

[AP70]

CNC machining centre
with 5-axis technology

by **MAKA**





CNC machining centre with 5-axis technology AP 70

For high speed machining of aluminium profiles

Applications

The CNC machining centre AP 70 is the ideal tool for demanding precision machining of large profile cross-sections with lengths of up to 8,500 mm. For complete machining in one clamping process, milling, cutting, drilling, thread milling and thread cutting can be carried out at virtually any angle on up to 6 workpiece sides. The AP 70 ensures high flexibility, remarkable cutting performance and superior rigidity.

The dominant core piece of the moving gantry C system is the large-sized machine support across the entire machine length ensuring high degrees of accuracy. The C design allows optimum accessibility of the machine table and of the clamping fixtures as well as good chip disposal down into the provided chip collecting carts.

The table consoles are manually adjustable or CNC positioned upon request allowing a flexible layout. The table design can also be used as single-table or shuttle-table version. The 2-station mode with alternating operation minimises auxiliary process times for loading and unloading of the workpieces.

Latest technology

High-tech supporting higher efficiency and the environment

- 7 highly dynamic digital axis drives with absolute measuring system, large-scale guideways and field-proven 5-axis controller
- High-performance working units ensure high speeds and high operation feeds
- All supply lines are mounted on the back side protected against chips
- Variety of machining possibilities with 33 place chain-type tool magazine
- Simple waste and chip management by chip push carts under free-floating cross bars
- 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 MAK's energy-saving concepts, contribute to low energy consumption
- MAK was granted the Environmental Award of the Federation of German Industries (BDI)



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Technical data

	Travel	Working range*	Speed	Acceleration
X-axis	7,100 / 9,100 mm	6,500 / 8,500 mm	60 m/min	3 m/sec ²
Y-axis	975 / 1,175 mm	450 / 650 mm	60 m/min	3 m/sec ²
Z-axis	575 mm	225 mm	45 m/min	3 m/sec ²
A-axis	196 °	-	10,000 °/m	-
C-axis	540 °	-	10,000 °/m	-

* For a total tool length of 160 mm and a diameter of 160 mm. For alternating operation, the working range is reduced accordingly.

Voltage	Voltage deviation	Installed output	Ambient temperature	Pneum. working pressure
400 V	max. +/- 5%	approx. 25 kW	10 - 35°C	6-8 bar

Additional optional features

Table designs

- Steel cross bar table in two sizes with steel supporting cross bars on linear guides and two clamping stations with manual rapid adjustment or CNC positioning, switch-over capability from 1 to 2-station operation
- Adjustable steel cross bar with NC drive
- Hydraulic or pneumatic profile clamping units, time controlled
- Hydraulic profile clamping units, opening on both sides
- Lowerable longitudinal workpiece stop, arranged at the right or at the left side
- Hydraulic or pneumatic clamping circuit on machine table

Working units

- Universal working unit for 5-axis milling with 50° inclined milling head
- 16 kW or 26 kW milling spindle HSK F63 including tool change milling spindle, 2,000 to 24,000 1/min, infinitely variable speed, water-cooled, extended warranty
 - 10 kW uncontrolled milling spindle HSK F63 or 15 kW controlled milling spindle HSK F63 for thread cutting. Tool holder HSK F63, 2,000 to 24,000 1/min, infinitely variable speed, water-cooled
 - MAKA Tool Blower System (MTB) for milling unit, coolant module for air or water cooling
 - MAKA Tool Blower System (MTB) for milling unit, coolant module for oil based spraying medium
 - Blow out nozzle at milling unit
 - Minimum quantity lubrication coolant spraying unit with minimum quantity atomisation

Tool changer

- Chain-type tool magazine with 33 places and rotary grippers for quick tool change

Occupational health and safety

- Accompanying safety enclosure with safety bumpers on the operator side
- Back area guard with access doors
- Safety mat system in the loading area for automatic table cross bars

Control system

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

Extension

- Rotary vane vacuum pump
- Hydraulic unit

more than 35 years of CNC competence

experience and innovation

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CNC - Spezialmaschinen

Table designs



Machine table with 6 steel supporting cross bars



Hydraulic profile clamping units, opening on both sides

Working units



Milling spindle, HSK F63, 16 or 26 kW



Milling spindle, HSK F63, 10 or 15 kW



Standard milling unit with gimbal bearing



MTB System



Minimum quantity lubrication, cooling / lubricating nozzle at the working unit

Tool magazine



Chain-type magazine with 33 tool places

Control systems



Siemens HT8



Siemens OP 19 PCU



BWO RC 910



BWO CNC 920 /
BWO CNC 930

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

Cable carriers



Chip protected supply lines on the back side

Waste and chip management



Chip push carts under free-floating cross bars



Chip belt

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