World Top Class Quality

HYUNDAI WIA Machine Tools

High-productive & performed machining center with cutting edge Mechanism

HS Series

Horizontal Machining Center

Revolution of Productivity, Next Generation, High Performance, High Efficiency

Horizontal Machining Center

• Adopt Roller Guide for each axes
• Double Winding Powerful Spindle Motor
• The heaviest maximum load in its class
• Big plus Spindle (BT Tool Common)
• 2 steps gear driven type for the heavy duty cutting (HS630/800)
• Adopt Roller Guide for every axes and double winding high torque spindle motor for high speed, high accuracy, heavy duty cutting and satisfy both speed and rigidity.

• High speed rapid traverse and fast tool changing time minimize non-cutting time, which eventually advance your productivity enormously with confidence and without any non-operational time.

High Accuracy, High Rigid Machine Structure

- 2-surface restraint type spindle (Big Plus #40) that front spindle surface and spindle taper surface are contacted simultaneously has excellent clamping condition without vibration, which enable high speed machining to be possible.
- With the structure designed to minimize a vibration and heat as small as possible during high spindle rotation, accomplishment of fast acceleration & deceleration and supporting by P4 class bearing, the stabilized accuracy can maintain even during heavy duty cutting.

- Spindle rpm: 12,000 / 15,000rpm
- Spindle Output: 25/22kW (33.5/29.5HP)
- Spindle Torque: Max, 166.6Nm (123lbf-ft)

High Accuracy, High Rigidity Spindle Structure

Wide Range of Machining Capability with High Quality, High Performance, High Productivity, Super Powerful Horizontal Machining Center

Significant improvement in productivity and accuracy due to the top class spindle and high rigidity structure.

Rapid Traverse Speed
50 m/min (1,969 ipm)

Tool Changing Time (T-T/C-C)
HS400i/400: 1.2/3.6 sec
HS400/500: 1.5/4.0 sec

Spindle Speed
HS400i/500i: 12,000rpm
HS400/500: 15,000rpm

Spindle Motor
25/22kW (33.5/29.5HP)

Contact Surface

Contact Surface

Contact Surface
Accomplishment of **High Rigidity, Stability with One-piece Casting Structure**

**Automatic Tool Changer**
- Adopt highly reliable and rigid CAM type mechanism to minimize non-cutting time
  - HS400/400
    - Tool to Tool: 1.2 sec
    - Chip to Chip: 3.6 sec
  - HS500/500
    - Tool to Tool: 1.5 sec
    - Chip to Chip: 4.0 sec

**Table & Pallet**
- **Pallet Size**
  - HS400/400: 400 × 400mm (15.8” × 15.8”)
  - HS500/500: 500 × 500mm (19.7” × 19.7”)
- **Max. Load**: 500kg (1,102 lb)

**High Speed Rapid Traverse & Axis Movement Structure**
- Each axes are supported by 4 rows angular trust bearings and low noise, high accuracy ball-screws for high accuracy axis’ movement. Also, each axes are pre-tensioned to prevent influences from heat growth as small as possible.

**High Speed, High Accuracy, High Rigid, Super Powerful, High Performance**

**Pallet Changer - APC**
- Rotary type high speed pallet changer (APC) was adopted as standard figure. Also, designed for high reliability and simple set-up with big work space.
  - **Pallet Changing Time**
    - HS400/400: 8.0 sec
    - HS500/500: 9.5 sec

**Tool Number**
- Special cleaning system, blows high pressure air into fixing pin, was applied to prevent slight wrong positioning of pallet due to chip accumulation on table fixing pin, which connect table and pallet together.
- 40 Tools (Standard figure) offer wide access to operator, and the most advanced drive way was adopted to find right tool path in the shortest time. Also, the fixed tool number system was adopted to prevent operator choose tool number, which could occur serious improper tool change.
Innovation of Productivity by Cutting-edge Mechanism, High Efficient Horizontal Machining Center

- **Rapid Traverse**
  - X/Y/Z Axis: 50m/min (1,969 ipm)

- **Cutting feedrate**
  - 1~50,000mm/min (1,969 ipm)

- **Tool Storage Capacity**
  - 40ea [60, 90, 120EA]

- **Spindle Speed**
  - 8,000rpm [12,000rpm]

- **High Accurate & Rigid Machine Structure**
  - Bed, column, saddle, and headstock are designed to maintain strong rigidity and to minimize heat distortion.

