



5-axis CNC machining centre MK 7

For universal use in the machining of wood, plastics/composites and aluminum/light alloys

Applications

The stationary gantry machine MK 7 is a sturdy entry-level machine for handling small to medium size workpieces and is preferred by manufacturers in the wood, plastics/composites and aluminum/light alloys machining sectors.

This full-featured 5-axis machining centre is based on a proven concept. The rigid construction of this stationary gantry machine combined with a high-performance working unit ensures first-class milling results and excellent repeatability whilst permitting high dynamics of movement.

The extending table is easily accessible and the operators can easily load, clean and maintain the table. Guide-ways are covered to protect against flying chips. Machining of various materials is supported by state-of-the-art technology. This includes tool magazines with up to 20 tool places, the most modern chip suction systems, a tight encapsulation of the machining area in addition to blow nozzles and spray nozzles to prevent excessive heat build-up at the working unit.

Latest technology

High-tech supporting higher efficiency and the environment

- The mono block design offers the best conditions for ultimate machining quality at maximum operation feeds
- The machine is equipped with rack and pinion drives for the X-axis, ball screw spindles for the Y- and Z-axes and hollow shaft drives for the A-/C-axes
- We configure and equip the machine to customer specifications. The technically optimized components you can choose from are geared to real-world needs. This includes the table design and configuration, machining units, tool magazines and machine controls. The MK 7's excellent mechanics, electronics and low-maintenance components ensure process safety and economic efficiency

Green technology:

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



Technical data

	Size	Working range*	Speed	Acceleration
X-axis	1,000/2,000 mm	1,000/2,000 mm	60 m/min	3 m/sec ²
Y-axis	1,000 mm	1,000 mm	60 m/min	3 m/sec ²
Z-axis	1,000 mm	600 mm	45 m/min	3 m/sec ²
A-axis	196° and/or 270°		10,000 °/min	
C-axis	540°		10,000 °/min	

* For a total tool length of 130 mm and a diameter of 60 mm

Voltage	Voltage deviation	Installed power	Ambient temperature	Pneum. working pressure
400 V	+/- 5 % max.	approx. 20-40 kW	10-35 °C	6 bar min.

Additional optional features

Table designs - Highest flexibility, also when clamping large and complex components

- Aluminum flat surface table
Precision milled surface, optionally available with drilling bushes and M12 threaded bushes for easy positioning and individual clamping of the workpiece using customer's clamping devices. Double-acting vacuum suction pods are also available for workpiece clamping
- Phenolic resin / aluminum grid table
Grid size 30 x 30 mm min. or to customer specifications, with milled slots for the insertion of caulking strips fitting the workpiece shape or the customer's jig that is to be clamped
- Additional pneumatic clamping circuit(s)
- Additional vacuum clamping circuit(s)
- Vacuum pump dry-running or oil-lubricated and sound-proofed. Suction power 60 m³/h to 250 m³/h max., additional accumulator tank available

5-axis working units

- Cardanic 50° inclined head
A-axis 196° (swivelling axis +/- 98°)
C-axis 540° (rotational axis +/- 270°)
- or 90° angle head
A-axis 270° (swivelling axis +/- 135°)
C-axis 540° (rotational axis +/- 270°)

Available milling spindles

- 10 kW or 15 kW power class electric spindle
Rotational speed 2,000 to 24,000 1/min, infinitely variable, with optional encoder, water-cooled, HSK F63 tool change interface
- 6,5 kW power class high-speed electric spindle
Rotational speed 2,000 to 36,000 1/min, infinitely variable, water-cooled, HSK E40 tool change interface
- 6 kW milling spindle with two ER16 collet outputs, 2,000 to 27,000 1/min, infinitely variable, water-cooled, can only be used together with 90° angle head

Further technical options

- Suction hood vertically adjustable by NC with strip curtain at the milling unit
- Connecting port for indoor air suction
- Minimum quantity lubrication with coolant spraying unit at the milling unit, alternatively equipped with 2 or 3 spray nozzles
- Air blow nozzle on milling unit (also suitable for ionised air)
- MAKAL Tool Blower System (MTB), high-pressure coolant module for air, air/water or oil/air cooling

Tool changer

- Linear-type magazine with 6 tool places
- Rotary disk tool magazine with 20 places, stationary
- Rotary disk tool magazine with 10 places, travelling
- Saw blade pick-up location

Occupational health and safety

- Sheet metal housing (open to the top)
- Enclosure (with closed roof)
- Sliding doors (manual or automatic)

Control system

- Siemens SINUMERIK 840D sl with NCU 720 or NCU 730
- Siemens OP 15 A (with and without PC)
- Siemens OP 19 PCU (with PC)
- Siemens HT 8 (without PC), hand operating panel with 7.5" touch screen
- SINUMERIK Ctrl-Energy
- BWO with XCPU 32 Bit or 64 Bit
- BWO CNC 920 (without PC)
- BWO CNC 930 (with PC)
- BWO RC 910 (without PC), hand operating panel with 6.5" touch screen
- Preparation for remote maintenance (via VPN or Internet portal)
- Network ready

Peripheral equipment / extensions

- 3D measuring probe (with radio transmission)
- Barcode scanner
- Cable drag chains in X and Y (in closed version)
- Additional NC turning axis on machine table
- Tool presetter (for tool measurement)

experienced and innovative

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CNC - Spezialmaschinen

Table designs



Precision milled aluminum flat surface table



Aluminum grid table with milled slots



Phenolic resin grid table



Aluminum flat surface table with grid holes or threaded inserts

Working units



6 kW DFM milling spindle



Milling spindle, HSK F63, 10 kW or 15 kW



NC-adjustable chip collecting system



MTB System

Tool magazine



Linear-type magazine with 6 tool places



Rotary disk tool magazine with 20 places

Control systems



Siemens HT8



Siemens OP 15 A TCU/PCU BWO RC 910
Siemens OP 19 A PCU



BWO CNC 920 /
BWO CNC 930



State-of-the-art control system technology by Siemens or BWO. Machine can be interfaced with CAD via post-processors.

Peripheral devices



Measuring probe



Barcode scanner



NC rotational axis on table

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[MK7]

CNC machining centre
with 5-axis technology

by **MAKA**



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