P SERIES
5 AXIS UNIVERSAL PORTAL MACHINING CENTERS

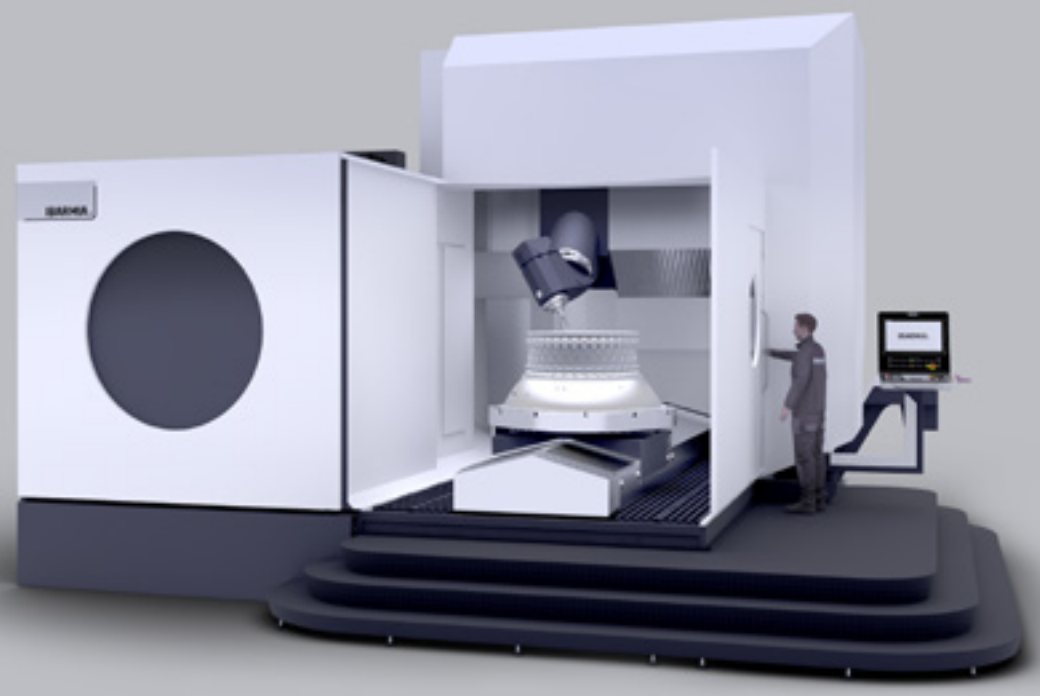
P26 / P30 / P36 MODELS

IBARMIA.
YOUR MACHINE TOOL POINT

Portal structure machining centers for 5 axis machining of big diameter parts, focused on high productivity by integrating multitasking technology and automation systems.

P SERIES

P SERIES



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5 AXIS UNIVERSAL PORTAL
MACHINING CENTERS

