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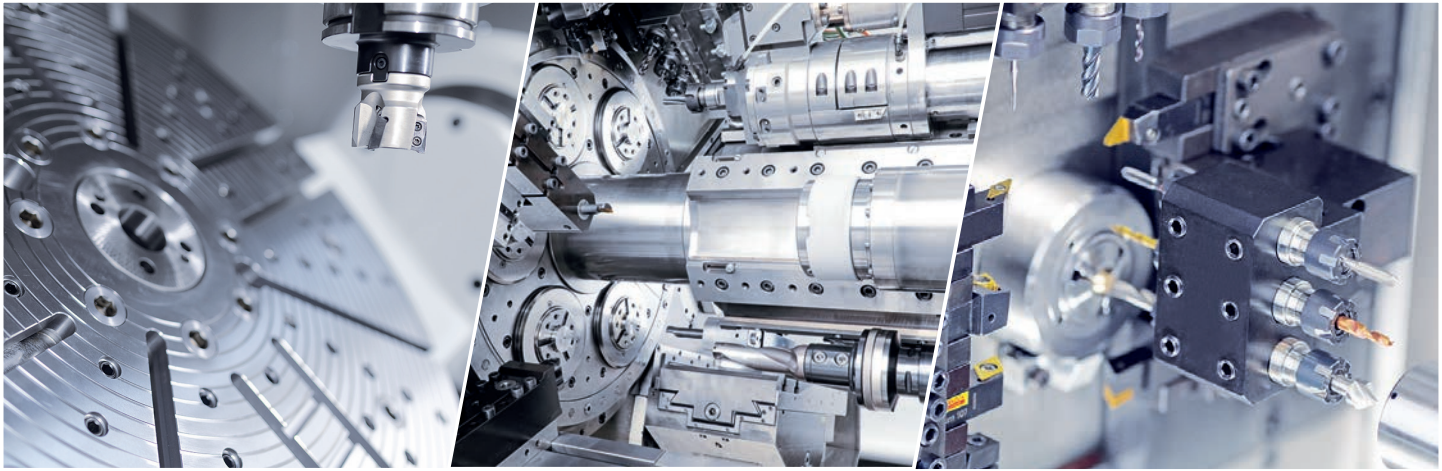
VERTICAL, HORIZONTAL AND MULTIPURPOSE MACHINING CENTRES ZPS

PRODUCTION PROGRAM

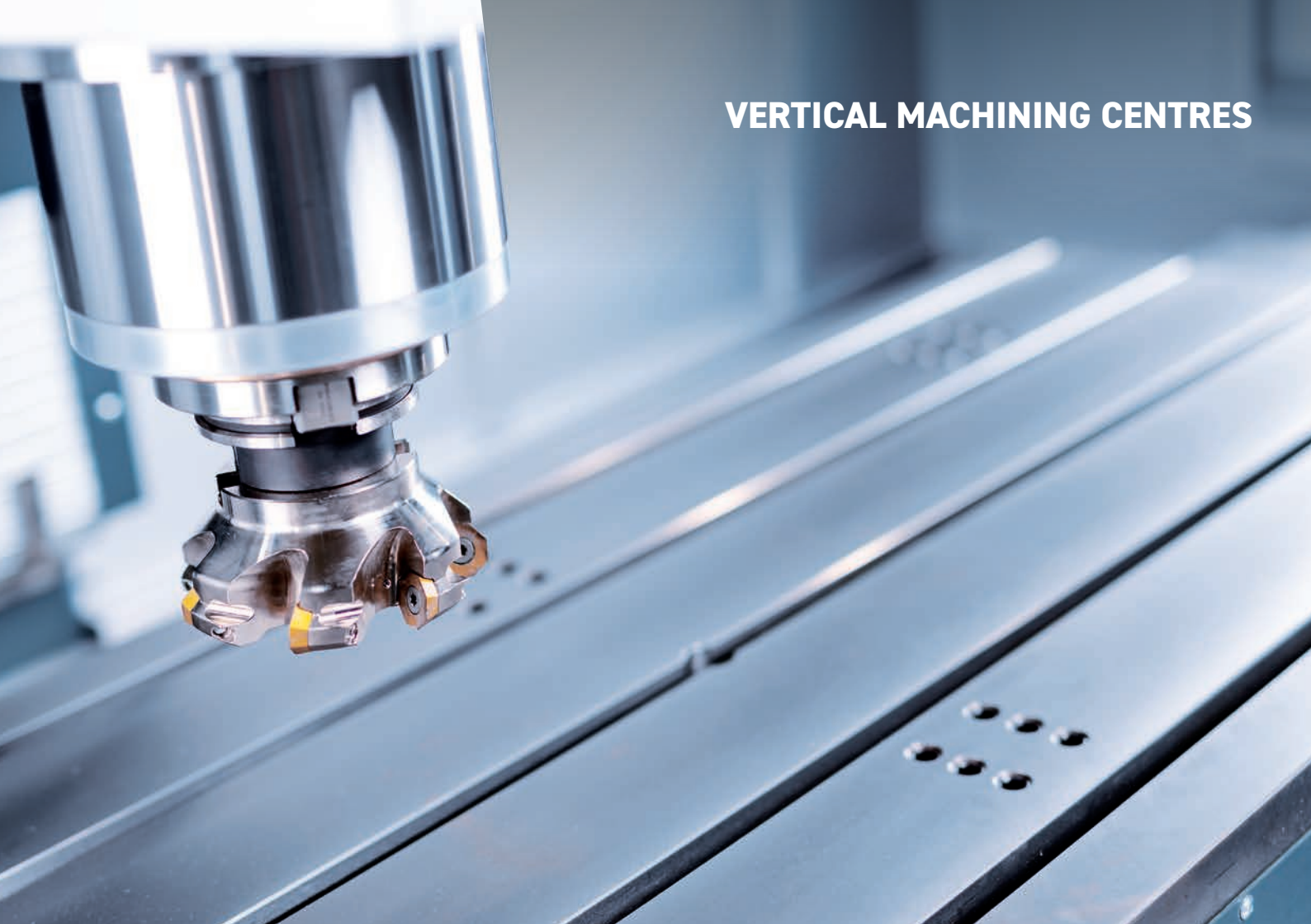
TAJMAC – ZPS

ZPS



The history of engineering production in Zlín begins in the BAŤA company in 1903. In 1950, the company was renamed to the Závody přesného strojírenství – ZPS (Precision Engineering Works). In 2000, the company was taken over into the possession of the Italian owner Mr. Tajariol and changed its name to the TAJMAC-ZPS, a. s. which the company bears up to the present time.

