Eumach

Always A Step Ahead

UMC-1000
5 AXES MACHINING CENTER

5 AXES

A PROFESSIONAL CNC MACHINES MANUFACTURER
THE MOST EFFICIENT & INTELLIGENT MACH PERFORMANCE MACHINING, INCREASE PRO

UMC-1000 5 AXIS SIMULTANEOUS MILLING CENTER:

- 1000mm x 800mm x 700mm three axis travel
- 1000mm x 800mm working rotary table with 1500kg load
- 0.001 degree swivel milling head and rotary table:
  Torque motor driven B axis swivel milling head
  Worm gear driven C axis rotary table
- Standard 3 axis linear scales + 2 axis rotary encoders
- BT#40 / 14000RPM / 29.3KW motor spindle
- Time saving thanks to multi-sided machining without having re-set
- Maximum productivity thanks to rapid movement and high acceleration
- Unlimited flexibility & versatility when manufacturing individual part
- Maximum stability thanks to optimum load distribution
- Highest machine precision repeatability thanks to the avoidance of any axis overlapping
Sliding front & side doors with a super wide top opening, this makes it very easy for straightforward loading awkward shaped workpiece.

INING CONCEPT FOR MULTI-SIDED HIGH DUCTIVITY, FLEXIBILITY AND REPEATABILITY
BALL SCREWS
- The high precise & rigid 50mm diameter ballscrews on 3 axes, driven by powerful AC servo motors, directly coupled by couplings provides the utmost results in high speed cutting for the very fine accuracy and finishing.

ROLLER GUIDEWAYS
- The high rigid & heavy duty roller type linear motion guideways on 3 axes to provide low starting inertia, low friction and high acceleration, rates optimizing servo drive and ensure machine response immediately & precisely for high speed cutting requirements, especially in rapid positioning and contouring cutting.

Automatic swiveling milling head

Hi-Lo ladder bed design to increase column resistant rigidity.
**TECHNOLOGY DESIGN**

**RIGID CASTING FRAME**
- Using the most advanced Computer Aided Design and Finite Element Method analysis programs, an extremely rigid casting frame is being created.

**OUTSTANDING ACCURACY**
- Standard equipment maintains the outstanding accuracy of this high performance machine.
- High precision linear scales on 3 linear axis X & Y & Z.
- High precision rotary encoder on 2 rotary axis B & C.
The latest technology torque motor manages the B axis continuous swivel milling head, it guarantees maximum movement dynamic and linearity and thanks to the absence of those traditional mechanical kinematics parts, it results a much higher performance on finishing surface. The direct reading system by a high precision angular encoder is being integrated for maximum precision.

As a controlled B-axis, the swivel head changes from vertical to horizontal machining in seconds.

Offers an extra flexibility; the fully automatic 0.001 indexing from vertical to horizontal positions by means of torque motor, this gives operator an extra flexibility: multi-sided machining without re-setting the workpiece; manufacture of complex components with a single set-up; 5 sided machining without additional fixture; 5 axis machining in combination of rotary table.
C AXIS DURABLE CNC ROTARY TABLE

STANDARD:
- 1000mm x 800mm dimension with 1500kg load driven by AC servo motor, it can be indexing 0.001° by high precision worm gear, clamping force up to 9000kg, positioning by hydraulic cylinder; a high precision rotary encoder is included.

OPTIONAL:
- 1000mm diameter torque motor drive rotary table with maximum rotation 60 RPM, 1820Nm peak torque, 4000Nm brake torque, 1200kg load, +5° / +2.5° positioning / repeatability accuracy, German made!

<table>
<thead>
<tr>
<th></th>
<th>Standard milling</th>
<th>Optional milling</th>
<th>Optional mill &amp; turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission</td>
<td>Worm gear</td>
<td>Torque motor</td>
<td>Torque motor</td>
</tr>
<tr>
<td>Table surface size</td>
<td>1000mm x 800mm</td>
<td>1000mm diameter</td>
<td>800mm diameter</td>
</tr>
<tr>
<td>Max. speed RPM</td>
<td>11</td>
<td>60</td>
<td>500</td>
</tr>
<tr>
<td>Maximum load</td>
<td>1500kgs</td>
<td>1200kgs</td>
<td>500kgs or 800kgs</td>
</tr>
<tr>
<td>Country made</td>
<td>Taiwan</td>
<td>Germany</td>
<td>German or Italy</td>
</tr>
</tbody>
</table>
WIDE THROAT DISTANCE
A very wide distance 700mm between spindle center and X axis slideway cover, this gives operator a great convenience of different workpiece setup.

