

**FLOOR TYPE BORING AND MILLING MACHINES, BORING AND MILLING CENTERS,
MACHINING CENTERS, GANTRY TYPE VERTICAL MACHINING CENTERS**



- established in 1926
- over 80 years of know-how in the field of boring and milling machines
- leader among machine tool manufacturers
- factories located in Rovereto and Brescia (Italy) on an overall indoor area of 28.000 sqm
- quality qualified ISO 9001 / Vision 2008
- over 80% of production is exported



all main components are internally designed, manufactured and tested





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SPEEDCENTER

horizontal machining centers

- availability of three headstock versions (H, HV, A)
- high spindle speed, power and torque
- high axes feedrate and acceleration
- high chip removal rate on cast iron, steel and titanium alloy
- optimal simultaneous 5-axes machining of complex surfaces
- maximum workpiece swing diameter ranging from 3000 mm to 4600 mm
- X and Z beds conceived for positioning at floor level to reduce installation times and civil works costs
- chip conveyor and coolant recovery systems integrated with the machine guarding



SPEEDCENTER

1250 • 1600 • 2000

Working area

X axis (table)	mm	3000 - 4600
Y axis (headstock)	mm	2000 - 3000
Z axis (column)	mm	2300 - 3200
Max. swing diameter	mm	3000 - 4600

Table

Pallet size	mm	1250 x 1250 - 2000 x 2500
Pallet capacity	t	8 - 20

Axes features

X, Y and Z axes feed / rapid	mm/min	45000 - 25000
B axis feed / rapid	rpm	7,0 - 3,5
X, Y and Z axes acceleration	m/s ²	2
B axis acceleration	rad/s ²	0,7

Headstock H

Max. spindle speed	rpm	4000 - 7000
Max. spindle power (S1-100%)	kW	37 - 50
Max. spindle torque (S1-100%)	Nm	1525 - 624

Headstock HV

Max. spindle speed	rpm	4500 - 7000
Max. spindle power (S1-100%)	kW	50 - 50
Max. spindle torque (S1-100%)	Nm	975 - 624

Headstock A

Max. spindle speed	rpm	6000 - 8000
Max. spindle power (S1-100%)	kW	50 - 54
Max. spindle torque (S1-100%)	Nm	780 - 400



SPEEDMAT

boring and milling centers

- monolithic casting boring spindle headstock centrally mounted
- real time CNC controlled compensation of spindle elongation / contraction (PAMA patent)
- high spindle speed, power and torque
- high axes feedrate
- high chip removal rate on cast iron, steel and titanium alloy
- maximum workpiece swing diameter ranging from 3000 mm to 4600 mm
- X and Z beds conceived for positioning at floor level to reduce installation times and civil works costs
- chip conveyor and coolant recovery systems integrated with the machine guarding





SPEEDMAT		1.2.3.4.5
Working area		
X axis (table)	mm	2600 - 4600
Y axis (headstock)	mm	2000 - 3000
Z axis (column)	mm	2300 - 3200
W axis (boring spindle)	mm	800
Max. swing diameter	mm	3000 - 4600
Table		
Table or pallet size	mm	1250 x 1250 - 2000 x 2500
Table capacity	t	10 - 25
Pallet capacity	t	8 - 20
Axes rates		
X, Y, Z and W axes feed / rapid	mm/min	20000 (30000)
B axis feed / rapid	rpm	7,0 - 3,5
Headstock		
Boring spindle diameter	mm	130 - 160
Max. spindle speed	rpm	4000 - 3500
Spindle gear ranges		2
Max. spindle power (S1-100%)	kW	37 - 52
Max. spindle torque (S1-100%)	Nm	1525 - 2396

SPEEDRAM

floor type boring and milling machines

- integral hydrostatic guideways
- rectangular ram fully enclosed in a monolithic headstock casting with hydrostatic support on all sides
- boring spindle diameter from 130 mm to 260 mm
- real time CNC controlled compensation of ram and spindle elongation / contraction (PAMA patents)
- high spindle speed, power and torque
- optimal axes feedrate
- superior machining accuracy
- high chip removal rate on cast iron, steel and titanium alloy
- versatility of configuration thanks to a wide choice of head attachments, rototraversing tables and accessories





SPEEDRAM		1000 • 2000 • 3000 • 4000 • 6000
Working area		
X axis (column)	mm	4000 - 6000
	mm	+N x 1000
Y axis (headstock)	mm	2000 - 8000
Z axis (ram)	mm	1000 - 2000
W axis (boring spindle)	mm	700 - 1800
Z+W axes	mm	1700 - 3600
Headstock		
Ram section	mm	360 x 400 - 600 x 725
Boring spindle diameter	mm	130 - 260
Max. spindle speed	rpm	4000 - 1200
Spindle gear ranges		2 - 3
Max. spindle power (S1-100%)	kW	37 - 135
Max. spindle torque (S1-100%)	Nm	1525 - 28636
Axes rates		
X, Y, Z and W axes feed / rapid	mm/min	30000 - 12000