The TAJMAC-ZPS company is a complex firm engaged in the development and production of machine tools. The production program of the company consists of high-performance machining centres, turning centres and worldclass multispindle automatic lathes and CNC sliding headstock machines. These machines have found their places in the most demanding industries on the markets all over the world and have earned very good reputation for their excelent technical parameters, accuracy and reliability. As the TAJMAC-ZPS is the owner of the foundry premises of the ZPS-Slévárna firm, which is located in the company manufacture area, it also has a fully concentrated capacity comprising all the stages of development and manufacture to its disposal. The TAJMAC-ZPS holds a leading position in the production of machine tools in the Czech Republic. It is ranked among the best Czech exporters and belongs to the world high-ranking machine tool builders. The export of products amounts to the more than 80 % of production.



VERTICAL MACHINING CENTRES

MACHINING CENTRES ZPS

ZPS MCV1060i

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Automatic pallet change (APC)**

The machine centre **ZPS MCV1060i** presents an innovated type of a vertical milling centre with a modern, efficient and stable enclosure. The machine is composed of two stationary castings - the base and the column. The column is provided with guideways along which the spindle head travels. The work table travels in the longitudinal direction (X-axis) along the cross saddle. The cross saddle moves in the transverse direction (Y-axis) along the base. All guideways are formed by linear rails with rollers. The size and placing of the linear rails not only enable high loads while maintaining high accuracy of dimensions and surface quality of the workpiece but also guarantee higher service life of the machine.

TECHNICAL DATA	MCV1060i
Travels without APC	
X-axis (work table)	1,050 mm
Y-axis (cross saddle)	640 mm
Z-axis (spindle head)	800 mm
Spindle nose to table	125 – 925 mm
Maximal working feed	40 m/min
Rapid traverse	40 m/min
Acceleration	5 m/s²
Table	
Working area	1,320 × 620 mm
Number of T-slots × width × pitch	5 × 18 mm × 125 mm
Maximal load	1,350 kg
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z axes	direct (linear absolute rulers)
Bidirectional positioning error (A) in X, Y, Z axes	0.008 mm
Bidirectional position setting repeatability (R) X, Y, Z axes	0.0034 mm
Additional data	
Machine floor plan W/O chip conveyor	2,750 × 2,125 mm
Machine maximal working height	3,065 mm
Machine weight	7,700 kg
Height with tool changer for 30 tools	2,783 mm
Height with tool changer for 24 tools	2,933 mm
Control system	HEIDENHAIN, SINUMERIK, FANUC

SPINDLE UNITS			
Planetary gearbox			
ISO 40, HSK-A80	10,000 rpm	22.5 / 31.5 kW	244 / 342 Nm
ISO 50	6,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO 50	8,000 rpm	22.5 / 33.8 kW	306 / 458 Nm
Belt transmission			
ISO 40	12,000 rpm	19.5 / 29.3 kW	95 / 143 Nm
Electrospindle			
ISO 40	15,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-A63	18,000 rpm	25 / 31 kW	160 / 200 Nm

AUTOMATIC TOOL CHANGER	ISO 50 / CAT 50 BT 50 / HSK-A80	ISO 40 / CAT 40 BT 40 / HSK-A63
Number of tools (option)	24 (48)	30 (60)
Tool change time – left tool changer	3.5 s	2.9 s
Tool change time – right tool changer	3.9 s	3.9 s

TECHNICAL DATA — MCV1260i

Travels without APC	
X-axis (work table)	1,300 mm
Y-axis (cross saddle)	640 mm
Z-axis (spindle head)	800 mm
Spindle nose to table	125 – 925 mm
Maximal working feed	40 m/min
Rapid traverse	40 m/min
Acceleration	5 m/s²
Table	
Working area	1,500 × 620 mm
Number of T-slots × width × pitch	5 × 18 mm × 125 mm
Maximal load	1,350 kg
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z axes	direct (linear absolute rulers)
Bidirectional positioning error (A) in X, Y, Z axes	0.008 mm
Bidirectional position setting repeatability (R) X, Y, Z axes	0.0034 mm
Additional data	
Machine floor plan W/O chip conveyor	3,200 × 2,125 mm
Machine maximal working height	3,065 mm
Machine weight	8,300 kg
Height with tool changer for 30 tools	2,783 mm
Height with tool changer for 24 tools	2,933 mm
Control system	HEIDENHAIN, SINUMERIK, FANUC

SPINDLE UNITS

Planetary gearbox			
ISO 40, HSK-A80	10,000 rpm	22.5 / 31.5 kW	244 / 342 Nm
ISO 50	6,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO 50	8,000 rpm	22.5 / 33.8 kW	306 / 458 Nm
Belt transmission			
ISO 40	12,000 rpm	19.5 / 29.3 kW	95 / 143 Nm
Electrospindle			
ISO 40	15,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-A63	18,000 rpm	25 / 31 kW	160 / 200 Nm

AUTOMATIC TOOL CHANGER	ISO 50 / CAT 50 BT 50 / HSK-A80	ISO 40 / CAT 40 BT 40 / HSK-A63
Number of tools (option)	24 (48)	30 (60)
Tool change time – left tool changer	3.5 s	2.9 s
Tool change time – right tool changer	3.9 s	3.9 s

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Automatic pallet change (APC)**

The machine centre **ZPS MCV1260i** presents an innovated type of a vertical milling centre with a modern, efficient and stable enclosure. The machine is composed of two stationary castings - the base and the column. The column is provided with guideways along which the spindle head travels. The work table travels in the longitudinal direction (X-axis) along the cross saddle. The cross saddle moves in the transverse direction (Y-axis) along the base. All guideways are formed by linear rails with rollers. The size and placing of the linear rails not only enable high loads while maintaining high accuracy of dimensions and surface quality of the workpiece but also guarantee higher service life of the machine.

