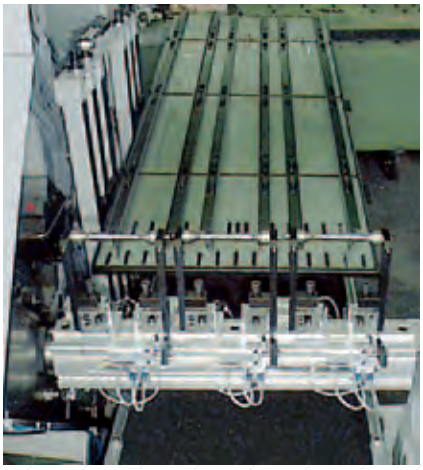
Long-time magazines, like the recirculating storage conveyor, make sure that machines are running for a number of hours and are not only suitable for both wheel- and shaft-type components but can also be reset without much effort.



Compact loader with flexible workpiece magazines, feeder chain and belt conveyor

Long-time recirculating storage conveyor

K 200



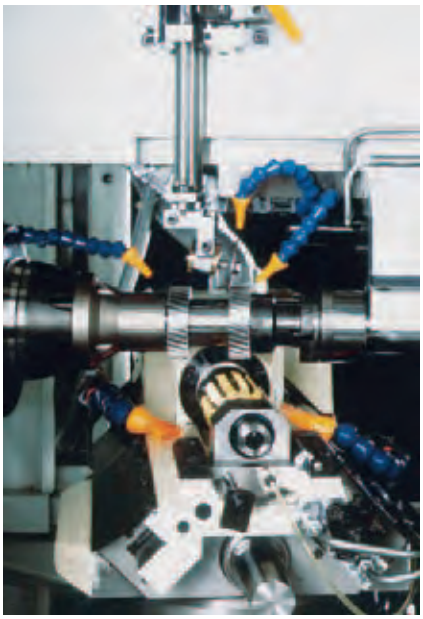
Multiple distributor system with multiple feeder rail

The capacity of a gravity-based magazine – and thus the autonomy of the machine – can be greatly enhanced with the use of multiple feeding rails. The triple distributor system can also be used as a twin or even a single distributor. Moving the supporting blocks for the distributor levers provides a practically unlimited number of settings to accommodate different workpiece lengths.

Options.

Special applications – such as the random manufacture of different workpieces with automatic adjustment of gripper unit and workpiece clamping system – can also be realised.

Auxiliary tool holders are available in 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 vibration damper or as a holder for the sensor used to automatically position the workpieces, or for special applications, such as holding driven deburring tools.



Options:

- Workholding units for wheel-, pinion- and shaft-type workpieces and milling hobs
- Hydraulic expansion chucks for the clamping of shank hobs
- Hydraulic quick-chucking device for workpieces and milling hobs
- Workholding with expanding mandrels
- Deburring device (vibration damper, holder for sensor) in single- or twin-head configuration
- Automatic, sliding-type chip conveyor
- 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

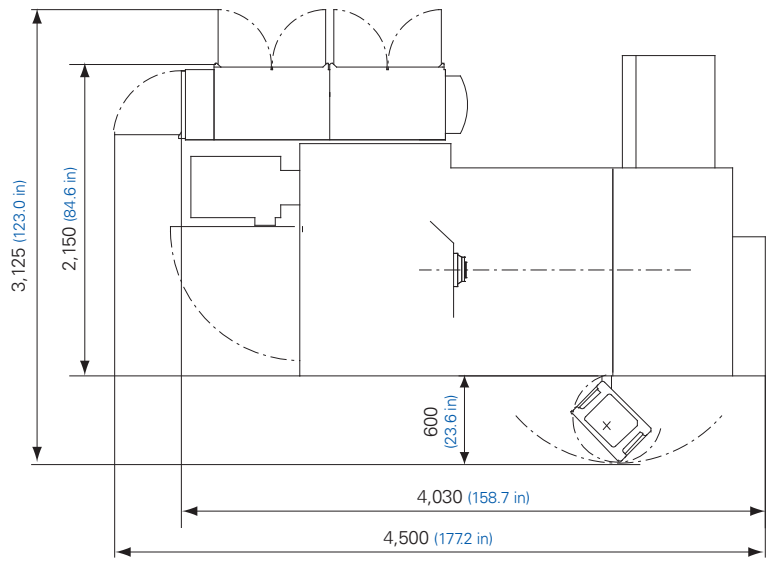
Technical data.

Capacity		K 200
Largest module		3
Max. workpiece dia.	mm in	120 4.7
(This data is valid for automatic loading; larger diameters only on consultation or for manually loaded machines)		
for manual loading and hob diameters of 32 mm dia.	mm in	180 7.1
Max. hobbing length	mm in	200 7.9
Max. workpiece length	mm in	300 11.8
Max. work spindle speed	rpm	450 / 1,000
Max. hobbing speed	rpm	2,400 / 3,000 / 5,000
Max. hob dia.	mm in	80 3.2
Max. hob width	mm in	130 / 100 5.1 / 3.9
Max. hob shift	mm in	100 / 70 3.9 / 2.8
Swivel angle of hobbing head		± 45°

Shifting universal milling head		
Hob speed	rpm	200 – 2,000
Max. hob dia.	mm in	80 3.2
Max. hob width	mm in	100 3.9
Swivel angle		- 45° / + 135°
Largest module		3

Floor plan K 200

Dimensions in mm



Subject to technical changes

At home in the world.

Contact us. Now.

