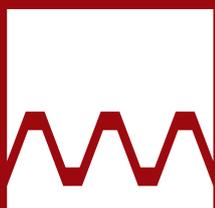


PPSM – HIGH PRECISION PRO- FILE GRINDING MACHINE

PPSM Type 2200 - 10200

For grinding racks up to module 22, broaches,
saw blades and special profiles



HABRAMA



PPSM-SERIES

Product Description

The principle

The high precision profile grinding machine moves a column in x-direction and works with a programmable servomotor-driven C-axis with a swivel area of -30° bis $+30^\circ$ for helical gearings.

The basic machine

The basic machine includes an range of equipment features that allows to use the machine in a very high level of machine availability for the precise production

Encapsulation, a position measuring system for all axes (apart from rotary axes), as well as a conditioned cabinet are equally important and therefore part of the standard version as well as chip conveyors, a filter system for the cooling agent and shock-absorbing elements.

Benefits

Highly rigid construction

The rigid construction guarantees a long lifespan combined with highest precision.

Highest dynamic

State-of-the-art linear drive technology ensures increased productivity.

Easy-to-use

With the sophisticated operating concept ergonomic handling and short training units are possible.

Precise incremental length measuring systems

Non-stop production

- // With the option „partition“ the insertion can take place during primary processing time without any down-time.
- // Standard and fully automatic position determination.
- // Travelling column design for loading and unloading by hand, by crane or by handling system.

Innovative details

Cylindrical grinding wheel adaptors guarantee a fast change of grinding wheels.



Cylindrical grinding disk holders

Dressing unit with diamond contouring wheel

Grinding head with balancing system as standard

Partition (Option)

User interface

Cooling unit

DETAILS AND OPTIONAL EQUIPMENT

Dressing during primary processing time by freely programmable 3-axis-dressing unit with diamond contouring wheel

The dressing of the grinding wheel during the grinding process with a 3-axis CNC-controlled diamond wheel guarantees a constantly high quality and less downtime.



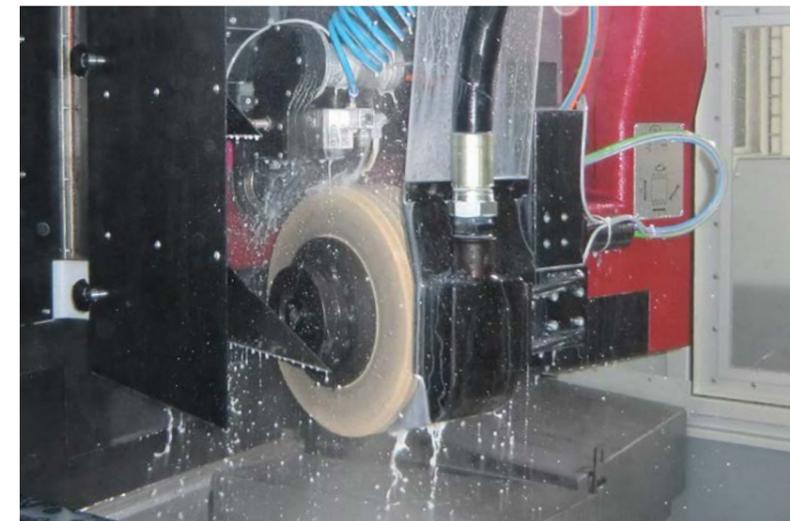
Partition (Option)

From a working length of 4m the machine can be equipped with a fully automatic partition.



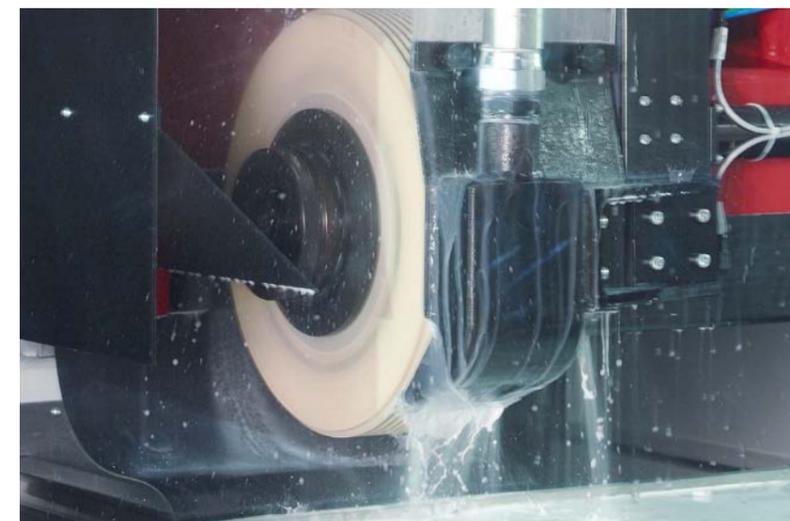
Cooling unit

Cooling device with integrated deep bed filter. Optional with 34 kW Coolant chiller.



