

**OKK**

Horizontal Machining Center

# HMC SERIES

HMC 400

HMC 500



This high-speed machine features  
the strongest structural rigidity  
in its class and attains a rapid feed rate of  
63m/min(2480ipm)  
with 1G acceleration.



Horizontal Machining Center

# HMC 500

SPECIFICATIONS

Travel distance: **760x760x800mm**  
(29.92" (29.92") (31.50") Pallet size: **500x500mm**  
(19.69" (19.69") Maximum workpiece size: **ø800x1150mm**  
(31.50" (45.28")  
Rapid traverse rate: **63000mm/min**  
(2480ipm) Maximum acceleration: **1G** Number of stored tools: 60tools  
Maximum tool diameter: **ø170mm**  
(6.69")



Horizontal Machining Center

# HMC 400

SPECIFICATIONS

Travel distance: **560x560x690mm**  
(22.05" (22.05") (27.17") Pallet size: **400x400mm**  
(15.75" (15.75") Maximum workpiece size: **ø630x920mm**  
(24.80" (36.22")  
Rapid traverse rate: **63000mm/min**  
(2480ipm) Maximum acceleration: **1G** Number of stored tools: 40tools  
Maximum tool diameter: **ø170mm**  
(6.69")

## HMC SERIES

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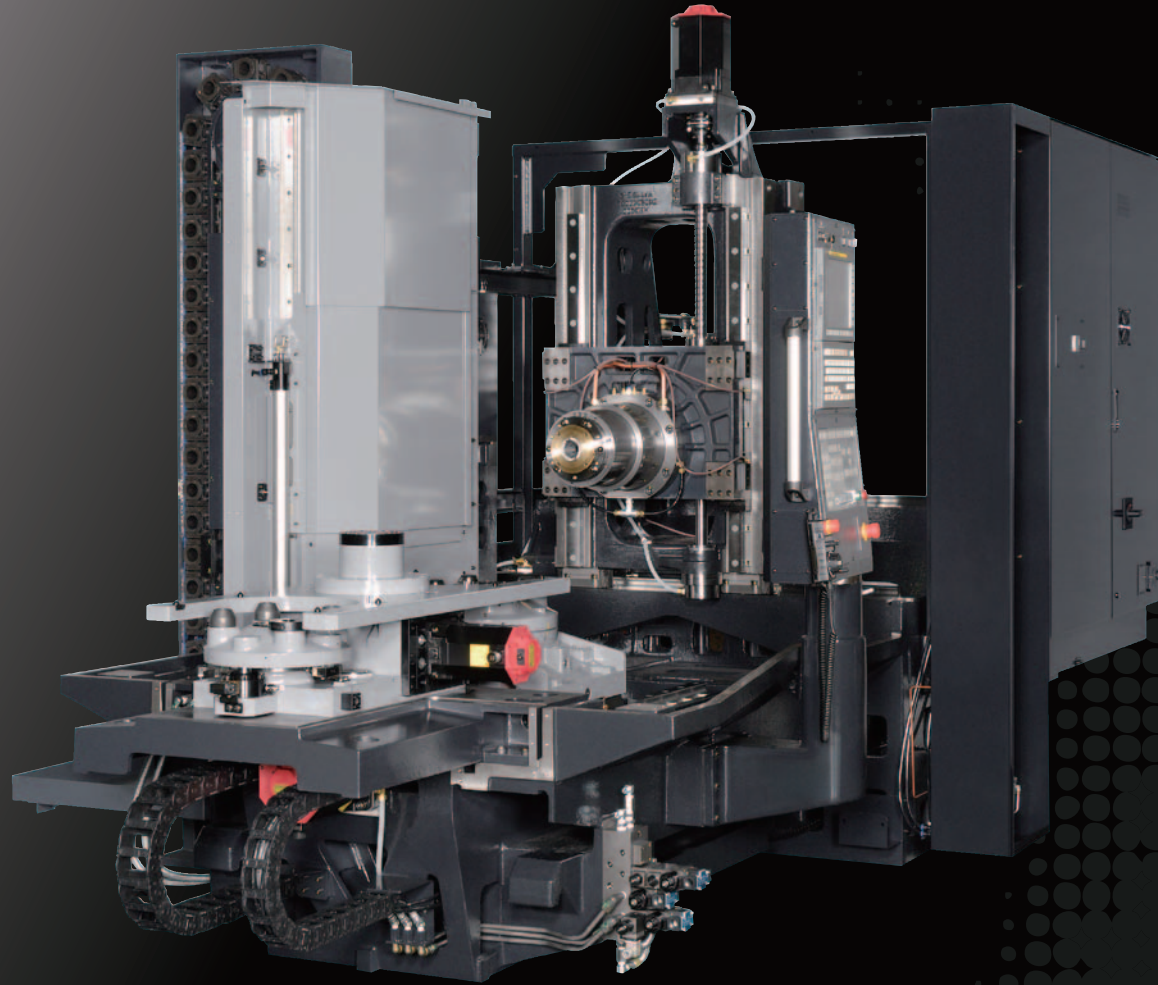
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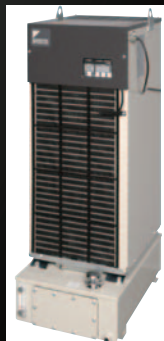
## Mechanical layout

## Machine design enables high-speed Production

The column mass is optimized to allow movement of 63m/min (2480ipm) rapid feed rate with acceleration of 1G. This combined with a servo driven ATC enables a C-to-C time of 2.8 seconds (HMC400) / 2.9 seconds (HMC500) and large reduction of non-cutting time.

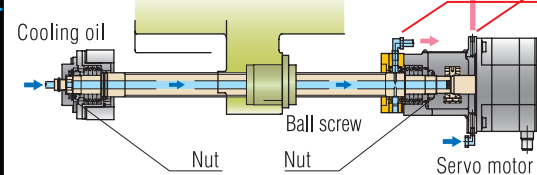


## Core cooling ball screws and Double-anchor pre-tension system

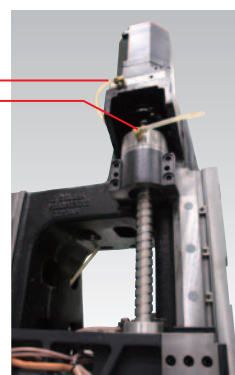


## Lubrication oil cooler unit

HMC Series uses core cooling ball screws on the X, Y and Z axes. Circulation of cooling oil through the ball screws, around ball screw support housings and motor mounting surfaces reduces the thermal displacement and maintains accuracy during long machining time.

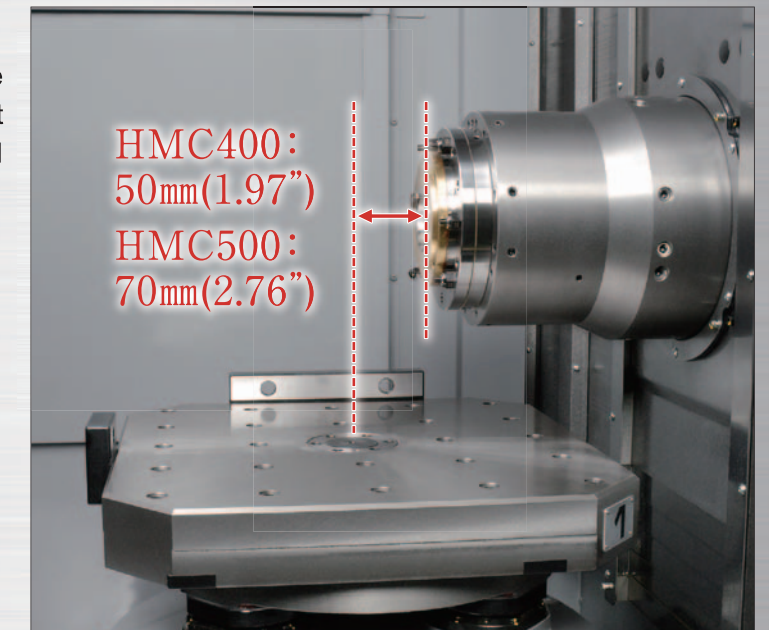


The double-anchoring method limits elongation of the ball screws and improves the minute-feed characteristics and the lowers lost-motion characteristics. Accuracy in round cutting has also been improved largely.



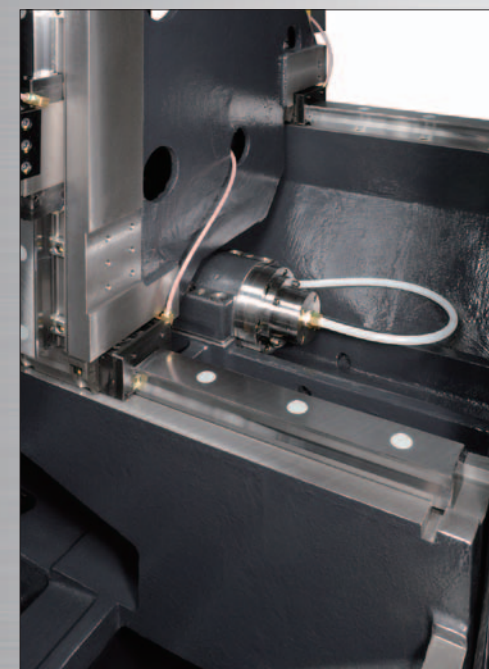
## The spindle nose reaches close to the pallet center

Reducing the minimum distance from the spindle nose to the pallet center makes it with shorter tools producing highly-rigid machining.



## Highly rigid structure

The HMC Series utilizes a wide column and highly rigid roller guides. This produces great aluminum machining performance and also the machining of a wider range of workpieces, including cast iron.



Highly rigid roller guides

## Improved reliability

The X-axis and Z-axis HMC400 shutters are a single-plate construction. HMC500 is single Z and double X axis. This design eliminates the risk of binding during cutting and achieves an improvement in the reliability.