MACHINING CENTRES ZPS

ZPS MCV1680i

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Automatic pallet change (APC)**

The machine centre **ZPS MCV1680i** is provided with three mutually perpendicular and continuously controlled axes which enable milling, drilling, boring, reaming and threading operations on workpieces made of steel, cast iron and light-metal as well as nonferrous metal alloys. The machine is composed of two stationary castings - the base and the column. The column is provided with guideways along which the spindle head travels in the vertical direction. The work table travels in the longitudinal direction (X-axis) along the cross saddle. The cross saddle moves in the transverse direction (Y-axis) along the base guideways. All guideways are formed by linear rails with rollers. The design of the machine framework allows its enormous load, the machines are therefore favored in the FSW technologies which require high pressure force in the Z-axis.

TECHNICAL DATA	**MCV1680i**
Travels without APC	
X-axis (work table)	1,700 mm
Y-axis (cross saddle)	840 mm
Z-axis (spindle head)	840 mm
Spindle nose to table	110 – 950 mm
Maximal working feed	30 m/min
Rapid traverse	30 m/min
Acceleration	3.5 m/s^2
Table	
Working area	1,800 × 780 mm
Number of T-slots × width × pitch	5 × 18 mm × 160 mm
Maximal load	2,500 kg
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z axes	direct (linear absolute rulers)
Bidirectional positioning error (A) in X, Y, Z axes	0.009 mm
Bidirectional position setting repeatability (R) X, Y, Z axes	0.0034 mm
Additional data	
Machine floor plan W/O chip conveyor	4,130 × 2,477 mm
Machine maximal working height	3,533 mm
Machine weight	13,800 kg
Control system	HEIDENHAIN, SINUMERIK, FANUC

SPINDLE UNITS			
Planetary gearbox			
ISO 40, HSK-A80	10,000 rpm	22.5 / 31.5 kW	244 / 342 Nm
ISO 50	8,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO 50	8,000 rpm	29.0 / 43.5 kW	428 / 657 Nm
HSK-100	8,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO-50	3,500 rpm	19.5 / 29.3 kW	893 / 1339 Nm
Belt transmission			
ISO 40	12,000 rpm	19.5 / 29.3 kW	95 / 143 Nm
Electrospindle			
ISO 40	15,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-A63	18,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-100	14,000 rpm	25 / 37 kW	160 / 236 Nm

AUTOMATIC TOOL CHANGER	**ISO 50 / CAT 50 BT 50 / HSK-A80**	**ISO 40 / CAT 40 BT 40 / HSK-A63**
Number of tools (option)	24 (48)	30 (60)
Tool change time – left tool changer	3.5 s	2.9 s
Tool change time – right tool changer	3.9 s	3.9 s

TECHNICAL DATA	MCV2080i
Travels without APC	
X-axis (work table)	2,100 mm
Y-axis (cross saddle)	840 mm
Z-axis (spindle head)	840 mm
Spindle nose to table	110 – 950 mm
Maximal working feed	30 m/min
Rapid traverse	30 m/min
Acceleration	3.5 m/s²
Table	
Working area	2,200 × 780 mm
Number of T-slots × width × pitch	5 × 18 mm × 160 mm
Maximal load	3,000 kg
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z axes	direct (linear absolute rulers)
Bidirectional positioning error (A) in X, Y, Z axes	0.009 mm
Bidirectional position setting repeatability (R) X, Y, Z axes	0.0034 mm
Additional data	
Machine floor plan W/O chip conveyor	4,830 × 2,477 mm
Machine maximal working height	3,533 mm
Machine weight	14,600 kg
Control system	HEIDENHAIN, SINUMERIK, FANUC

SPINDLE UNITS			
Planetary gearbox			
ISO 40, HSK-A80	10,000 rpm	22.5 / 31.5 kW	244 / 342 Nm
ISO 50	8,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO 50	8,000 rpm	29.0 / 43.5 kW	428 / 657 Nm
HSK-100	8,000 rpm	19.5 / 29.3 kW	519 / 779 Nm
ISO-50	3,500 rpm	19.5 / 29.3 kW	893 / 1339 Nm
Belt transmission			
ISO 40	12,000 rpm	19.5 / 29.3 kW	95 / 143 Nm
Electrospindle			
ISO 40	15,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-A63	18,000 rpm	25 / 31 kW	160 / 200 Nm
HSK-100	14,000 rpm	25 / 37 kW	160 / 236 Nm

AUTOMATIC TOOL CHANGER	ISO 50 / CAT 50 BT 50 / HSK-A80	ISO 40 / CAT 40 BT 40 / HSK-A63
Number of tools (option)	24 (48)	30 (60)
Tool change time – left tool changer	3.5 s	2.9 s
Tool change time – right tool changer	3.9 s	3.9 s

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Automatic pallet change**

The machine centre **ZPS MCV2080i** is provided with three mutually perpendicular and continuously controlled axes which enable milling, drilling, boring, reaming and threading operations on workpieces made of steel, cast iron and light-metal as well as nonferrous metal alloys. The machine is composed of two stationary castings - the base and the column. The column is provided with guideways along which the spindle head travels in the vertical direction. The work table travels in the longitudinal direction (X-axis) along the cross saddle. The cross saddle moves in the transverse direction (Y-axis) along the base guideways. All guideways are formed by linear rails with rollers. The design of the machine framework allows its enormous load, the machines are therefore favored in the FSW technologies which require high pressure force in the Z-axis.