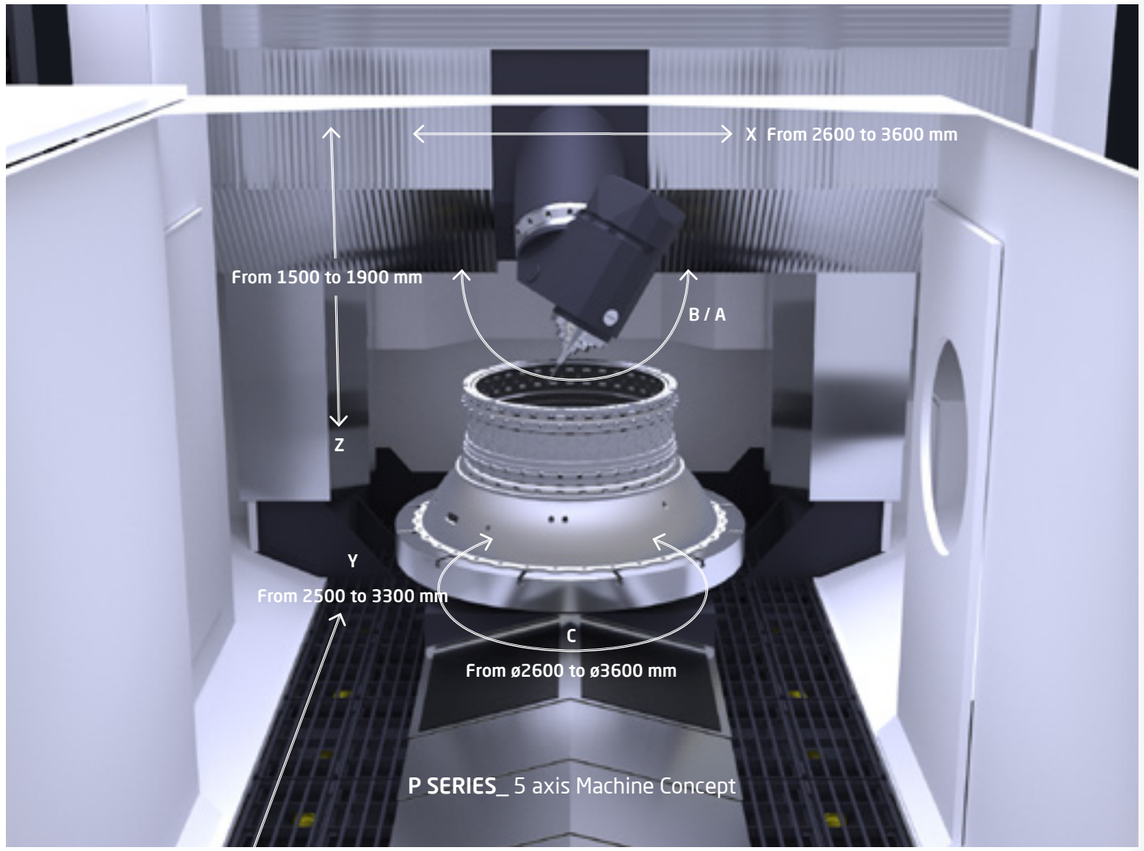
P SERIES

P SERIES

1_ GENERAL VIEW

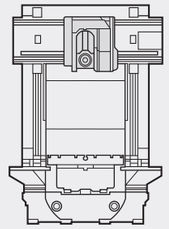
MACHINING **BIG COMPLEX PARTS**

The P SERIES is a natural evolution of the successful T SERIES to respond to market demands. It has been conceived to go beyond the X-Y plane completing by this way the IBARMIA's range of solutions for the advanced machining of big complex parts. The P SERIES concept even allows the part to be machined completely without the need to use the C axis, simplifying programming and optimising the machining process. In summary, the introduction of the P SERIES combines all the advantages of the T SERIES, simplifies programming and increases swing capacity, thus offering our customers a complete range of solution for their large part machining needs.



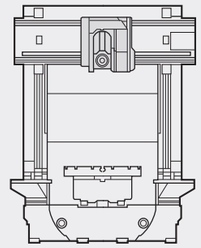
P SERIES_ 5 axis Machine Concept

MACHINE SIZES



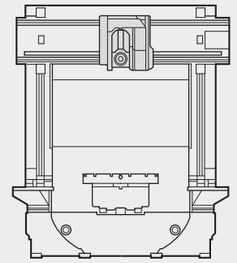
P26

Maximum swing diameter
ø 2600 mm
Maximum part height
h 1750 mm
Maximum load capacity
15.000 Kg



P30

Maximum swing diameter
ø 3000 mm
Maximum part height
h 1950 mm
Maximum load capacity
20.000 Kg



P36

Maximum swing diameter
ø 3600 mm
Maximum part height
h 2150 mm
Maximum load capacity
25.000 Kg

SPINDLE HEADS

PHC_ **B axis** head
Maintain the same tool center point across the full range
-15º/+195º

PHR_ **A axis** head
Fork type spindle head ideal for negative angles
-45º/+135º

ELECTROSPINDLES

High torque & high speed
Latest technology electrospindles

WORKING TABLES

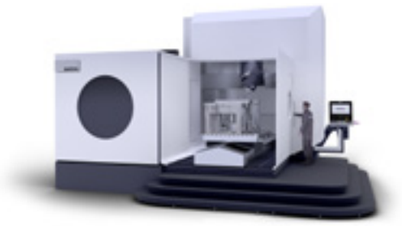
Direct Drive Technology
Torque motor transmission working tables

PERFORMANCE LEVELS

P MULTIPROCESS
Universal machining centers for 5-axis milling and turning operations.
Tool holder: HSK A-100 / Capto C8

Freedom to choose
among the most prestigious CNC platforms

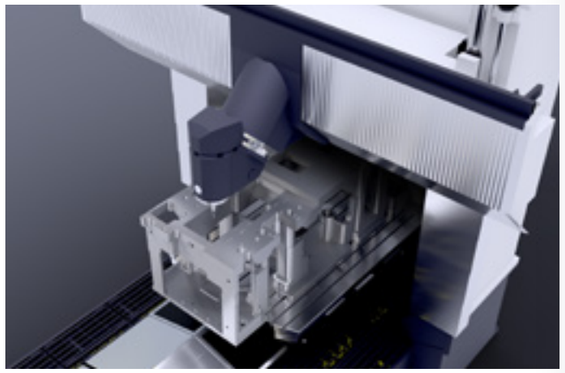
HEIDENHAIN
FANUC
SIEMENS



P EXTREME
Universal machining centers for 5-axis / 5-sided milling operations.
Tool holder: SK 50 / BT 50 / HSK A-100