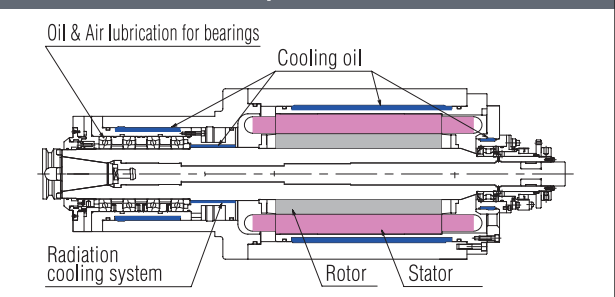




Spindle

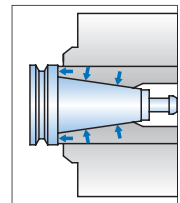
The spindle bearings are oil-air lubricated. Circulating temperature controlled oil in the casing around the spindle housing reducing the growth of the spindle. Furthermore, OKK's unique radiant cooling system prevents the conduction of heat generated from the motor into the spindle.

Standard spindle 15000min<sup>-1</sup>

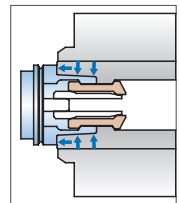


Dual contact tool BT type (Standard)

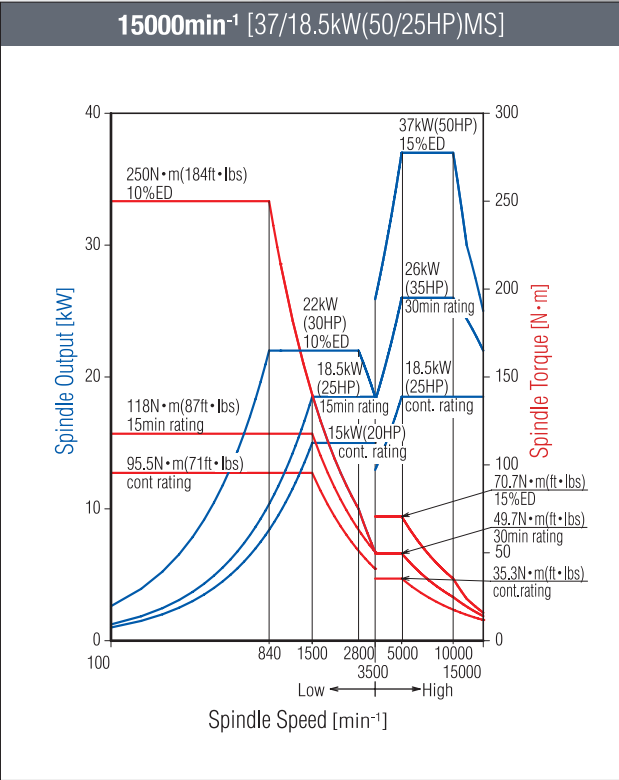
Improvements in rigidity of tools have been Achieved contact faces of spindle-nose and tool holders flange. This has a great effect not only for heavy load machining but also high speed machining.  
(The performance is different due to the cutting tools and cutting conditions.)



BT specification



HSK specification(Option)



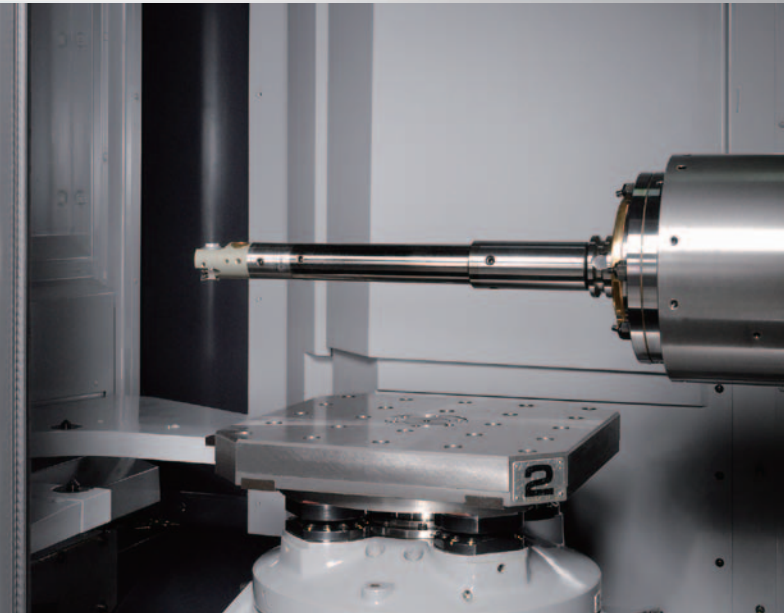
High-precision Machining in a Shorter Cutting Time

The maximum tool length enables tooling longer than the pallet allowing deep boring operations without rotating the part.

This allows high-precision machining in a shorter cutting time.

\*There is a limit on the diameter of a tool with length of 350mm (13.78")(HMC400) / 475mm (18.70")(HMC500) or longer.

Max. tool length  
HMC400:  
**450mm (17.72")**  
HMC500:  
**550mm (21.65")**



Table

## Cutting data

| Type of machining  | Face milling ø100mm (3.94")x6T                     |                                                    |
|--------------------|----------------------------------------------------|----------------------------------------------------|
| Machine model      | HMC400                                             | HMC500                                             |
| Spindle speed      | 800min <sup>-1</sup>                               | 800min <sup>-1</sup>                               |
| Width of cut       | 80mm (3.15")                                       | 80mm (3.15")                                       |
| Depth of cut       | 4mm (0.16")                                        | 4mm (0.16")                                        |
| Feed rate          | 1100mm/min (43ipm)                                 | 1320mm/min (52ipm)                                 |
| Cutting amount     | 352cm <sup>3</sup> /min (21.5in <sup>3</sup> /min) | 422cm <sup>3</sup> /min (25.8in <sup>3</sup> /min) |
| Spindle motor load | 95%                                                | 83%                                                |
| Workpiece material | S45C                                               | S45C                                               |

| Type of machining  | Drill Milling ø26.5mm (1.04")                     |                                                   |
|--------------------|---------------------------------------------------|---------------------------------------------------|
| Machine model      | HMC400                                            | HMC500                                            |
| Spindle speed      | 300min <sup>-1</sup>                              | 300min <sup>-1</sup>                              |
| Width of cut       | 26.5mm (1.04")                                    | 26.5mm (1.04")                                    |
| Feed rate          | 50mm/min(2ipm)                                    | 50mm/min(2ipm)                                    |
| Cutting amount     | 27.5cm <sup>3</sup> /min(1.7in <sup>3</sup> /min) | 27.5cm <sup>3</sup> /min(1.7in <sup>3</sup> /min) |
| Spindle motor load | 30%                                               | 30%                                               |
| Workpiece material | S45C                                              | S45C                                              |

| Type of machining  | Side milling with End mill ø32mm (1.26")x6T      |                                                |
|--------------------|--------------------------------------------------|------------------------------------------------|
| Machine model      | HMC400                                           | HMC500                                         |
| Spindle speed      | 250min <sup>-1</sup>                             | 250min <sup>-1</sup>                           |
| Width of cut       | 25mm (0.98")                                     | 15mm (0.59")                                   |
| Depth of cut       | 20mm (0.79")                                     | 20mm (0.79")                                   |
| Feed rate          | 100mm/min(4ipm)                                  | 216mm/min(9ipm)                                |
| Cutting amount     | 50cm <sup>3</sup> /min (3.1in <sup>3</sup> /min) | 65cm <sup>3</sup> /min (4in <sup>3</sup> /min) |
| Spindle motor load | 42%                                              | 36%                                            |
| Workpiece material | S45C                                             | S45C                                           |

| Type of machining  | Tap Milling M30xP3.5 |                      |
|--------------------|----------------------|----------------------|
| Machine model      | HMC400               | HMC500               |
| Spindle speed      | 100min <sup>-1</sup> | 100min <sup>-1</sup> |
| Feed rate          | 350mm/min(14ipm)     | 350mm/min(14ipm)     |
| Spindle motor load | 61%                  | 55%                  |
| Workpiece material | S45C                 | S45C                 |

| Type of machining  | Slotting with End mill ø32 (1.26")x6T            |                                                  |
|--------------------|--------------------------------------------------|--------------------------------------------------|
| Machine model      | HMC400                                           | HMC500                                           |
| Spindle speed      | 250min <sup>-1</sup>                             | 250min <sup>-1</sup>                             |
| Width of cut       | 32mm (1.26")                                     | 32mm (1.26")                                     |
| Depth of cut       | 12mm (0.47")                                     | 12mm (0.47")                                     |
| Feed rate          | 140mm/min(6ipm)                                  | 140mm/min(6ipm)                                  |
| Cutting amount     | 54cm <sup>3</sup> /min (3.3in <sup>3</sup> /min) | 54cm <sup>3</sup> /min (3.3in <sup>3</sup> /min) |
| Spindle motor load | 45%                                              | 35%                                              |
| Workpiece material | S45C                                             | S45C                                             |

Workpiece material: A7075

Workpiece material: S50C

Values shown here are for reference to provide an indication of cutting capability.

Workpiece material: A7075

Workpiece material: S50C

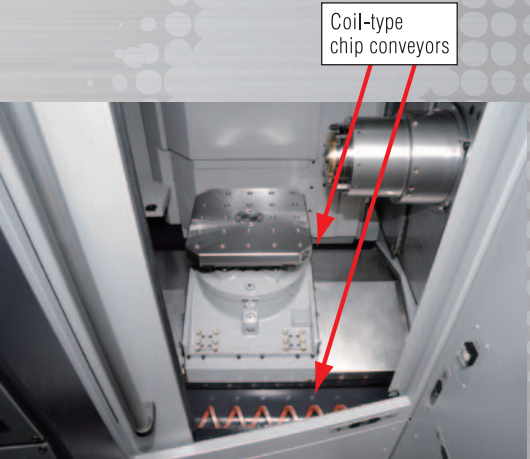
Values shown here are for reference to provide an indication of cutting capability.

