



GEAR CUTTING MACHINES

OFA, OHA



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GEAR HOBBLING MACHINES

OFA 32 CNC 6, OFA 75 CNC 6, OFA 100 CNC 6

The OFA CNC 6 vertical gear hobbling machine is designed to cut spur gears or helical gears, sprocket wheels, worm gears hobbled by the radial tangential method, gears with longitudinal modification, spline shafts and other types of gearing generated by the hobbling process.

The modern design with backlash elimination of hob carriage and table offers hobbling of hardened gears and high speed milling of non-hardened gears with carbide tipped tools. The machine is suitable for mass production as well as piece production.

The operation, setting and maintenance of the machine are designed to be simple, swift and easy. The automatic work cycle of the machine along with possible application of a work-piece magazine enables to operate several machines by one operator.

In its basic version the machine is equipped with SIEMENS Sinumeric 840D sl control system and drives. There are six controlled machine axes.



STANDARD ACCESSORIES:

- Cooling system
- Magnetic chip conveyor with chip container
- Cutter arbor Ø 40 mm (1 ½") (OFA 32 CNC 6 and OFA 75 CNC 6)
- Workpiece mandrel Ø 40 mm (1 ½") (OFA 32 CNC 6)
- Cutter arbor Ø 50 (OFA 100 CNC 6)
- Workpiece mandrel Ø 50 with stand (OFA 75 and OFA 100 CNC 6)
- Work setting pin
- Coolant splash guards
- Spot lights
- Set of wrenches and tools
- Table plug
- Operating instruction

SPECIAL ACCESSORIES:

- Cutter arbors
- Flashings removal device
- Hydraulic clamping cylinder
- Additional chip container
- Clamping attachment to clamping cylinder
- Additional chip container
- Top cover to connect oil mist exhaust
- Oil mix exhaust
- Anchoring material
- Set of quick consumable spare parts
- Manual control panel
- Plate under supporting column (OFA 75 CNC 6)
- Light packaging
- Overseas packaging
- Clamping steadies of work piece (OFA 75 – OFA 100 CNC 6)
- Working cycle for hobbing with dividing method.
- Working cycle for worm gears hobbing
- Working cycle for hobbing with tangential method
- Working cycle for skiving

OTHER MACHINE DESIGNS

- Machine with increased table speeds 225 min⁻¹ (OFA 32 CNC 6 only)
- Machine with increased tool speeds 900 min⁻¹ (OFA 32 CNC 6 only)
- Machine in inch system
- Painting in other color
- Automatic work piece change with circular magazine IOPF 25 (OFA 32 CNC 6 only)
- Different automation and robotics type
- HSK shafts
- Electrical system for voltages other than 400 V, 50 Hz

