



GEAR HOBBLING MACHINE

200



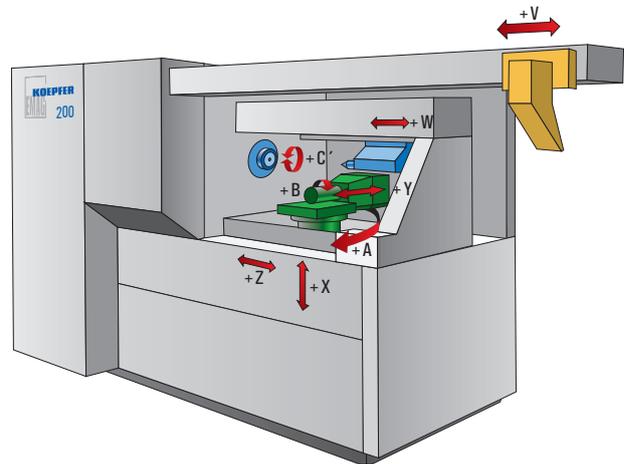
MAXIMUM VERSATILITY

Basic structure of the machine

The Model 200 hobbing machine combines current technology with maximum versatility and flexibility. The eight axes of CNC control on the Model 200 allow all possible gear cutting applications to be accomplished.

No matter whether the workpieces are loaded manually or with flexible automation systems, the Model 200 hobbing machine is the answer to the increased variety of products. Part variety, decreasing lot sizes, and a demand for "just in time" manufacturing makes the Model 200 the correct choice for your gear manufacturing needs.

The machine bed is a composite epoxy material which provides the highest static, dynamic and thermal stability. A closed box machine design prevents deflection of the

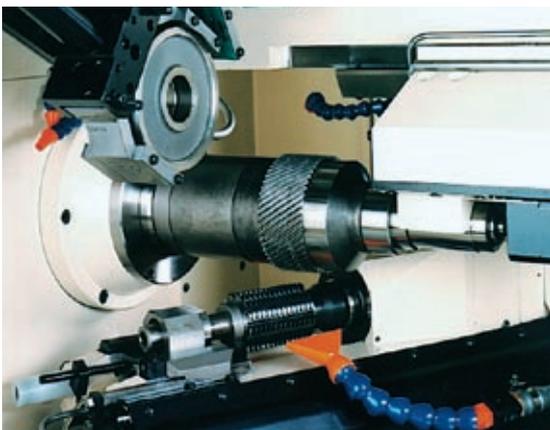


CNC-Axes:

- A – hobhead swivel movement
- B – hob rotation
- C – workpiece rotation
- W – tailstock movement
- X – radial movement
- Y – hob tangential (shifting)
- Z – axial movement
- V – gantry loader

tailstock due to high clamping pressures and cutting forces. The unique KOEPFER design concept of symmetrical distribution of cutting forces ensures a long machine life with consistent part quality.

Working area

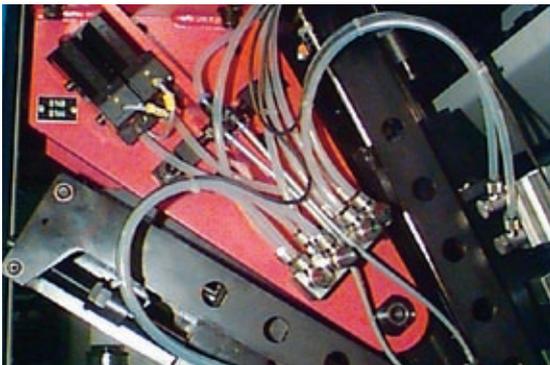


A high pressure, preloaded index drive ensures consistent gear quality over the life of the machine. The work spindle includes preloaded bearings and a modular clamping system to accurately and safely locate the work pieces. Clamping through the work spindle prevents any stress to the machine guide ways or bearings and is superior for large diameter work pieces with high helix angles.



FLEXIBLE AUTOMATION

Compact loader with flexible magazines, chain loader and unloading transfer band



The basis of the KOEPFER automation is the gantry loader with V-claw. Different kinds of blank and component magazines for the different part-spectra are available. The simplest solution is the "inclined plane" and the unloading transfer band.

Multiple distributor and feeding-rail

Multiple feeding rails for symmetrical components that roll by gravity can be inserted to greatly increase magazine capacity.