HORIZONTAL MACHINING CENTRES

TECHNICAL DATA — MCH630i

Working travels	
X, Y, Z axes	750 × 700 × 770 mm
B-axis – table positioning	360 °
Working table – pallet	
Pallet size	630 × 630 mm
Pallet load	800 kg
Workpiece max. dimensions – dia. × height	Ø 750 × 800 mm
Height of pallet working surface above floor	1,100 mm
Min. distance of spindle nose to table axis	130 mm
Min. distance of spindle nose to table surface	50 mm
Max. torque of B-axis	2,165 Nm
Feeds	
Working feed / rapid traverse in X, Y, Z axes	50/50 m/min
Acceleration in X, Y, Z axes	5 m/s^2
Working accuracy (According to ISO 230-2)	
Measuring systém in X, Y, Z, B axes	direct
Bidirectional positioning error A in X, Y, Z axes	0.008 mm
Bidirectional positioning error A in B-axis	6 arc sec
Bidirectional repeatability of R position setting in X, Y, Z axes	0.0034 mm
Bidirectional repeatability of R position setting in B-axis	2 arc sec
Tool changer	
Number of tool pockets	60, 80, 100, 120
Tool change time	3.5 s
Automatic pallet changer	
Number of pallets	2
Pallet change time	10 s
Complementary data	
Machine weight	17,000 kg
Control system	SIEMENS, HEIDENHAIN, FANUC

SPINDLE UNITS

*optional equipment

Planetary gearbox			
ISO-50	8,000 rpm	20/30 kW	306/458 Nm
Electrospindle			
HSK-A63	18,000 rpm*	25 / 31 kW	160 / 200 Nm
HSK-A100	14,000 rpm*	25 / 37 kW	160 / 236 Nm

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**

The horizontal machining centre **ZPS MCH630i** is a high-performance machine for complete chip machining of moulds, dies and flat as well as box-shaped parts made of steel, cast iron and light-metal alloys clamped on a working pallet. This machine enables milling operations in three mutually perpendicular coordinate axes X, Y, Z and drilling, boring, reaming and threading operations including the usage of tapping heads without aligning bush (RIGID TAPPING) in the Z-axis. A rotary table (B axis) allows machining of workpieces from more sides with single clamping. The dimensions of the working table are 630 x 630 mm.

MACHINING CENTRES ZPS

ZPS MCH800i

- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Rotary-tilting table option**

This horizontal machining centre **ZPS MCH800i** is a high-performance machine determined, above all, for the machining of moulds in the pressing, plastic, automobile and aircraft industries. Thanks to its design it is suitable for both three-axis and five-axis machining of complicated, accurate and spatial shapes. The typical products are moulds for production of press tools and forming tools, dies for forging, moulds for injection of synthetic materials, various devices for forming of plastic and rubber materials as well as for production of other machine parts of intricate shapes. A large scope for the machine utilization also lies in the sphere of tool engineering and conventional manufacturing, i.e. in a classical milling, drilling, sinking and reaming of holes, thread cutting and milling. The machine enables, thanks to its high dynamics, very high rigidity and damping properties of its construction, the utilization of the HSC technology advantages.

TECHNICAL DATA	MCH800i
Working travels	
X-axis (column)	1,000 mm
Y-axis (spindle head)	1,050 mm
Z-axis (table)	1,200 mm
Max. working feed	50 m/min
Rapid traverse	50 m/min
Acceleration	5 m/s²
Rotary table with pallet	
Pallet dimensions	800 × 800 mm
Range of turning	360 °
Pallet max. load	2,500 kg
Workpiece max. size (diameter × height)	Ø 1,100 × 1,300 mm
Pallet change time	20 s
Spindle nose to rotary table axis	100 – 1,300 mm
Spindle axis to pallet clamping surface	70 – 1,120 mm
Working pallet to floor	1,250 mm
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z axes	direct
Bidirectional positioning error A in X, Y, Z axes	0.008 mm
Bidirectional positioning error in B-axis	6 arc sec
Bidirectional repeatability of R position setting in X, Y, Z axes	0.0034 mm
Bidirectional repeatability of R position setting in B-axis	2 arc sec
Tool changer	
Number of tool pockets	60, 80, 100, 120
Tool change time	3.5 s
Complementary data	
Machine weight	31,000 kg
Control system	SIEMENS, HEIDENHAIN, FANUC

SPINDLE UNITS *optional equipment

Planetary gearbox			
ISO-50	8,000 rpm	28/43 kW	342/526 Nm
ISO-50	4,500 rpm*	17/25 kW	893/1,313 Nm
Electrospindle			
HSK-A63	18,000 rpm*	25/31 kW	160 / 200 Nm
HSK-A100	14,000 rpm*	25/37 kW	160 / 236 Nm