HIGH PRODUCTIVITY

EASY OPERATION

GEAR HOBBLING MACHINES

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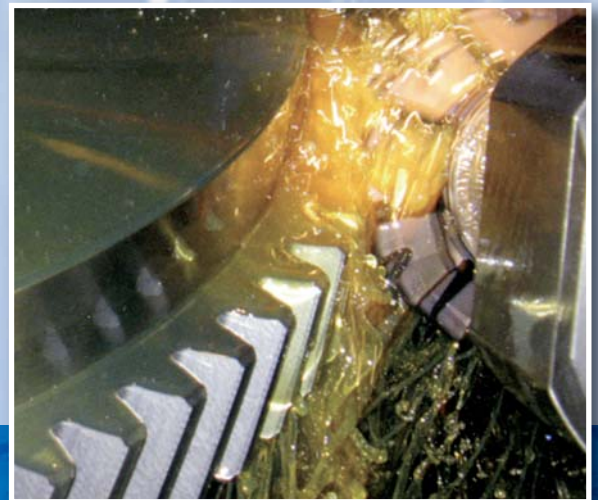
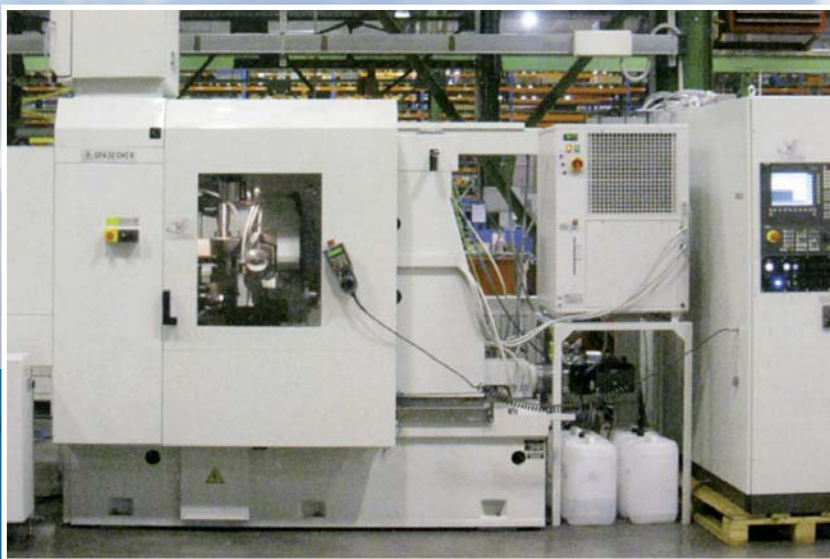


Specification

		OFA 32 CNC 6	OFA 75 CNC 6	OFA 100 CNC 6
Operating range				
Max. module to be hobbled	mm	7	12 (14*)	14 (16*)
Max. dia. to be hobbled	mm	320	750 (900*)	1,050 (1,120**)
Min. number of gear teeth		3	3	3
Max. helix angle of teeth	°	±45	±45	±45
Max/min hob axis distance from:				
Table axis	mm	300/40	580/60	625/80
Surface of table	mm	505/205	850/220	850/220
Clamping table				
Diameter	mm	300	680	890
Bore	mm	80	150	180
Hob carriage				
Taper in spindle		MORSE 5	MORSE 5	MORSE 5
Max. carriage travel	mm	300	630	630
Hob tangential adjustment	mm	158	250	250
Max. tool diameter	mm	160	190	190
Max tool length	mm	220	300	300
Range of tool speeds	1x min ⁻¹	71 – 700	25 – 450	25 – 450
Main motor output	kW	12	28	28
Working feed axial	mm.min ⁻¹	1 – 1,000	0.01– 340	0.01 – 340
radial	mm.min ⁻¹	0.5 – 1,000	0.01 – 170	0.01 – 170
tangential	mm.min ⁻¹	0.25 – 1,000	0.1 – 170	0.1 – 170
Rapid traverse axial	mm.min ⁻¹	2,000	2,500	2,500
radial	mm.min ⁻¹	3,000	3,000	3,000
tangential	mm.min ⁻¹	2,000	3,000	3,000
Machine				
Total power input	kVA	45	70	70
Dimensions: length	mm	4,213	4,050	4,500
Width	mm	3,150	3,530	3,530
Height	mm	2,800	3,100	3,100
Weight	kg	8,000	13,500	14,000

