PPFM – HIGH PRECISION MILLING MACHINE

PPFM Type 2200 - 10200

For milling racks up to modul 36, broaches,
saw blades and special profiles

HABRAMA

PPFM-SERIES

Product Descripton

The principle: PPFM High Precision Profile milling machine
The high precision profile milling machine moves a column in x-direction and works with a programmable servomotor-driven C-axis in a swivel area of -30° to +30°. Even the basic version guarantees a very high level of machine availability for the precise production. We believe that partial encapsulation, a position measuring system for all axes (aport 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.

The basic machine: precise and robust
The machine bed of the travelling column machine is made of a ripped welded construction. The generously dimensioned guides consist of the linear axes X, Y and Z made of high-precision profile guides which are centrally lubricated. Heavy steel covers protect the guides of the linear X- and Y-axes.

Control: Innovative system platform
A 840D sl Siemens control with Sinamics-drives in a Rittal conditioning cabine is used. The user-friendly User Interface guarantees easy and comfortable machine operations.

Benefits

Non-stop production
Loading during primary processing time by pendular processing, optionally with partition.

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

Precise incremental length measuring system.

Easy-to-use
With the sophisticated operating concept ergonomic handling and short training units are possible.
+ Equipped for teleservice
+ Special user interface for gear milling without NC programming.

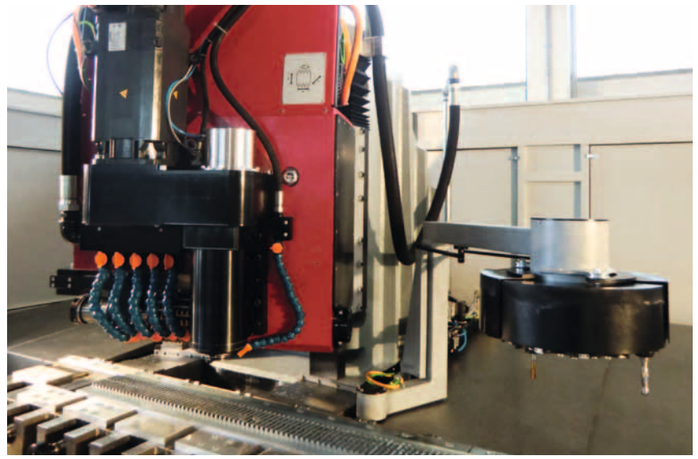
DETAILS AND OPTIONAL EQUIPMENT

Control / User interface

Siemens 840D sl with Sinamics-drives in an air-conditioned cabinet. Equipped for teleservice.

Milling tool change

Quick and simple milling tool change by a swiveling counter bearing.



Vertical spindle (Option)

Can also be fitted with a tool changer (for 10 tools).

Optimal cooling

The full covering allows high quantity of cooling lubrictaion which enables a long tool service life.

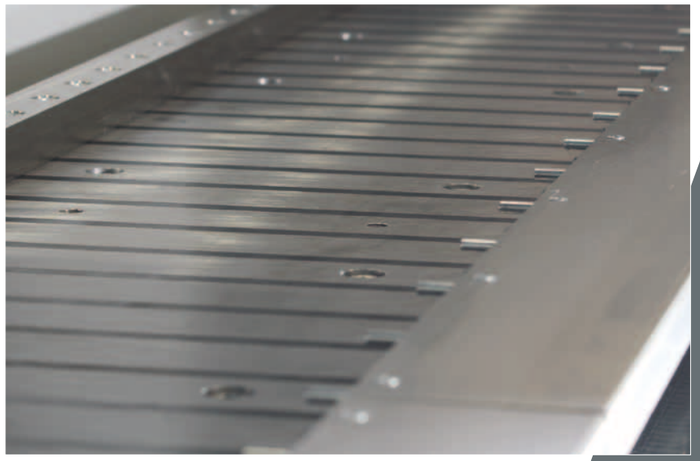
Fine filter system (Option)

With a 13 kW cooling unit for emulsion.

TECHNICAL DRAWINGS

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.



