

GANTRY-TYPE MACHINING CENTRE

ZPS MCG2318i



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The machine construction is formed by an upper-gantry type portal whose frame consists of two side walls fixed to the base. The base with a fixed or rotary table is mounted on adjustable wedges and is fastened to the concrete foundation by means of anchoring bolts. The cross rail moves in the longitudinal direction (X-axis) along the upper sides of the side walls. Inside the cross rail, a cross slide with a sliding ram is moving in the transversal direction (Y-axis). The sliding ram is moving in the vertical direction (Z-axis) and can be fitted with various types of heads with electro-spindles, fixed electro-spindle or with a turning adapter.

The connecting flange enables a rotary movement of the head (C-axis) along the vertical axis. The tilting head enables a tilting movement (B-axis) along the horizontal axis. Instead of a fixed table, a 1-axis rotary table or a combined table can be installed on the machine. The rotary table plate can rotate along its vertical axis (C'-axis). The movement of individual parts of the machine frame in X, Y, Z axes is realized by means of the linear guideways with preloaded backlash-free roller units. Their size and location not only enable high loads of all moving parts while maintaining high accuracy of dimensions and surface quality of the workpiece even during intermittent cut, but also guarantee higher service life of the machine. Operational movements of the cross rail, cross slide and sliding ram are performed by digitally controlled AC motors via rotating ball screws with ball nuts.

Measurement of positions in X, Y, Z axes is performed directly by means of absolute linear measuring units.

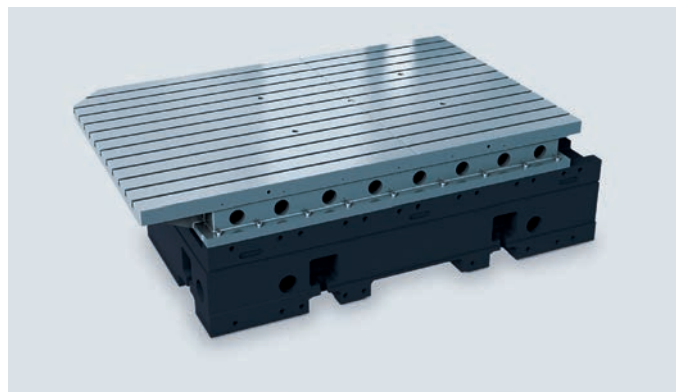
TECHNOLOGICAL CAPABILITIES OF THE MACHINE

The ZPS MCG2318i machining centre is a high-performance machine primarily determined for machining of heavy, large-sized, spatially and technologically complicated workpieces made of steel, grey iron and light metal alloys. The centre enables milling, drilling, reaming, thread cutting as well as turning operations, such as turning of outer and inner surfaces, face turning, etc. The machine functions are directed by a CNC control system which enables the machining of the spatially complicated shapes when the tool follows the path resulting from the 3D CAD program output.



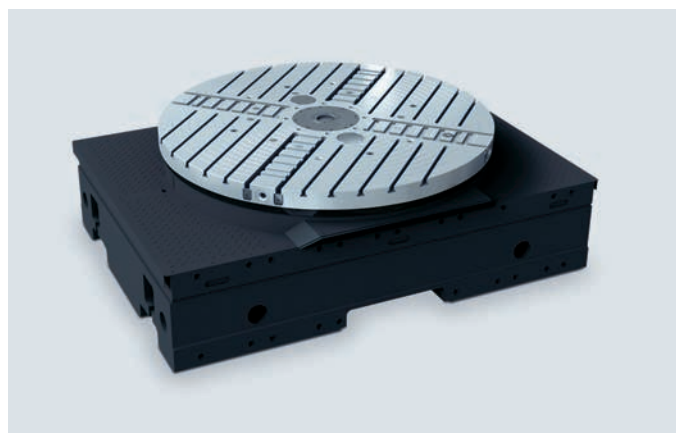
FIXED TABLE PARAMETERS

Clamping surface	2,520 × 1,600 mm
Dimension and pitch of T-slots	18H12 / 125
Maximal load	15,000 kg/m ²
Clamping surface from floor	805 mm