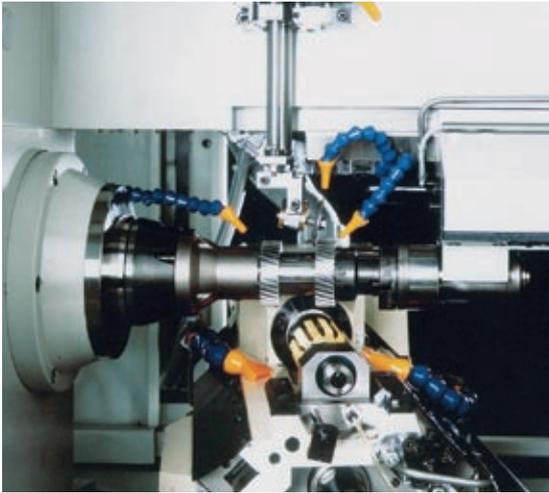
A triple distributor can also be used as well as a dual or a single distributor. The part jaws of the loader arms are easily adjustable. This results in a practically unlimited number of setting possibilities for different lengths and diameters of components.



Large capacity-circulation magazine

Large capacity-magazines like the circulation magazine allow a running time of several hours. They are convenient for wheels as well as for shaft-type work-pieces and are adjusted easily.

OPTIONS



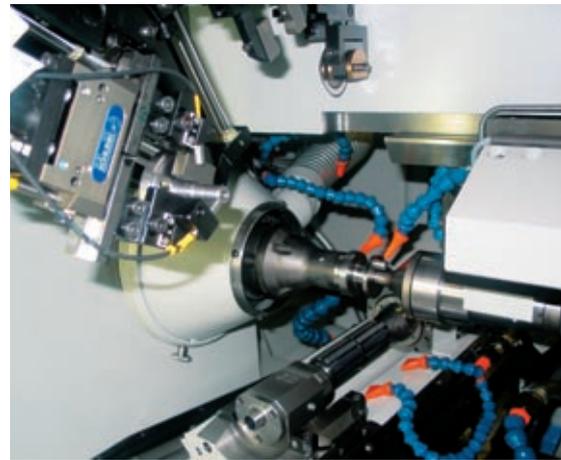
Worm wheels can be hobbled by using radial infeed of the hob or – especially for wheels with a relatively large helix angle – by using tangential hob feed. The shanktype hob is clamped by a hydraulically operated precision collet.

Options:

- ◆ Workpiece fixture for wheel-, pinion- and shaft parts
- ◆ Hob arbor
- ◆ Hydraulic precision chuck to clamp shank hobs
- ◆ Hydraulic quick clamping device for workpieces and hobs
- ◆ Deburring device (vibration absorber, carrier for sensor) in single- or double version
- ◆ Automatic chip removal unit
- ◆ Oil mist suction system
- ◆ Suction system for dry hobbing
- ◆ Automatic orientation for skiving
- ◆ Software for special programs such as skip shifting of a damaged area on the hob, for positioning tasks, etc.
- ◆ Magazine loading-systems for blanks or semi finished parts

An auxiliary tool holder can be provided in single or double version. The double version can be used for example to position and deburr workpieces concurrently.

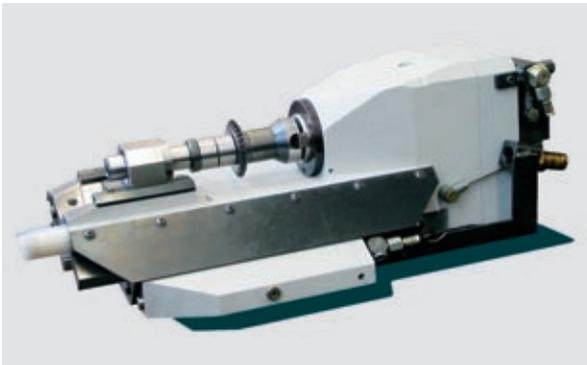
Besides using the auxiliary tool as a carrier for deburring tools of different types it is also suitable as a vibration dampening device, holder for sensors for automatic positioning or for special purposes such as power driven deburring tools.



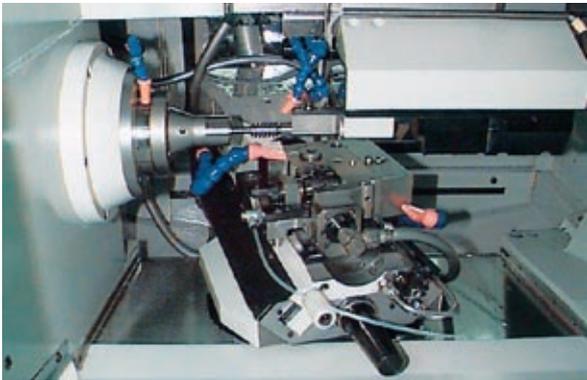
HOBHEADS FOR DIFFERENT APPLICATIONS

Hobheads and speeds on the 200 machine

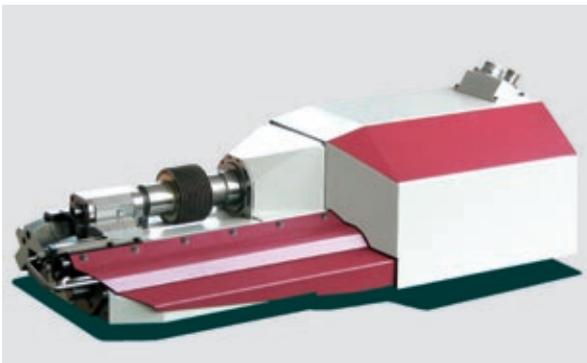
Maximum hob length 130 mm with 100 mm shifting and optional rpm of 2000 rev/min, 3000 rev/min or 5000 rev/min.