Chip disposal measures

The standard ceiling shower and two coil-type conveyors on the left- and right-hand side thoroughly remove cutting chips from the machine. The troughs of the coil conveyors shield heat transfer from the cutting chips and coolant to the machine base.



Ceiling shower [Standard]



Coil-type chip conveyors [Standard]



**ATC [Automatic Tool Changer]**

The machine uses a servomotor-driven ATC and magazine, thus providing a stable tool change with excellent durability. A variable-speed ATC function, standard, automatically slows down the ATC turning speed for heavy tools. This allows the tool to be changed smoothly by simply selecting the slow turning speed during tool registration.

**Max. tool diameter:**  
**ø170mm (6.69")**

**Max. tool length:**  
**HMC400: 450mm (17.72")**  
**HMC500: 550mm (21.65")**

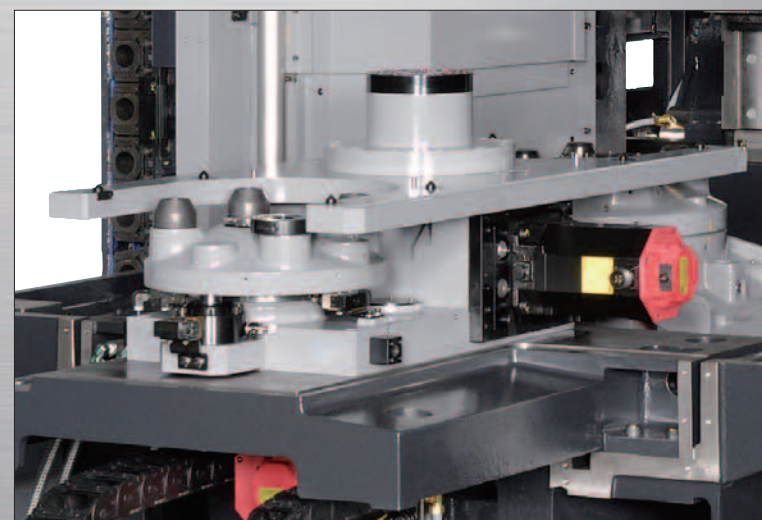
**Max. tool mass:**  
**12kg (26 lbs)**



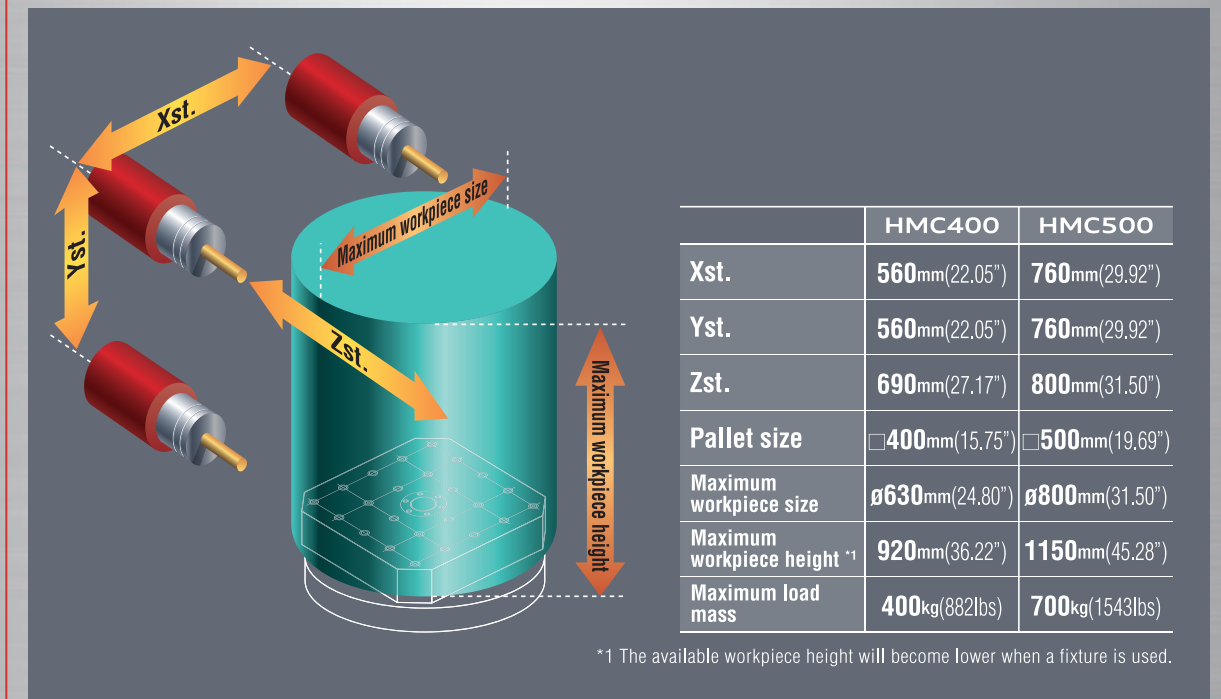
Foot-operated switch for removing a tool (Standard)

**APC [Automatic Pallet Changer]**

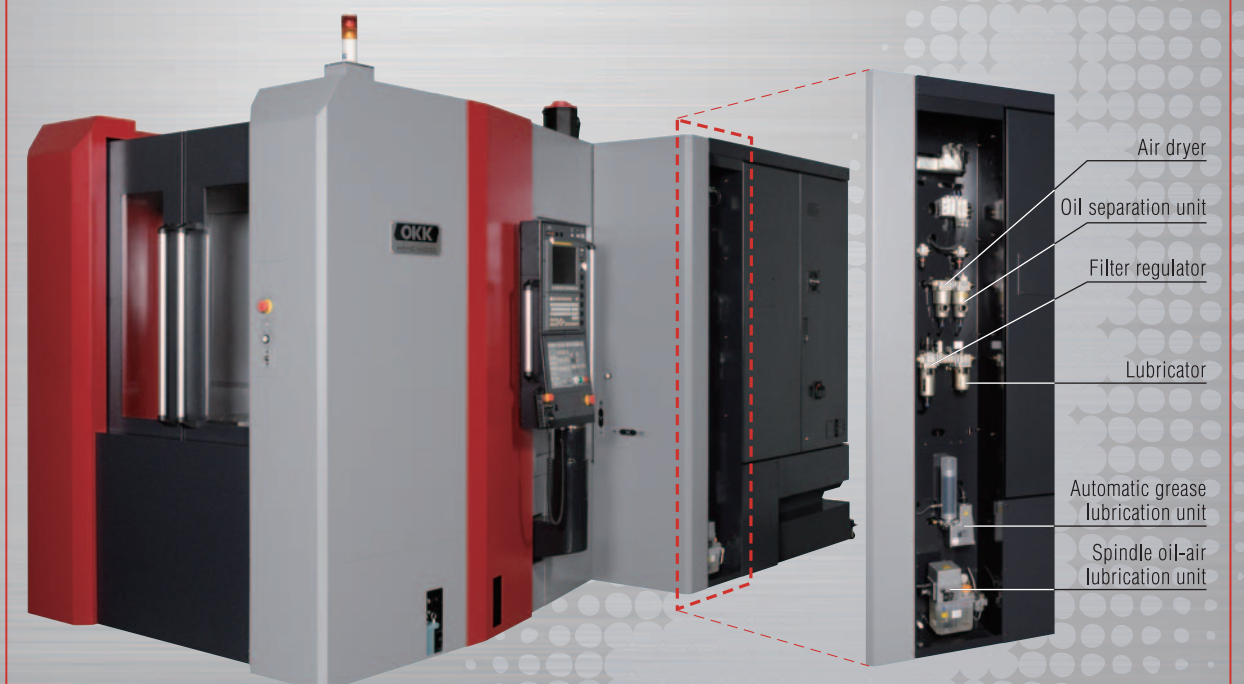
The APC unit uses a direct-drive lifting and turning mechanism. The unit has been designed for easy expansion to multiple-pallet APC or automatic pallet transfer systems for flexible integration with automation.

**Maximum workpiece size**

The HMC Series utilizes a table with a multi-clamp pallet system and has an extended maximum workpiece height, easily accommodating automatic fixture interfaces.

**Maintenance**

All of the maintenance devices are centrally located on operator door side for simple daily inspection.





User-friendly construction

The operation panel is located on the left-hand side, which enables the operator to see the whole interior of the machine, thus increasing the operator's work efficiency. Furthermore, the front door of the APC opens wide so that the work loading/unloading and setup operations can be easily carried out.



Operator panel and inside of the machine

Environmental measures

LED lamps [Standard]

The machine incorporates LED lamps due to their low heat generation and power consumption savings. Furthermore, the LED lamps to save on replacement costs and maintenance.



