

SPECIFICATION

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 | 6 m/s ² |

Work accuracy (acc. to VDI / DGQ 3441)

| | |
|-------------------------------------|--|
| Position accuracy (P) in X,Y,Z axes | 0,008 mm |
| Repeatability Ps max in X,Y,Z axes | 0,005 mm |
| Measuring system | HEIDENHAIN LC115 direct measuring system |

B-AXIS

| | |
|-------------------|------------|
| Position accuracy | 12 arc sec |
| Repeatability | 6 arc sec |

C-AXIS

| | |
|-------------------|-----------|
| Position accuracy | 6 arc sec |
| Repeatability | 3 arc sec |

Spindle - milling

| | ISO 40 | HSK-A63 | HSK-A100 |
|--------------------------------------|--------------|--------------|--------------|
| Tool clamping taper | | | |
| Maximal speed | 15 000 rpm | 18 000 rpm | 14 000 rpm |
| Motor power output S1-100% / S6-40% | 25 / 31 kW | 25 / 31 kW | 25 / 37 kW |
| Max. spindle torque S1-100% / S6-40% | 159 / 197 Nm | 159 / 197 Nm | 159 / 236 Nm |
| Spindle nose to table plate | 50-750 mm | 50-750 mm | 50-750 mm |

Spindle - milling/turning

| | HSK-T100 | HSK-T100 |
|--------------------------------------|--------------|--------------|
| Tool clamping taper | | |
| Maximal speed | 12 000 rpm | 10 000 rpm |
| Motor power output S1-100% / S6-40% | 25 / 30 kW | 48 / 71 kW |
| Max. spindle torque S1-100% / S6-40% | 119 / 143 Nm | 300 / 452 Nm |
| Spindle nose to table plate | 50-750 mm | 50-750 mm |

Tool changer

| | |
|---|-------------|
| No. of pockets in changer HSK63/HSK100 | 50 / 30 pcs |
| Tool max. diameter | 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 | 2,0 s |

Connection to the mains

| | |
|-------------------------|----------------|
| Nominal voltage | 3 x 400V/50 Hz |
| Operational power input | 80 kVA |
| Full load current | 150 A |
| Air pressure | 0,6 - 0,8 MPa |

STANDARD EQUIPMENT

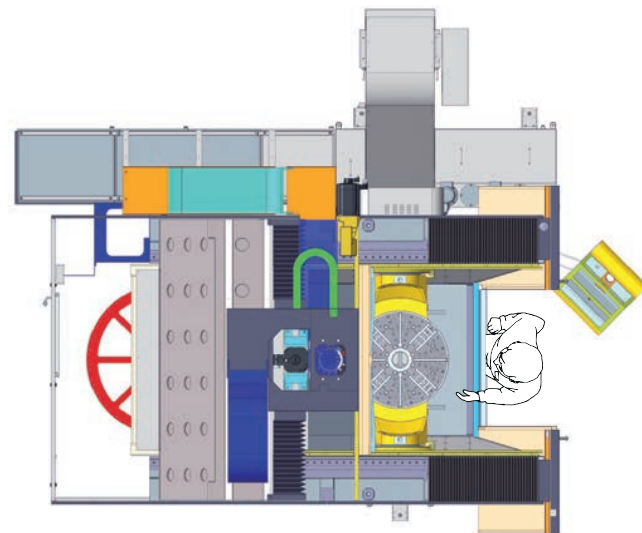
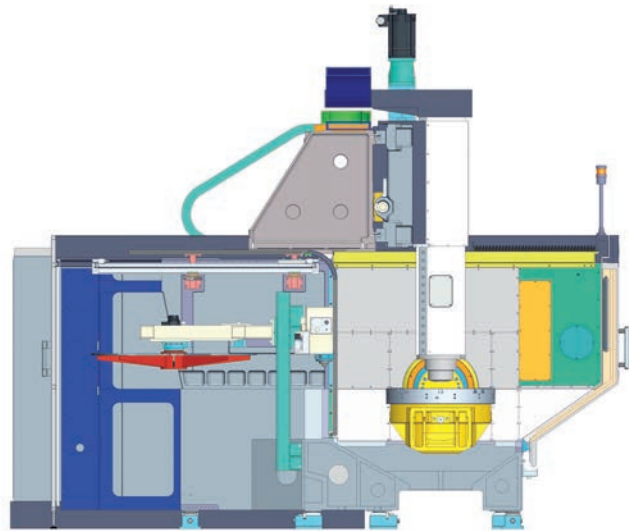
- Sinumerik 840D SL / Heidenhain TNC 640 / FANUC control system
- electrospindle with maximal speed of 15 000 rpm
- ISO 40 clamping taper
- continuously controlled rotary-tilting table of Ø 800 mm
- digital feed drives
- one tool changer for 50 tool
- Heidenhain direct measuring system
- pneumatic elements
- central lubrication system
- tool holder automatic air-blasting
- cooling unit with tool outer cooling system
- spindle thermal stabilization
- chip conveyor
- electronic handwheel
- vibrodiagnostics