P SERIES PROGRAM_
FOCUSED ON HIGH PRODUCTIVIT

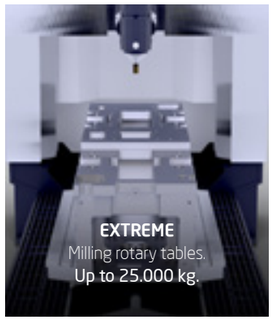
Machine up to in 5 simultaneous axes in combination with the table rotary axis and the high dynamics of the headstock rotation, by using direct motor technology, with high positioning precision thanks to direct measuring systems in the axes. To complete the range and focusing on high productivity, IBARMIA offers a complete range of machine automation soutions, so through own developmet Pallet System Solutions than in collaboration with the most prestigious manufacturers for the managment of special tools and heads, to configurate a complete manufacturing cell to produce big complex parts in only one set up.



HC_ B axis head
Maintain the same tool center point across the full range: -15°/+195°.

HR_ A axis head
Fork type spindle head ideal for negative angles: -45°/+135°

MULTIPROCESS
Turning & Milling rotary tables.
Up to 300 rpm / 16.000 kg



EXTREME
Milling rotary tables.
Up to 25.000 kg.

MACHINE ROTARY AXES CONFIGURATION_
1_ TILTING HEADS

DIRECT DRIVE

- High dynamics B or A axis continuous tilting heads
- TORQUE MOTOR technology.
- Fast continuous and accurate movements.
- Measured by rotary scale.
- Backlash free.
- Extraordinary precision.
- Maintenance reduction.

- Positioning accuracy: 10"
- Turning torque S1: 1210 Nm
- Turning torque peak value: 2120 Nm
- Clamping force: 6000 Nm
- Rapid feed for positioning: 50 rpm

MACHINE ROTARY AXES CONFIGURATION_
2_ WORKING TABLES / PERFORMANCE LEVELS

DIRECT DRIVE

- Direct Drive transmission TORQUE MOTOR technology turning & milling tables (MULTIPROCESS level), or milling tables (EXTREME level).
- Maximum dynamics in turning operations and positioning accuracy in milling operations.

- Positioning accuracy: +/-4"
- Nominal torque up to 18.000 Nm
- Max power up to 120 kW

MACHINE AUTOMATION CONFIGURATION_
HIGH PRODUCTION MANUFACTURING CELLS

AUTOMATIC PALLET CHANGER_ The average cycle time of the pieces and the duration of unattended use of the machine are the key factors to determine the number of pallets. P SERIES offers simple modular solutions of 2 and 4 positions Projects requiring a larger number of pallets can be configured with linear storage with capacity for future growth, either for station units and/or machining units.

AUTOMATIC TOOL CHANGER_ P SERIES offers various degrees of tool management, from standard 60-360 chain driven ATCs, to large capacity polar type magazines up to 400 positions tools managed by robot.

The high-rigidity crossbeam provides transversal movement along the X axis through a rotating ball screw system and two guideways with direct measurement.
Structural bodies of maximum rigidity optimised by finite elements (FEM). X / Y / Z axes over linear guides with preloaded rolling shoes with two rows of circulating rollers. Rectified ball screws of high precision with preloaded double nuts for the longitudinal axis movement.
Thermo-symmetrical and thermostable structure design complemented with digital thermal twin models.

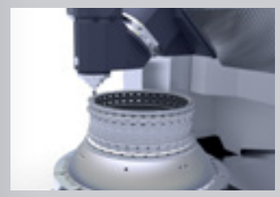
PRE-CISION+ TECHNOLOGY

- **Positioning (ISO 230-2): 10 µm**
- **Repeatability (ISO 230-2): 7 µm**

Integral cooling measures to improve the thermal behaviour of the machine:
1_ Spindle head
- Motorised electrospindle.
- Direct Drive torque motor B axis.
- Direct Drive torque motor A axis.

2_ Rotary table
- Bearing.
- Direct Drive torque motor.