VERTIRAM

gantry type vertical machining centers

- integral hydrostatic guideways
- square ram with hydrostatic support on all sides, fully enclosed in a monolithic headstock casting integral with the Y axis saddle
- high spindle speed, power and torque
- optimal axes feedrate
- superior machining accuracy guaranteed by optimal structural quality and stability and innovative in-process compensation systems (PAMA patents)
- high chip removal rate on cast iron, steel and titanium alloy
- versatility of configuration thanks to a wide choice of modules, head attachments and accessories





VERTIRAM		1.2.3.4.5
Working area		
Clearance between columns	mm	4600 - 6600
Max. clearance under spindle	mm	4000 - 5000
X axis (gantry)	mm	6000
	mm	+ N x 1000
Y axis (headstock)	mm	5900 - 7900
Z axis (ram)	mm	2000
W axis (crossrail)	mm	2600 - 3600
Headstock		
Ram section	mm	590 x 590
Max. spindle speed	rpm	4500
Spindle gear ranges		4
Max. spindle power (S1-100%)	kW	80 - 100
Max. spindle torque (S1-100%)	Nm	7600 - 9500
Axes rates		
X axis feed / rapid	mm/min	20000 - 15000
Y and Z axes feed / rapid	mm/min	25000
W axis feed / rapid	mm/min	15000 - 10000



hydrostatic rototraversing tables

- PAMA floor type boring and milling machines may be equipped by a full range of hydrostatic rototraversing tables with loading capacity from 40 t to 600 t

Technical features of hydrostatic rototraversing tables

		TH 40	TH 65	TH 100	TH 160	TH 300	TH 600
Loading capacity	t	40	65	100	160	300	600
Min. table surface	mm	2000 x 2000	2500 x 2500	3000 x 3000	4000 x 4000	5000 x 5000	6000 x 6000
Max. table surface	mm	2500 x 3000	4000 x 4000	5000 x 5000	6000 x 6000	6000 x 12000	8000 x 12000
V axis longitudinal travel	mm	1500 - 3500	2000 - 4000	2500 - 4500	3000 - 5000	5000 - 8000	5000 - 8000

Tables with other dimensions and loading capacity are available upon request



tool magazines

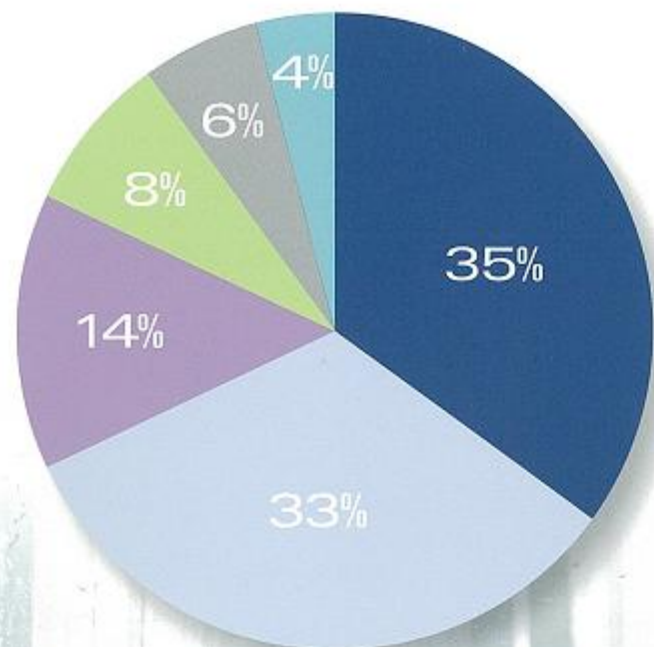
- the productivity of all PAMA machines may be further enhanced by a complete range of tool magazine options