Grinding head with balancing system as standard

Fully automatic balancing system which recognizes and removes unbalances at a very early stage. This guarantees a high quality of the workpiece surfaces and a long tool life of the spindle.



Automatic adjustment of cooling agent supply (Option)

The nozzle compensates abrasion on the grinding disk automatically.

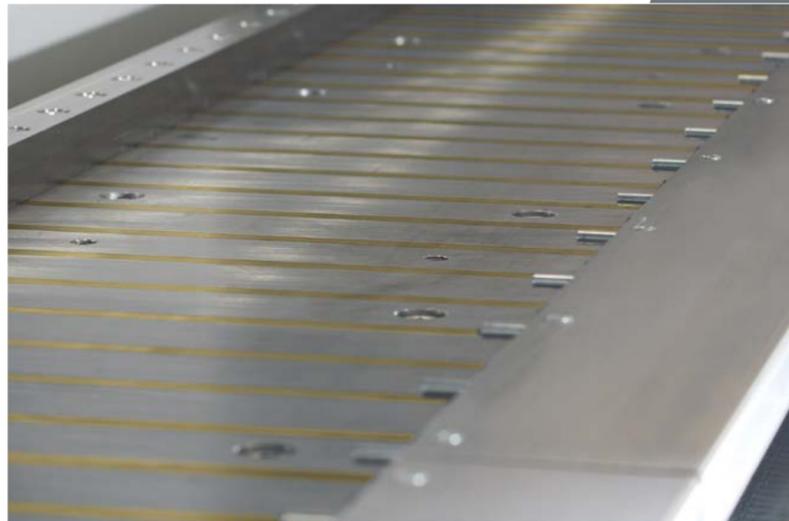
Magnetic clamping device (Option)

Electro-Permanent-Lifting Magnets
300 mm width.



Magnetic clamping with additional hydraulic clamping (Option)

The magnetic plates draw the workpiece downwards for optimum support and the hydraulic clamping device clamps the workpiece.



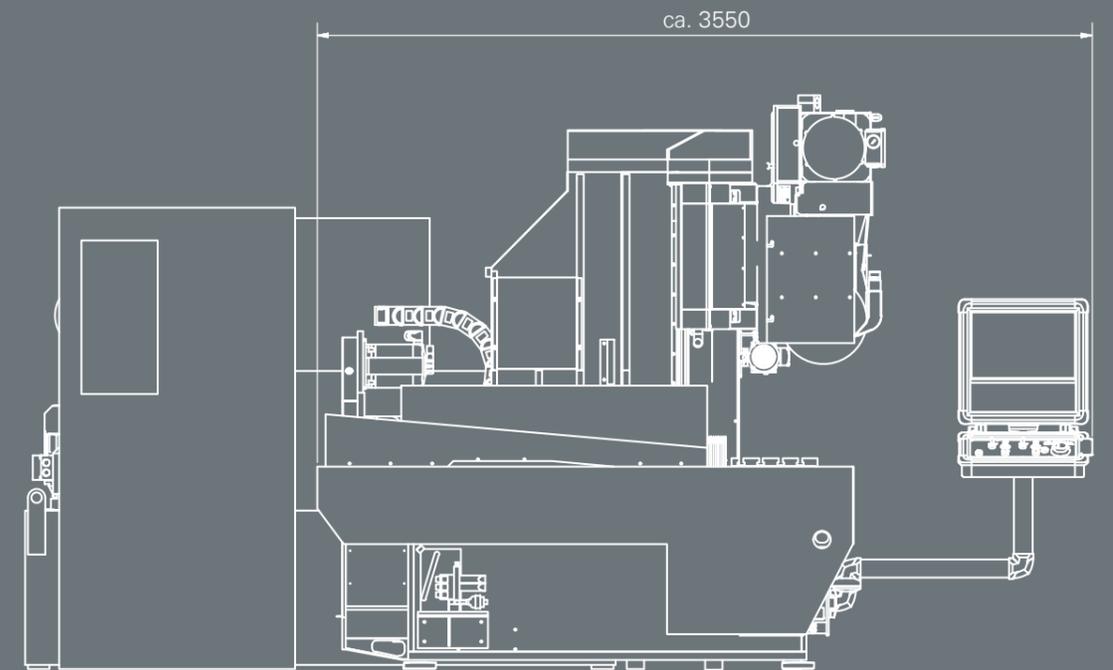
Hybrid clamping device (Option)