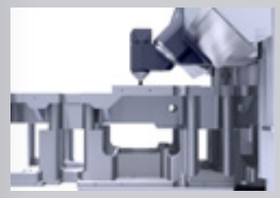
3_ Basic structure
- X / Y / Z axis motors.
- Support motors X / Y / Z axes.
- Ball screw nut support X / Y / Z axes.
- Bearing support combined Z axis.
- Cooler with PID control.
- Cooler for coolant with PID control.



01

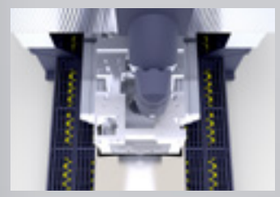
BORN TO BULLSEYE
This model gives you direct, unobstructed access to the core of your part:
- No detours.
- No structural interference.
- Just perfect geometry.

THE ADVANTAGES OF THE PORTAL STRUCTURE



02

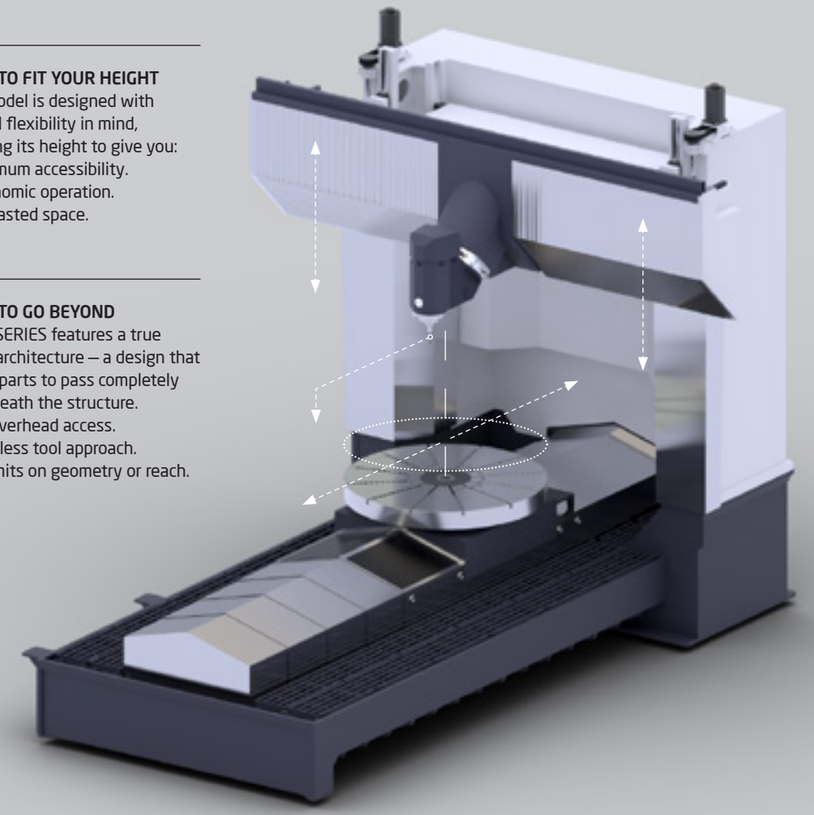
BORN TO FIT YOUR HEIGHT
This model is designed with vertical flexibility in mind, adapting its height to give you:
- Maximum accessibility.
- Ergonomic operation.
- No wasted space.



03

BORN TO GO BEYOND
The P SERIES features a true portal architecture – a design that allows parts to pass completely underneath the structure.
- Full overhead access.
- Seamless tool approach.
- No limits on geometry or reach.

ONE ARCHITECTURE.
THREE BOLD ADVANTAGES.
ONE MISSION:
MAKE IT EASIER.



(IN THE PICTURE, **PHC 26 MULTIPROCESS**)

