

# [SM 20]

CNC machining centre with  
3-axis or 4-axis technology

by **MAKA**



[SM 20s]

Technical specifications



SM 20t



SM 20s

## SM 20 Universal CNC machining centre

For processing tabular wood and wood-based materials

### Applications

The SM 20 universal machining centre is used for processing two-dimensional wood and wood-based materials such as plates, kitchen fronts, furniture parts and steps. Processing is by 3- or 4-axis technology.

The rigid construction of this stationary gantry machine combined with a high-performance working unit ensures first-class milling results and excellent dynamics of movement. With its process reliability and profitability, it is perfectly suitable for efficiently processing small batches.

Single or tandem table designs are available. Use of the tandem table version with alternating operation minimises the auxiliary process times for loading and unloading of the workpieces. The two tables can be coupled for large workpieces or a centre aisle can be installed between them to permit table loading from 3 sides. The phenolic resin grid table with vacuum pump ensures highest flexibility and secure fixation, also when clamping large components.

### Latest technology

#### High-tech supporting higher efficiency and the environment

- The high performance universal machining centre SM 20 is a stationary gantry solution designed for flexible machining processes
- By moving the working unit in the X-axis and the table in the Y-axis, high dynamics are achieved, as only relatively small masses actually need to be moved
- High-performance working units ensure high speeds and high operation feeds
- Tool magazines with up to 51 tool places offer a variety of machining possibilities
- Technically optimised components and excellent mechanics, electronics and low-maintenance units guarantee process safety and economic efficiency

#### Green technology:

- Innovative electronic systems, such as a frequency-controlled vacuum pump and MAKA's energy-saving concepts, contribute to low energy consumption
- MAKA was granted the Environmental Award of the Federation of German Industries (BDI)



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## Technical data

	Size*	Working range*/**	Speed	Acceleration
X-axis	1,500/2,000/2,500/3,000 mm	1,500/2,000/2,500/3,000 mm	60 m/min	3 m/sec <sup>2</sup>
Y-axis	2,000/2,500/3,000 mm	2,000/2,500/3,000 mm	60 m/min	3 m/sec <sup>2</sup>
Z-axis	500 mm	250 mm	45 m/min	3 m/sec <sup>2</sup>

\*For tandem version two X-axes each. \*\* For a total tool length of 160 mm and with a diameter of 160 mm.

Voltage	Voltage deviation	Installed power	Ambient temperature	Pneum. working pressure
400 V	+/- 5% max.	approx. 23 kW	10-35 °C	6-8 bar

## Additional optional features

### Table designs

- Single version features a flat surface table
- Tandem version comes with 2 surface tables also permitting coupled operation. Also with centre aisle between the two tables for table loading from 3 sides
- Phenolic resin grid table with milled slots for the insertion of caulking strips in accordance with the workpiece size and shape to be machined
- Rotary plunger vacuum pump with hydraulic unit

### Working units

#### Universal working unit for 3-axis milling

- 16 kW or 26 kW milling spindle HSK F63 including tool change milling spindle with high torque and pneumatic suction, 2,000 to 24,000 1/min, infinitely variable speed, water-cooled
- Suction hood with chip collecting system vertically adjustable by NC and with strip curtain
- Blow-out nozzle at milling unit
- MAKATool Blower System (MTB System) coolant module for air, air/water or oil/air cooling
- Minimum quantity lubrication, coolant spraying unit with minimum quantity atomisation

#### Multi-spindle drilling unit coupled to the main unit or individually controlled

- 13 vertical spindles, coupled, L-shaped arrangement (9 in X-direction, 5 in Y-direction)
- 20 vertical spindles, coupled, L-shaped arrangement (7 in X-direction, 14 in Y-direction)
- 10 vertical spindles, individually controllable, L-shaped arrangement (7 in X-direction, 4 in Y-direction), 3 horizontal spindles with 2 spindle exits, with their own X- and Z-axis
- 10 vertical spindles, coupled, L-shaped arrangement (7 in X-direction, 4 in Y-direction), 3 horizontal spindles with 2 spindle exits, with their own Z-axis

### Tool changer

- Rotary disk tool magazine with 8 places for an automatic tool change
- Chain-type tool magazine with 16, 32, 33 or 51 places and rotary grippers for quick tool change

### Occupational health and safety

- Sheet metal housing
- Standard or acoustic enclosure

### Control system

- Siemens SINUMERIK 840D sl machine control with NCU 720 or NCU 730
- Siemens HT 8 operating unit (without PC), hand operating panel with 7.5" touch screen
- Siemens OP 15A PCU operating unit (with PC), operating panel with 15" display
- Siemens OP 15A TCU operating unit (without PC), operating panel with 15" display
- Siemens OP 19 PCU operating unit (with PC), operating panel with 19" display
- BWO machine control with XCPU 32 bit or 64 bit
- BWO CNC 920 operating unit (without PC) Operating panel with 10" touch screen
- BWO CNC 930 operating unit (with PC) Operating panel with 15" touch screen
- BWO RC 910 operating unit (without PC) hand operating panel with 6.5" touch screen
- Remote maintenance via internet portal
- Network ready

### Peripheral devices

- Double suction vacuum clamping unit
- Longitudinal workpiece stop with pneumatic lowering
- Crossfeed workpiece stop with pneumatic lowering
- SCHMALZ-Innospann vacuum clamping system
- Pneumatic clamping circuit
- Vacuum clamping circuit
- Vacuum clamping circuit for grid table
- Double vacuum clamping circuit

35 years of CNC competence

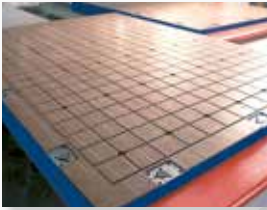
experience and innovation

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CNC - Spezialmaschinen

## Table designs

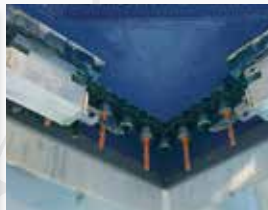


Phenolic resin grid table

## Working units



16 or 26 kW milling spindle  
 HSK F63



Multi-spindle drilling unit



NC-adjustable chip  
 collecting system



MTB System



Blow nozzle at the working  
 unit

## Tool magazine



Drum-type tool magazine  
 with 8 places



Chain-type tool magazine  
 with 16 or 32 places



Chain-type tool magazine  
 with 33 or 51 places

## Control systems



Siemens HT8



Siemens OP 19 A TCU /  
 Siemens OP 19 A PCU



BWO RC 910



BWO CNC 920 /  
 BWO CNC 930

State-of-the-art control  
 system technology  
 by Siemens or BWO.  
 Machines connection  
 possible via post-  
 processors to CAD.

## Peripheral devices



Double suction vacuum  
 clamping unit



SCHMALZ-Innospann  
 vacuum clamping system

Subject to technical alterations. 03/2014/1 .500

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