AUTOMATIC TOOL CHANGER
A 40 positions double swing arm ATC provides as standard for most of machining applications.

OPERATOR WORKING
CONSIDERABLE ORIENTATION

• TOTALLY COVERED GUARDING

- Hydraulics, spindle water cooler all in machine back for easy maintenance with safety door
- Manual tool loading from automatic tool changer magazine side door with transparent window
- Centrally arranged for all solenoids, pneumatics and lubrication device in one area

- Cabinet for documentations
# POWERFUL MOTOR SPINDLE

## Models

<table>
<thead>
<tr>
<th>Models</th>
<th>N14</th>
<th>P18</th>
<th>P24</th>
<th>C18</th>
<th>C24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. speed RPM</td>
<td>14000</td>
<td>18000</td>
<td>24000</td>
<td>18000</td>
<td>24000</td>
</tr>
<tr>
<td>Rated speed RPM</td>
<td>4000</td>
<td>1000</td>
<td>2000</td>
<td>2000</td>
<td>4500</td>
</tr>
<tr>
<td>Spindle taper</td>
<td>BT#40</td>
<td>HSK-A63</td>
<td>HSK-A63</td>
<td>HSK-A63</td>
<td>HSK-A63</td>
</tr>
<tr>
<td>Housing diameter mm</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Power S1/S6 KW</td>
<td>29.3 / 35</td>
<td>22 / 26</td>
<td>21 / 27</td>
<td>21 / 27</td>
<td>34 / 43</td>
</tr>
<tr>
<td>Torque S1/S6 Nm</td>
<td>70 / 160</td>
<td>124 / 154</td>
<td>85 / 116</td>
<td>100 / 130</td>
<td>72 / 91</td>
</tr>
</tbody>
</table>

### STANDARD:

<table>
<thead>
<tr>
<th>BT#40</th>
</tr>
</thead>
</table>

### OPTIONAL:

| HSK-A63 |

## Dimensions

- **BT#40**
  - 60° 87.3
  - M16 x P2.0

- **HSK-A63**
  - 60° 68.25
  - 7/24 TAPER
DIGITAL CNC CONTROL

Heidenhain iTNC-530 / 640 HSCI
newest control:
1. MC 7222 1.8GHz more powerful CPU than before
2. 32G SSDR storage media resistance to vibration
3. New HEROS 5 operating interface with PDF viewer
4. TE 730 keyboard & MB 720 panel & 15” XGA screen

Siemens 840Di Solution Line newest control:
1. NCU 730.2 with PLC 317 - 2DP + 40GB HD
2. PCU 50.3 1.5Ghz, 512Mb, WinXP/Pro interface
3. Shopmill + 3D simulation 1 & HMI Advanced
4. MCP483C panel + OP 015A 15” TFT screen
WORKING ENVELOPE

1. With standard spindle N140D

2. With optional spindle C18 / C24

Note: above dimension will be different if spindle is different.
MACHINE DIMENSION