- **Applying the oil chiller on the spindle unit which maintains the proper temperature, guarantees the high precision accuracy machining.**
- **Linear scale can be installed (opt.)**
- **Automatic Work Measuring Device (opt.)**

- **Powerful High Precision Spindle**
  - Symmetrical formation (for the minimum heat distortion) angular ball bearing spindle and housing are designed for rigidity and the powerful tool clamping force (4,629.7 lbs). AC spindle motor has 30 HP output with 8,000 rpm for the heavy duty cutting, as well as the high speed precision cutting.

- **Built-In High Precision Spindle [Option]**
  - By adopting Built-in motor & Ceramic Bearing, it makes 12,000rpm & max. torque 420.4Nm possible. Also, Spindle Water Chiller maintains the spindle accurate & stable for long hours’ machining.

- **Spindle Output / Torque Diagram**

- **High Productivity**
  - The Rapid Traverse of X, Y, & Z axis is 50m/min (1,969 ipm), which saves a Non-cutting time.
  - The travel of X-Axis 1,050mm (41.3"), Y-Axis 875mm (34.4") & Z-Axis 875mm (34.4") allows a large size work piece to be processed.
One-piece Construction guarantees Stability and Precision

8 pieces of Coolant Nozzle (Std.)
8 pieces of nozzles can change direction to supply proper coolant for the maintaining precision process.

Linear Roller Guide
Linear Roller Guide design is adopted to minimize non-cutting time and maximize acceleration & deceleration as well as rigidity. The rigid feed-rate system has been heavy improved to confront possible challenges during face mill, drill etc.

Table & Pallet
There are 4 taper cones on the table, 4 taper cones under the pallet that make high level positioning decision, Taper cones have built-in clamp system to do heavy duty cutting safely also high-precise curvic coupling makes high-accurate Indexing.

Double Anchor Supporting Feed System
The large diameter ball screw was supported by pre-tensioned double anchor at the bracket of bed and column, which improves accuracy and rigidity.

■ Table size

<table>
<thead>
<tr>
<th></th>
<th>HS630</th>
<th>HS800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>630×630mm (24.8″×24.8″)</td>
<td>800×800mm (31.5″×31.5″)</td>
</tr>
<tr>
<td>Max. load on the table</td>
<td>1,200kg (2,646 lb)</td>
<td>1,200kg (2,646 lb)</td>
</tr>
</tbody>
</table>

Standard
NCRT(OPT) : 1,000kg (2,204lb)

Central Integrated Operational Panel
The lift rotary design been applied for Pallet Exchange for the best excess to a work area, Also, APC time is only 12 second for the high productivity.

■ Max. Working size

<table>
<thead>
<tr>
<th></th>
<th>HS630</th>
<th>HS800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Ø930×H1,000mm (Ø36.6″×H39.4″)</td>
<td>Ø1,200×H1,100mm (Ø47.2″×H43.3″)</td>
</tr>
</tbody>
</table>

ATC (Automatic Tool Changer)
ATC, isolated from chip & coolant, provides you perfectly clean environment.
Cam Type ATC exchanger has been adopted in terms of minimizing tool changing time.

■ Chip to Chip : 7sec

Various Magazine (40/60/90/120)

Astonishing power, Utmost performance

APC (Automatic Pallet Changer)

Central Integrated Operational Panel was designed to minimize non-necessary movement of operator utmost, and maximize performance. Also, 90° rotating panel allows even more efficiency for operator.