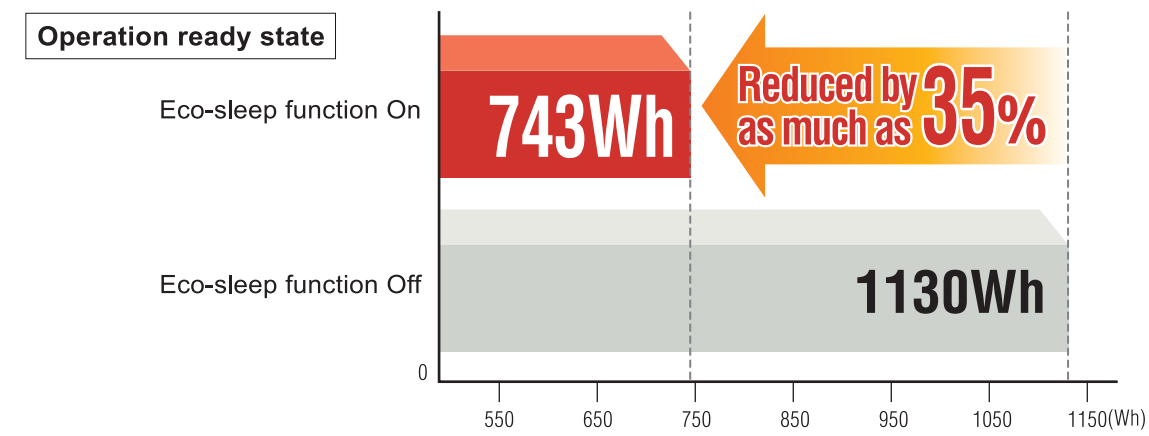
LED lamps [Standard]

ECO sleep function [Standard]

If the machine remains idle longer than the specified time period, the machine's present mode is switched to a power-saving mode to reduce wasteful consumption of power, air and so on. When the power-saving mode is active, the equipment such as servos and chip conveyors are turned off. It is cancelled automatically when the setup operation is completed i.e. when the doors are closed.

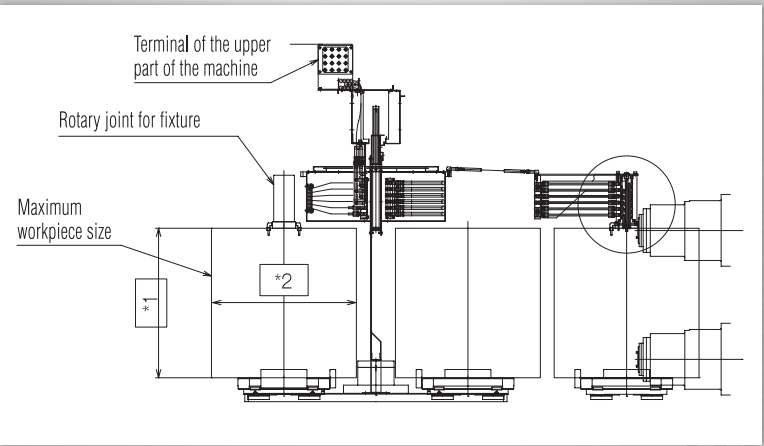
Power consumption comparison

A power consumption of 1130Wh under normal standby condition is reduced to 743Wh with the eco-sleep function, a reduction of 35%.



Optional accessories

Constant auto fixture coupler with rotary joints



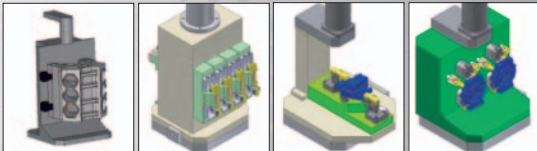
Dimensions of \*1

|        | HMC400         | HMC500         |
|--------|----------------|----------------|
| 3-port | 730mm (28.74") | 980mm (38.58") |
| 4-port | 700mm (27.56") | 950mm (37.40") |
| 6-port | 650mm (25.59") | 900mm (35.43") |
| 8-port | —              | 850mm (33.46") |

Dimensions of \*2

|                        | HMC400          | HMC500          |
|------------------------|-----------------|-----------------|
| Maximum workpiece size | ø630mm (24.80") | ø800mm (31.50") |

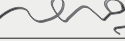
Fixture example



Lift-up chip conveyor [Option]

Suitable lift up chip conveyor according to type of chips

◎ Most suitable ○ Usable △ Usable under condition × Not usable — Not applicable

| Type of chip conveyors     |                        |                       |                                                                                       | Hinge type                                                                            |         | Scraper type |         | Magnet Scraper type |         | Scraper type with drum filter |         | Magnet scraper type with drum filter |         |   |
|----------------------------|------------------------|-----------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------|--------------|---------|---------------------|---------|-------------------------------|---------|--------------------------------------|---------|---|
| Use or not use coolant oil |                        |                       |                                                                                       | Use                                                                                   | Not use | Use          | Not use | Use                 | Not use | Use                           | Not use | Use                                  | Not use |   |
| Type of chips              | Magnetizable chips     | Steel                 | Short curl                                                                            |  | ◎       | ◎            | ○       | ○                   | ◎       | ◎                             | ○       | —                                    | ◎       | — |
|                            |                        |                       | Spiral                                                                                |  | ◎       | ◎            | △*2     | △*2                 | △*2     | △*2                           | ×       | —                                    | ×       | — |
|                            |                        |                       | Long                                                                                  |  | ◎       | ◎            | ×       | ×                   | ×       | ×                             | ×       | —                                    | ×       | — |
|                            |                        |                       | Needle shape                                                                          |  | ×       | △*1          | ×       | ○                   | ○*3     | ○                             | ○       | —                                    | ◎       | — |
|                            |                        |                       | Powder and small lump                                                                 |  | ×       | △*1          | ×       | ○                   | ○*3     | ○                             | ○       | —                                    | ◎       | — |
|                            | Non-magnetizable chips | Cast iron             | Needle shape                                                                          |  | ×       | △*1          | ×       | ○                   | ○*3     | ○                             | ○       | —                                    | ◎       | — |
|                            |                        |                       | Powder and small lump                                                                 |  | ×       | △*1          | ×       | ○                   | ○*3     | ○                             | △*3     | —                                    | ◎       | — |
|                            |                        |                       | Short curl                                                                            |  | ×       | ◎            | △*4     | ○                   | —       | —                             | ◎       | —                                    | ◎       | — |
|                            |                        |                       | Spiral                                                                                |  | ○       | ◎            | ○       | ○                   | —       | —                             | △*5     | —                                    | △*5     | — |
|                            |                        |                       | Long                                                                                  |  | ○       | ◎            | ○       | ○                   | —       | —                             | △*5     | —                                    | △*5     | — |
| Non-magnetizable chips     | Aluminum               | Needle shape          |  | ×                                                                                     | △*1     | ×            | ○       | —                   | —       | ◎                             | —       | ◎                                    | —       |   |
|                            |                        | Powder and small lump |  | ×                                                                                     | △*1     | ×            | ○       | —                   | —       | ◎                             | —       | ◎                                    | —       |   |

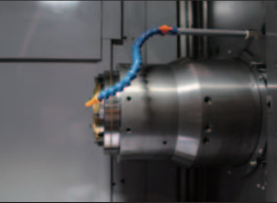
\*1 Minute chips can enter the conveyor through a gap on the hinged plate. So, inside of the conveyor needs frequent cleaning.  
\*2 Scraper can easily catch long chips. So, shortening the chips (for example by using the step feed) or removing such chips is required.  
\*3 When flow rate of the coolant is large, filters can be clogged with chips flowed out of the conveyor case. Therefore, combined use with a magnet plate is recommendable.  
\*4 When flow rate of the coolant is large, filters can be clogged with chips flowed out of the conveyor case. Therefore, filters require frequent cleaning.  
\*5 Scraper can easily catch long chips. Therefore, periodical removal of chips is needed. If they remain, a drum filter may be damaged.



Optional accessories

Air blow nozzle

For dry cutting applications.



Mist collector

Mist collector suctions mist from the splash guards and is recommended when high-pressure coolant is used.



Oil skimmer

Oil skimmer collects contaminated oil from a coolant tank.



116 tool magazine



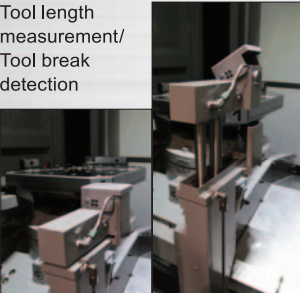
Lift-up chip conveyor

To separate chips and coolant, and discharge to the outside only chips.



T1-C

Tool length measurement/ Tool break detection



Set-up LED

Set-up station incorporates LED lamps improves work efficiency.