OPTIONAL EQUIPMENT

- spindle units
- cooling through spindle axis of AD type – coolant, filtering unit
- electrical cabinet air conditioning
- cooling through spindle axis of AD type – air
- workpiece dimensions measuring probe
- tool measuring probe
- exhaustion of oil-mist from workzone
- oil-mist cooling
- work table of Ø 1 000 mm
- handheld wash-out gun
- remote diagnostic installation
- machine hibernation
- technological software
- digital handwheel
- visiport
- work cycle signalling

Basic data

| | |
|---|--------------------------|
| Machine shipping dimensions (L x w x h) | 4 200 x 2 400 x 3 000 mm |
| Machine weight (without accessories) | 18 500 kg |



The depiction and the numerical data may not correspond to the latest model of the machine.

MCG 1000^{5XT}

MULTIFUNCTIONAL MACHINING CENTRE



CONTACT

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

Phone: +420 577 532 072
Fax: +420 577 533 626
E-mail: info@tajmac-zps.cz
Web: www.tajmac-zps.cz

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MCG 1000 5XT

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.

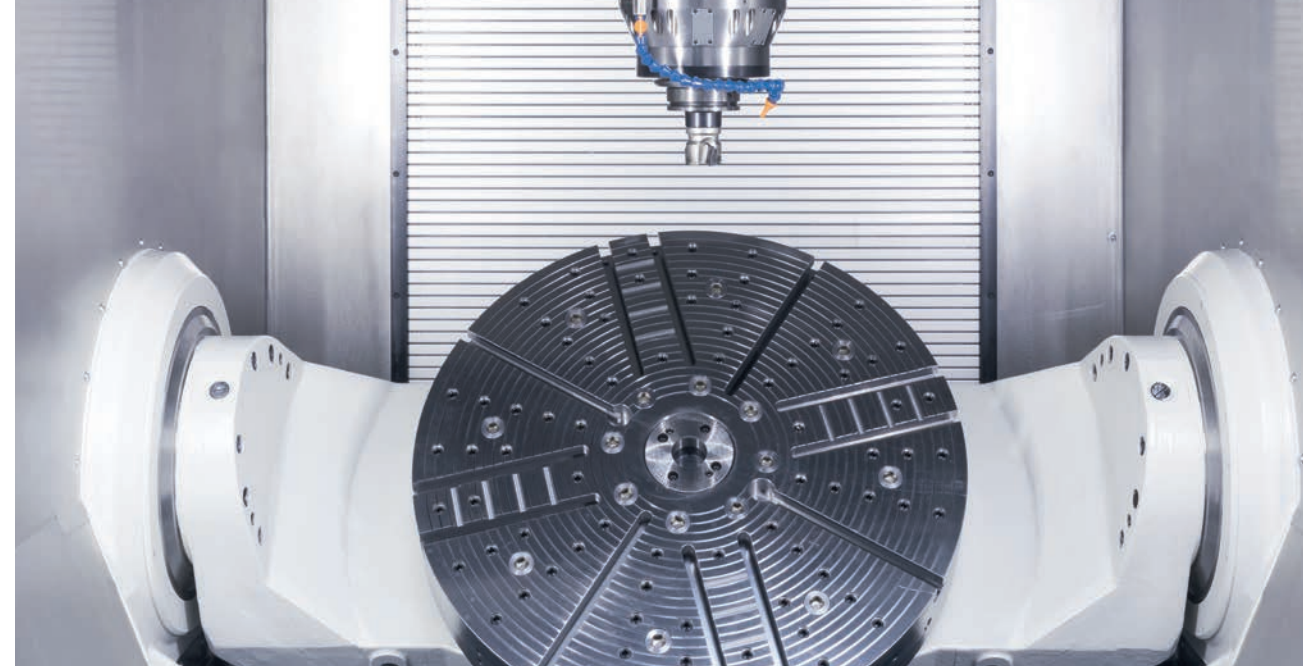
It is a highly productive machine characterized by high dynamic and thermal stability and high accuracy of machining. Every working axis is travelling along linear guide-ways. A direct measuring system in all axes is a part of the basic configuration.