5 AXIS UNIVERSAL PORTAL
MACHINING CENTERS

P SERIES

P SERIES

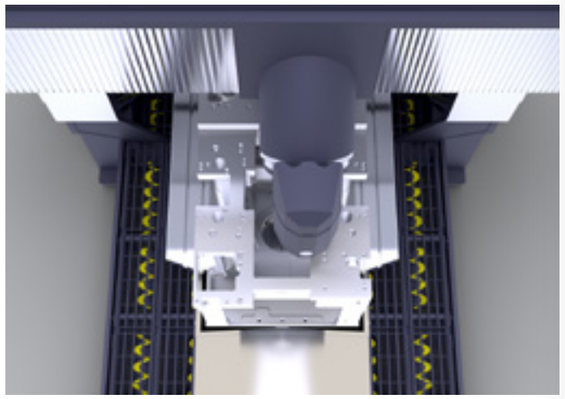
2_ APLICATION INDUSTRIES

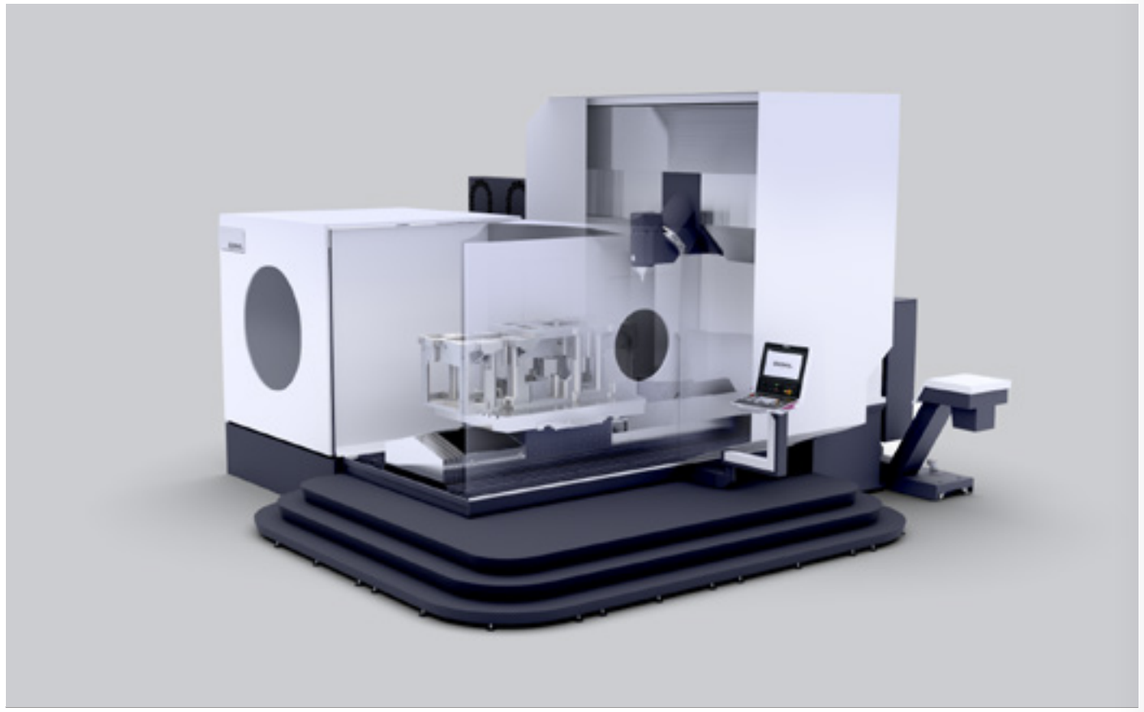
5 AXIS ADVANCED MACHINING

The P SERIES is the ideal solution for high production of large size cubic pieces in a single set up, with power and accuracy. A generous workspace and the combination of linear and rotary axes, offer a wide range of solutions for advanced machining in 5 axes / 5 faces on parts up to ø3600 mm and h2150 mm in a wide range of materials and the most complex geometries.

RANGE OF MACHINING

Extra long parts | Medium diameter parts | Big diameter tall parts





SAMPLE APPLICATIONS

Fluid end

Industrial mold

Compressor Cylinder

Turbocharger housing

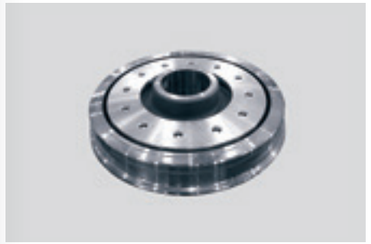
Valve body

Engine block

Ram Bop

Roller cage for bearings

Aerospace engine housing



Railway wheel

Pipe line compressor housing

Impeller shaft

INDUSTRIES & MATERIALS

OIL & GAS | MOLD & DIE | AEROSPACE | AUTOMOTIVE | RAILWAY | MACHINERY | YELLOW GOODS

Low-Alloy Steel | Grey Cast Iron | Nickel based Super Alloy | Austenitic Stainless Steel | Aluminium based Alloy | Extra hard Steel

P SERIES

P SERIES

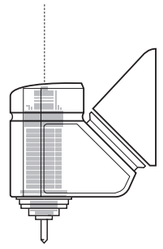
3_ ELECTROSPINDLES

ELECTROSPINDLES_
POWER DIAGRAMS

A range of electrospindles to cover all machining needs; Dynamics and high revolutions, and high torque from very low rpms for the hardest materials.

