

Technical data

Travelling-column construction		Rack milling machine UPFM 500 F-CNC		Rack grinding machine UPSM 500 F-CNC	
Length of travel					
X axis - travel		[mm]	2.400 - 3.400 - 4.400 - 5.400 (up to 8.400)		
Y axis - feed axis		[mm]	500		
Z axis - vertical axis		[mm]	410		
U-W-B axes		[mm]	-		U = 100, W = 105, B1 = ±20°
Machine table (X axis)					
Maximum load		[kg]	20.000		
Outside dimensions = Clamping surface		[mm]	380 x 3.000 / 4.000 / 5.000 / 6.000		
T-slots			4 Stück		
Width of T-slots			18 H7		
Spacing of T-slots		[mm]	90		
Feed unit (X axis)					
Feed speed		[mm/min]	0 - 20.000		
Pitch of the screw		[mm]	20		
Feed unit (Y axis)					
Feed speed		[mm/min]	0 - 10.000		
Pitch of the screw		[mm]	10		
Swivel range (C1 axis) for helical gears			±45°		
Feed unit (Z axis)					
Feed speed		[mm/min]	0 - 5.000		
Pitch of the screw		[mm]	10		
Spindle centre above table surface		[mm]	180 - 600		
Swivel range (B2 axis) for helical gears			±45°		
Milling head / Grinding head					
Spindle nose / taper			Sk45 DIN 69871		50,8 mm (2")
Motor output		[kw]	25 (S6) (44)*		30 (S6)
Spindle speed		[U/min]	1 - 300 (up to 600)*		1 - 5000
Milling / grinding range in steel (C45)		[Modul]	bis 30		0,1 - 18; blanking tools and special profiles
Width of milling cutter max.		[mm]	200 (up to 240)*		—
Milling cutter diameter		[mm]	min. 125 + 2 x cutting depth / max. 288		—
Volume of metal removal in C45 max.		[cm³/min]	250 (ca. 500)*		—
Cutting speed		[m/sec.]	—		5 - 65 (constant programmable)
Grinding wheel			—		ceramic bond, resin bond, CBN
Width of grinding wheel		[mm]	—		15 - 90
Diameter of grinding		[mm]	—		min. 170 / max. 300
Grinding wheel bore		[mm]	—		127
CNC control unit			Siemens Sinumerik 840 D		
Interfaces			TCP/IP network interface, analogous telephone connection, disk drive		
Drives of axes			synchronous motor (Siemens 1FT 6)		
Spindle drives			asynchronous motor (Siemens 1PH7)		
System accuracy		[mm]	±0,002		
Accuracy			direct path measuring systems (glass rule) for all axes; shaft encoder for C1 axis		
Total connected load		[kVA]	80		100
Weight approx.		[t]	22 (2.400 mm travel) - 32 (5.400 mm travel)		