** for steel strength up to 600MPa

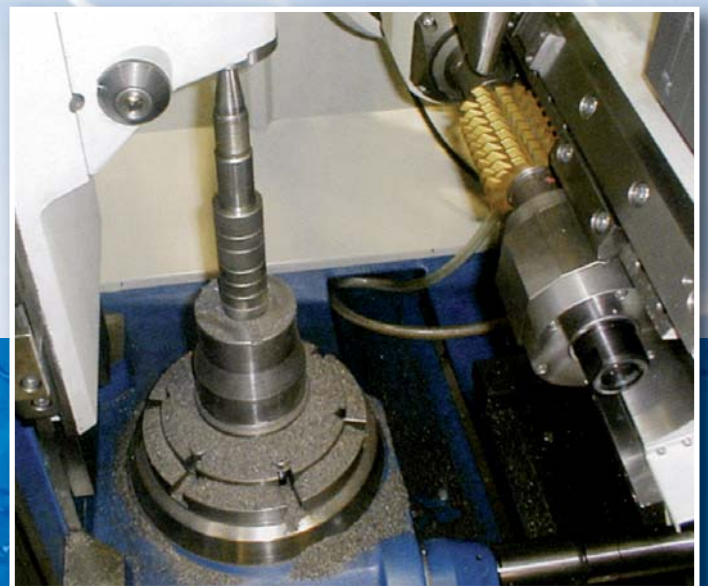
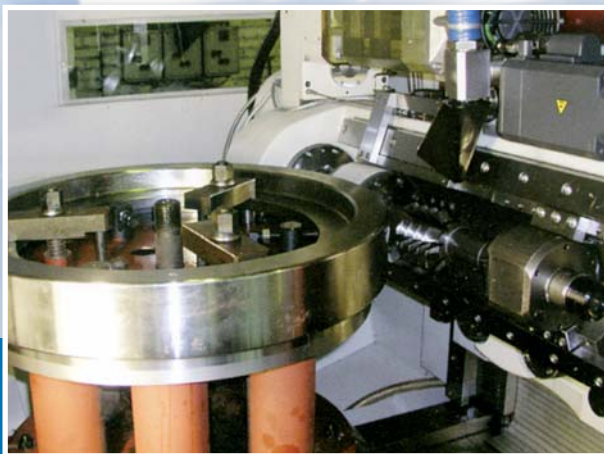
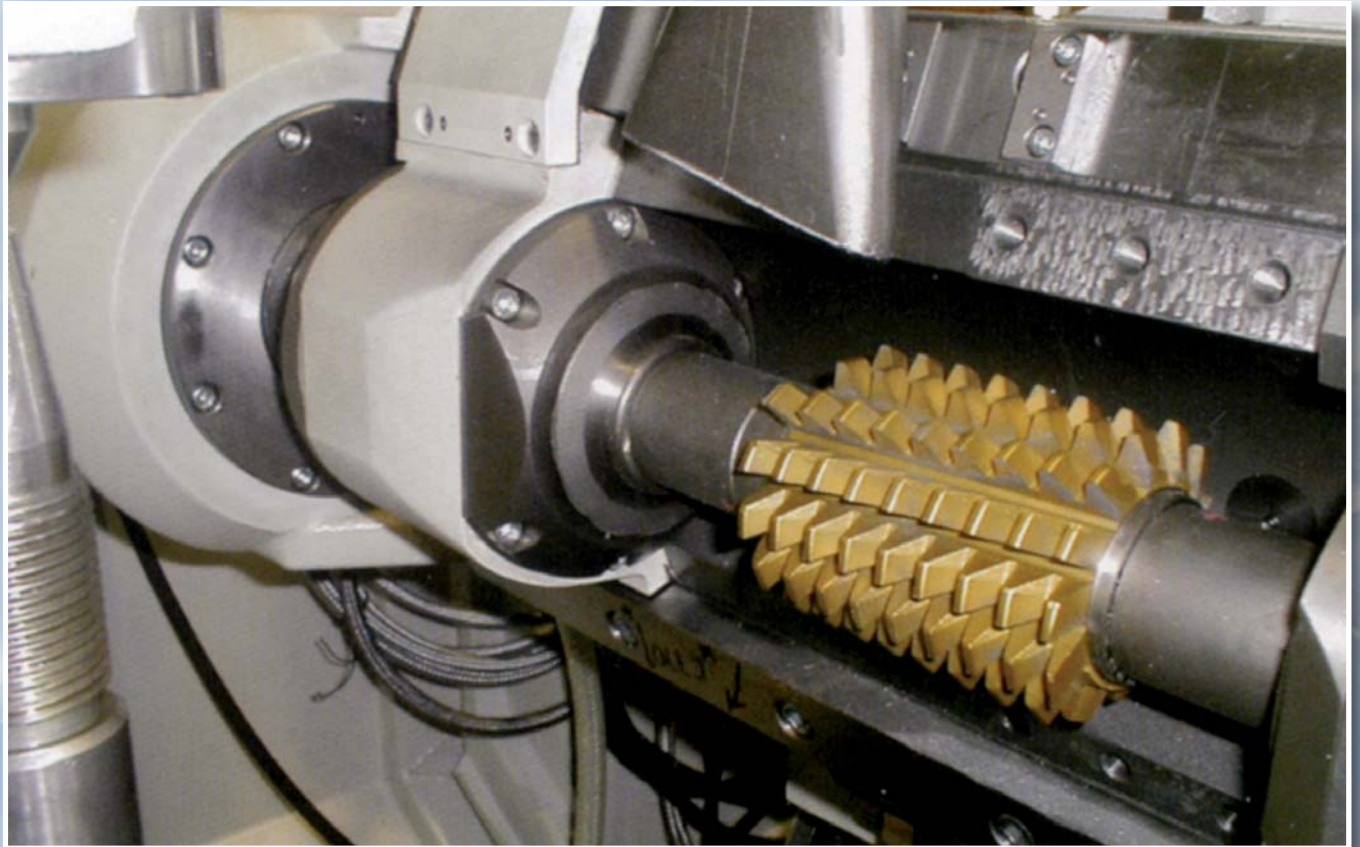
** without supporting column