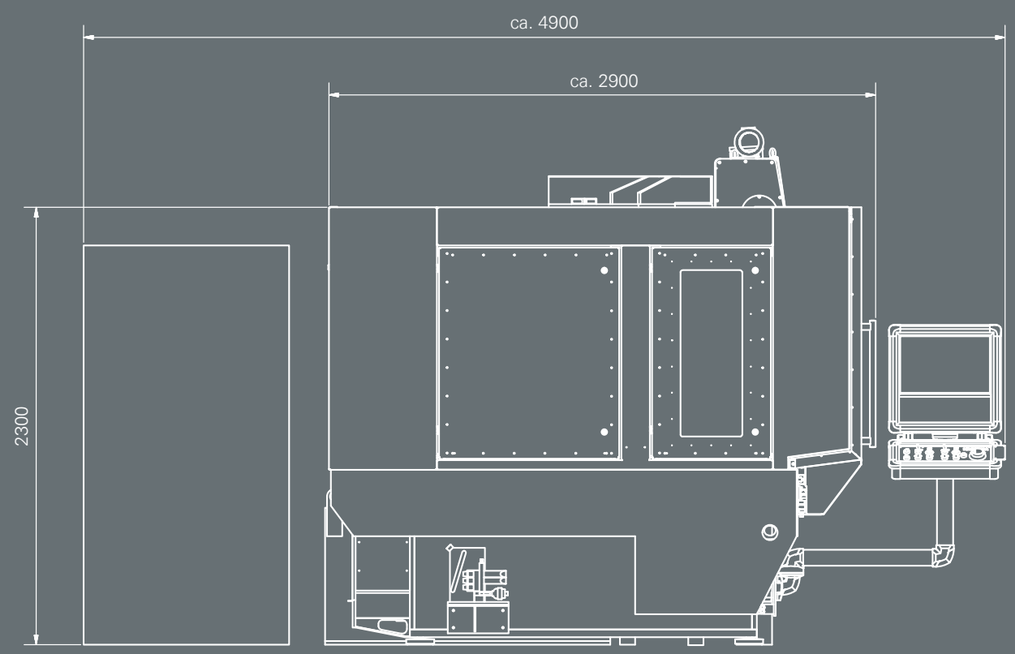
Hydraulic clamping device (Option)

Gressel Gripo 160 with a clamping force of 70 kN max.

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.