Universal-Shifting hobhead for hobbing of gears and for milling of single and multi start worms with a maximum hob length of 110 mm and 70 mm shifting.



Right angle hobhead for milling single and multistart worms.



High speed head with 11,000 rev/min, for example to grind gears.

CONTROL PANEL

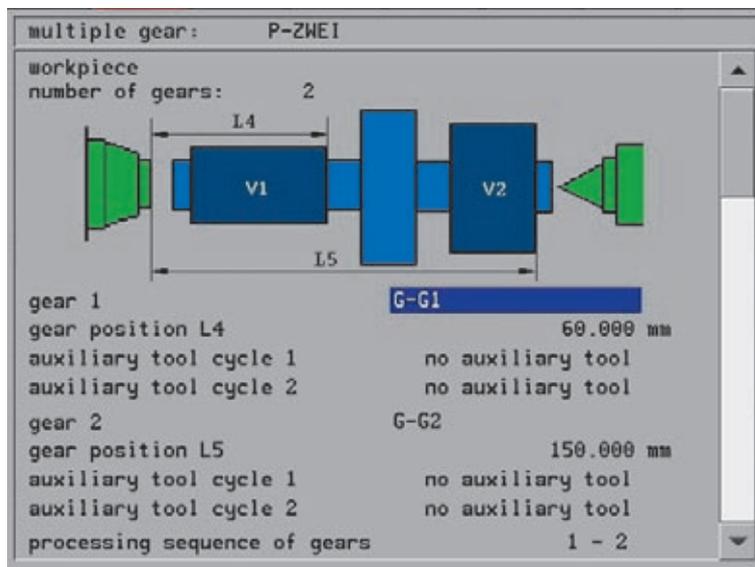
The control for the 200 machine utilizes the latest generation of electronics and features:

A Touch Screen Panel instead of mouse or keyboard. An internal program memory with a capacity of 1MB is sufficient for more than 750 different components. The CNC provides a desktop Windows "Look and Feel" similar to software used with office PC's.



Continuing development of the extensive KOEPFER-Dialog program provides the creation of complex programs in a simple manner.

The control allows extensive diagnostic-functions including online access to the controls by the KOEPFER-Service-staff.



TECHNICAL DATA

Technical specifications of the machine:

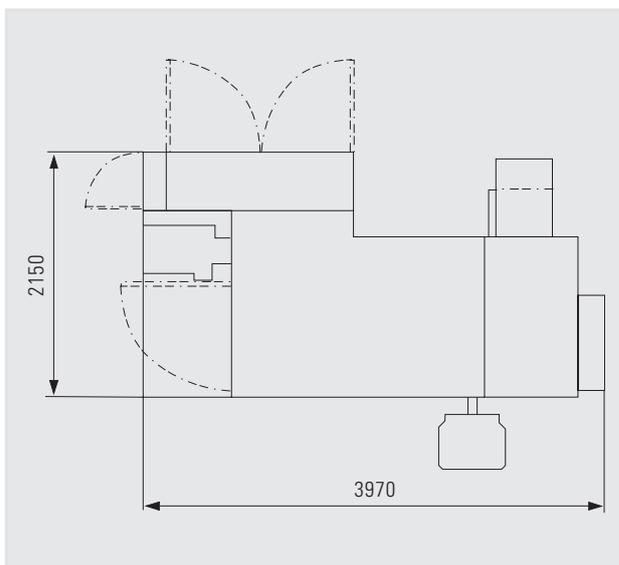
Maximum module	mm	3
Max. workpiece-diameter		
– automatic loading	mm	120
– manuel loading and hob-Ø 32 mm	mm	180
Maximum hobbing length	mm	200
Maximum workpiece length	mm	300
Maximum work spindle speed	RPM	270/450/1.000
Maximum cutter spindle speed	RPM	2.000/3.000/5.000
Maximum hob width	mm	130/100/63
Maximum hob shift	mm	100/70/40
Hobhead swivel angle		+/- 45°

Universal-Shifting hobhead

Speed milling cutter	RPM	200 - 2.000
Max. hob-diameter	mm	80
Max. hob width	mm	100
Swivel-angle		- 45°/+135°
Max. Module		3

Right angle hobhead

Speed milling cutter	RPM	400 - 1.500
Max. milling cutter-diameter	mm	80
Max. milling cutter width	mm	30
Swivel-angle		+/- 45°
Max. Module		2,5



Subject to change without prior notice