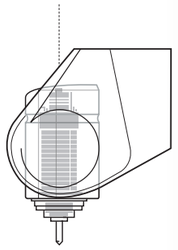
IBARMIA offers
more electrospindles on request.

HC_ B axis head
Continuous tilting head



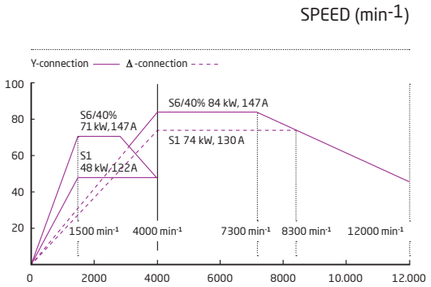
Maintain the same tool center point across the full range
-15°/+195°

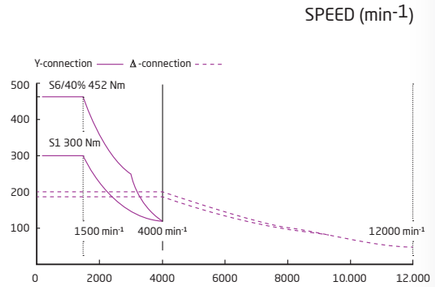
HR_ A axis head
Continuous tilting head



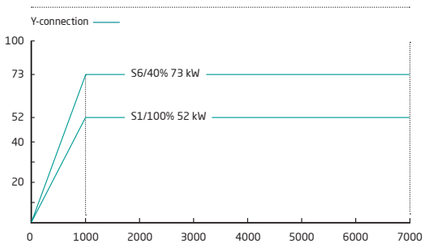
Fork type spindle head ideal for negative angles
-45°/+135°

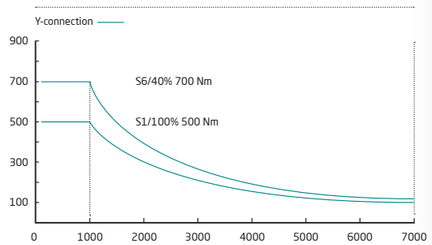
1_ STANDARD
Power and dynamics_
Up to 12.000 rpm.
74 / 84 kW (S1 / S6).
300 / 452 Nm (S1 / S6)





2_ OPTIONAL
High torque for the hardest materials_
Up to 7000 rpm.
52 / 73 kW (S1 / S6).
500 / 700 Nm (S1 / S6)

