



GEAR HOBBLING MACHINE

300



INNOVATIVE DESIGN PRINCIPLE

Basic structure of the machine

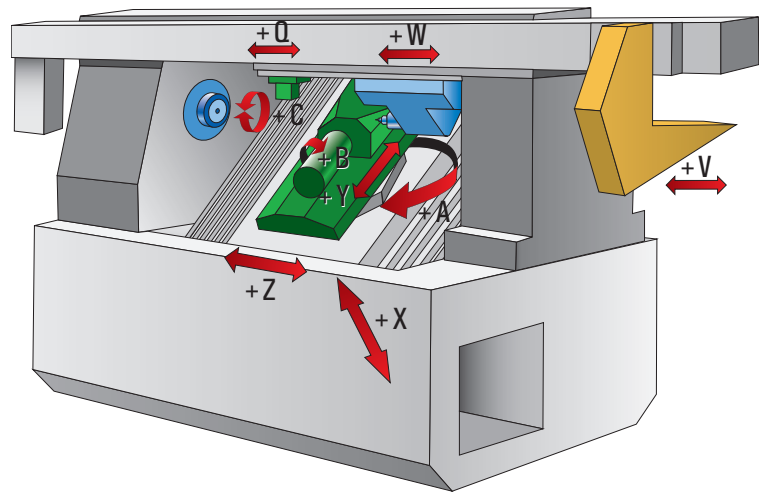
The Model 300 hobbing machine combines the latest in machine technology with maximum versatility and flexibility in an area of only 8 m². The nine CNC controlled axes on Model 300 allow all possible gear cutting applications to be accomplished.

The machine bed is a composite epoxy material that incorporates roller bearing slides in all linear motion axes. This provides the highest static, dynamic and thermal stability. A closed box machine design prevents deflection of the 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.

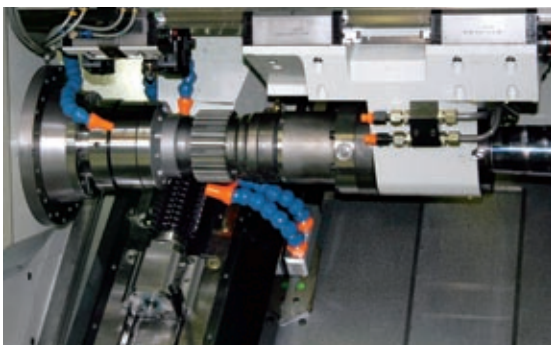
The slant design of the hob head allows optimum chip flow for dry or wet cutting.

Working area

The maintenance – free direct drives for tool and workpiece ensures consistent gear quality over the life time of the machine. The work spindle includes preloaded bearings and hydraulic quick clamping for the modular work fixture system. This assures accurate and safe location of the workpieces. Clamping through the work spindle and with expandable arbors prevents any stress to the machine guideways or bearings and is superior for large diameter workpieces with high helix angles.



- NC-Achsen:
- A – hob head swivel movement
 - B – hob rotation
 - C – workpiece rotation
 - W – tailstock movement
 - X – radial movement
 - Y – hob tangential movement (shifting)
 - Z – axial movement
 - V – gantry loader movement
 - Q – auxiliary tool movement



FLEXIBLE AUTOMATION

Compact loader with flexible loading and unloading system

The basis of the KOEPFER automation is the gantry loading system with V-claw grippers, which are suitable for work-pieces up to 5 kg. Depending on the blank or component configuration, a variety of magazines is available including a chain magazine, oscillating conveyor, belt conveyor etc.

The standard solution is the gravity loading rail with unloading belt conveyor.



Front of KOEPFER Model 300 hobbing machine



Back of machine with safety shield open

AUTOMATION SOLUTIONS

The magazine capacity can be greatly increased by utilizing multiple feeding rails for symmetrical components that will roll by gravity. The use of multiple rails would require the use of a double or triple distributor system.

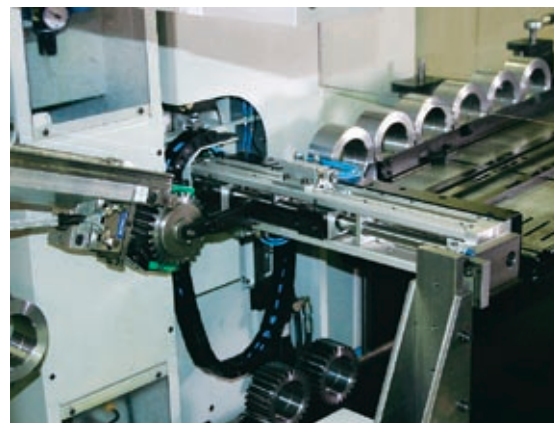


Blank staging area for automation



Work area with grippers in load / unload position

The grippers are totally flexible and can easily be adjusted. This results in an almost infinite number of settings for different lengths and diameters that can be loaded.