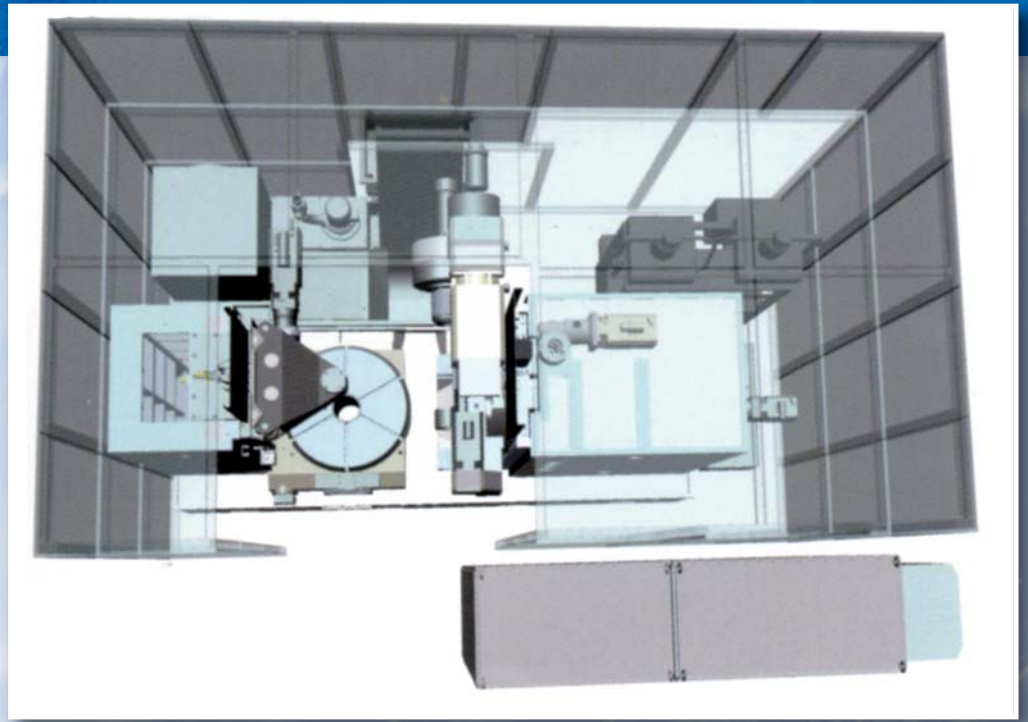


POSSIBILITY OF AUTOMATION

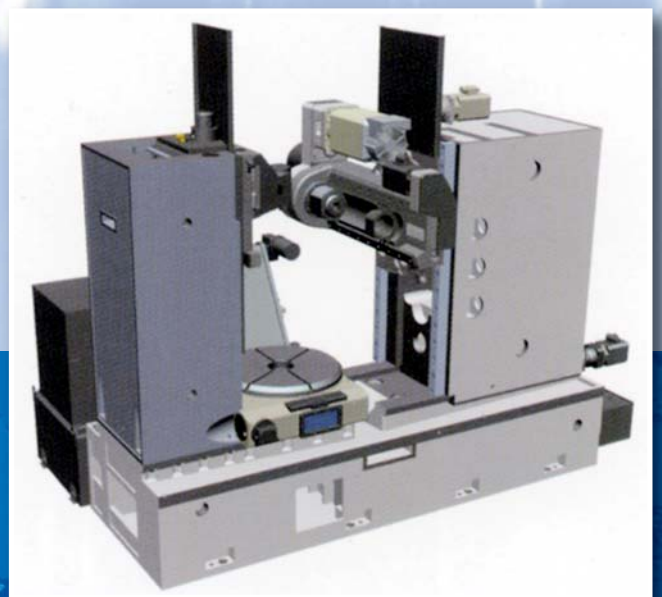
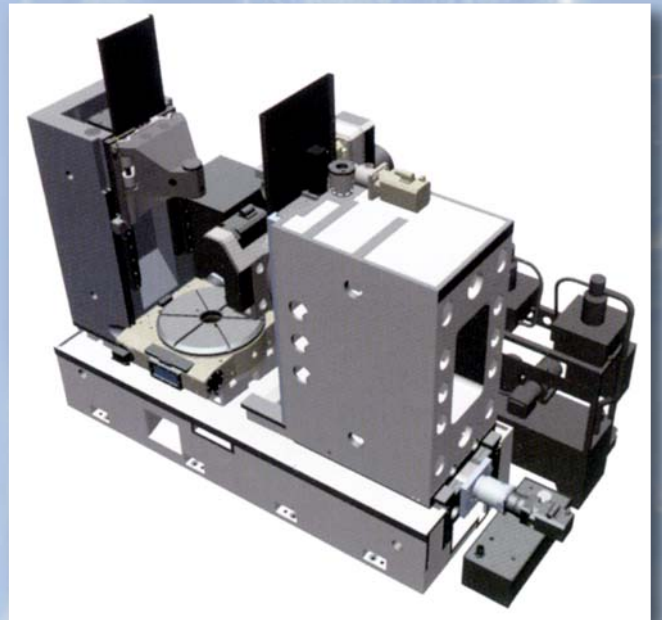