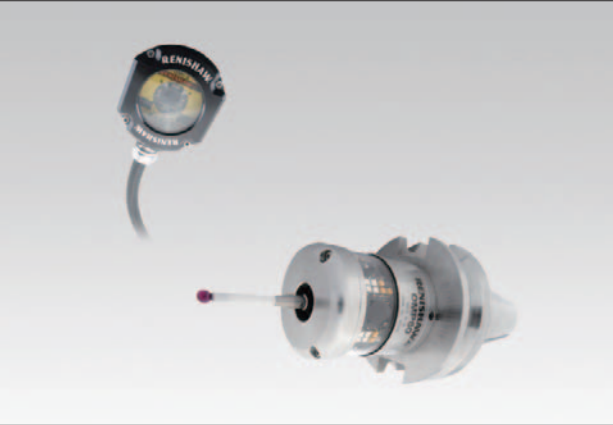
Option check sheet

| Item                                                              | Description                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Changing the type of pull stud           | <input type="checkbox"/> MASII 60°                                                                                                                                                                                                                                                                |
| <input type="checkbox"/> Dual-contact tool                        | <input type="checkbox"/> HSK-A63                                                                                                                                                                                                                                                                  |
| <input type="checkbox"/> Tool magazine                            | HMC400: <input type="checkbox"/> 60tools, <input type="checkbox"/> 116tools     HMC500: <input type="checkbox"/> 40tools, <input type="checkbox"/> 116tools                                                                                                                                       |
| <input type="checkbox"/> Multi-pallet APC                         | <input type="checkbox"/> 7APC                                                                                                                                                                                                                                                                     |
| <input type="checkbox"/> Pallet top surface                       | <input type="checkbox"/> T-slot                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Additional pallet                        |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> APC safety door automatic open / close   |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Oil skimmer                              |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Addition of lighting system              | <input type="checkbox"/> LED lamp in the APC setup station                                                                                                                                                                                                                                        |
| <input type="checkbox"/> Signal lamp                              | <input type="checkbox"/> 3-lamps type without buzzer <input type="checkbox"/> 3-lamps type with buzzer                                                                                                                                                                                            |
| <input type="checkbox"/> Coolant-through-spindle                  | <input type="checkbox"/> Center through                                                                                                                                                                                                                                                           |
| <input type="checkbox"/> Coolant unit                             | <input type="checkbox"/> 2 MPa (290psi) <input type="checkbox"/> 7 MPa (1015psi) <input type="checkbox"/> With coolant cooler <input type="checkbox"/> Without coolant cooler                                                                                                                     |
| <input type="checkbox"/> Air blow nozzle                          | <input type="checkbox"/> 1 nozzle                                                                                                                                                                                                                                                                 |
| <input type="checkbox"/> Swirl stopper block                      | <input type="checkbox"/> For angle attachment                                                                                                                                                                                                                                                     |
| <input type="checkbox"/> Workpiece flushing equipment             | <input type="checkbox"/> Shower gun type                                                                                                                                                                                                                                                          |
| <input type="checkbox"/> Mist collector                           |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Lift-up chip conveyor                    | <input type="checkbox"/> Hinged type <input type="checkbox"/> Scraper type <input type="checkbox"/> Magnet scraper type<br><input type="checkbox"/> Scraper type with drum filter (for aluminum + iron)<br><input type="checkbox"/> Magnet scraper type with drum filter (for aluminum + casting) |
| <input type="checkbox"/> Chip bucket                              | <input type="checkbox"/> Fixed type <input type="checkbox"/> Swing type                                                                                                                                                                                                                           |
| <input type="checkbox"/> Standard tool set                        | <input type="checkbox"/> Including a tool box                                                                                                                                                                                                                                                     |
| <input type="checkbox"/> Mass block                               |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Angle plate                              |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> 2-face angle plate                       |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Fixture interface                        | <input type="checkbox"/> 3ports <input type="checkbox"/> 4ports <input type="checkbox"/> 6ports <input type="checkbox"/> 8ports (HMC500 only)                                                                                                                                                     |
| <input type="checkbox"/> Touch sensor system T1                   | <input type="checkbox"/> Workpiece measurement <input type="checkbox"/> Tool length measurement / Tool break detection                                                                                                                                                                            |
| <input type="checkbox"/> Tool break detection inside the magazine |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Automatic restart at tool damage         |                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/> Tool presence/absence detection          |                                                                                                                                                                                                                                                                                                   |

OKK's dedicated control functions

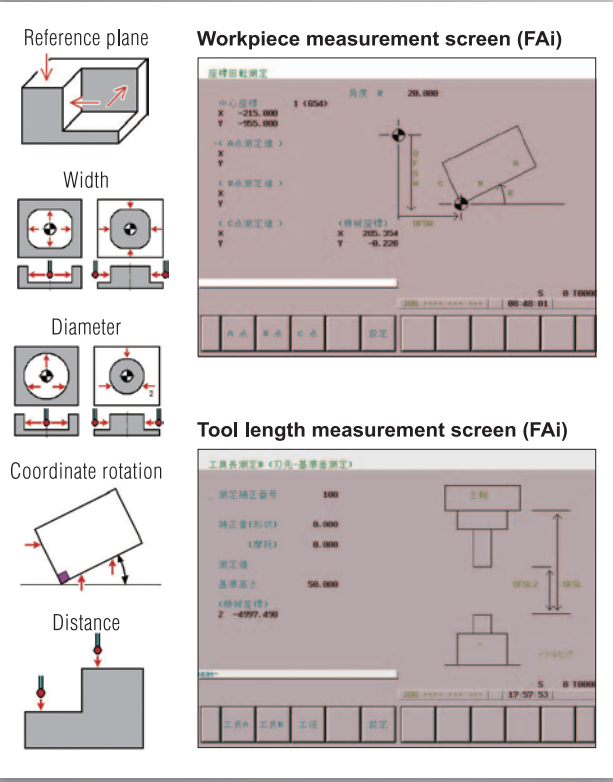
Setup support function

- **T1-A: Automatic workpiece measurement/compensation** [Option]
- The touch sensor attached to the spindle is moved to a workpiece in the automatic operation until it contacts the workpiece then based on the travel distance at that time, the required compensation amount is calculated and set as the data for the workpiece coordinate system.
  - The measurement and compensation program is created according to the specified format and then executed.



■ **T0 Software** [Option]

This screen enables the simple manual measurement using the touch sensor (option: T1-A or T1-B). You can move the sensor to the desired measuring point by handle mode then the machine starts the automatic measurement after the sensor contacts the workpiece. You can set the results of the measurement as the data for the desired workpiece coordinate system and tool offset number through the single key operation.



High-efficiency control technologies

■ **Hyper HQ control** [Option]

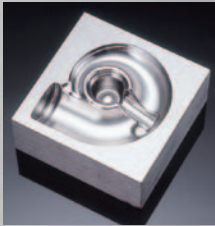
High-speed processing is enabled by improved capability of processing fine line segment toolpaths.

<F31i-B/FAi capability of processing fine line segments>

| Type                     | Look-ahead processing(FAi) | Fine line segment data processing speed(m/min)(F31i) | Command method               |
|--------------------------|----------------------------|------------------------------------------------------|------------------------------|
| Without Hyper HQ control | Max.20 blocks              | 15 (591ipm)                                          | —                            |
| Hyper HQ control mode A  | Max.20 blocks              | 30 (1181ipm)                                         | ON: G05.1Q1;<br>OFF: G05.1Q0 |
| Hyper HQ control mode B  | —                          | 150 (5906ipm)                                        | ON: G05.1Q1;<br>OFF: G05.1Q0 |

■ **HQ tuner** [Option]

The HQ tuner provides the programmer a 10-step adjustment of parameters for hyper HQ control in accordance with processing conditions. It adjusts the hyper HQ control in accordance with the current process. For example, during roughing routines the programmer can place a higher priority on speed and in finishing routines a higher priority on dimensional accuracy at corners and circular arcs.



Technologies for reduced setup and unmanned operation

■ **Soft AC** [Option]

The soft AC function applies the feed rate override control automatically so that the value of the spindle load meter does not change significantly. This helps to prevent damages of tools caused by overload and improves cutting efficiency.

● **Adaptive control function**

Feed override control range: 10 to 200%.  
(Changeable with parameters)  
Alarms are output at the lower limit override value.

● **Air-cut reduction function**

Feed rates during non-cutting operation can be increased up to 200%.  
(Changeable with parameters)

● **Tool failure monitoring function**

Specifications similar to the soft CCM.

● **Continuous unmanned processing at the time of tool failure**

Combined operation with the automatic restart function (Another option) is possible.

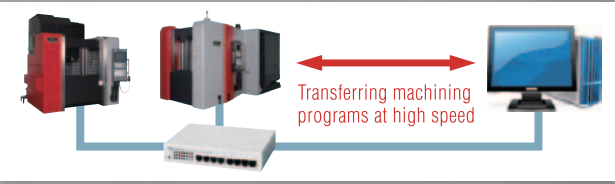
■ **Soft CCM** [Option]

The Soft CCM monitors the spindle load meter, and stops operation when the meter value exceeds the preset value (set by M signal or set for each of the T numbers through setting screen) and generation of abnormal tool load is determined which is convenient for unmanned operation at night.

Network function

■ **Data server** [Option]

Large machining programs can be transferred to the data server through the network connected to the host computer at high speed. The transferred machining programs are executed as the main program or the sub program called up with the M198.