The magnetic plates draw the workpiece downward for optimum support and the hydraulic clamping device clamps the workpiece with up to 70 kN clamping force.



TECHNICAL DRAWINGS

Side view

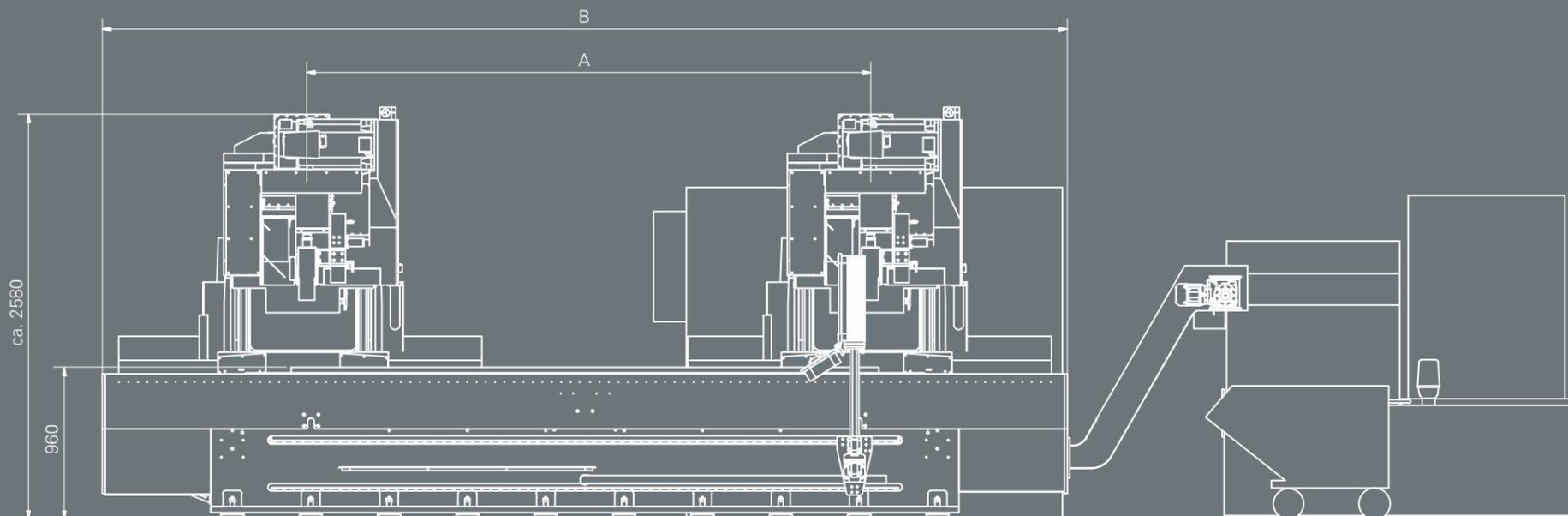
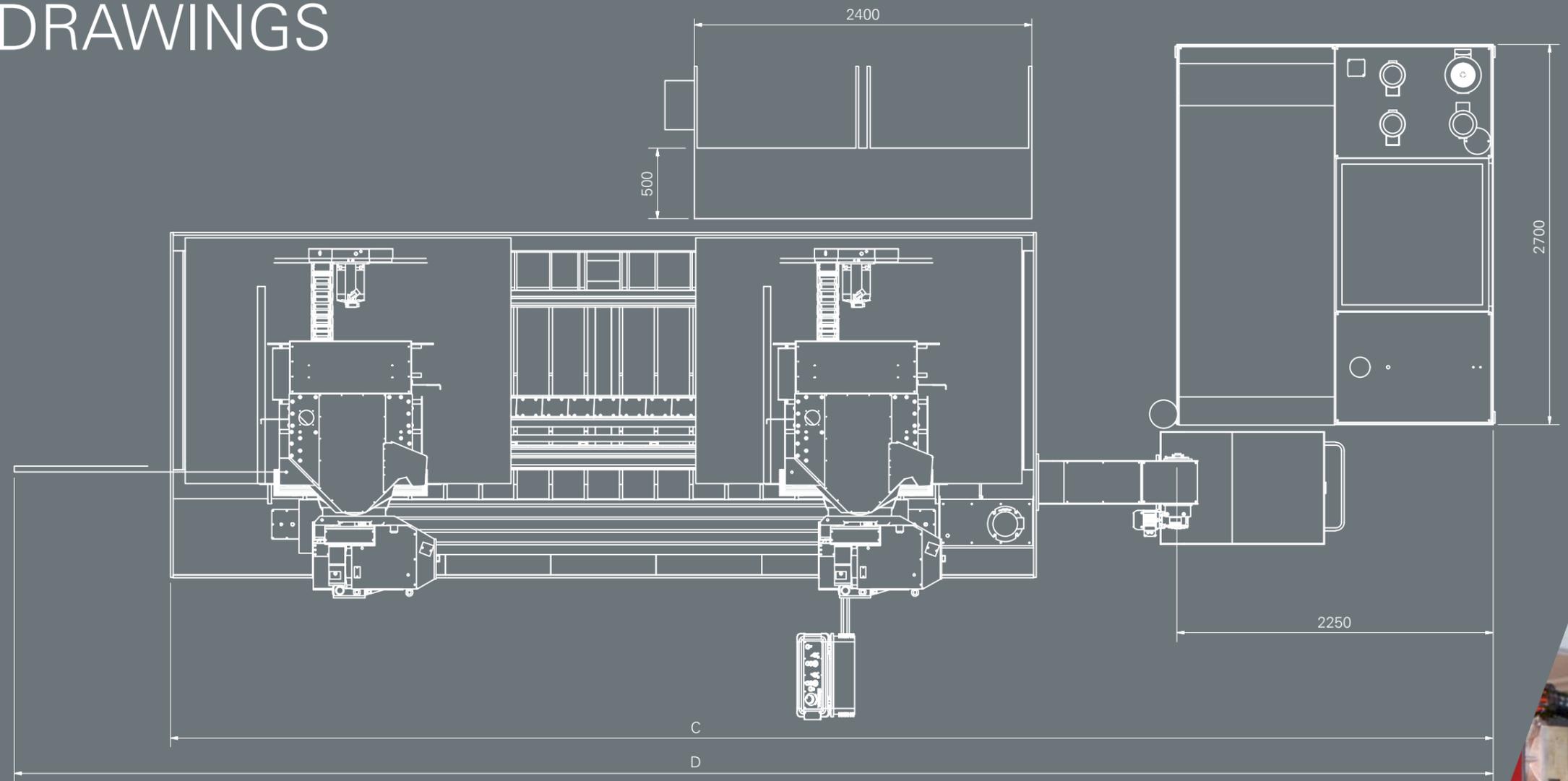