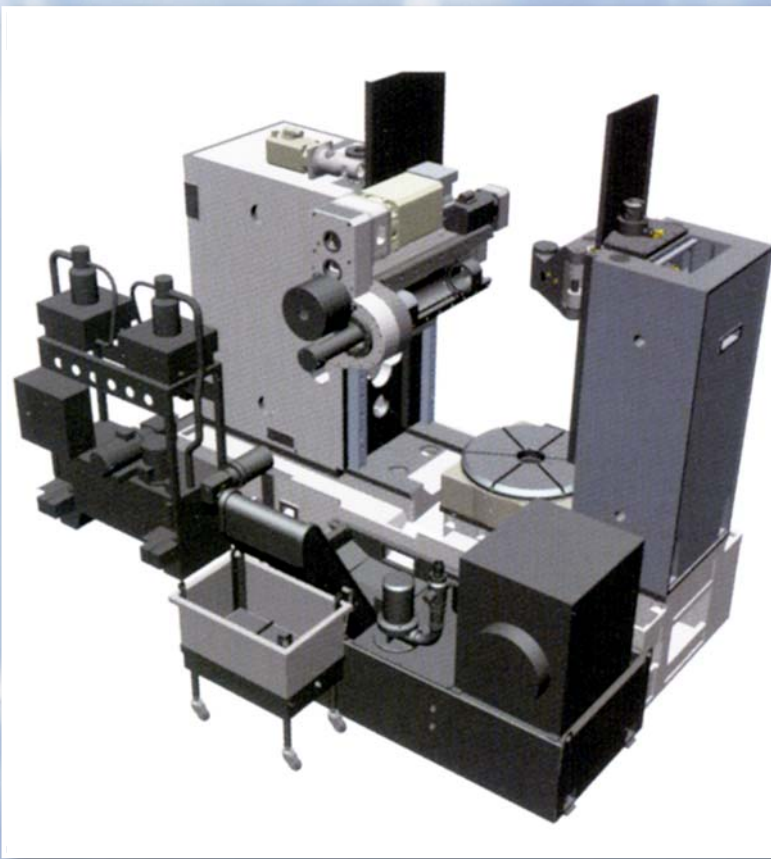
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Application examples