HMC400 Specifications

Specifications

| Item                                                          |           | HMC400            |                                                                |
|---------------------------------------------------------------|-----------|-------------------|----------------------------------------------------------------|
| Travel on X axis (Column: right/left)                         |           | mm                | 560 (22.05")                                                   |
| Travel on Y axis (Spindle head: up/down)                      |           | mm                | 560 (22.05")                                                   |
| Travel on Z axis (Pallet: back/forth)                         |           | mm                | 690 (27.17")                                                   |
| Distance from table top surface to spindle center             |           | mm                | 80~640 (3.15"~25.20")                                          |
| Distance from table center to spindle nose                    |           | mm                | 50~740 (1.97"~29.13")                                          |
| Table (Pallet) work surface area                              |           | mm                | □400 (15.75")                                                  |
| Max. workpiece weight loadable on table (pallet)              |           | kg                | 400(882lbs)[Uniformly distributed load]                        |
| Max. workpiece size loadable on table (pallet)                |           | mm                | ø630×920 (ø24.80"×36.22")                                      |
| Table (Pallet) top surface configuration                      |           |                   | 24×M16 tap                                                     |
| Min. indexable angle of table (pallet)                        |           | deg               | 0.001°                                                         |
| Spindle speeds                                                |           | min <sup>-1</sup> | 100~15000                                                      |
| Number of spindle speed                                       |           |                   | 2-step (Winding change system)                                 |
| Spindle nose(nominal number)                                  |           |                   | 7/24 taper No.40 Dual-contact type                             |
| Spindle bearing bore diameter                                 |           |                   | ø70(2.76")                                                     |
| Rapid traverse rate                                           | X × Y × Z | m/min             | 63 (2480opm)                                                   |
|                                                               | B         | min <sup>-1</sup> | 33.3                                                           |
|                                                               | X × Y × Z | mm/min            | 1~40000 (0.04~1575ipm) *1                                      |
| Cutting feed rate *1                                          | B         | min <sup>-1</sup> | 1~27.7 *1                                                      |
|                                                               |           |                   |                                                                |
| Tool shank(nominal number)                                    |           |                   | JIS B 6339 BT40                                                |
| Pull stud(nominal number)                                     |           |                   | MAS I (45°)                                                    |
| Number of storable tools                                      |           | tool              | 40 *2                                                          |
| Max. tool diameter                                            |           | mm                | ø95 (3.74")[ø170 (6.69") with no tools in adjacent pots]       |
| Max. tool length (from the gauge line)                        |           | mm                | 450 (17.72") *3                                                |
| Max. tool weight                                              |           | kg                | 5 (11lbs)[12 (26lbs) with slow ATC cycle] / Total 200 (440lbs) |
| Max. tool moment                                              |           | N·m               | 9.8 (7.2ft·lbs)                                                |
| Tool selection method                                         |           |                   | Address fixed random method                                    |
| Tool exchange time (cut-to-cut)                               |           | sec               | 2.8                                                            |
| Pallet exchange method                                        |           |                   | Direct turn method                                             |
| Pallet exchange time (JIS evaluation time)                    |           | sec               | 9.0                                                            |
| Spindle motor (15%ED/30min/Continuous rating)                 |           | kW                | 37/26/18.5 (50HP/35HP/25HP)                                    |
| Feed motors                                                   |           | kW                | X,Y,Z: 5.5 (7.4HP) B: 2.7 (3.6HP)                              |
| Coolant pump motor                                            |           | kW                | 60Hz: 1.2 (1.6HP) 50Hz: 0.7 (0.9HP)                            |
| Hydraulic pump motor                                          |           | kW                | 1.5 (2HP)                                                      |
| Spindle and feed system cooling oil pump motor(oil cooler)    |           | kW                | 1.1/0.4 (1.5HP/0.5HP) [compression/discharge]                  |
| Spindle lubrication oil pump motor (oil air lubrication)      |           | kW                | 0.017 (0.02HP)                                                 |
| ATC motor                                                     |           | kW                | 1.2 (1.6HP)                                                    |
| Tool Magazine motor                                           |           | kW                | 1.4 (1.9HP)                                                    |
| APC motor                                                     |           | kW                | 1.8 (2.4HP)                                                    |
| Power supply AC200V±10% 50/60Hz±1Hz AC220V±10% 60Hz±1Hz       |           | kVA               | 51                                                             |
| Compressed air supply                                         |           | Mpa,ℓ/min[ANR]    | 0.4~0.6 (58~87psi) *4, Min.500 (132gpm) *4 *5                  |
| Coolant tank capacity                                         |           | L                 | 530 (140gal)                                                   |
| Spindle and feed system cooling oil tank capacity(oil cooler) |           | L                 | 20 (5gal)                                                      |
| Spindle lubrication oil tank capacity (oil air lubrication)   |           | L                 | 2 (0.5gal)                                                     |
| Lubrication oil tank capacity                                 |           | L                 | 20(5gal)                                                       |
| Machine height(from floor surface)                            |           | mm                | 2640 (103.94")                                                 |
| Required floor space                                          |           | mm                | 2605×4480 (102.56"×176.38")                                    |
| Machine weight                                                |           | kg                | 8500 (19000lbs)                                                |
| Operating environment temperature                             |           | °C                | 5~40                                                           |

Standard accessories

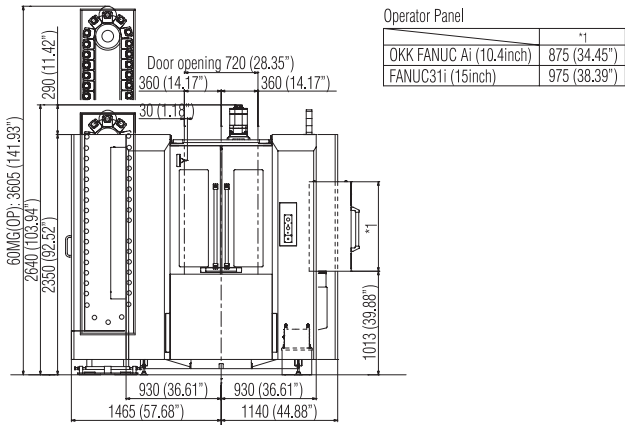
| Item                                                   | Q'ty | Remarks                          |
|--------------------------------------------------------|------|----------------------------------|
| LED lamp                                               | 1set |                                  |
| Coolant tank (installed separately)                    | 1set | Tank capacity 530L (140gal)      |
| Splash Guard/APC safty guard                           | 1set |                                  |
| Slide way protection sliding covers for X,Y and Z axes | 1set |                                  |
| Earth leakage breaker                                  | 1set |                                  |
| Automatic power off                                    | 1set |                                  |
| Edge locator                                           | 1set |                                  |
| Signal lamp                                            | 1set | 2-lamps type without buzzer      |
| Direct-turn APC unit                                   | 1set |                                  |
| Coil-type chip conveyor                                | 1set | 1 set for each of right and left |
| Hydraulic unit (installed separately)                  | 1set |                                  |

| Item                                                                                  | Q'ty | Remarks   |
|---------------------------------------------------------------------------------------|------|-----------|
| Ceiling shower                                                                        | 1set |           |
| Spindle head and ball screw cooling oil temperature controller (installed separately) | 1set |           |
| Ball screw and tool magazine automatic grease lubrication unit                        | 1set |           |
| Oil air lubrication unit                                                              | 1set |           |
| Foundation parts for machine anchoring (Bond anchoring method)                        | 1set | with bond |
| Magazine tool holder remove device                                                    | 1set |           |
| Instruction manual                                                                    | 1set |           |
| Electrical instruction manual (including electrical diagrams)                         | 1set |           |

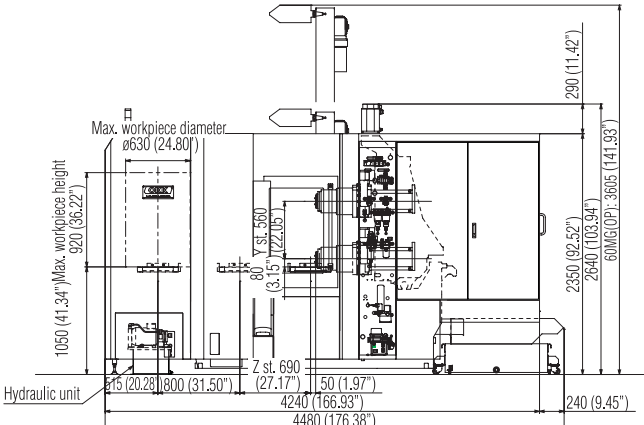
\*1: Under the HQ or Hyper HQ control  
\*2: The number of storable tools refers the total number of tools including the one attached to the spindle i.e. subtract one from the above for the number of tools storable in the tool magazine.  
\*3: Conditional.For details, refer to tool limits drawing.  
\*4: Purity of the supplied air should be equivalent to or higher than Class 3.5.4 specified in ISO 8573-1/JIS B8392-1.  
\*5: The flow rate for the standard specification machine is specified in the above. When optional specifications such as an air blower is added,add the corresponding air supply according to the operating frequency.

Dimensions [mm]