ZPS MCH1000i

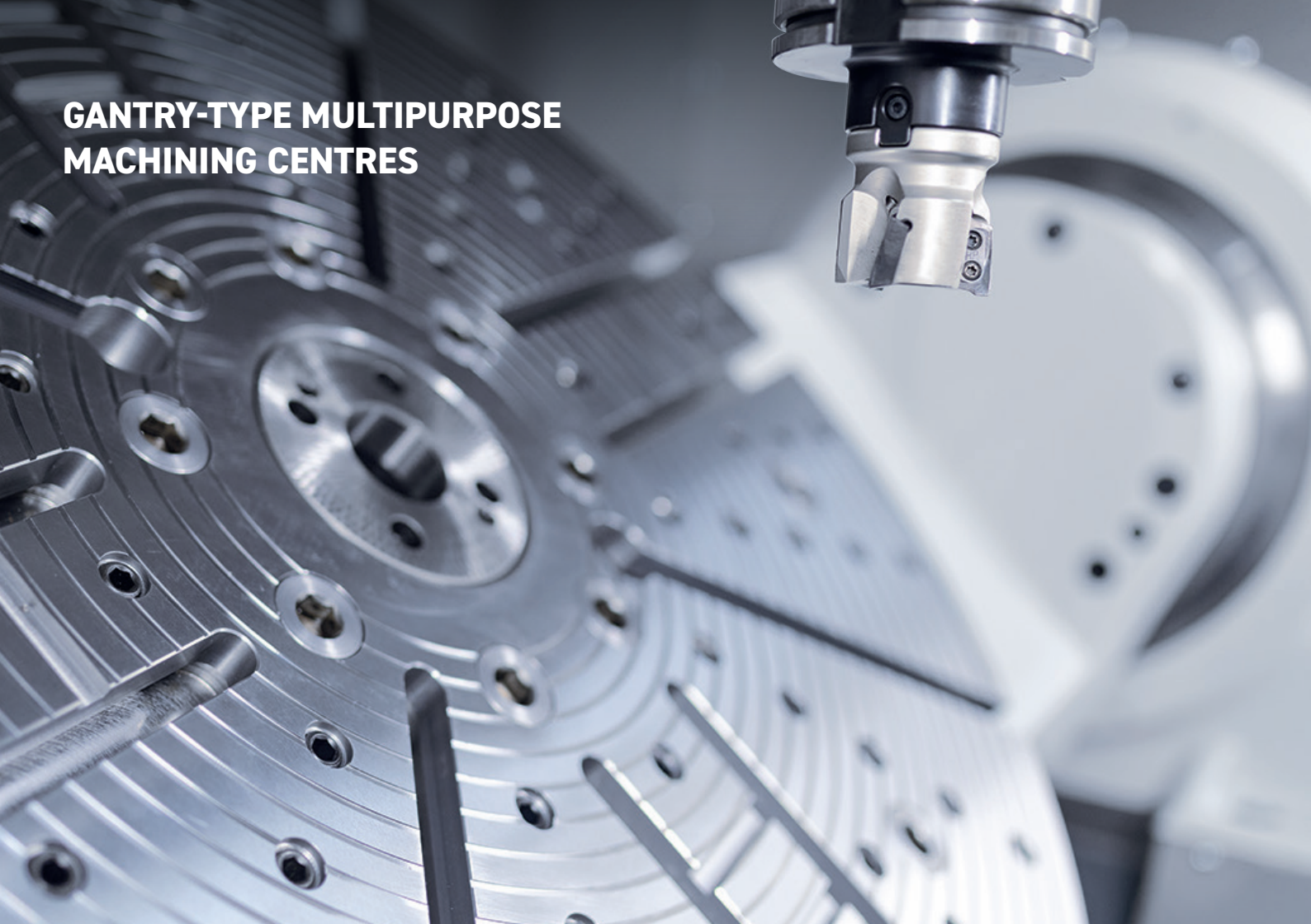
- **High performance**
- **High strength and rigidity**
- **High dynamic and thermal stability**
- **Long-lasting high accuracy**
- **High reliability**
- **Rotary-tilting table option**

TECHNICAL DATA	MCH1000i
Working travels	
X-axis (column)	1,400 mm
Y-axis (spindle head)	1,050 mm
Z-axis (table)	1,200 mm
Max. working feed	50 m/min
Rapid traverse	50 m/min
Acceleration	5 m/s²
Rotary table with pallet	
Pallet dimensions	1,000 × 1,000 mm
Range of turning	360 °
Pallet max. load	2,500 kg
Workpiece max. size (diameter × height)	Ø 1,400 × 1,300 mm
Pallet change time	20 s
Spindle nose to rotary table axis	200 – 1,400 mm
Spindle axis to pallet clamping surface	70 – 1,120 mm
Working pallet to floor	1,250 mm
Working accuracy (According to ISO 230-2)	
Measuring system in X, Y, Z, B axes	direct
Bidirectional positioning error A in X, Y, Z axes	0.008 mm
Bidirectional positioning error A in B-axis	6 arc sec
Bidirectional repeatability of R position setting in X, Y, Z axes	0.0034 mm
Bidirectional repeatability of R position setting in B-axis	2 arc sec
Tool changer	
Number of tool pockets	60, 80, 100, 120
Tool change time	3.5 s
Complementary data	
Machine weight	33,500 kg
Control system	SIEMENS, HEIDENHAIN, FANUC

SPINDLE UNITS				*optional equipment
Planetary gearbox				
ISO-50	8,000 rpm	28/43 kW	342/526 Nm	
ISO-50	4,500 rpm*	17/25 kW	893/1,313 Nm	
Electrospindle				
HSK-A63	18,000 rpm*	25/31 kW	160 / 200 Nm	
HSK-A100	14,000 rpm*	25/37 kW	160 / 236 Nm	

This horizontal machining centre **ZPS MCH1000i** is a high-performance machine determined, above all, for the machining of moulds in the pressing, plastic, automobile and aircraft industries. Thanks to its design it is suitable for both the three-axis and five-axis machining of complicated, accurate and spatial shapes. The typical products are moulds for production of press tools and forming tools, dies for forging, moulds for injection of synthetic materials, various devices for forming of plastic and rubber materials as well as for production of other machine parts of intricate shapes. A large scope for the machine utilization also lies in the sphere of tool engineering and conventional manufacturing, i.e. in a classical milling, drilling, sinking and reaming of holes, thread cutting and milling. The machine enables, thanks to its high dynamics, very high rigidity and damping properties of its construction, the utilization of the HSC technology advantages.

GANTRY-TYPE MULTIPURPOSE MACHINING CENTRES



The multipurpose machining centres of upper gantry-type enable complex machining of spatially complicated and technologically demanding workpieces as well as of combined shapes, both within five-axis milling operations and full-featured turning operations. Centres are highly productive machines with a wide range of utilization when machining complicated spatial shapes in three or five axes. Because of the high dynamics, very high rigidity and damping properties of the design, the machines enable utilization of HSC technology advantages. The machines of upper gantry type have the spindle mounted in a motor spindle unit built-in in the ram. All the movements of the machine are done by means of linear guide ways with rollers. Measuring of position in X, Y, Z axes is done directly by absolute measuring units. Measuring of position in X, Y, Z axes is done directly by absolute measuring units.