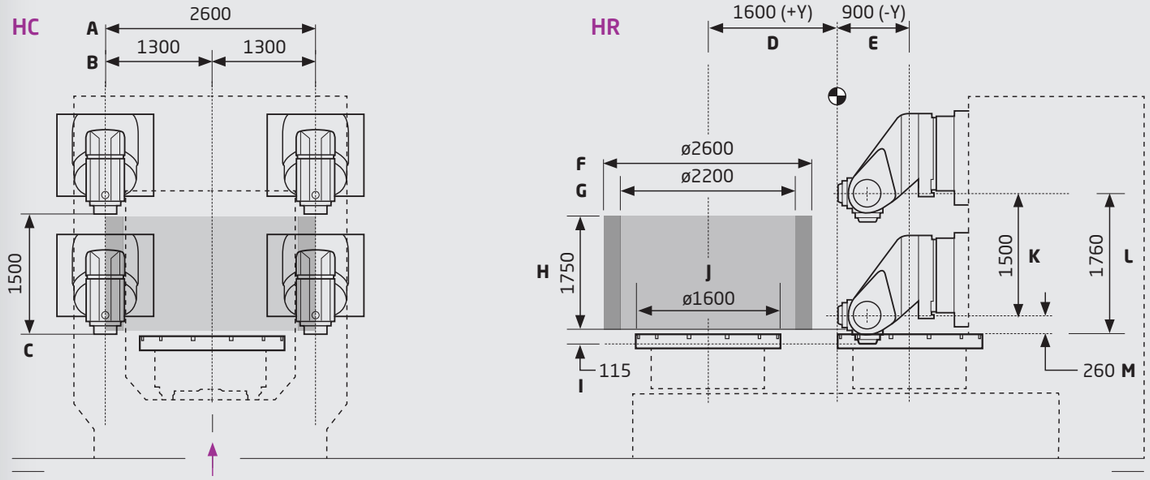




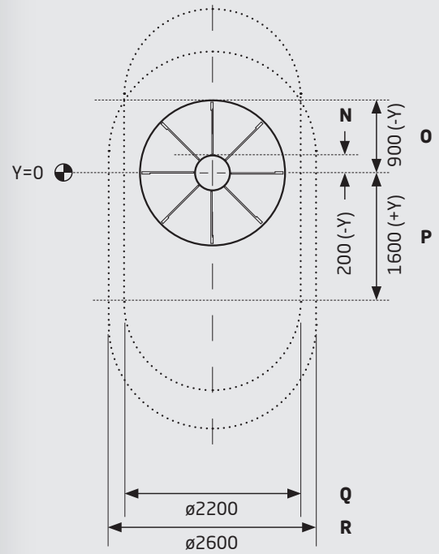
P-HC HR MACHINES

P SERIES

4_ MACHINE TRAVELS



PHC / PHR **26_**
Drawings with HC / HR milling heads
(General measures valid for both headstocks)



PHC / PHR **30_**
Dimensions following letters in the drawings.

A_ 3000 mm	
B_ 1500 mm	
C_ 1700 mm	
D_ 1900 mm	
E_ 1100 mm	
F_ 3000 mm	
G_ 2600 mm	
H_ 1950 mm	
I_ 115 mm	
J_ 1800 mm	
K_ 1700 mm (HR head)	
L_ 1960 mm (HR head)	
M_ 260 mm	
N_ 200 mm	
O_ 1100 mm	
P_ 1900 mm	
Q_ 2600 mm	
R_ 3000 mm	

PHC / PHR **36_**
Dimensions following letters in the drawings.

A_ 3600 mm	
B_ 1800 mm	
C_ 1900 mm	
D_ 2000 mm	
E_ 1300 mm	
F_ 3600 mm	
G_ 3000 mm	
H_ 2150 mm	
I_ 115 mm	
J_ 2000 mm	
K_ 1900 mm (HR head)	
L_ 2160 mm (HR head)	
M_ 260 mm	
N_ 200 mm	
O_ 1300 mm	
P_ 2000 mm	
Q_ 3000 mm	
R_ 3600 mm	

P MULTIPROCESS
TECHNICAL DATA

	P 36	P 30	P 26
TRAVELS			
-X axis travel (length)	3600 mm	3000 mm	2600 mm
-Y axis travel (cross)	3300 mm	3000 mm	2500 mm
-Z axis travel (vertical)	1900 mm	1700 mm	1500 mm
-B - A axis heads tilting range	B: -15° / +195° - A: -45° / +135°		
-Maximum swing diameter	ø 3600 mm	ø 3000 mm	ø 2600 mm
-Maximum swing diameter (Portal)	ø 3000 mm	ø 2600 mm	ø 2200 mm
-Piece maximum height	2150 mm	1950 mm	1750 mm
-Distance spindle nose-table. Vertical (B axis)	0 / 1900 mm	0 / 1700 mm	0 / 1500 mm
-Distance spindle nose-table. Horizontal (B axis)	0 / 1900 mm	0 / 1700 mm	0 / 1500 mm
-Distance spindle nose-table. Vertical (A axis)	-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm
-Distance spindle nose-table. Horizontal (A axis)	260 / 2160 mm	260 / 1960 mm	260 / 1760 mm
TABLE*	*More table options on request		
-Table dimensions	ø 2000 mm	ø 1800 mm	ø 1600 mm
-Maximum table load capacity (*turning)	25.000 - *16.000 kg	20.000 - *14.000 kg	15.000 - *10.000 kg
-Nominal speed	90 rpm	88 rpm	130 rpm
-Maximum speed	150 rpm	200 rpm	300 rpm
-Nominal torque	12.000 Nm	10.000 Nm	7500 Nm
TILTING HEAD			
-Turning torque / Position clamping force	1210 Nm / 6000 Nm		
MAIN SPINDLE	*More spindles on request		
-Tool holder	Standard: HSK A 100 - Option: Capto C8		
-Maximum speed	Standard: 12.000 rpm - Option: 7000 rpm		
-Maximum power	Standard: 84 kW - Option: 75 kW		
-Maximum torque	Standard: 452 Nm - Option: 871 Nm		
FEED			
-Maximum working feed X-Y-Z axes	30 m/min		
-Rapid feed for positioning X-Z axes	40 m/min		
-Rapid feed for positioning Y axis	30 m/min		
-X-Y-Z axes acceleration	2 / 1,5 / 1,5 m/s²		
-Rapid feed for positioning in B-A axes	50 rpm		
ACCURACY VDI / DGQ3441	*Under certain conditions		
-Positioning Tp X-Y-Z (1000 mm)*	12 µm		10 µm
-Repeatability	7 µm		
-Measuring system on B - A axes	Rotary scale		
-Positioning accuracy B - A aexs	+/-5 s		
-Positioning accuracy C axis	+/-4 s		
CAPACITIES			
-Milling capacity in steel St 60	1100 cm³/min		
-Drilling capacity in steel St 60	ø 70 mm		
-Tapping capacity in steel St 60	M 45 mm		
TOOL MAGAZINE	*Under certain conditions		
-Number of tools	Standard: 60. Option: 120, 240, 360		
-Maximum tool length	600 mm		
-Maximum tool weight	20 kg		
-Maximum tool diameter with full magazine	125 mm		
-Maximum tool diameter with free spaces	250 mm		
-Tool changing time*	6 s		
-Chip to chip time	16 s	14 s	12 s
CNC CONTROL			
-Available digital controls	Fanuc / Heidenhain / Siemens		