Dimensions

	PPSM 2200	PPSM 3200	PPSM 4200	PPSM 5200	PPSM 10200
A = Stroke	2.200 mm	3.200 mm	4.200 mm	5.700 mm	10.700 mm
B = Machine length	ca. 5.200 mm	ca. 6.200 mm	ca. 7.200 mm	ca. 8.700 mm	ca. 13.700 mm
C = Machine with cooling unit	ca. 8.000 mm	ca. 9.000 mm	ca. 10.000 mm	ca. 12.000 mm	ca. 17.000 mm
D = Space required with doors open	ca. 8.000 mm	ca. 9.000 mm	ca. 10.000 mm	ca. 12.000 mm	ca. 17.000 mm

TECHNICAL DRAWINGS

Front view (down)
Top view (right)



TECHNICAL DATA

	PPSM 2200	PPSM 3200	PPSM 4200	PPSM 10200
Working Area				
X - Axis lengthwise	2.200 mm	3.200 mm	4.200 mm	10.200 mm
Y - Axis crosswise	500 mm			
Z - Axis vertical	410 mm			
C - Axis	+30° / -30°			
B - Axis (Option)	+20° / -20°			
U - Axis	105 mm			
W - Axis	} balancing system	125 mm		
B2 - Axis (Option)		+20° / -20°		