ZPS MCG810i | ZPS MCG820i | ZPS MCG1000i | ZPS MCG2318i | ZPS MCG INFINITY (3022/5022/7022...)

MACHINING CENTRES ZPS

ZPS MCG810i

- **High accuracy at machining**
- **Easy loading of big workpieces**
- **Favourable ratio of machine area/ workpiece size**
- **Machining in 3 – 5 axes**
- **Utilization of HSC technology**

ZPS MCG810i machine construction is formed by the upper-gantry type portal, whose frame consists of two side walls fixed to the base. It is a high-performance machine determined, above all, for the machining of moulds in the pressing, plastic, automobile and aircraft industries. Thanks to its design it is suitable for both three-axis and five-axis machining of complicated, accurate and spatial shapes. A large scope of the machine utilization also lies in the sphere of tool engineering and conventional manufacture, i.e. in a classical milling, drilling, sinking and reaming of holes, thread cutting and milling. The machines equipped with a rotary table and a lathe spindle unit also enable turning operations, such as outer and inner surfaces turning, face turning, outer and inner thread turning, etc.

TECHNICAL DATA	**MCG810i**
Working travels	
X-axis – cross slide	1,000 mm
Y-axis – cross rail	800 mm
Z-axis – ram	600 mm
Working table	
Working area	1,200 × 1,000 mm
Number of T-slots	11
Dimension of slots – 2nd T-slot from the right	18H7 mm
– other T-slots	18H8 mm
Pitch of T-slots	100 mm
Maximum load	3,000 kg
Distances	
Spindle nose to fixed table	**electrospindle** 150 – 750 mm / **CNC two-axis head** 65 – 665 mm
Feeds in X, Y, Z axes	
Max. working feed	40 m/min
Rapid traverse	40 m/min
Maximum acceleration of axes	5 m/s^2
Automatic tool changer	
Number of tool pockets in ATC	30 (up to 130)
Tool interchange time (tool – tool)	3.5 s
Tool maximum diameter	
– with adjacent tool pockets in ATC	80 mm
– without adjacent tool pockets in ATC	115 mm
Tool maximum length	250 mm
Tool including holder maximum weight	8 kg
Control system	HEIDENHAIN, SIEMENS, FANUC

SPINDLE UNITS

*optional equipment

Electrospindle

ISO 40	15,000 rpm	31 kW	200 Nm
HSK-A63	18,000 rpm*	31 kW	200 Nm
HSK-T100	12,000 rpm*	30 kW	143 Nm
HSK-A100	14,000 rpm*	37 kW	236 Nm

TWO-AXIAL ROTARY-TILTING TABLE

*optional equipment

Table clamping area	Ø 600 mm / 800 mm*
Rotation speed	100 rpm / 400 rpm*
A/C axis range	+-95 ° / 360 °
Maximum weight of workpiece	560 kg

- **High accuracy at machining**
- **Easy loading of big workpieces**
- **Favourable ratio of machine area/ workpiece size**
- **Machining in 3 – 5 axes**
- **Utilization of HSC technology**

TECHNICAL DATA	**MCG820i**
Working travels	
X-axis – cross slide	1,000 mm
Y-axis – cross rail	1,800 mm
Z-axis – ram	600 mm
Working table	
Working area	1,200 × 2,000 mm
Number of T-slots	2×11
Dimension of slots – 2nd T-slot from the right	18H7 mm
– other T-slots	18H8 mm
Pitch of T-slots	100 mm
Maximum load	3,000 + 3,000 kg
Feeds in X, Y, Z axes	
Max. working feed	40 m/min
Rapid traverse	40 m/min
Maximum acceleration of axes	5 m/s^2
Automatic tool changer	
Number of tool pots in ATC	50 (up to 130)
Tool interchange time (tool – tool)	8 s
Tool maximum diameter	
– with adjacent tool pockets in ATC	110 mm
– without adjacent tool pockets in ATC	160 mm
Tool maximum length	
– machine with electrospindle HSK63, HSK100	380 mm
– machine with electrospindle ISO 40	355 mm
– machine with CNC two-axial head	240 mm
Tool including HSK100 / HSK63 holder maximum weight	15 kg / 8 kg
Control system	HEIDENHAIN, SIEMENS, FANUC

SPINDLE UNITS			*optional equipment
Electrospindle			
ISO 40	15,000 rpm	31 kW	200 Nm
HSK-A63	18,000 rpm*	31 kW	200 Nm
HSK-T100	12,000 rpm*	30 kW	143 Nm
HSK-A100	14,000 rpm*	37 kW	236 Nm

CNC TWO-AXIAL HEAD - SPINDLE *	*optional equipment
Maximum power output	23 kW
Maximum torque	72 Nm
Maximum speed	18,000 rpm
Clamping taper	HSK-A63

ZPS MCG820i is a vertical milling centre of upper gantry type with two separate removable tables or one fixed and one rotary table in a common or divided working space. Thanks to its design it is suitable for both three-axis and five-axis machining of complicated, accurate and spatial shapes. A large scope of the machine utilization also lies in the sphere of tool engineering and conventional manufacture, i.e. in a classical milling, drilling, sinking and reaming of holes, thread cutting and milling. The machines equipped with a rotary table and a lathe spindle unit also enable turning operations, such as outer and inner surfaces turning, face turning, outer and inner thread turning, etc.