\* optional



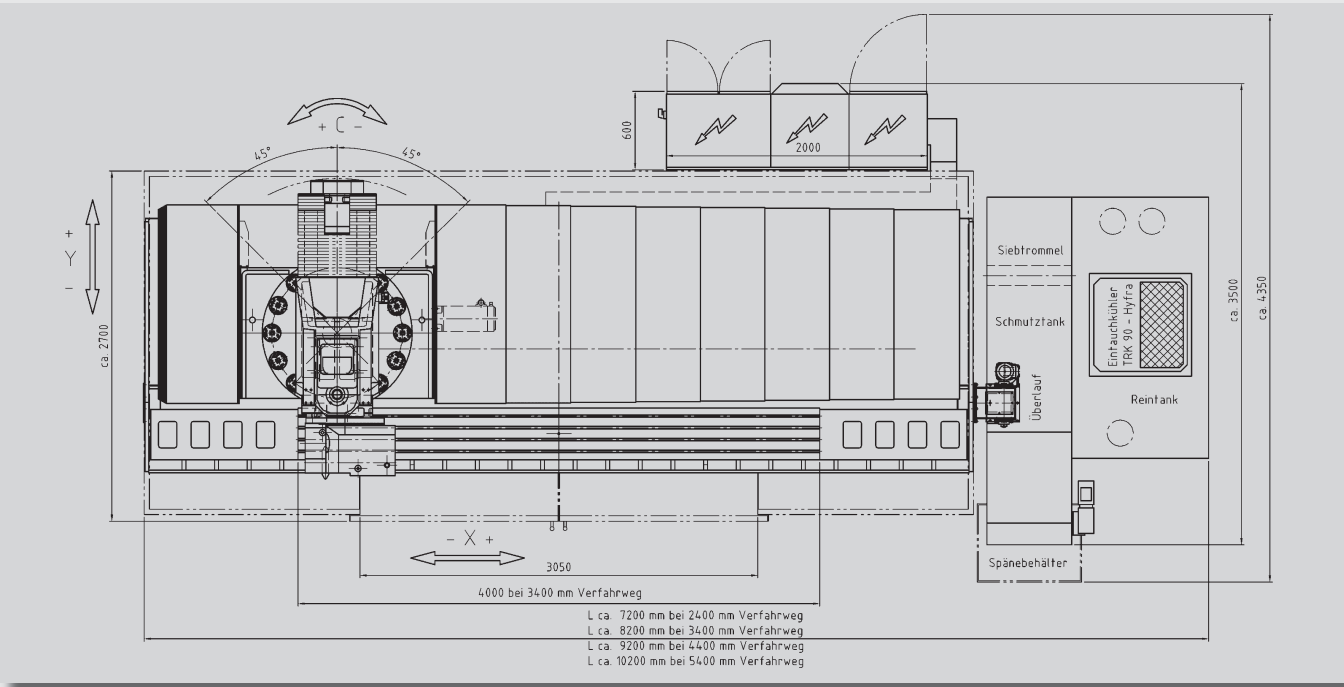
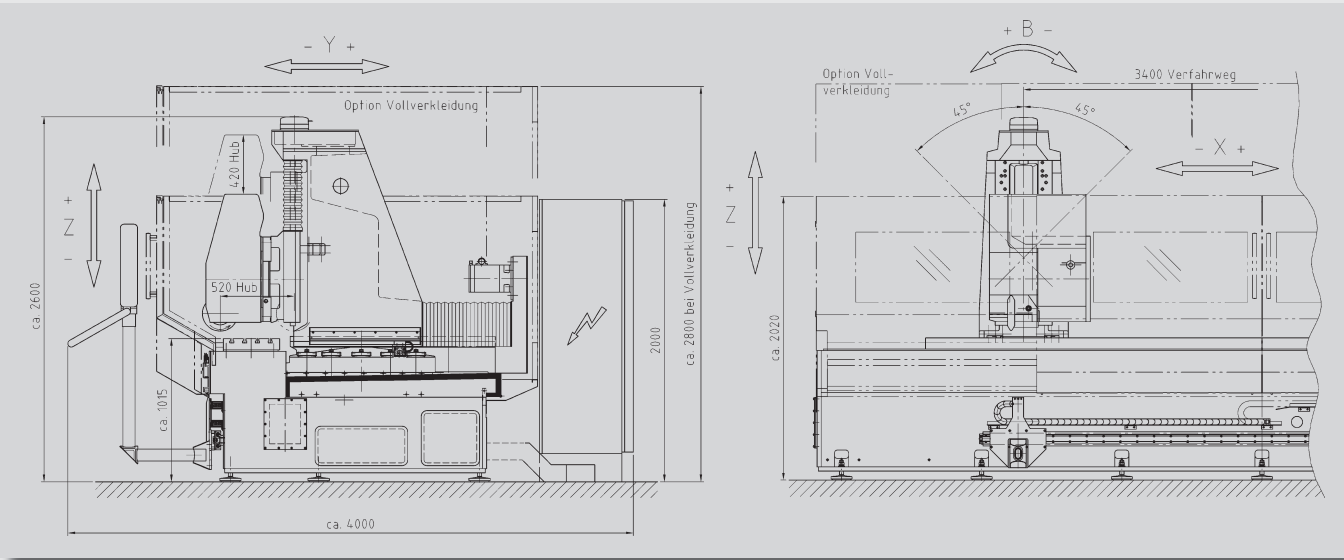
Trend-setting milling  
and grinding technology realized  
in a travelling-column concept

Rack milling machine  
UPFM 500 F-CNC

Rack grinding machine  
UPSM 500 F-CNC



Highest productivity on a few square meters of floor space.



High-Tech from Ehingen - in use worldwide

- Over 100 years quality
- Made in Germany
- Subcontract work for gear racks

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Milling and grinding solutions  
for the gear cutting industrie



Subject to alterations and advancements. Refer to EGW's quotation and enclosed documentation for specifications. 2007/08/1000 GB



# Milling and grinding on an outstanding level of technical performance.

## The travelling-column concept

EGW as technology leader for milling and grinding machines for the rack machining has set new standards with the UPFM and UPSM machines.