Machine table

Dimensions correspond with clamping surface	390 x 3.750 mm	390 x 4.750 mm	390 x 5.750 mm	390 x 11.750 mm
Max. load	4.000 kg	6.000 kg	8.000 kg	20.000 kg
T - Sections	4 pieces			
T - Section distance	90 mm			
T - Section width	18 H7 mm			

X - Axis lengthwise

Speed	21 m/min
Incremental length measuring system	Direct positioning accuracy $\pm 0,002$ mm

Y - Axis crosswise

Speed	10 m/min
Incremental length measuring system	Direct positioning accuracy $\pm 0,002$ mm

Z - Axis vertical

Speed	6 m/min
Incremental length measuring system	Direct positioning accuracy $\pm 0,002$ mm

C - Axis

Speed	2 1/min
Absolute shaft encoder	Direct positioning accuracy $\pm 0,003^\circ$

B - Axis (Option)

Speed	6 1/min
Absolute shaft encoder	Direct positioning accuracy $\pm 0,003^\circ$

U - Axis

Speed	4 m/min
Incremental length measuring system	Direct positioning accuracy $\pm 0,002$ mm

W - Axis

Speed	4 m/min
Incremental length measuring system	Direct positioning accuracy $\pm 0,002$ mm

B2 - Axis (Option)

Speed	6 1/min
Absolute shaft encoder	Direct positioning accuracy $\pm 0,003^\circ$

Grinding head

Power consumption	45 kW (S6 at 40 %)
Speed range	max. 4000 1/min
Grinding wheel adapter	100 mm H5
Cutting speed, programmable	constant 10-80 m/s
Grinding wheel	kvitrified or resin-bonded grinding wheel
Grinding wheel with max.	101 mm
Grinding wheel \emptyset	min. 210 mm - max. 400 mm
Hole diameter of grinding wheel	152,4 mm (6 inch)
Grinding area	up to module 22, apical profiles freely programmable

Cooling unit

Cooling unit	approx. 4.000 l with integrated deep-bed filter
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Machine

Extraction of emulsion mist	2 x 1.800 m ³ /h
CNC-control	Siemens 840D sl
Drives	Siemens
Total connected load	100 kVA
Machine type / weight	20.000 kg 22.000 kg 24.000 kg 36.000 kg

Options

- // 3 clamping devices (magnetic, magnetic with additional hydraulic clamping, hybrid)
- // Automatic sliding doors
- // B-Axis servomotor controlled
- // 34 kW Cooling unit for a constant cooling agent temperature /machine temperature
- // Automatic adjustment of cooling agent supply
- // Partition (separation into two working areas/electrical)
- // Fleece separator
- // Hydraulic clamping nut



HABRAMA ZSM compact - SERIES

Rack Grinding Machine

ZSM compact Type 2200 - 3200
For grindings racks up to module 22



HABRAMA PPSM - SERIES

High Precision Profile Grinding Machine

PPSM Type 2200 - 10200
For grinding racks up to module 22,
broaches, saw blades and special profiles



HABRAMA KPSM - SERIES

Contour Precision Grinding Machine

KPSM Type 2200 - 4200
For longitudinal profile grinding up
to 70 x 70 mm



HABRAMA FSM - SERIES

Flat Grinding Machine

FSM Type 2200 - 4200
For flat grinding up to 600 mm width



HABRAMA ZFM compact - SERIES

Rack Milling Machine

ZFM compact Type 2200 - 3200
For milling racks up to modul 36



HABRAMA PPFM - SERIES

High Precision Milling Machine

PPFM Type 2200 - 10200
For milling racks up to modul 36,
broaches, saw blades and special profiles



HABRAMA UVF - SERIES

Universal Gear Milling Center

UVF-Center II - III
For gear cutting of gear wheels, worms,
worm wheels, spline shafts, trapezoidal
thread spindles and timing belt pulleys



HABRAMA ZEM - SERIES

Rack Deburring Machine

ZEM Type 1000 - 2000
For deburring of rack teeth up to
a cross-section 100 x 100 mm



HABRAMA ZLM - SERIES

Automatic Rack Measuring Machine

ZLM Type 1000 - 2000
For measuring racks up to a
cross-section 100 x 100 mm



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