EMAG
Gruppen-Vertriebs- und Service GmbH

Salach
Austrasse 24
73084 Salach
Germany
Phone: +49 7162 17-0
Fax: +49 7162 17-820
E-mail: info@salach.emag.com

Frankfurt
Martin-Behaim-Strasse 12
63263 Neu-Isenburg
Germany
Phone: +49 6102 88245-0
Fax: +49 6102 88245-412
E-mail: info@frankfurt.emag.com

Cologne
Robert-Perthel-Strasse 79
50739 Köln
Germany
Phone: +49 7162 17-0
Fax: +49 7162 17-820
E-mail: info@koeln.emag.com

Leipzig
Pittlerstrasse 26
04159 Leipzig
Germany
Phone: +49 341 4666-0
Fax: +49 341 4666-014
E-mail: info@leipzig.emag.com

Munich
Zamdorferstrasse 100
81677 München
Germany
Phone: +49 89 99886-250
Fax: +49 89 99886-160
E-mail: info@muenchen.emag.com

Austria
Glaneckerweg 1
5400 Hallein
Austria
Phone: +43 6245 76023-0
Fax: +43 6245 76023-20
E-mail: info@austria.emag.com

Denmark
Horsvangen 31
7120 Vejle Ø
Denmark
Phone: +45 75 854854
Fax: +45 75 816276
E-mail: info@daenemark.emag.com

Sweden
Glasgatan 19B
73130 Köping
Sweden
Phone: +46 221 40305
E-mail: info@sweden.emag.com

Poland
ERALL Poland
ul. Elektoralna 19b/m.11
00-137 Warsaw
Poland
Phone: +48 022 392 73 22
E-mail: j.tomczak@erall.pl

Czech Republic
Lolkova 766
103 00 Praha 10 – Kolovraty
Czech Republic
Phone: +420 731 476070
E-mail: mdelis@emag.com

Russia
ul. Akademika Chelomeya 3/2
117630 Moscow
Russia
Phone: +7 495 287 0960
Fax: +7 495 287 0961
E-mail: info@russia.emag.com

Belarus
ul. Timirjazeva, 65 B, Office 1101
220035 Minsk
Belarus
Phone: +375 17 2547730
Fax: +375 17 2547730
E-mail: info@emag.by

NODIER EMAG INDUSTRIE
2, Parc des Fontenelles
78870 Bailly
France
Phone: +33 130 8047-70
Fax: +33 130 8047-69
E-mail: info@nodier.emag.com

EMAG MAQUINAS HERRAMIENTA S.L.
Pasaje Arrahona, nº 18
Polígono Industrial Santiga
08210 Barberà del Vallès (Barcelona)
Spain
Phone: +34 93 7195080
Fax: +34 93 7297107
E-mail: info@emh.emag.com

ZETA EMAG Srl
Viale Longarone 41/A
20080 Zibido S.Giacomo (MI)
Italy
Phone: +39 02 905942-1
Fax: +39 02 905942-22
E-mail: info@zeta.emag.com

EMAG (UK) Ltd.
Chestnut House,
Kingswood Business Park
Holyhead Road
Albrighton
Wolverhampton WV7 3AU
Great Britain
Phone: +44 1902 37609-0
Fax: +44 1902 37609-1
E-mail: info@uk.emag.com

EMAG L.L.C. USA
38800 Grand River Avenue
Farmington Hills, MI 48335
USA
Phone: +1 248 477-7440
Fax: +1 248 477-7784
E-mail: info@usa.emag.com

EMAG MEXICO
Colina de la Umbria 10
53140 Boulevares
Naucalpan Edo. de Mèxico
Mexico
Phone: +52 55 5374266-5
Fax: +52 55 5374266-4
E-mail: info@mexico.emag.com

EMAG DO BRASIL Ltda.
Rua Schilling, 413
Vila Leopoldina
05302-001 São Paulo
SP, Brazil
Phone: +55 11 38370145
Fax: +55 11 38370145
E-mail: info@brasil.emag.com

EMAG INDIA Pvt. Ltd.
Technology Centre
No. 17/G/46-3, Industrial Suburb,
2nd Stage, Yeshwantpur,
Bengaluru – 560 022.
India
Phone: +91 80 42544400
Fax: +91 80 42544440
E-mail: info@india.emag.com

EMAG SOUTH AFRICA
P.O. Box 2900
Kempton Park 1620
Rep. South Africa
Phone: +27 11 39350-70
Fax: +27 11 39350-64
E-mail: info@southafrica.emag.com

EMAG Machine Tools (Taicang) Co., Ltd.
Building 3, Cang Neng
Europe & American Technology Park
No. 8 Lou Jiang Rd. (N.)
215400 Taicang
P.R. China
Phone: +86 512 5367-6065
Fax: +86 512 5357-5399
E-mail: info@china.emag.com

EMAG KOREA Ltd.
Rm204, Biz center,
SKn Technopark, 124 Sagimakgol-ro,
Sangdaewon-dong, Joongwon-gu,
Seongnam City,
Gyeonggi-do, 462-721,
South Korea
Phone: +82 31 776-4415
Fax: +82 31 776-4419
E-mail: info@korea.emag.com

TAKAMAZ EMAG Ltd.
1-8 Asahigaoka Hakusan-City
Ishikawa Japan, 924-0004
Japan
Phone: +81 76 274-1409
Fax: +81 76 274-8530
E-mail: info@takamaz.emag.com

Subject to technical changes.

www.emag.com

EMAG