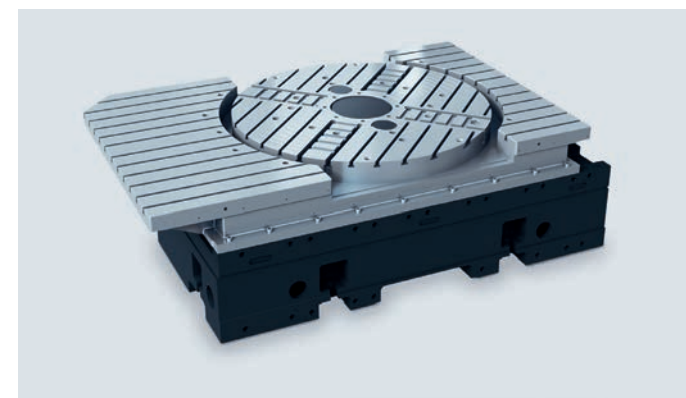
ROTARY TABLE PARAMETERS

Clamping surface	∅ 1,800 mm
Dimension and pitch of T-slots / radial	18H12 - 125 / 28H12 - 160
Table load up to 50 rpm / above 50 rpm	10,000 / 5,000 kg
Clamping surface from floor	805 mm
Rotary table speed range in spindle mode	2-250 rpm
Rotary table work feed in C-axis mode	0-50 rpm
Nominal / maximal torque	6,640 / 8,840 Nm
Maximal power	51 kW
Torque at clamping (12 MPa)	9,500 Nm



COMBINED TABLE PARAMETERS

Clamping surface - rotary part	∅ 1,500 mm
Dimension and pitch of T-slots / radial	18H12 - 125 / 28H12 - 160
Table load up to 50 rpm / above 50 rpm	10,000 / 5,000 kg
Clamping surface from floor	805 mm
Rotary table speed range in spindle mode	2-250 rpm
Rotary table work feed in C-axis mode	0-50 rpm
Nominal / maximal torque	6,640 / 8,840 Nm
Maximal power	51 kW
Torque at clamping (12 MPa)	9,500 Nm
Clamping surface - fixed part	2,520 × 1,600 mm
T-slots (fixed part), number x dimension x pitch	12 x 18H12 - 125
Maximal load of fixed part	10,000 kg



SPINDLE UNITS

3 - 4 AXIS MACHINES WITHOUT EXCHANGE HEADS



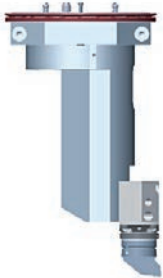
HSK-A63	18,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-A100	14,000 rpm	25 / 37 kW	160 / 236 Nm
HSK-T100*	12,000 rpm	25 / 30 kW	119 / 143 Nm
HSK-T100**	10,000 rpm	48 / 71 kW	300 / 452 Nm

* turning clamping of 690 Nm / ** turning clamping of 1,000 Nm

5 - 6 AXIS MACHINES WITH CYTEC M21 EXCHANGE HEAD



1 or 2 axis head



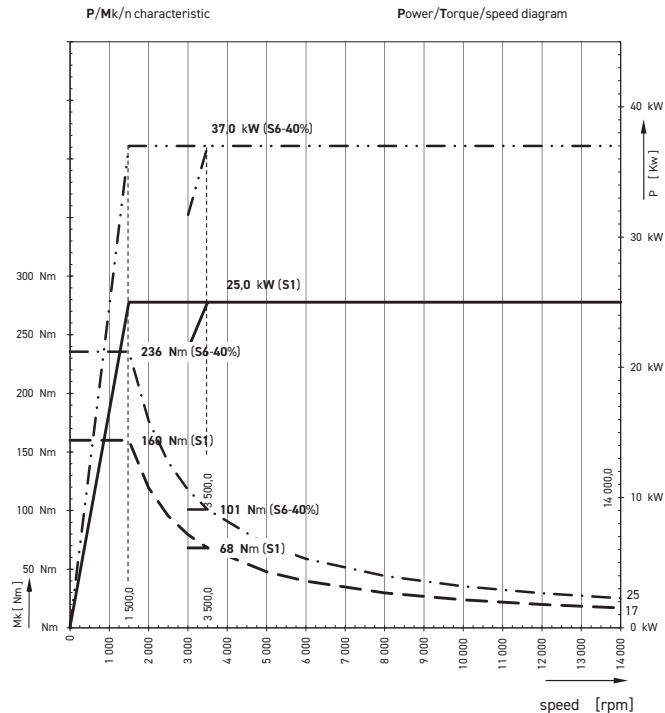
Turning head

HSK-A63	18,000 rpm	21 / 27 kW	100 / 130 Nm
HSK-A100	12,000 rpm	34 / 42 kW	160 / 200 Nm
HSK-T100	12,000 rpm	42 / 53 kW	200 / 250 Nm
HSK-T100*	10,000 rpm	27 / 31 kW	130 / 150 Nm