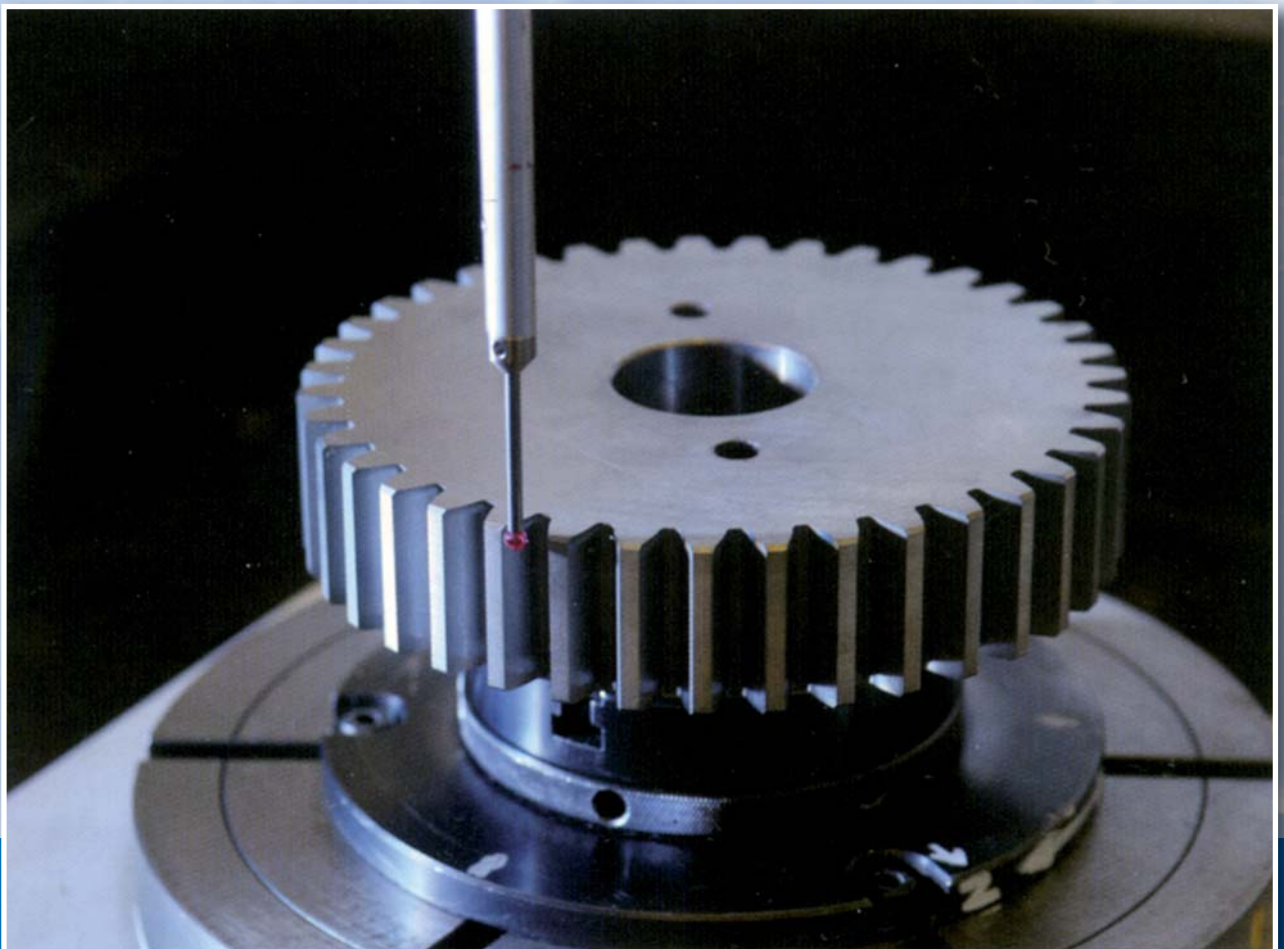
EASY OPERATION

GEAR SHAPING MACHINE

OHA 50 CNC 5

The vertical gear shaping machine OHA 50 CNC 5 with SINUMERIK 840 D sl control system, which provides the control of 5 axes, and digital servo drives for the controlled axes, is a high performance universal machine intended for shaping of external and internal spur and helical gears. In addition to the control of individual axes, the system controls all machine functions including the automatic working cycle and fault and operational diagnostics. The machine can even shape various cam disks and gear segments, and by using a special accessory also rack bars up to the length of 1 meter. It is possible to select up to 20 cuts for each shaping. Optimum cutting conditions can be selected for each cut.

The broad working range and utility characteristics make this machine ideal for single-piece and small-run production.



ADVANTAGES

- Hydrostatic bearing of ram spindle
- The tool is retracted in radial or diagonal direction during the return ram spindle motion during the cutting process
- Choice of cutting parameters for each cut
- Possibility of step swivel of tool
- Back up of working programs
- Counting of performed working cycles
- Considerable vertical repositioning of ram carriage even during the working cycle
- Stop of ram spindle in dead upper position
- Braking of ram spindle run-out
- Tool and work piece positioning
- Fault diagnostics