1. TOP VIEW

2. FRONT VIEW

3. SIDE VIEW
The milling center can be used not only in the typical various turbo impeller industries but also servicing aerospace aviation, automotive, medical and mould industries etc.
# MACHINE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Model Description</th>
<th>UMC-1000 Milling center</th>
<th>UMTC-1000 Mill-turn center</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel</strong></td>
<td>Linear axis X / Y / Z</td>
<td>1000 / 800 / 700</td>
<td>1000 / 800 / 610</td>
</tr>
<tr>
<td></td>
<td>Swivel head B axis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary table C axis</td>
<td>0° ~ 180°</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum spindle speed</td>
<td>14000 (18000,24000) RPM</td>
<td>12000 RPM</td>
</tr>
<tr>
<td></td>
<td>Spindle power &amp; torque</td>
<td>29.3 &amp; 35KW, 70 &amp;160Nm (S1&amp;S6) see page 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spindle taper</td>
<td>BT (CAT/SK)40, (HSK-A63)</td>
<td>KM 63</td>
</tr>
<tr>
<td></td>
<td>Front bearings diameter</td>
<td>70mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vertical spindle nose to table</td>
<td>100mm ~ 800mm,</td>
<td>29mm ~ 729mm,</td>
</tr>
<tr>
<td></td>
<td>Hor. spindle center to table top</td>
<td>50mm ~ 750mm</td>
<td>9mm ~ 709mm</td>
</tr>
<tr>
<td></td>
<td>Hor. spindle nose to table center</td>
<td>-230mm ~ 570mm</td>
<td>-262mm ~ 538mm</td>
</tr>
<tr>
<td><strong>Swivel head (B axis)</strong></td>
<td>Table dimension</td>
<td>800mm x 1000mm</td>
<td>φ800mm</td>
</tr>
<tr>
<td></td>
<td>Maximum loading</td>
<td>1500kg</td>
<td>1000kg</td>
</tr>
<tr>
<td></td>
<td>Indexing increment</td>
<td>0.001 degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T slots (size x No.x pitch)</td>
<td>18mm x 7 x 100mm</td>
<td>18mm x 7 x 120mm</td>
</tr>
<tr>
<td></td>
<td>Table top to floor</td>
<td>1000mm</td>
<td>1036mm</td>
</tr>
<tr>
<td><strong>Rotary table (C axis)</strong></td>
<td>Rapid linear axis X/Y/Z</td>
<td></td>
<td>24M / 24M / 24M</td>
</tr>
<tr>
<td></td>
<td>rotary axis B/C</td>
<td>10 (60) RPM</td>
<td>500 RPM</td>
</tr>
<tr>
<td></td>
<td>Cutting feed</td>
<td>20 m/min</td>
<td></td>
</tr>
<tr>
<td><strong>Feed rate</strong></td>
<td>Linear axis XYZ</td>
<td></td>
<td>φ50mm C3 ball screw</td>
</tr>
<tr>
<td></td>
<td>Swivel head B axis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rotary table C axis</td>
<td>Worm wheel (Torque motor)</td>
<td>Torque motor</td>
</tr>
<tr>
<td><strong>Transmission</strong></td>
<td>Positioning linear axis XYZ / BC</td>
<td>12 microns / 10 &quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeatability linear axis XYZ / BC</td>
<td>8 microns / 5 &quot;</td>
<td></td>
</tr>
<tr>
<td><strong>Axis Accuracy (VDI3441)</strong></td>
<td>Tools number</td>
<td>40 (52, 80) stations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max.tool dia./length/weight</td>
<td>120 mm / 300mm / 7kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tools exchanging</td>
<td>vertical position</td>
<td></td>
</tr>
<tr>
<td><strong>ATC</strong></td>
<td>Weight (Net before packing)</td>
<td>15 ton</td>
<td>16 ton</td>
</tr>
</tbody>
</table>

## STANDARD FEATURES & ACCESSORIES

1. FULL SPLASH GUARD WITH TOP ROOF
2. PROGRAMMABLE COOLANT SYSTEM
3. AUTOMATIC LUBRICATION SYSTEM
4. SPINDLE AIR BLAST SYSTEM
5. WORK ALARM, INDICATON LAMPS
6. SPINDLE WATER COOLER
7. LEVELLING BOLTS & PADS
8. RS-232 TERMINAL INTERFACE PORT
9. MACHINE & CONTROL MANUALS
10. TOOLBOX WITH SPANNERS & WRENCHES
11. CHAIN TYPE CHIP CONVEYORS + 2 SCR CW CHIP AUGERS
12. 3 AXIS LINEAR SCALES + 2 AXIS ROTARY ENCODERS

## OPTIONAL ACCESSORIES:

- TOOL PROBE
- TOOL LASER MEASUREMENT
- WORK PIECE PROBE
- COOLANT THUR SPINDLE
EUMACH FAMILIES

- **VMC-2150**
  Vertical machine center
  400MM ~ 3200MM X axis travel

- **TVMC-2000 / 3000**
  Moving column machine center
  2320MM & 3320MM X axis travel

- **LBM-1500**
  High speed bridge type machine center
  1100MM ~ 2200MM X axis travel

- **MH-500**
  Horizontal machine center
  720MM x 650MM x 650MM travel

- **EBM-2150**
  5 Face machine center
  1400MM ~ 3200MM X axis travel

- **MB-1500**
  Moving column horizontal machine center
  1100MM ~ 2200MM X axis travel

- **DVM-4025**
  5 Face & double column machine center

- **FBE-1500**
  Universal milling machine
  1500MM ~ 4000MM X axis travel

- **FBM-10040**
  Floor type milling center
  4M~20M X axis travel