TECHNOLOGICAL CAPABILITIES OF THE MACHINE

The machine is intended for production of metallic parts for pressing, plastic-making, automotive and aviation industry. It is also well-suited for standard machining. It enables machining a workpiece from five sides. It allows milling, drilling, boring, reaming, thread cutting and turning technological operations. Featuring a 12 000 rpm spindle and utilizing ring motors in the rotary axes, the machine fully supports shape machining and HSC machining. The maximal diameter of the workpiece can be 1 000 mm, with weight of 1 300 kg for milling operations and 700 kg for turning operations.



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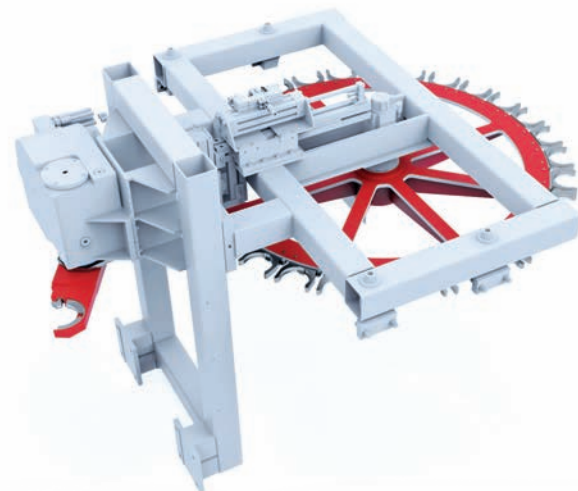


ROTARY-TILTING TABLE Ø 1 000 mm

| | | |
|--|------------------------------|-----------------------------|
| Working area | Ø 1 000 mm | |
| Workpiece max. dimension (diameter x height) | Ø 1 000 x 500 mm | |
| Table max. load ($\alpha=±0°$) milling/turning | 1 100 / 700 kg | |
| Table max. load ($\alpha=±90°$) | 700 / 500 kg | |
| 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 | 50 rpm | 800 rpm |

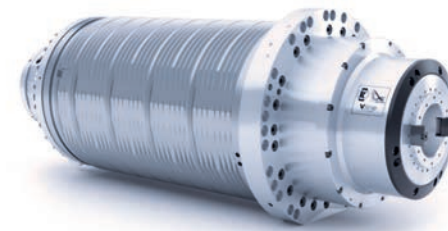
TOOL CHANGER

| | | |
|---|-----------------|--|
| No. of pockets in changer HSK63 / HSK100 / ISO 40 | 50 / 30 / 50 ks | |
| Tool max. diameter | 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 | 2,0 s | |



ROTARY-TILTING TABLE Ø 800 mm

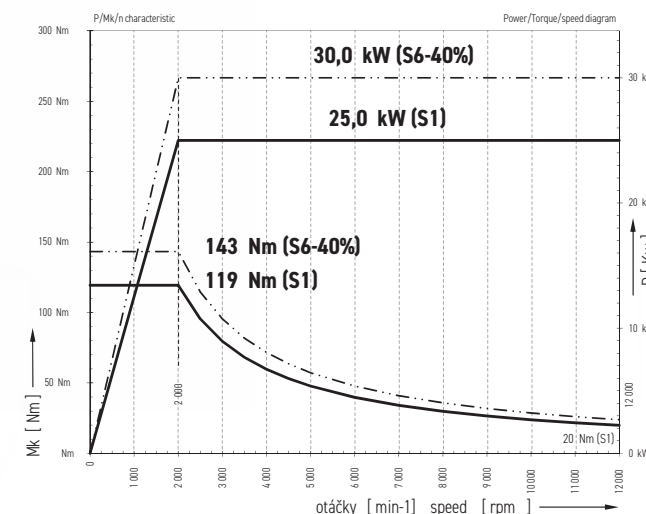
| | | |
|--|------------------------------|-----------------------------|
| Working area | Ø 800 mm | |
| Workpiece max. dimension (diameter x height) | Ø 1 000 x 500 mm | |
| Table max. load ($\alpha=±0°$) milling/turning | 1 300 / 700 kg | |
| Table max. load ($\alpha=±90°$) | 700 / 500 kg | |
| Table 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 | 50 rpm | 1 200 rpm |



SPINDLE UNITS

| | | | |
|-----------|------------|------------|--------------|
| ISO 40 | 15 000 rpm | 25 / 31 kW | 159 / 197 Nm |
| HSK-A63 | 18 000 rpm | 25 / 31 kW | 159 / 197 Nm |
| HSK-A100 | 14 000 rpm | 25 / 37 kW | 159 / 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 possible only with the HSK-100T spindle