### Advantages:

- Optimum integration into an automated manufacturing
- Pendulum machining
- Fully automatic swivelling of the C-axis  $\pm 45^\circ$
- Low space requirement



Consequent state-of-the-art control technology, path control, comfortable interactive programming, self-diagnosis, and ease of operation.

## Our machines

are incorporating years of experience and knowledge of growing market demands combined with latest technologies on all levels of design and engineering.

### Highest workpiece accuracy:

- The strongly-ribbed cast iron base of the machine bed provides the required stiffness
- Extremely heavy machine weight
- The slideways are hardened and ground and the counterparts are coated and adjustable
- Active heat compensation
- Optional milling head cooling
- Direct path measuring systems



Prop shaft

For the large-scale production we offer a particularly optimized version.

Particularly developed, wear-resistant gear units offer optimum process parameters according to the range of application.

Highest workpiece accuracy and surface quality are guaranteed by a reinforced machine column and a controlled cooling of the milling head.



Milling tool for steering racks

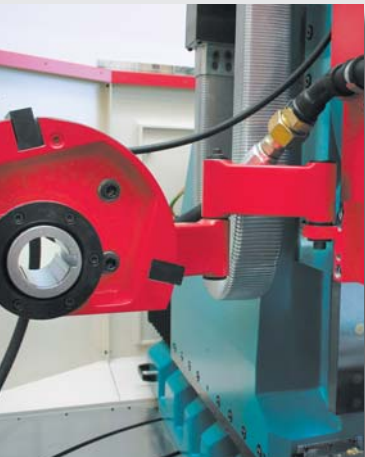


Steering rack



### Options available for the milling machine UPFM 500 F-CNC:

- Vertical milling head SK 40 (picture 2)
- Special clamping systems for special workpieces as e.g. steering racks and prop shafts on request (no illustration)
- Automatic loading and unloading of workpieces (no illustration)



1 Easy and rapid change of the milling cutter via swivelling thrust bearing.



2 Hydraulic clamping fixture, adjustable from 1 to 225 mm (360 mm)

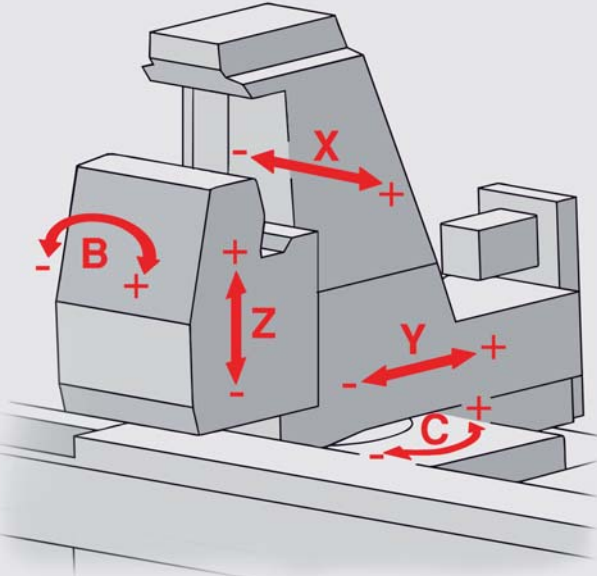


3 Tool magazine for vertical milling head



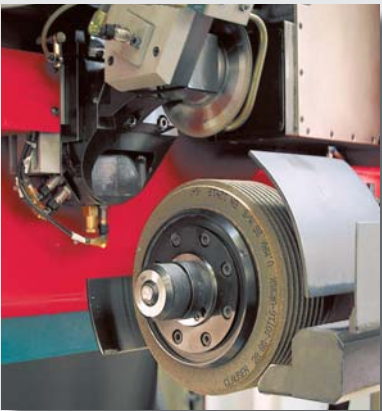
4 Controlled B-axis

### Flexible in all directions



# Grinding machine UPSM 500 F-CNC

Equipped with a profile dresser with 3 path-controlled CNC axes, freely programmable, using a rotating diamond wheel for dressing.



The machine is capable of producing gear teeth from module 0.1 to module 18 as well as blanking tools and many other special profiles.

The profiles may even be ground from the solid material (using pendulum grinding cycles or the creep-feed grinding method). The grinding wheel can be adapted to the required form, radius or a corrected profile and pitch of the workpiece.