- Safety guards on the machine
- Lighting
- Centering of tool tooth into pre-cut work piece tooth

STANDARD ACCESSORIES

- Work area lighting
- Coolant splash guard
- Cooling with chip conveyor
- Hydrostatic straight guides
- Table plug
- Set of wrenches and tools
- Flange for work piece clamping mandrels
- Set of machine operating tools
- Steps
- Tool arbors
- Tool arbor clamping
- Technical documentation
- Chip container

SPECIAL ACCESSORIES

- Cutter clamping arbors
- Clamping bushes for cutters with shank
- Clamping mandrels work pieces with cylindrical pin
- Work piece clamping mandrels with expanding bushes
- Guide puller
- Dial indicator holder
- Chip pan
- Set of spare parts
- Another chip pan
- Hydraulic clamping cylinder
- Hydraulically operated supporting column
- Rack shaping attachment max. length 1,000 mm
- Oil mist exhaust attachment

Design according to the customer's requirement

- Helical gear shaping guides
- Work piece clamping device (special design)
- Clamping bushes with taper cavity (special)
- Clamping arbors for one or more cutters acc. to client's special requirements

OTHER MACHINE DESIGNS

- Machine in inch system
- Power operated tool clamping
- Version with accelerated return stroke of ram spindle
- Automatic work piece change with circular magazine
- Version for infinitely corrected teething
- Version with chip chain conveyor
- Electrical system for voltages other than 400 V, 50 Hz
- Painting in other color