* turning clamping of 2,000 Nm

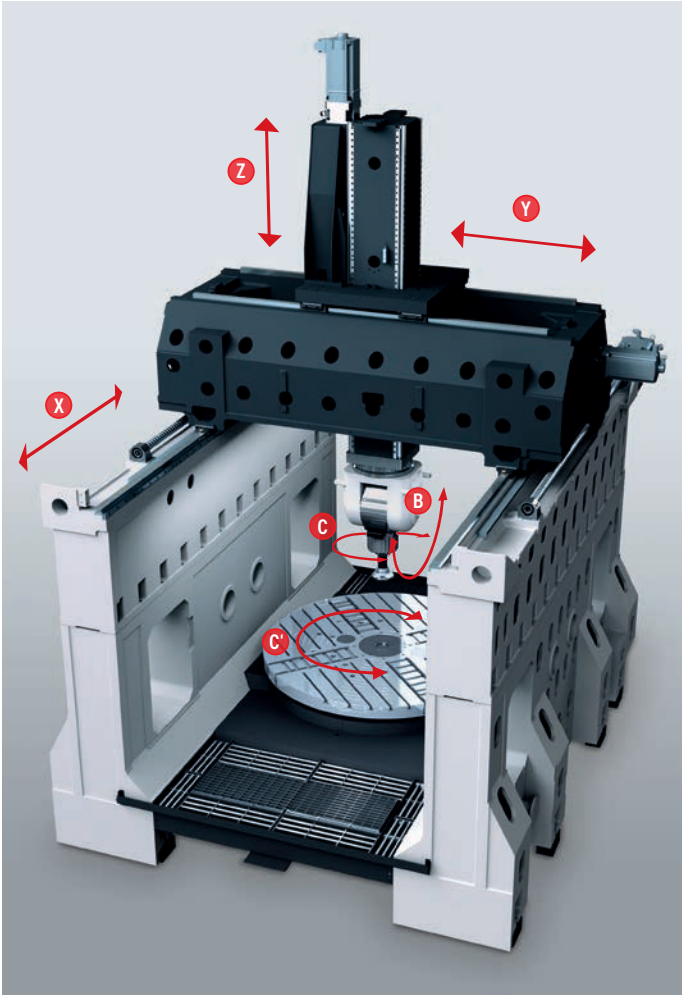
SPINDLE POWER AND TORQUE

HSK-A100 spindle power and torque



MACHINE KINEMATICS

The operational movements of the cross rail, cross slide and the sliding ram are performed by an AC regulating motor with digital control via preloaded ball nuts.



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TOOL CHANGER

No. of pockets in changer HSK63 / HSK100 (option)	50 (128)
Max. diameter of tool	110 mm
Max. diameter of tool without adjacent tools	160 mm
Max. length of tool	380 mm / 615 mm*
Max. tool weight HSK63 / HSK100	8 / 15 kg
Tool change time	3.5 s

*5 positions for tools



ECO FRIENDLY

The machine enclosure prevents from discharge of coolant, lubricants and machining fumes outside the workzone, thus minimizing its negative impacts on the environment. The machine design conforms to the requirements of the 2006/42/EC machinery directive, and fulfils all requirements of safety standards for the CE marking. The lubrication of movable and rotary parts of the machine (the linear axes, electrospindle) is ensured by the application of an automatic grease lubrication system which prevents from contamination of the coolant and machine parts.

TECHNICAL DATA

Working travels

X-axis - cross rail	2,300 mm
Y-axis - cross slide (3-axis model)	1,400 (1,500) mm
Z-axis - sliding ram	1,050 mm
B-axis - CNC head	± 110°
C-axis - CNC head	± 270°
C'-axis - rotary table	360°

Feeds

Rapid traverse X, Y, Z	50 m/min
Max. working feed in X, Y, Z axes	50 m/min
Acceleration in X, Y, Z axes	5 m/s ²
B-axis feed - CNC head	60 m/min
Rotary table speed in spindle mode	250 rpm
Rotary table speed in C-axis mode	50 rpm

Distances *sidewalls heightened by 300 mm

Spindle nose to table	
- 3-axis model (spindle + fixed table)	200 to 1,250 mm
	500 to 1,550 mm*
- 5-axis model (CNC head + rotary table)	-330 to 720 mm
	-30 to 1,020 mm*
- 5 - 6 axis model (CNC 2-axis head + fixed table or integrated rotary table)	max 920 mm* (turning version 925 mm)
Clamping surface to floor	805 mm
Max. dimension between side walls / orbital diameter	2,050 / 2,000 mm
Max. dimension between covers in X-axis	3,750 mm
Max. dimension of clamping surface and upper covers	1,300 mm / 1,600 mm*

Working accuracy (according to ISO 230-2)

Bidirectional position setting repeatability (R) in X, Y, Z	0.004 mm
Bidirectional positioning error (A) in X, Y, Z	0.009 mm
Measuring system	Direct measuring HEIDENHAIN LC115

B-axis (according to ISO 230-2)

Bidirectional positioning error (A)	12 arc sec
Bidirectional position setting repeatability (R)	4 arc sec