MACHINING CENTRES ZPS

ZPS MCG1000i

- **Multifunctional 3- to 6-axis solution**
- **Milling and turning technology**
- **Fixed or rotary table**
- **High dynamics and thermal stability**
- **Fully symmetrical machine framework**
- **Box-in-box cross rail design**
- **High machining accuracy**

ZPS MCG1000i is a multifunctional machining centre of upper gantry-type designed for complex machining of spatially complicated and technologically demanding workpieces as well as of combined shapes, both within five-axis milling operations and full-featured turning operations. The centre enables milling in five axes, namely in three mutually perpendicular coordinate axes X, Y, Z, in the rotary C-axis – a rotary tilting table with built-in torque motor enabling turning operations, and in the tilting B-axis - a rotary tilting table with built-in torque motors. It is a highly productive machine characterized by high dynamic and thermal stability and high accuracy of machining. A direct measuring system in all axes is a part of the basic configuration.

TECHNICAL DATA — ZPS MCG1000i

Travels			
Travel in X-axis			1,200 mm
Travel in Y-axis			1,000 mm
Travel in Z-axis			700 mm
B-AXIS:			-120/+30°
C-AXIS:			360°
Feeds			
Rapid traverse in X, Y, Z axes			60 m/min
Max. working feed in X, Y, Z axes			60 m/min
Acceleration			5 m/s²
Rotary-tilting table Ø 1 000 mm			
Working area			Ø 1,000 mm
Workpiece max. dimension (diameter x height)			Ø 1,000 x 550 mm
Table max. load (α=±0°) milling/turning			1,100 / 700 kg
Table max. load (α=-120/+30°)			600 kg
Spindle nose to table plate			50-750 mm
Table axis			
Max. torque	**B-axis** (tilting axis)		**C-axis** (rotary axis)
Mkmax S1/S6-40%	2x2 139 / 2x3 413 Nm		1,580 / 2,080 Nm
Max. speed - turning	50 rpm		800 rpm
Tool changer			
No. of pockets in changer HSK63 / HSK100			50 (100) / 30 (60)
Tool max. diameter HSK63 / HSK100			80 / 110 mm
Tool max. diameter without adjacent tools			160 mm
Tool max. length			380 mm
Tool max. weight HSK63 / HSK100			8 / 15 kg
Tool change time			2.3 s
Control system			HEIDENHAIN, SIEMENS, FANUC

SPINDLE UNITS

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

AUTOMATIC PALLET CHANGE ZPS MCG1000i

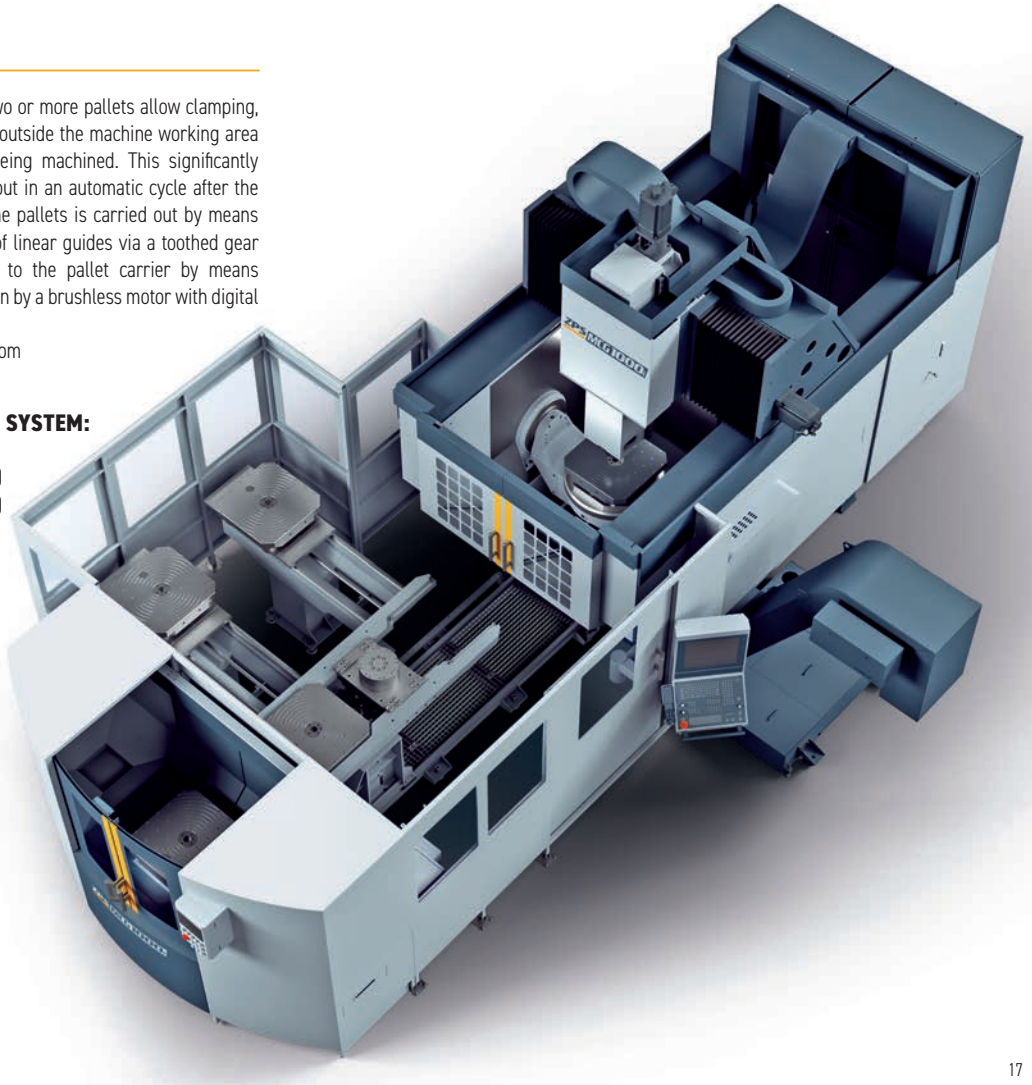
Machines equipped with an automatic pallet changer for two or more pallets allow clamping, unclamping and measuring of the workpiece on the pallet outside the machine working area while the workpiece clamped on the second pallet is being machined. This significantly increases work productivity. The pallet change is carried out in an automatic cycle after the operator releases the pallet for change. The transfer of the pallets is carried out by means of a pallet carrier with a rotary fork moving along a pair of linear guides via a toothed gear drive. The pallets are moved from the storage station to the pallet carrier by means of a preloaded ball nut, which is moved by a ball screw driven by a brushless motor with digital control.

