MCG-5X
5-axes Gantry Type Machining Center
Indefectible 5 axis machine from MICROCUT

Advanced Gantry construction and most powerful structure, developed to achieve the best working conditions even machining most complex workpieces. It can provide reliable precision and performances. 5 axes continuous working is provided by high dynamics from tool motion (3 axes) and working piece motion (2 axes). Both rotary axis of table are driven by high torque built-in motors (no trunnions) directly. Y axis with double linear measuring scales can perform high accuracy. Z slide traverse strongly is fixed with 3 roller guideways.

The design and the choice of components used in this machine are strictly subjected to rigorous analysis of quality, and carefully tested to perform perfectly in 5 axes. As final result, the performances in most complicated shapes and different surfaces are executed smoothly with utilization of highest cutting technology.

• Die & mold making
  High kinetic energy process 5 axes machine simultaneously and the loading capacity up to 1000kgs.

• Medical engineering
  High precision, high efficiency.

• Aerospace
  Precision in perfection

• Mechanical engineering
  Perfectly finish on complex parts or solid material in one setting

• Subcontract industry
  Precise and reliable

• Automobile industry
  High availability, mass volume
**Advanced Gantry Design**

High rigidity & precision performance with gantry construction.

**Machine highlights**

- Gantry construction of cast iron base offers high rigid construction, precision performance and stress released
- 5 axes simultaneous machining function
- Various spindles for selection
  - In-line spindle 12000/15000rpm or 18000/24000rpm electronic spindle
- High accuracy rotary table is driven and tilted by high torque motors
- Large working space
- Various ATC packages for choice
  - 2 – Roller linear guide ways on Y axis
  - 3 – Roller linear guide ways on Z axis

**Pick up magazine**

Driven by servo motors, offering stable & rapid tool changing action. Less interference with working area.

**Anti-friction linear guide way**

The large diameter roller type linear guide ways on all axes, designed for rigidity structure & high speed movement.

**Heidenhain Linear scale (opt.)**

Linear scales are applied to ensure exact axis positioning under fluctuating temperatures.

**Collision protection**

With complicated machining, the collision protection function protect the spindle and table. Working interference free.

**Large working area**

Large space for free movement in the working area.

**High torque driven table**

With super high table loading capacity at 1000 kgs.

**Accessibility**

Easy for parts loading/unloading.

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Easy for parts loading/unloading.
A wide selection of spindles includes 18000rpm or 24000rpm high power core cooled motorized spindle or in-line 12000 & 15000rpm mechanical spindles are available.

The cutting tools are securely drawn into the spindle by the preloaded spring package of the integrated power draw bar.

20 Bars coolant through-spindle coolant system is standard on MCG-5X 5 axis machining center, which will increase tool life, allowing higher cutting speeds, and clearing chips during deep-hole drilling and blind-pocket milling.

**Complex machining more than 3-axes can do!**

**Highlight**
- Large space for free movement in the working area
- With super high Table load capacity at 1000 kgs
- No chips remain on table
- Workpiece can swing & rotate in U shape
- High torque built-in motors on A & C axis
- High resolution encoders on A axis & C axis

**Rotary table**

<table>
<thead>
<tr>
<th>Table size</th>
<th>Unit</th>
<th>600mm</th>
<th>650/800mm</th>
<th>750mm</th>
<th>800mm</th>
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<tbody>
<tr>
<td>Hole / A axis</td>
<td>mm</td>
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<td>Spindle</td>
<td>rpm</td>
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<tr>
<td>A axis Max. tourqe (Nm)</td>
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<tr>
<td>C axis Max. speed (rpm)</td>
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<tr>
<td>A axis Max. feed (mm/min)</td>
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<tr>
<td>C axis Max. feed (mm/min)</td>
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<tr>
<td>A axis Max. cutting diameter</td>
<td>mm</td>
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<td>135 / 135</td>
<td>135 / 135</td>
<td>135 / 135</td>
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<tr>
<td>C axis Max. cutting diameter</td>
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<td>1050 / 1050</td>
<td>1050 / 1050</td>
<td>1050 / 1050</td>
</tr>
</tbody>
</table>

Note: 630mm table instead by 650mm table after stock run out.
Note: 650mm & 800mm table provides Dual A-axis motor driving design.
Twin magazine
• Settle up on machine base
• Less interference with working area
• Driven by servo motors
• Easy tool loading design
• Various-choice design with two stations for more magazines space
• User-friendly designed "smart tool-load station"

Pick-up magazine
• Magazine capacity: 32, 48, 64 (32X2), 96 (48X2), 120 (60x2)
• Max. tool length: 300mm
• Max. tool diameter: 75mm
• Max. tool diameter – adjacent station empty: 125mm
• Max. tool weight: 7 kgs
• Change time of adjacent tool: 3 sec.

Laser tool setter
Non-contaction laser tool setting (on request)

Interference drawing
(Red word represent for MCG-SX 630)

Foundation drawing

Layout drawing
MCG-5X is equipped with advanced CNC functions to meet complex works for HSM

- CNC control Heidenhain iTNC530 HSCI
- 15.1” TFT monitor
- Block process time of 0.5ms
- NC program memory 21 GB on SSDR solid state disk
- USB & RS232 functions
- External network
- Look ahead of 256 block [look ahead of 1024 block is also available upon request]
- 3D tool length compensation function
- Dynamic collision monitoring (DCM) function
- 5-axis machining (TCPM) function
- Smart NC
- Different M code selection for table difference loading weight
- Controller with integrated dual-safety technology (meets European Standard EN 3849-1 & EN 3849-2)
- SEMIEN-9400K & Fanuc control available upon request

**Standard accessories:**

- CNC controller – Heidenhain iTNC530 HSCI or Siemens or Fanuc  
- Pick-up tool magazine – 32 tools  
- Pneumatic counter weight  
- Hydraulic system  
- Central lubrication  
- Working space light  
- High pressure chip flash system  
- Chip conveyor  
- Circulating liquid cooling system for spindle and rotary table  
- Coolant through spindle with high pressure pump 20 bar (built-in type)  
- CE norms  
- Lamp of cycle finish and alarm  
- Water gun  
- Ethernet  
- Tool kit, leveling bolts, pads and nuts  
- RS232 port  
- Portable MPG  
- Water chiller device

**Optional accessories:**

- Linear scales for 3 axes  
- Robot for automatic operation  
- Reference ball for Kinematic opt.  
- Laser tool setter  
- Work piece probe  
- Heat exchanger  
- ATC more than 32 tools  
- Smart tool load station  
- Air conditioner for electric cabinet  
- Cooling lubricant for built-in spindle

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**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>ADVANCED GANTRY DESIGN</th>
<th>MCG-SX 630</th>
<th>MCG-SX 800</th>
<th>MCG-SX 600</th>
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<tbody>
<tr>
<td>Table</td>
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<td>Linear Travels</td>
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<tr>
<td>Machine Data</td>
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*Specifications are subject to change without notice.*