HIGH PRECISION

HIGH PRECISION

GEAR SHAPING MACHINE

OHA



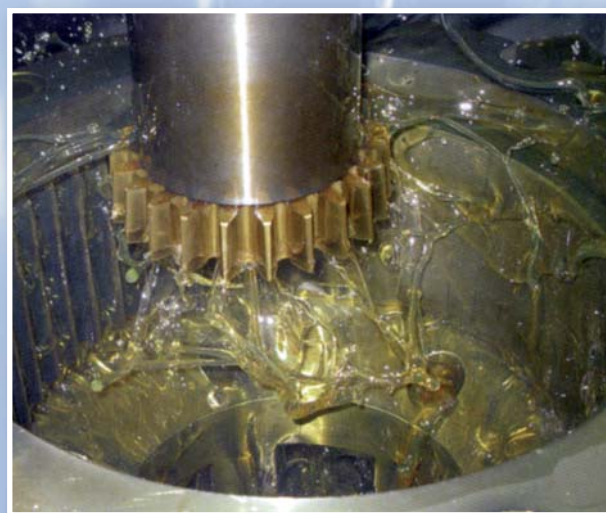
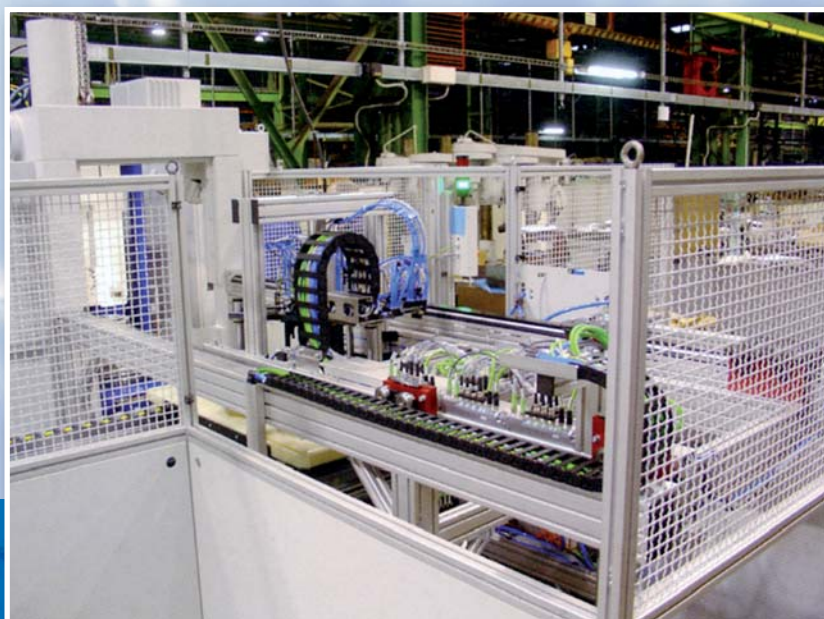
HIGH RIGIDITY

Specification

OHA 50 CNC 5

Operating range		
Max. module of gearing to be shaped	mm	8 *)
Max. diameter of gearing to be shaped	mm	500
Max. outer diameter of gear	mm	800
Max. width of gearing to be shaped	mm	125
Clamping table		
Diameter	mm	500
Bore	mm	205
Max. table load	kg	300
Ram carriage		
Vertical travel	mm	280
Max. ram stroke	mm	135
Max. distance of ram axis from: right table axis	mm	355
Nominal tool diameter	mm	125
Max. helix angle of teeth with nominal dia. cutter	°	±41
Range of double-stroke	mm.min ⁻¹	40 – 800
Circular feeds range	mm.min ⁻¹	0 – 1,900
Radial feeds range	mm.min ⁻¹	0 – 5,000
Rapid traverse	mm.min ⁻¹	5,000
Main motor output	kW	17
Machine		
Total power input	kVA	45
Dimensions:		
Length	mm	3,500
Width	mm	2,800
Height	mm	2,950
Weight	kg	7,200

*Greater gearing module is allowed when using more cuts





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