head attachments

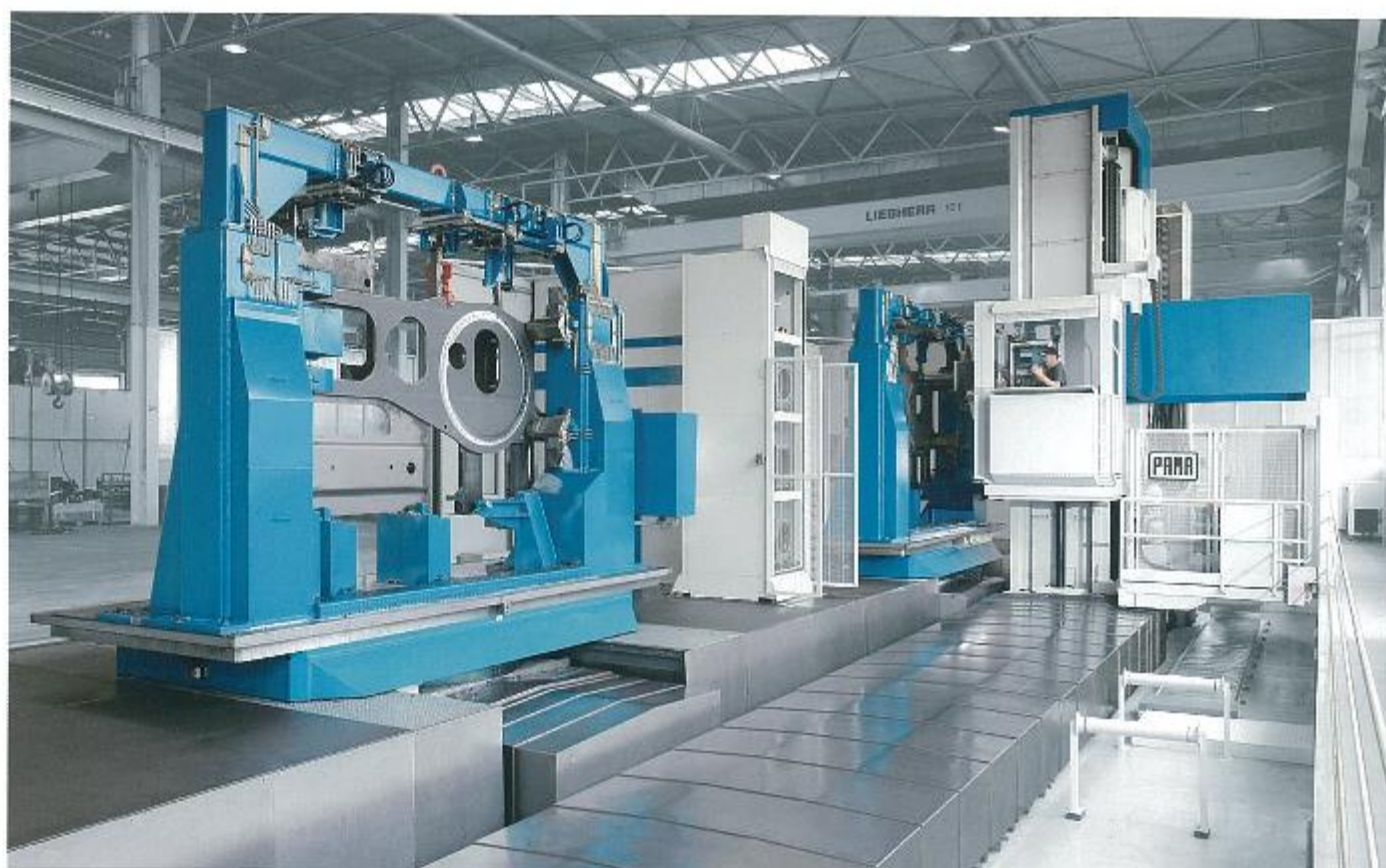
- the versatility of all PAMA machines may be increased by a wide range of head attachments and changers to meet specific needs and satisfy all the requirements in various fields of application

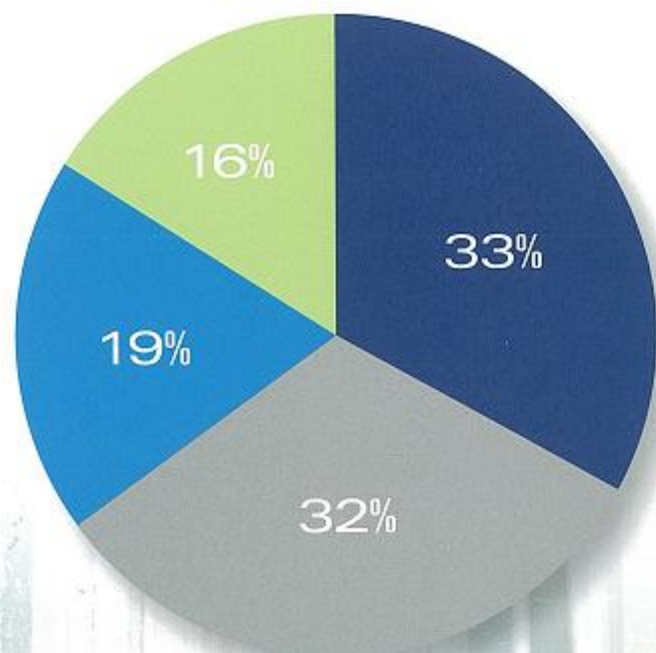
THE APPLICATIONS



- power generation
- general machining
- earthmoving
- heavy mechanical engineering
- shipbuilding and railway
- aerospace







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