P EXTREME
TECHNICAL DATA

	P 36	P 30	P 26
TRAVELS			
-X axis travel (length)	3600 mm	3000 mm	2600 mm
-Y axis travel (cross)	3300 mm	3000 mm	2500 mm
-Z axis travel (vertical)	1900 mm	1700 mm	1500 mm
-B - A axis heads tilting range	B: -15° / +195° - A: -45° / +135°		
-Maximum swing diameter	ø 3600 mm	ø 3000 mm	ø 2600 mm
-Maximum swing diameter (Portal)	ø 3000 mm	ø 2600 mm	ø 2200 mm
-Piece maximum height	2150 mm	1950 mm	1750 mm
-Distance spindle nose-table. Vertical (B axis)	0 / 1900 mm	0 / 1700 mm	0 / 1500 mm
-Distance spindle nose-table. Horizontal (B axis)	0 / 1900 mm	0 / 1700 mm	0 / 1500 mm
-Distance spindle nose-table. Vertical (A axis)	-115 / 1785 mm	-115 / 1585 mm	-115 / 1385 mm
-Distance spindle nose-table. Horizontal (A axis)	260 / 2160 mm	260 / 1960 mm	260 / 1760 mm
TABLE*	*More table options on request		
-Table dimensions	1600 x 1600 mm	1250 x 1600 mm	1250 x 1250 mm
-Maximum table load capacity (*turning)	25.000 kg	20.000 kg	15.000 kg
-Nominal speed	1,5 rpm		
-Maximum speed	5 rpm		15 rpm
-Nominal torque	18.000 Nm	13.000 Nm	6500 Nm
TILTING HEAD			
-Turning torque / Position clamping force	1210 Nm / 6000 Nm		
MAIN SPINDLE	*More spindles on request		
-Tool holder	Standard: SK 50 - Option: BT 50 / HSK A-100 / Capto C8		
-Maximum speed	Standard: 12.000 rpm - Option: 7000 rpm		
-Maximum power	Standard: 84 kW - Option: 75 kW		
-Maximum torque	Standard: 452 Nm - Option: 871 Nm		
FEED			
-Maximum working feed X-Y-Z axes	30 m/min		
-Rapid feed for positioning X-Z axes	40 m/min		
-Rapid feed for positioning Y axis	30 m/min		
-X-Y-Z axes acceleration	2 / 1,5 / 1,5 m/s²		
-Rapid feed for positioning in B-A axes	50 rpm		
ACCURACY VDI / DGQ3441	*Under certain conditions		
-Positioning Tp X-Y-Z (1000 mm)*	12 µm		10 µm
-Repeatability	7 µm		
-Measuring system on B - A axes	Rotary scale		
-Positioning accuracy B - A aexs	+/-5 s		
-Positioning accuracy C axis	+/-4 s		
CAPACITIES			
-Milling capacity in steel St 60	1100 cm³/min		
-Drilling capacity in steel St 60	ø 70 mm		
-Tapping capacity in steel St 60	M 45 mm		
TOOL MAGAZINE	*Under certain conditions		
-Number of tools	Standard: 60. Option: 120, 240, 360		
-Maximum tool length	600 mm		
-Maximum tool weight	20 kg		
-Maximum tool diameter with full magazine	125 mm		
-Maximum tool diameter with free spaces	250 mm		
-Tool changing time*	6 s		
-Chip to chip time	16 s	14 s	12 s
CNC CONTROL			
-Available digital controls	Fanuc / Heidenhain / Siemens		

YOUR MACHINE TOOL POINT

EST. 1953

P SERIES
5 AXIS UNIVERSAL PORTAL MACHINING CENTERS

SPG 01/26

IBARMIA is an advanced technology manufacturer of high added-value solutions adapted to customers' needs by highly customized machining centers.

IBARMIA.

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