Finite Element Method
One piece & rugged cast bed is designed perfectly by F.E.M.(Finite Element Method) with CAD system, which can analyze all characteristics including vibration, rigidity and etc that might be issued during the machining.
The bed of HS630/800 is designed like "T" shape which has been engineered for the perfect height and depth of casting to meet the highest standard. Also, this bed can stand perfectly for the very heavy duty cutting because of the special double wall construction design,

ATC (Automatic Tool Changer)

8 pieces of Coolant Nozzle (Std.)
8 pieces of nozzles can change direction to supply proper coolant for the maintaining precision process.
**Table Dimensions**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimension</th>
<th>Unit:mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS400i/400</td>
<td>15.7</td>
<td></td>
</tr>
<tr>
<td>HS500i/500</td>
<td>19.7</td>
<td></td>
</tr>
</tbody>
</table>

**Tool Shank**

- **HS400i/400**
  - BBT #40 (Standard)
  - HSK-A63 (Option)

- **HS500i/500**

**T-Slot Type**

- T-Slot Pallet

**Tap Type**

- T-Slot Pallet

**HS630 (HS800)**

**HS630/800**

**TOOL SHANK (CAT50)**

**MAS403 BT50**

**CAT40**

**CAT40**

**MAS403 BT50**

**TAP**

**T-Slot**
### Specifications

#### External Dimension

<table>
<thead>
<tr>
<th></th>
<th>HS400/400</th>
<th>HS500/500</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2,737 (107.8&quot;)</td>
<td>2,986 (117.6&quot;)</td>
</tr>
<tr>
<td>B</td>
<td>2,386 (94.2&quot;)</td>
<td>2,386 (94.2&quot;)</td>
</tr>
</tbody>
</table>

#### External Dimension

<table>
<thead>
<tr>
<th></th>
<th>HS630 / 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2,717 (106.7&quot;)</td>
</tr>
<tr>
<td>B</td>
<td>2,817 (110.9&quot;)</td>
</tr>
</tbody>
</table>

#### Table Size

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Load Capacity (kgf)</td>
<td>900/1,320</td>
<td>900/1,320</td>
</tr>
<tr>
<td>Maximum Working Size (mm)</td>
<td>Ø600 (Ø23.6&quot;) × H550 (17.7&quot;)</td>
<td>Ø700/1,060 (27.6&quot; × 41.7&quot;)</td>
</tr>
<tr>
<td>Minimum Indexing Time (sec)</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

#### FEED

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC Spindle Travel</td>
<td>B60 (HSK-A63)</td>
<td>B60 (HSK-A63)</td>
</tr>
<tr>
<td>Spindle RPM</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Spindle Motor Output (Max.) kW(kW)</td>
<td>25/22 (33.5/29.3)</td>
<td>25/22 (33.5/29.3)</td>
</tr>
<tr>
<td>Spindle Torque (Max.) kN-m(kgf·m)</td>
<td>17/17 (22/22)</td>
<td>17/17 (22/22)</td>
</tr>
</tbody>
</table>

#### FEED RATE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Feed Rate (AV/VA) mm/min</td>
<td>50 (1.969)</td>
<td>50 (1.969)</td>
</tr>
<tr>
<td>Rapid Feed Rate (AV/VA) mm/min</td>
<td>60 / 60 / 60 (1,969 / 1,969 / 1,969)</td>
<td>60 / 60 / 60 (1,969 / 1,969 / 1,969)</td>
</tr>
</tbody>
</table>

#### Tool Type

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Tool Weight (kgf)</td>
<td>8.17 (18)</td>
<td>8.17 (18)</td>
</tr>
<tr>
<td>Max. Tool Length (mm)</td>
<td>300 (11.8&quot;)</td>
<td>400 (15.7&quot;)</td>
</tr>
<tr>
<td>Tool Change Time (sec)</td>
<td>1.2 / 1.6</td>
<td>1.5 / 4.0</td>
</tr>
</tbody>
</table>

#### COOLANT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Capacity (l (Gal))</td>
<td>630 (166.4)</td>
<td>630 (166.4)</td>
</tr>
<tr>
<td>Air Consumption Rate (kgf/min)</td>
<td>45 (11.5)</td>
<td>45 (11.5)</td>
</tr>
<tr>
<td>Required Pressure Capacity (200/800) kPa (psi)</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Floor space (mm)</td>
<td>2,770 × 4,950 (109.1&quot; × 194.9&quot;)</td>
<td>2,770 × 4,950 (109.1&quot; × 194.9&quot;)</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>2,084 (82&quot;)</td>
<td>2,084 (82&quot;)</td>
</tr>
<tr>
<td>Machine Weight (kg)</td>
<td>10,000 (22,046)</td>
<td>15,000 (33,069)</td>
</tr>
</tbody>
</table>