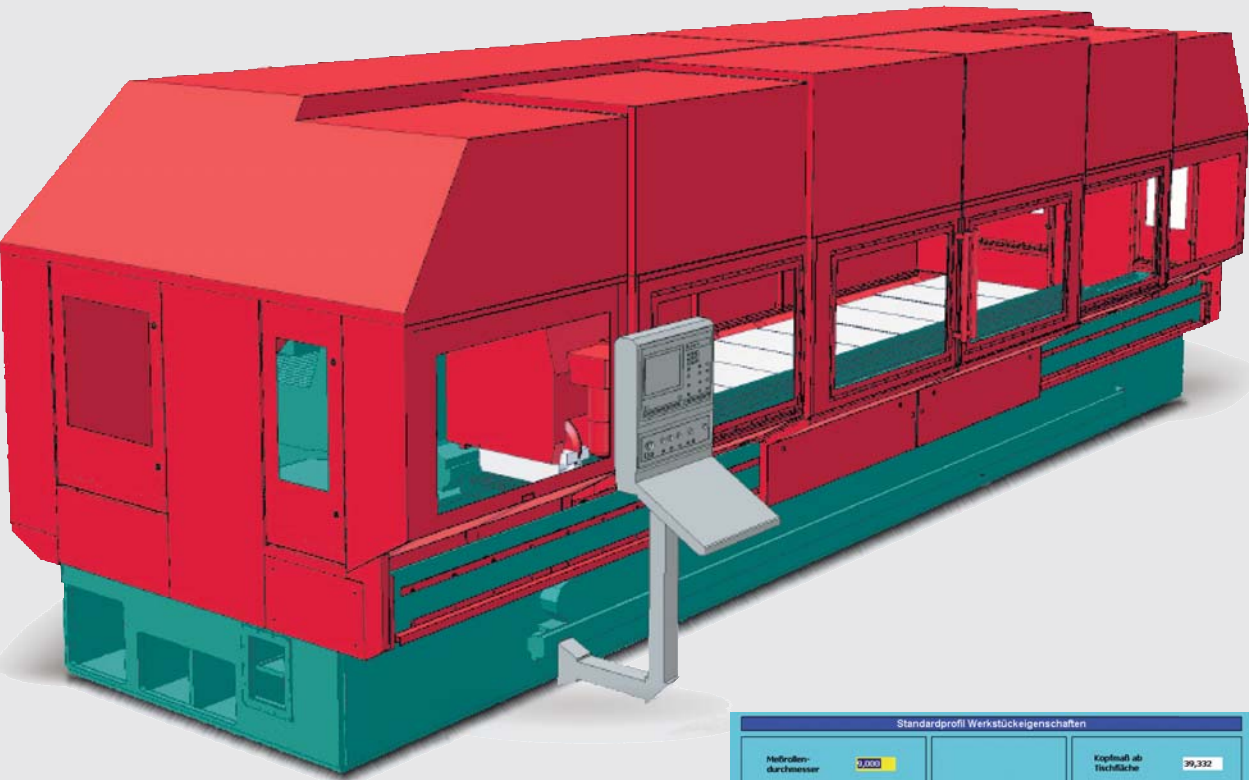


### High profitability:

- Profile dresser with dressing wheel
- Simple and rapid profiling
- Production time-parallel dressing
- Pendulum machining

### Options available for the grinding machine UPSM 500 F-CNC:

- Magnetic work holding plates
- Cooling unit for the coolant facility
- CO2 fire extinguishing unit
- Flat bed band filter with sludge sweeper



Easy and rapid operation by means of a special grinding software.

Standardprofil Werkstückeigenschaften									
Hubflanken- durchmesser	7,000		Kipmaß ab Tuchfläche	39,332					
Rollenmaß ab Tuchfläche	41,200		Zahngrundmaß ab Tuchfläche	28,082					
Tellereisenmaß ab Tuchfläche	34,332		Korrektur	0,000	X - Faktorm	83,333	X - Faktorm - Korrektur	0,000	
Z - Abstand Einbaulack	2,500								
Z - Abstand Höhenverstellung	2,500		Stirnneigung	16,667					Bearbeitung X =
Schlaglänge- wechsel S/L	-19,528		Schlaglänge- wechsel (S/L)	-0,013	Y - abhängige Z - Korrektur	0,000			
EGW Hauptmenü	Schleife abwählen	Abschleife Einstellung	Werkstück Eigenschaften	Bearbeitungs- einstellungen	Zuführdaten	Status = Start	Tastenspr. verwalten		