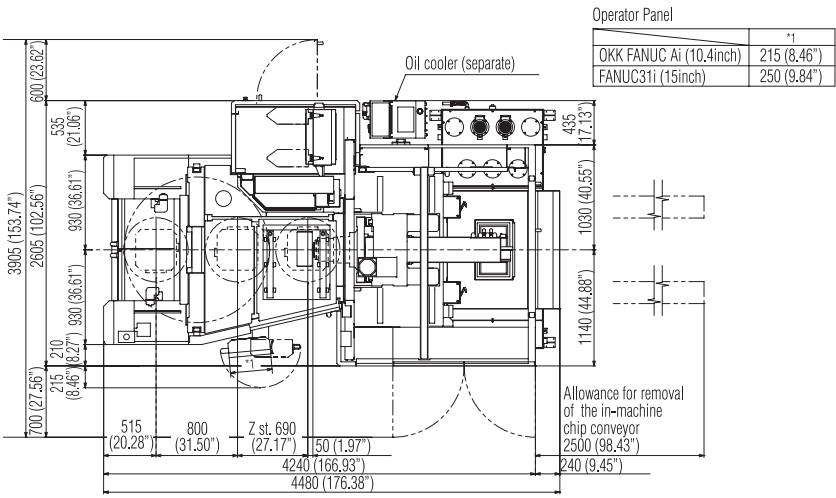
Front view



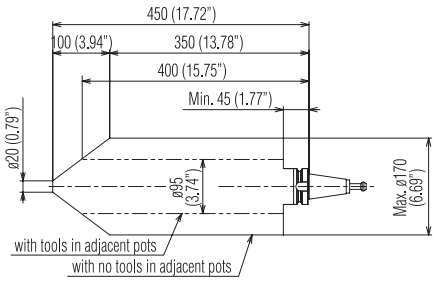
Side view



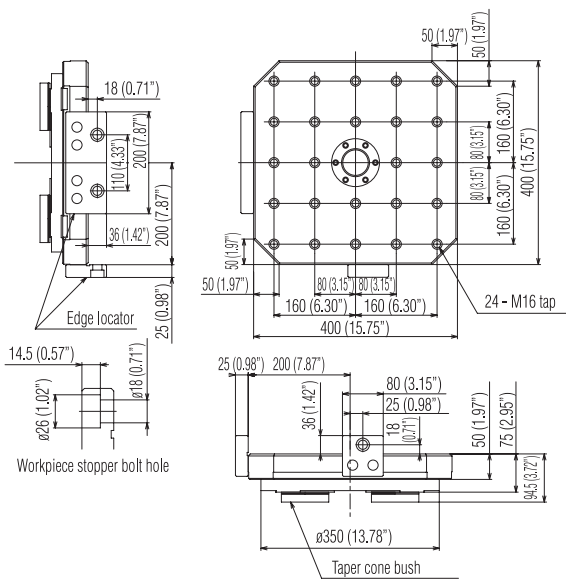
Floor space



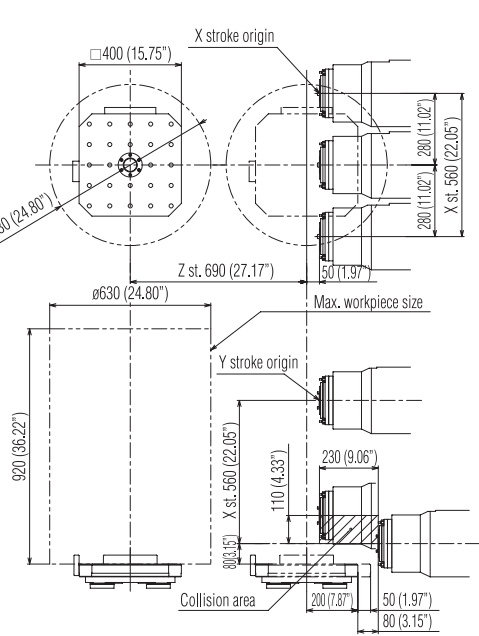
Restrictions on tool



Pallet



Stroke diagram





| Item                                                           |           |                   | HMC500                                                          |
|----------------------------------------------------------------|-----------|-------------------|-----------------------------------------------------------------|
| Travel on X axis (Column: right/left)                          |           | mm                | 760 (29.92")                                                    |
| Travel on Y axis (Spindle head: up/down)                       |           | mm                | 760 (29.92")                                                    |
| Travel on Z axis (Pallet: back/forth)                          |           | mm                | 800 (31.50")                                                    |
| Distance from table top surface to spindle center              |           | mm                | 80~840 (3.15"~33.07")                                           |
| Distance from table center to spindle nose                     |           | mm                | 70~870 (2.76"~34.25")                                           |
| Table (Pallet) work surface area                               |           | mm                | □500 (19.69")                                                   |
| Max. workpiece weight loadable on table (pallet)               |           | kg                | 700 (1543lbs) [Uniformly distributed load]                      |
| Max. workpiece weight loadable on table (pallet)               |           | mm                | ø800×1150 (ø31.50"×45.28")                                      |
| Table (Pallet) top surface configuration                       |           |                   | 24×M16 tap                                                      |
| Min. indexable angle of table (pallet)                         |           | deg               | 0.001°                                                          |
| Spindle speed                                                  |           | min <sup>-1</sup> | 100~15000                                                       |
| Number of spindle speed                                        |           |                   | 2-step (Winding change system)                                  |
| Spindle nose (nominal number)                                  |           |                   | 7/24 taper No.40 Dual-contact type                              |
| Spindle bearing bore diameter                                  |           | mm                | ø70 (2.76")                                                     |
| Rapid traverse rate                                            | X × Y × Z | m/min             | 63 (2480opm)                                                    |
|                                                                | B         | min <sup>-1</sup> | 40                                                              |
| Cutting feed rate *1                                           | X × Y × Z | mm/min            | 1~40000 (0.04~1575ipm) *1                                       |
|                                                                | B         | min <sup>-1</sup> | 1~27.7 *1                                                       |
| Tool shank (nominal number)                                    |           |                   | JIS B 6339 BT40                                                 |
| Pull stud (nominal number)                                     |           |                   | MAS I (45°)                                                     |
| Number of storable tools                                       |           | tool              | 60 *2                                                           |
| Max. tool diameter                                             |           | mm                | ø95 (3.74") [ø170 (6.69") with no tools in adjacent pots]       |
| Max. tool length (from the gauge line)                         |           | mm                | 550 (21.65") *3                                                 |
| Max. tool weight                                               |           | kg                | 5 (11lbs) [12 (26lbs) with slow ATC cycle] / Total 300 (661lbs) |
| Max. tool moment                                               |           | N·m               | 9.8 (7.2ft·lbs)                                                 |
| Tool selection method                                          |           |                   | Address fixed random method                                     |
| Tool exchange time (cut-to-cut)                                |           | sec               | 2.9                                                             |
| Pallet exchange method                                         |           |                   | Direct turn method                                              |
| Pallet exchange time (JIS evaluation time)                     |           | sec               | 13                                                              |
| Spindle motor (15%ED/30min/Continuous rating)                  |           | kW                | 37/26/18.5 (50HP/35HP/25HP)                                     |
| Feed motors                                                    |           | kW                | X,Y,Z: 5.5 (7.4HP) B: 4.5 (6.0HP)                               |
| Coolant pump motor                                             |           | kW                | 60Hz: 1.2 (1.6HP) 50Hz: 0.7 (0.9HP)                             |
| Hydraulic pump motor                                           |           | kW                | 1.5 (2HP)                                                       |
| Spindle and feed system cooling oil pump motor (oil cooler)    |           | kW                | 1.1/0.4 (1.5HP/0.5HP) [compression/discharge]                   |
| Tool Magazine motor                                            |           | kW                | 0.017 (0.02HP)                                                  |
| ATC motor                                                      |           | kW                | 1.2 (1.6HP)                                                     |
| Tool Magazine motor                                            |           | kW                | 1.4 (1.9HP)                                                     |
| APC motor                                                      |           | kW                | 2.5 (3.4HP)                                                     |
| Power supply AC200V±10% 50/60Hz±1Hz AC220V±10% 60Hz±1Hz        |           | kVA               | 48                                                              |
| Compressed air supply                                          |           | Mpa,ℓ/min[ANR]    | 0.4~0.6 (58~87psi) *4, Min.500 (132gpm) *4 *5                   |
| Coolant tank capacity                                          |           | L                 | 530 (140gal)                                                    |
| Spindle and feed system cooling oil tank capacity (oil cooler) |           | L                 | 20 (5gal)                                                       |
| Spindle lubrication oil tank capacity (oil air lubrication)    |           | L                 | 2 (0.5gal)                                                      |
| Lubrication oil tank capacity                                  |           | L                 | 20 (5gal)                                                       |
| Machine height (from floor surface)                            |           | mm                | 3605 (141.93")                                                  |
| Required floor space                                           |           | mm                | 2750×4845 (108.27"×190.75")                                     |
| Machine weight                                                 |           | kg                | 10500 (23148lbs)                                                |
| Operating environment temperature                              |           | °C                | 5~40                                                            |

| Item                                                   | Q'ty | Remarks                          |
|--------------------------------------------------------|------|----------------------------------|
| LED lamp                                               | 1set |                                  |
| Coolant tank (installed separately)                    | 1set | Tank capacity 530L (140gal)      |
| Splash Guard/APC safty guard                           | 1set |                                  |
| Slide way protection sliding covers for X,Y and Z axes | 1set |                                  |
| Earth leakage breaker                                  | 1set |                                  |
| Automatic power off                                    | 1set |                                  |
| Edge locator                                           | 1set |                                  |
| Signal lamp                                            | 1set | 2-lamps type without buzzer      |
| Direct-turn APC unit                                   | 1set |                                  |
| Coil-type chip conveyor                                | 1set | 1 set for each of right and left |
| Hydraulic unit (installed separately)                  | 1set |                                  |

\*1: Under the HQ or Hyper HQ control  
 \*2: The number of storable tools refers the total number of tools including the one attached to the spindle i.e. subtract one from the above for the number of tools storable in the tool magazine.  
 \*3: Conditional. For details, refer to tool limits drawing.  
 \*4: Purity of the supplied air should be equivalent to or higher than Class 3.5.4 specified in ISO 8573-1/JIS B8392-1.  
 \*5: The flow rate for the standard specification machine is specified in the above. When optional specifications such as an air blower is added, add the corresponding air supply according to the operating frequency.

[illegible]



Controller

FANUC Controller FAi

| Standard Specification                                                      |
|-----------------------------------------------------------------------------|
| No. of controlled axes: 4 axes (X, Y, Z, B)                                 |
| No. of simultaneously controlled axes: 4 axes                               |
| Least input increment: 0.001mm/0.0001"                                      |
| Max.programmable dimension: ±999999.999mm/±39370.0787"                      |
| Absolute/Incremental command: G90/G91                                       |
| Decimal point input/Pocket calculator type decimal point input              |
| Inch/Metric conversion: G20/G21                                             |
| Program code: ISO/EIA automatic discriminaton                               |
| Program format: FANUC standard format                                       |
| Nano interpolation(internal)                                                |
| Positioning: G00                                                            |
| Linear interpolation: G01                                                   |
| Circular interpolation: G02/G03 (CW/CCW), including radius designation      |
| Unidirectional positioning: G60                                             |
| Helical interpolation                                                       |
| Cylindrical interpolation                                                   |
| Cutting feed rate: 6.3-digit F-code, direct command                         |
| Dwell: G04                                                                  |
| Manual handle feed: manual pulse generator 1 set (0.001, 0.01, 0.1mm)       |
| Rapid traverse override: 0/1/10/25/50/100%                                  |
| Cutting feed rate override: 0 to 200% (every 10%)                           |
| Feed rate override cancel: M49/M48                                          |
| Rigid tapping: G84, G74 (Mode designation: M29)                             |
| One-digit F code feed                                                       |
| Part program storage capacity: 1280m [512KB]                                |
| No. of registered programs: 400                                             |
| Background editing                                                          |
| Extended part program editing                                               |
| 10.4" color LCD                                                             |
| Clock function                                                              |
| MDI (Manual Data Input) operation                                           |
| Run hour and parts count display                                            |
| Memory card/USB interface                                                   |
| Spindle function: 5-digit S-code direct command                             |
| Spindle speed override: 50 to 150% (every 5%)                               |
| Tool function: 4-digit T-code direct command                                |
| ATC tool registration                                                       |
| Auxiliary function: 3-digit M-code programming                              |
| Multiple M-codes in 1 block: 3 codes (Max. 20 settings)                     |
| Tool length offset: G43, G44/G49                                            |
| Tool diameter and cutting edge R compensation: G41, G42/G40                 |
| Tool offset sets: 400 sets in total                                         |
| Tool offset memory C                                                        |
| Tool position offset                                                        |
| Manual reference position return                                            |
| Automatic reference position return: G28/G29                                |
| 2nd reference position return: G30                                          |
| Reference position return check: G27                                        |
| Automatic coordinate system setting                                         |
| Coordinate system setting: G92                                              |
| Machine coordinate system: G53                                              |
| Workpiece coordinate system: G54 to G59                                     |
| Addition of workpiece coordinate system (48 sets in total): G54.1 P1 to P48 |
| Local coordinate system: G52                                                |
| Program stop: M00                                                           |
| Optional stop: M01                                                          |
| Optional block skip: /                                                      |