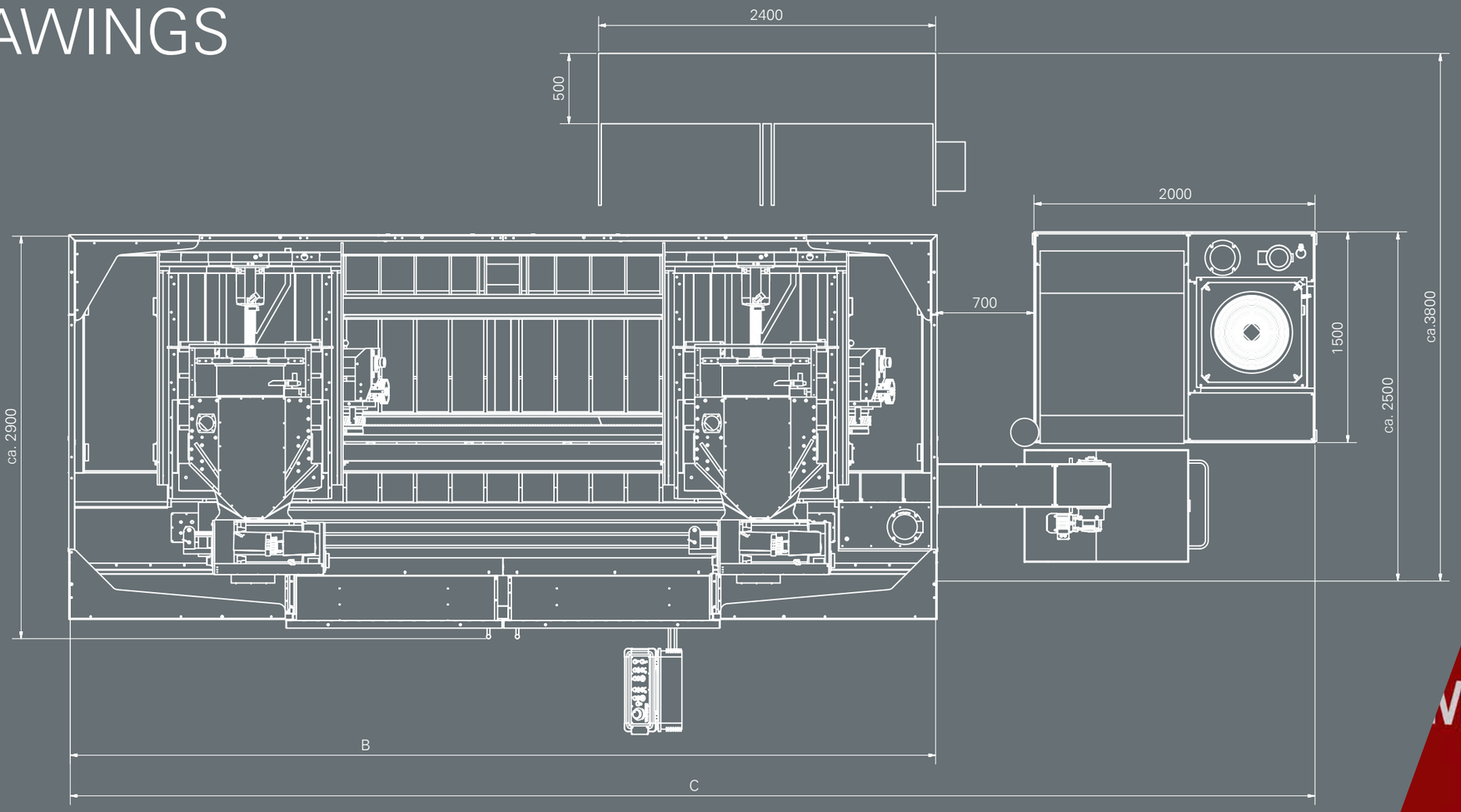
Side view

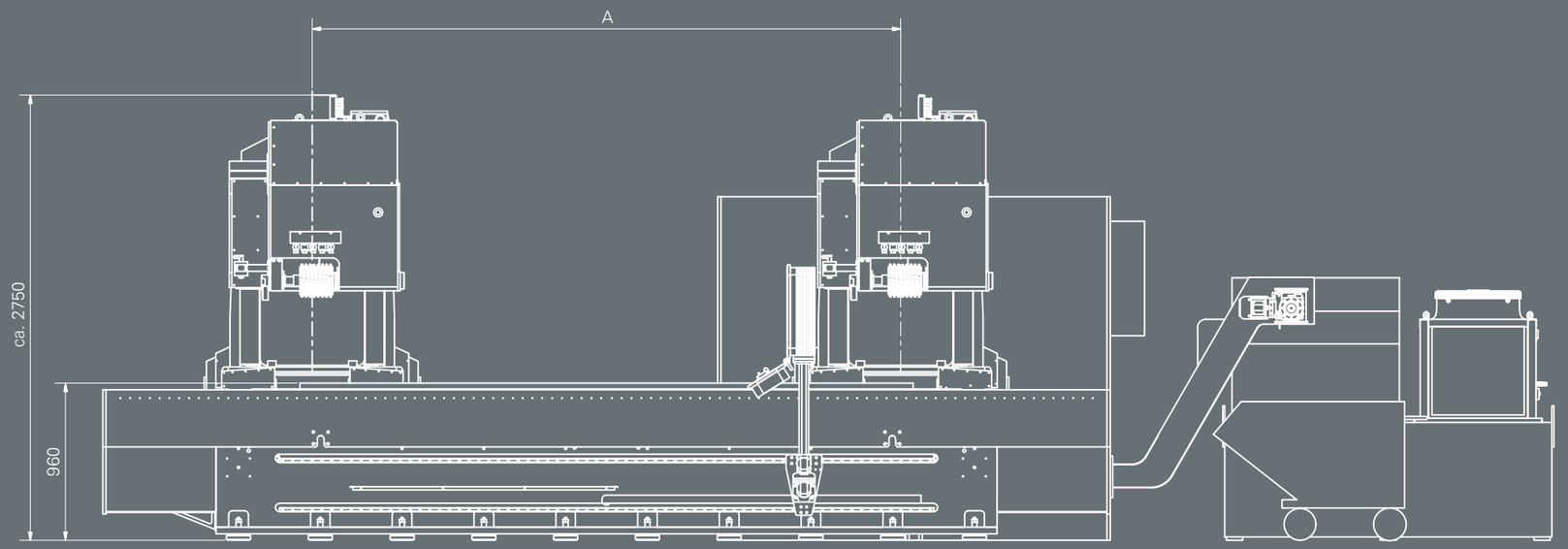


Dimensions	PPFM 2200	PPFM 3200	PPFM 4200	PPFM 5200	PPFM 10200
A = Stroke	2.200 mm	3.200 mm	4.200 mm	5.200 mm	10.200 mm
B = Machine length	ca. 5.200 mm	ca. 6.200 mm	ca. 7.200 mm	ca. 8.200 mm	ca. 13.700 mm
C = Machine with cooling unit	ca. 7.900 mm	ca. 8.900 mm	ca. 9.900 mm	ca. 10.900 mm	ca. 15.500 mm

TECHNICAL DRAWINGS

Front view (down)
Top view (right)





TECHNICAL DATA

	PPFM 2200	PPFM 3200	PPFM 4200	PPFM 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°			
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 lenght measuring system	Direkt-Positioniergenauigkeit ±0,002 mm			
Y - Axis crosswise				
Speed	10 m/min			
Incremental lenght measuring system	Direct positioning accuracy ±0,002 mm			
Z - Axis vertical				
Speed	6 m/min			
Incremental lenght measuring system	Direct positioning accuracy ±0,002 mm			
C - Axis				
Speed	2 1/min			
Absolut shaft encoder	Direct positioning accuracy ±0,003°			
B - Axis (Option)				
Speed	6 1/min			
Absolut shaft encoder	Direct positioning accuracy ±0,003°			

	PPFM 2200	PPFM 3200	PPFM 4200	PPFM 10200
Milling head				
Power consumption	45 kW (S6 at 40% ED)			
Spindle speed	0-360 1/min.			
Milling tool Ø max.	300 mm			
Milling tool Ø min.	125 mm + 2 x Milling depth			
Milling performance up to	Module 36			
Milling spindle adaptor	SK 45 DIN 69871			
Cutter arbor Ø	40 - 60 mm			