#### Memory Capacity

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Capacity (M)</td>
<td>320</td>
<td>320</td>
</tr>
</tbody>
</table>

#### Controls

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HS400i</th>
<th>HS500i</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNC</td>
<td>Fanuc 21i-MB</td>
<td>Fanuc 21i-MB</td>
</tr>
</tbody>
</table>

### Standard

- Total Splash Guard
- Hand Tools Kit
- Leveling Bolts & Pads
- Work Light
- Spindle Clamping Device
- Door Interlocks
- Internal Chip Conveyor
- Coolant
- Tool Broken Detection Device
- Air Gun
- Oil Mist Collector
- Chip Conveyor & Chip Bucket (Side)
- Tool Length Measuring Device
- Linear Scale
- N/C Rotary Table (Including Hyd. Up/Down 4 Pallets)
- Oil & Water Separator
- Buzzer for Cycle End
- Auto Electrical Breakage
- Auto Door at APC side
- Hydraulic Oil Supply Device (2 Pallets)
- Spindle Load Meter
- Spindle rpm Meter

### Option

- Extended ATC (80, 80EA)
- Spindle Thru Coolant (20, 30, 70bar)
- Gun Coolant
- Tool Broken Detection Device
- Air Gun
- Oil Mist Collector
- Chip Conveyor & Chip Bucket (Side)
- Tool Length Measuring Device
- Linear Scale
- N/C Rotary Table (Including Hyd. Up/Down 4 Pallets)
- Spindle Load Meter
- Spindle rpm Meter

※Specifications are subject to change for improvement without notice.

[ peoples ]
## Specification

### Specifications

**HS400**

- **Table Size**: 400 × 400 (15.8")
- **Maximum Load Capacity**: 8,000 (17,716 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

**HS500/40**

- **Table Size**: 500 × 500 (19.7")
- **Maximum Load Capacity**: 9,000 (19,841 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

**HS500/50**

- **Table Size**: 500 × 500 (19.7")
- **Maximum Load Capacity**: 9,000 (19,841 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

### Details

- **Spindle Taper**: Big Plus #40 [HSK-A63]
- **Spindle Motor Output**: 30 kW (40 HP)
- **Tool Length**: 620/560/650 (24.4” / 22” / 25.6”)
- **Tool Weight**: 25,000 (55,116 lbs)

### Control

- **Software**: Fanuc Oi Mate 10iB
- **CNC Type**: Fanuc Oi Mate 10iB

### Option

- **Coolant Tank (800 Liters)**
- **Pallet Changer (2 Pallets)**
- **Tool Length Measuring Device**
- **1 degree Table**

### Standard

- **Spindle Guard**
- **Internal Chip Conveyor**
- **Hand Tool Kit**
- **Levelling Bolts & Pads**
- **Work Light**
- **Spindle Cooling Device**
- **Door Interlock**

---

### Specifications

**HS800**

- **Table Size**: 800 × 800 (31.5")
- **Maximum Load Capacity**: 10,000 (22,046 lbs)
- **Maximum Working Size**: 800 × 800 (31.5")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

### Details

- **Spindle Taper**: Big Plus #50 [HSK-A100]
- **Spindle Motor Output**: 50 kW (67 HP)
- **Tool Length**: 850/700/750 (33.5” / 27.6” / 29.5”)
- **Tool Weight**: 35,000 (77,160 lbs)

### Control

- **Software**: Fanuc Oi Mate 15iB
- **CNC Type**: Fanuc Oi Mate 15iB

### Option

- **Coolant Tank (800 Liters)**
- **Pallet Changer (2 Pallets)**
- **Tool Length Measuring Device**
- **1 degree Table**

### Standard

- **Spindle Guard**
- **Internal Chip Conveyor**
- **Hand Tool Kit**
- **Levelling Bolts & Pads**
- **Work Light**
- **Spindle Cooling Device**
- **Door Interlock**

---

### Note

- Specifications are subject to change for improvement without notice.
- Option
  - Coolant Tank: 800 Liters
  - Pallet Changer: 2 Pallets
  - Tool Length Measuring Device
  - 1 degree Table