C'-axis (according to ISO 230-2)

Bidirectional positioning error (A)	6 arc sec
Bidirectional position setting repeatability (R)	2 arc sec

Mains requirements

Connecting voltage	3 x 400 V / 50 Hz
Operational input power	90 kVA
Full load current	170 A
Air pressure	0.6 - 0.8 MPa

Pneumatic unit

Inlet air pressure	0.6 - 0.8 MPa
Operational pressure	0.55 MPa

Basic data

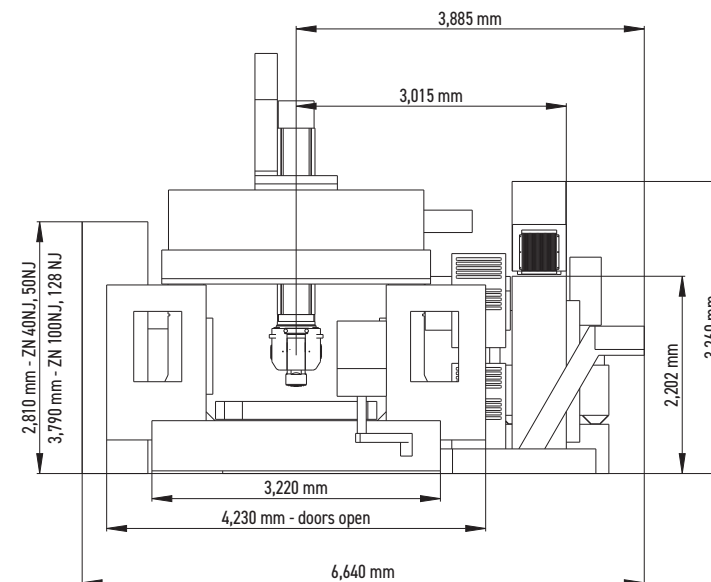
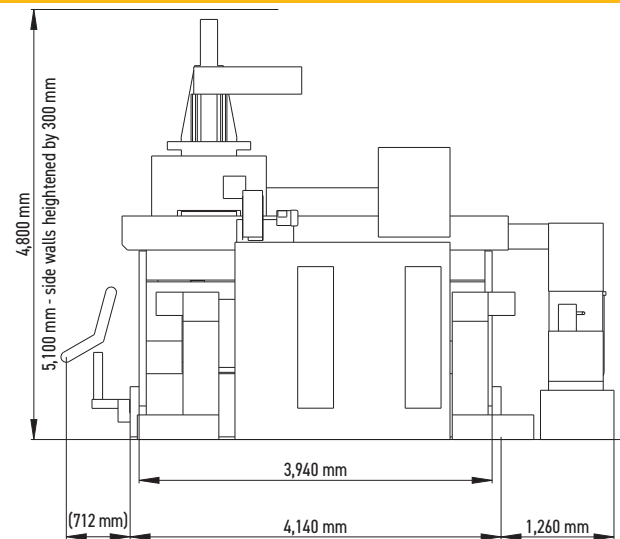
Machine shipping dimensions (L × W × H)	4,800 × 3,250 × 4,000 mm
Machine weight (without tool changer and accessories)	32,000 kg

STANDARD EQUIPMENT

- Sinumerik / Heidenhain control system
- Fixed, rotary or integrated working table
- Spindle unit with HSK-A100 clamping taper
- Tool holder automatic blow-off
- Automatic tool changer for 50 tools
- Chip conveyor
- Tool outer cooling and tool cooling through spindle axis by coolant and air (5-axis model)
- Spindle and rotary table thermal stabilization
- Electronic compensation of thermal dilatations
- Digital feed drives
- Linear optoelectrical absolute rulers
- Central lubrication
- Hand wheel
- Vibrodiagnostics
- Three-color signalization of machine state

OPTIONAL EQUIPMENT

- 1 or 2 axis CNC head (milling or turning-milling)
- Wide assortment of spindle units
- Rotary table and heads with turning capabilities
- Machine side walls heightened by 300 mm
- Second control panel of the control system
- Electric cabinet air conditioning
- Workpiece and tool measuring probes
- Suction of vapors from the workzone
- Tool cooling by oil mist
- Hand held wash-out gun
- Remote diagnostics
- Machine hibernation
- Technological software
- Rotary visor
- Tool changer with increased capacity
- Oil collector from coolant surface



Specifications and illustrations may not always correspond with the machine latest version. 10/2022

CONTACT

TAJMAC-ZPS, a.s.
 třída 3. května 1180
 763 02 Zlín, Malenovice
 Czech Republic

Phone: +420 577 532 072
E-mail: info@tajmac-zps.cz
Web: www.tajmac-zps.cz