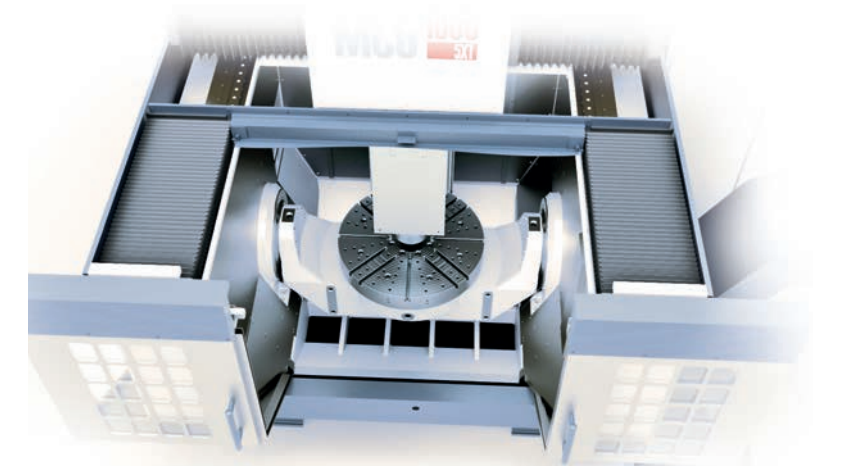


* the graph represents the HSK-T100 spindle

ERGONOMIC ARRANGEMENT OF THE MACHINE

The arrangement of the control elements allows easy and safe operation of the machine. The workzone is fully enclosed and enables usage of high-pressure cooling as well as of a suction device for oil-mist and aerosol removal. The concept of the enclosure ensures good access and visibility into workzone, thus enabling easy manipulation with the workpiece during its loading and unloading to/from the workzone and during machining technology setting-up.

The safety of work is ensured by passive and active elements preventing from contact with the rotating tools or machine moving wholes. The noise levels and vibrations of all operational parts fulfil the hygienic standards of European directives.

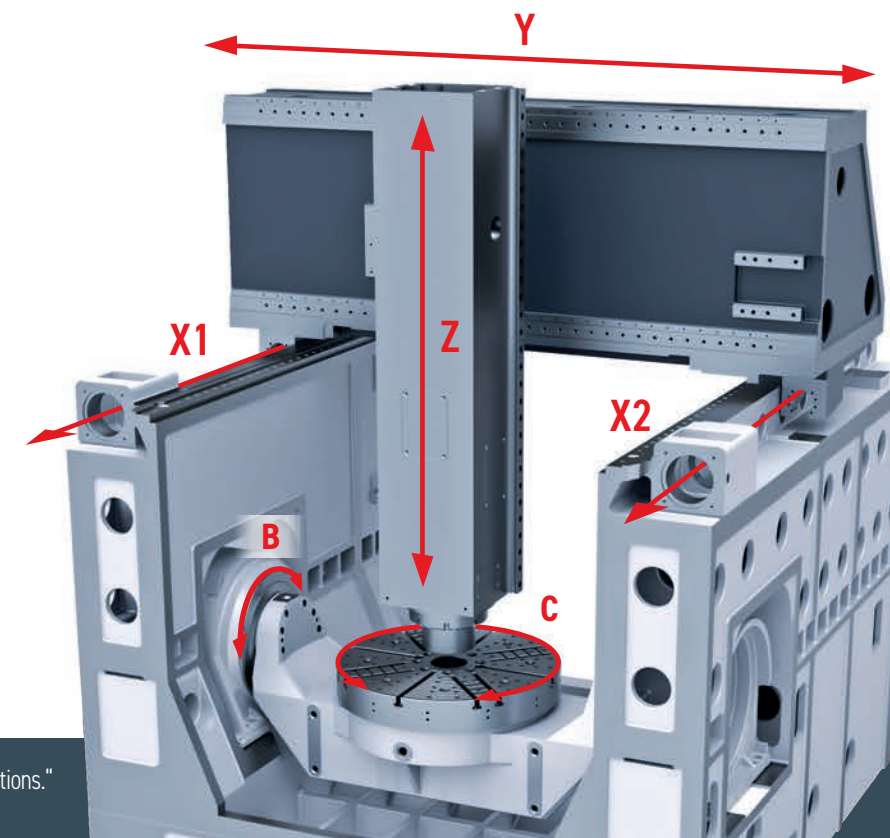


ECO FRIENDLY

The machine design prevents from leakage of coolant, lubricants and machining exhausts outside the workzone and minimizes their negative effects on the environment. The design and configuration of the machine meet the requirements of the European directive 2006/42/EC and fulfils the requirements of all safety standards required for the CE mark. The lubrication of movable and rotary parts of the machine (linear axes, electrospindle) is ensured by the application of automatic grease lubrication which prevents the cutting fluid and machine parts from contamination.



MACHINE KINEMATICS



„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.“