The machine is equipped with an automatic door opening from the pallet change system to the machine.

POSSIBLE VARIANTS FOR THE PALLET CHANGE SYSTEM:

- Setting-up station + machine (2 pallets)
- Setting-up station + 1 storage station + machine (3 pallets)
- Setting-up station + 2 storage station + machine (4 pallets)

Workpiece size	Ø 1,000 × 400 mm
Workpiece weight	400 kg
Pallet dimension	630 × 630 mm
Pallet to pallet transfer time	25 s



MACHINING CENTRES ZPS

ZPS MCG2318i

- **Multifunctional 3- to 6-axis solution**
- **Milling and turning technology**
- **Fixed or rotary table**
- **High dynamics and thermal stability**
- **Fully symmetrical machine framework**
- **Box-in-box cross rail design**
- **High machining accuracy**

Gantry-type machining centre **ZPS MCG2318i** is a representative of a series of multipurpose machining centres from the production of TAJMAC-ZPS. The machine construction is formed by an upper-gantry type portal whose frame consists of two sets of side walls and a base. The side walls and the rotary table base or a fixed table are mounted on adjustable wedges and are 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 (the so called box-in-box system) 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.

TECHNICAL DATA — MCG2318i

Working travels	**3 axes** spindle unit fixed table	**5 axes*** 1-axial head integrated rotary table	**5 to 6 axes*** 2-axial head fixed table / integrated rot. table
X axis – binder	2,300 mm	2,300 mm	2,300 mm
Y axis – cross slide	1,500 mm	1,400 mm	1,400 mm
Z axis – slide ram	1,050 mm	1,050 mm	1,050 mm
Feeds			
Working feed in X, Y, Z axes	50 m/min	50 m/min	50 m/min
Rapid traverse X, Y, Z	50 m/min	50 m/min	50 m/min
Acceleration in X, Y, Z axes	5 m/s^2	5 m/s^2	5 m/s^2
Distances			
Spindle nose to table plate	+200 up to +1 250	−30 up to +1 020	max. 920
Working table to floor	805 mm	805 mm	805 mm
Tool changer			
No. of pockets in changer			50
Tool change time			3.5 s
Fixed table			2,520 × 1,600 mm
Table max. load			15,000 kg
Number of T-slots × width			12 × 18 H12
Pitch of T-slots			125 mm
Rotary table – milling			Ø 1,800 mm
Table max. load			10,000 kg
Max. rotation speed			50 rpm
Rotary table – turning			Ø 1,800 mm
Table max. load			5,000 kg
Max. rotation speed			250 rpm
CNC head parameters (B axis)			
B axis range			+110 / −110 °
B axis tilt rate			60 rpm
Maximum torque			1,000 Nm
Control system			SIEMENS, HEIDENHAIN, FANUC

SPINDLE UNITS (same for MCG2318i and MCG3022i)

3 - 4-axial machines without head change			* turning clamping of 690 Nm ** turning clamping of 1000 Nm
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	27 / 31 kW	130 / 150 Nm

ZPS MCG3022i

- **Multifunctional 3- to 6-axis solution**
- **Milling and turning technology**
- **Fixed or rotary table**
- **High dynamics and thermal stability**
- **Fully symmetrical machine framework**
- **Box-in-box cross rail design**
- **High machining accuracy**

Gantry-type machining centre **ZPS MCG3022i** is a representative of a series of multipurpose machining centres from the production of TAJMAC-ZPS. The machine construction is formed by an upper-gantry type portal whose frame consists of two sets of side walls and a base. The side walls and the rotary table base or a fixed table are mounted on adjustable wedges and are 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 (the so called box-in-box system) 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.

TECHNICAL DATA — MCG3022i

MACHINE TYPE MCG3022i	5-axial	3-axial
Travels		
X-axis	3,000 mm	3,000 mm
Y-axis (cross slide)	2,250 mm	2,250 mm
Z-axis (sliding ram)	1,050 mm	1,250 mm
B-axis CNC head	+- 110 mm	
C-axis rotary table	360°	
Feeds		
Feedrate in X, Y, Z axes	40, 40, 50 m/min	40, 40, 50 m/min
Rapid traverse in X, Y, Z axes	40, 40, 50 m/min	40, 40, 50 m/min
Acceleration in X, Y, Z axes	3, 3, 5 m/s^2	3, 3, 5 m/s^2
B-axis feed, CNC head	60 m/min	
Rotary table speed range in spindle mode	250 m/min	
Rotary table work feed in C-axis mode	50 m/min	
Dimensions		
Rotary table / fixed clamping plate	ø 2,100 mm	4,000 × 2,000 mm
Distances		
Spindle nose to table	+120 up to +1,170 mm	+530 up to +1,780 mm
Clamping surface to floor	820 mm	610 mm
Spindle axis to clamping surface (B=90)	500 mm	
Max. dimension between side walls /orbital diameter	3,010 / 2,950 mm	3,010 mm
Max. dimension between covers in X-axis	5,000 mm	5,000 mm
Max. dimension of clamping surface and Z-axis upper covers	1,650 mm	1,860 mm
Tool changer		
No. of pockets in changer HSK63 / HSK100 (option)	50 (128)	50 (128)
Tool change time	3.5 s	3.5 s
Control system	SIEMENS, HEIDENHAIN, FANUC	

SPINDLE UNITS (same for MCG2318i and MCG3022i)

5 - 6-axial machines with CYTEC M21 changeable head			* turning clamping of 2000 Nm
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

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