Workpiece being unloaded to conveyor / blanks on flexible gravity magazine

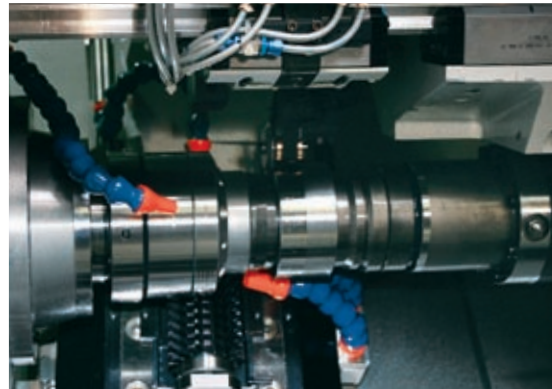


OPTIONS

Advantages of the machine include optimal accessibility to an ergonomically designed work area as well as a CNC – controlled auxiliary tool.

The auxiliary tool holder can be provided with a single or double head configuration. The double version can be used to position and deburr workpieces concurrently.

Besides using the auxiliary tool as a holder for deburring tools of different types it can also be used with vibration



dampening device, sensors for automatic positioning or for special applications such as power driven deburring tools.

Options:

- ◆ Hob arbor
- ◆ Hydraulic precision collet to clamp shank hobs
- ◆ Deburring device (dampening device, sensor) in single or double head configuration
- ◆ 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



CONTROL PANEL

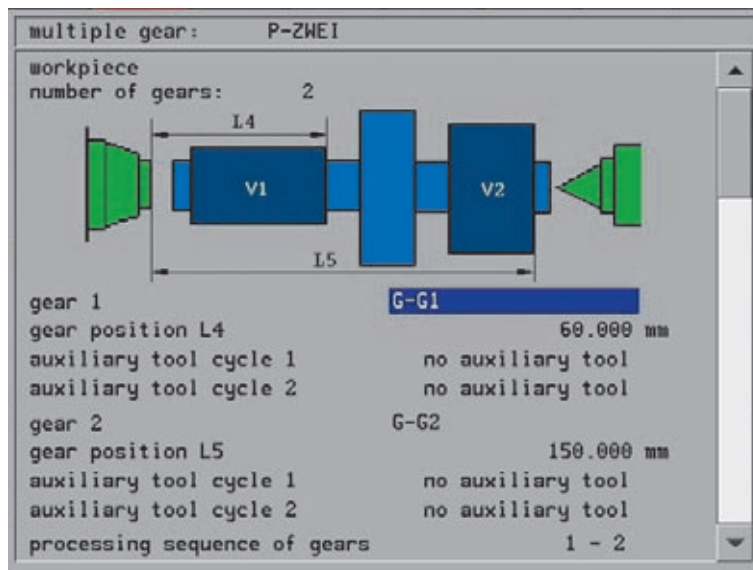
The control for the 300 machine utilizes the latest generation of electronics and features:

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.

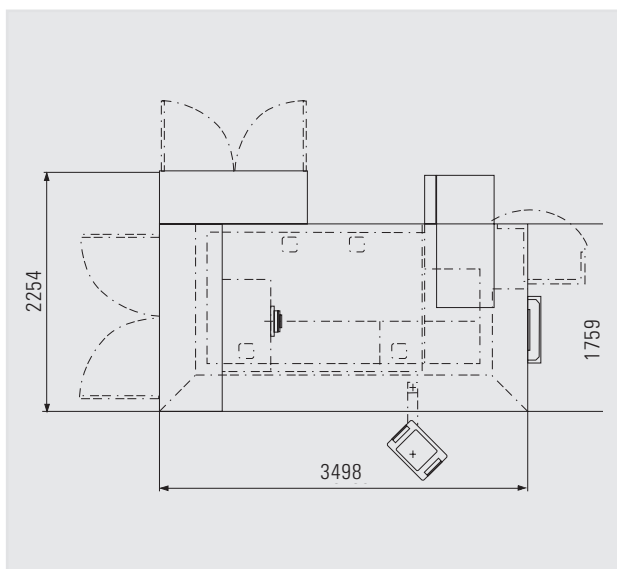
The control allows extensive diagnostic-functions including online access to the controls by the KOEPFER-Service-staff.



TECHNICAL DATA

Technical specifications of the machine:

Maximum module	mm	4
Maximum workpiece diameter		
– automatic loading	mm	195
– manual loading and hob-Ø 50 mm	mm	195
Maximum hobbing length	mm	300
Maximum workpiece length		
– automatic loading	mm	300
– manual loading	mm	500
Maximum work spindle speed	RPM	800
Cutter spindle speed standard	RPM	200/2.000
– optional	RPM	400/4.000
Distance between work and tool spindle	mm	20 – 130
work spindle diameter	mm	60
Tailstock force	kN	15
Maximum hob diameter	mm	100
Maximum hob width	mm	200
Maximum hob shift	mm	160
Hob head swivel angle		+ /- 45°



Subject to change without prior notice