---

### Specifications

**HS400**

- **Table Size**: 400 × 400 (15.8")
- **Maximum Load Capacity**: 8,000 (17,716 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

**HS500/40**

- **Table Size**: 500 × 500 (19.7")
- **Maximum Load Capacity**: 9,000 (19,841 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

**HS500/50**

- **Table Size**: 500 × 500 (19.7")
- **Maximum Load Capacity**: 9,000 (19,841 lbs)
- **Maximum Working Size**: 500 × 500 (19.7")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

### Details

- **Spindle Taper**: Big Plus #40 [HSK-A63]
- **Spindle Motor Output**: 30 kW (40 HP)
- **Tool Length**: 620/560/650 (24.4” / 22” / 25.6”)
- **Tool Weight**: 25,000 (55,116 lbs)

### Control

- **Software**: Fanuc Oi Mate 10iB
- **CNC Type**: Fanuc Oi Mate 10iB

### Option

- **Coolant Tank (800 Liters)**
- **Pallet Changer (2 Pallets)**
- **Tool Length Measuring Device**
- **1 degree Table**

### Standard

- **Spindle Guard**
- **Internal Chip Conveyor**
- **Hand Tool Kit**
- **Levelling Bolts & Pads**
- **Work Light**
- **Spindle Cooling Device**
- **Door Interlock**

---

### Specifications

**HS800**

- **Table Size**: 800 × 800 (31.5")
- **Maximum Load Capacity**: 10,000 (22,046 lbs)
- **Maximum Working Size**: 800 × 800 (31.5")
- **Table Indexing Time**: 2.0 sec
- **Max. Indexing Angle**: 1°

### Details

- **Spindle Taper**: Big Plus #50 [HSK-A100]
- **Spindle Motor Output**: 50 kW (67 HP)
- **Tool Length**: 850/700/750 (33.5” / 27.6” / 29.5”)
- **Tool Weight**: 35,000 (77,160 lbs)

### Control

- **Software**: Fanuc Oi Mate 15iB
- **CNC Type**: Fanuc Oi Mate 15iB

### Option

- **Coolant Tank: 800 Liters**
- **Pallet Changer: 2 Pallets**
- **Tool Length Measuring Device**
- **1 degree Table**

### Standard

- **Spindle Guard**
- **Internal Chip Conveyor**
- **Hand Tool Kit**
- **Levelling Bolts & Pads**
- **Work Light**
- **Spindle Cooling Device**
- **Door Interlock**

---

### Note

- Specifications are subject to change for improvement without notice.
- Option
  - Coolant Tank: 800 Liters
  - Pallet Changer: 2 Pallets
  - Tool Length Measuring Device
  - 1 degree Table
### Specification

**Controller**

**FANUC 21i-MB**

- **Axis control / Display unit**
  - Controllers 3 / 4 / 2 / 3 axes
- **Simultaneous control**
  - 3 axes (3000 / 6000 / 3 axes)
- **Spindle control**
  - 3 axes (3000 / 6000 / 3 axes)
- **Machine lock**
  - All axes
- **Emergency stop**
  - Direct stop switch 1 (1-float)
- **Mirror image**
  - Manual handle feed
- **Finger protection**
  - 0.001mm (0.0001”) / 1° / 1000 pulses
- **Backlash compensation**
  - +/- 6 digits
- **Optical encoder**
  - 10 / 20 / 30 / 40 / 50µm (10 / 20 / 30 / 40 / 50µm)
- **Controller**
  - FANUC 18i-MB

### FANUC 18i-MB

- **Spindle control**
  - 3 axes (3000 / 6000 / 3 axes)
- **Machine lock**
  - All axes
- **Emergency stop**
  - Direct stop switch 1 (1-float)
- **Mirror image**
  - Manual handle feed
- **Finger protection**
  - 0.001mm (0.0001”) / 1° / 1000 pulses
- **Backlash compensation**
  - +/- 6 digits
- **Optical encoder**
  - 10 / 20 / 30 / 40 / 50µm (10 / 20 / 30 / 40 / 50µm)
- **Controller**
  - FANUC 18i-MB