Hinge-mounted counter-bearing for cutter arbor				
Cooling unit				
Cooling unit	Self-cleaning filter system approx. 2.000 liters			
Machine				
CNC Control	Siemens 840D sl			
Drives	Siemens			
Total connected load	80 kVA			
Weight	20.000 kg	22.000 kg	24.000 kg	36.000 kg

Options

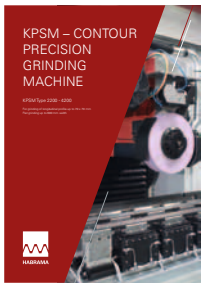
// 3 clamping options (magnetic with additional hydraulic clamping, hydraulic, hybrid)
// Full enclosure / automatic sliding doors
// B-Axis servomotor controlled
// 13 kW Cooling unit for a constante cooling agent temperature/machine temperature
// Partition (separation into two working areas/electrical)
// Vertical spindle
// Tool changer for 10 tools
// Vibration measuring instrument
// Spindle utilization monitoring
// Fleece separator
// Oil collection pans

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 ZSM compact - SERIES

Rack Grinding Machine
ZSM compact Type 2200 - 3200
For grinding racks up to module 22



HABRAMA KPSM - SERIES

Contour Precision Grinding Machine
KPSM Type 2200 - 4200
For longitudinal profile grinding up to 70 x 70 mm

HABRAMA ZFM compact - SERIES

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

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
Deburring of rack teeth up to
a cross-section 100 x 100 mm

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and variants and are therefore not legally binding.

HABRAMA

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