| Standard Specification                                         |
|----------------------------------------------------------------|
| Addition of optional block skip: 9 in total                    |
| Dry run                                                        |
| Machine lock                                                   |
| Z-axis feed cancel                                             |
| Auxiliary function lock                                        |
| Graphic display                                                |
| Program number search                                          |
| Sequence number search                                         |
| Program restart                                                |
| Cycle start                                                    |
| Auto restart                                                   |
| Single block                                                   |
| Feed hold                                                      |
| Manual absolute on/off: parameter                              |
| Sequence number comparison and stop                            |
| Manual handle interruption                                     |
| Sub program control                                            |
| Canned cycle: G73, G74, G76, G80 to G89                        |
| Mirror image function: parameter                               |
| Automatic corner override                                      |
| Exact stop check/mode                                          |
| Programmable data input: G10                                   |
| Programmable mirror image                                      |
| Optional chamfering/corner R                                   |
| Custom macro                                                   |
| Interruption type custom macro                                 |
| Addition of custom macro common variables: 600                 |
| Coordinate system rotation: G68, G69                           |
| Scaling: G50, G51                                              |
| Backlash compensation for each rapid traverse and cutting feed |
| Memory pitch error compensation                                |
| Skip function                                                  |
| Tool length manual measurement                                 |
| Automatic tool length measurement: G37/G37.1                   |
| Tool life management: 128 sets in total                        |
| Emergency stop                                                 |
| Data protection key                                            |
| NC alarm display/alarm history display                         |
| Machine alarm display                                          |
| Stored stroke check 1                                          |
| Stored stroke check 2, 3                                       |
| Load monitor                                                   |
| Self-diagnosis                                                 |
| Absolute position detection                                    |
| Manual guide i (Basic)                                         |

| Optional Specification                                                        |
|-------------------------------------------------------------------------------|
| Least input increment: 0.0001mm/0.00001"                                      |
| FS10/11 tape format                                                           |
| Part program storage capacity: 5120m [2MB] (400 in total)                     |
| RS232C interface: RS232C-1CH                                                  |
| Data server: ATA card (1GB)                                                   |
| Spindle contour control (Cs contour control)                                  |
| Addition of workpiece coordinate system (300 sets in total): G54.1P1 to P300] |
| Chopping                                                                      |
| High-speed skip                                                               |
| Manual guide i (Milling cycle)                                                |

| Original OKK Software                             |     |
|---------------------------------------------------|-----|
| HQ control                                        | STD |
| No. of simultaneously controlled axes: 4 axes     | OP  |
| Special canned cycle (including circular cutting) | OP  |
| Cycle mate F                                      | OP  |
| Soft scale II m                                   | STD |
| Touch sensor T0 software                          | OP  |
| Tool failure detection system (Soft CCM)          | OP  |
| Adaptive control (Soft AC)                        | OP  |
| Automatic restart at tool damage                  | OP  |

STD: Standard

FANUC Controller F31i-B

(Windows CE-installed Open CNC)

| Standard Specification                                                                         |
|------------------------------------------------------------------------------------------------|
| No. of controlled axes: 4 axes (X, Y, Z, B)                                                    |
| No. of simultaneously controlled axes: 4 axes                                                  |
| Least input increment: 0.001mm / 0.0001"                                                       |
| Max.programmable dimension: ±999999.999mm / ±39370.0787"                                       |
| Absolute / Incremental command: G90 / G91                                                      |
| Decimal point input / Pocket calculator type decimal point input                               |
| Inch / Metric conversion: G20 / G21                                                            |
| Program code: ISO / EIA automatic discriminaton                                                |
| Program format: FANUC standard format                                                          |
| Nano interpolation (internal)                                                                  |
| Positioning: G00                                                                               |
| Linear interpolation: G01                                                                      |
| Circular interpolation: G02 / G03 (CW / CCW), including radius designation                     |
| Cutting feed rate: 6.3-digit F-code, direct command                                            |
| Dwell: G04                                                                                     |
| Manual handle feed: manual pulse generator 1 set(0.001, 0.01, 0.1mm)                           |
| Rapid traverse override: 0 / 1 / 10 / 25 / 50 / 100%                                           |
| Cutting feed rate override: 0 to 200% (every 10%)                                              |
| Feed rate override cancel: M49 / M48                                                           |
| Rigid tapping: G84, G74 (Mode designation: M29)                                                |
| Part program storage capacity: 160m [64KB]                                                     |
| No. of registered programs: 120                                                                |
| Part program editing                                                                           |
| Background editing                                                                             |
| Extended part program editing                                                                  |
| 15" color LCD/QWERTY key MDI                                                                   |
| Clock function                                                                                 |
| MDI (Manual Data Input) operation                                                              |
| Memory card interface                                                                          |
| Spindle function: 5-digit S-code direct command                                                |
| Spindle speed override: 50 to 150% (every 5%)                                                  |
| Tool function: 4-digit T-code direct command                                                   |
| ATC tool registration                                                                          |
| Auxiliary function: 3-digit M-code programming                                                 |
| Multiple M-codes in 1 block: 2 codes (HM400/HM500S/HM5000/HM6300S: 3 codes (Max. 20 settings)) |
| Tool length offset: G43, G44/G49                                                               |
| Tool diameter and cutting edge R compensation: G41, G42/G40                                    |
| Tool offset sets: 99 sets in total                                                             |
| Tool offset memory C                                                                           |
| Manual reference position return                                                               |
| Automatic reference position return: G28/G29                                                   |
| 2nd reference position return: G30                                                             |
| Reference position return check: G27                                                           |
| Automatic coordinate system setting                                                            |
| Coordinate system setting: G92                                                                 |
| Machine coordinate system: G53                                                                 |
| Workpiece coordinate system: G54 to G59                                                        |
| Local coordinate system: G52                                                                   |
| Program stop: M00                                                                              |
| Optional stop: M01                                                                             |
| Optional block skip: /                                                                         |
| Dry run                                                                                        |
| Machine lock                                                                                   |
| Z-axis feed cancel                                                                             |
| Auxiliary function lock                                                                        |
| Graphic display                                                                                |
| Program number search                                                                          |

| Standard Specification                                         |
|----------------------------------------------------------------|
| Sequence number search                                         |
| Program restart                                                |
| Cycle start                                                    |
| Auto restart                                                   |
| Single block                                                   |
| Feed hold                                                      |
| Manual absolute on/off: parameter                              |
| Sub program control                                            |
| Canned cycle: G73, G74, G76, G80 to G89                        |
| Mirror image function: parameter                               |
| Automatic corner override                                      |
| Exact stop check/mode                                          |
| Programmable data input: G10                                   |
| Backlash compensation for each rapid traverse and cutting feed |
| Smooth backlash compensation                                   |
| Memory pitch error compensation (interpolation type)           |
| Skip function                                                  |
| Tool length manual measurement                                 |
| Emergency stop                                                 |
| Data protection key                                            |
| NC alarm display / alarm history display                       |
| Machine alarm display                                          |
| Stored stroke check 1                                          |
| Stored stroke check 2, 3                                       |
| Load monitor                                                   |
| Self-diagnosis                                                 |
| Absolute position detection                                    |
| Manual guide i (Basic)                                         |

| Optional Specification                                        |     |
|---------------------------------------------------------------|-----|
| Additional one axis control: name of axis(A, B, C, U, V, W) * |     |
| Additional two axes control: name of axis(A, B, C, U, V, W)*  |     |
| Least input increment: 0.0001mm / 0.00001"                    |     |
| FS15 tape format                                              |     |
| Unidirectional positioning: G60                               |     |
| Helical interpolation                                         | PK1 |
| Cylindrical interpolation                                     |     |
| Hypothetical axis interpolation                               |     |
| Spiral/Conical interpolation                                  |     |
| Smooth interpolation (Hyper HQ control B mode is required)    |     |
| NURBS interpolation (Hyper HQ control B mode is required)     |     |
| Involute interpolation                                        |     |
| One-digit F code feed                                         |     |
| Handle feed 3 axes (Standard pulse handle is removed)         |     |
| Part program storage capacity: 320m [128KB] (250 in total)    |     |
| Part program storage capacity: 640m [256KB] (500 in total)    |     |
| Part program storage capacity: 1280m [512KB] (1000 in total)  | PK1 |
| Part program storage capacity: 2560m [1MB] (1000 in total)    |     |
| Part program storage capacity: 5120m [2MB] (1000 in total)    |     |
| Part program storage capacity: 10240m [4MB] (1000 in total)   |     |
| Part program storage capacity: 20480m [8MB] (1000 in total)   |     |
| RS232C interface: RS232C-1CH                                  |     |
| Data server: ATA card (1GB)                                   | PK2 |
| Data server: ATA card (4GB)                                   |     |
| Spindle contour control (Cs contour control)                  |     |
| Tool position offset                                          |     |
| 3-dimensional cutter compensation                             |     |
| Tool offset sets: 200 sets in total                           | PK1 |

| Optional Specification                                                        |     |
|-------------------------------------------------------------------------------|-----|
| Tool offset sets: 400 sets in total                                           |     |
| Tool offset sets: 499 sets in total                                           |     |
| Tool offset sets: 999 sets in total                                           |     |
| Addition of workpiece coordinate system (48 sets in total): G54.1 P1 to P48   | PK1 |
| Addition of workpiece coordinate system (300 sets in total): G54.1 P1 to P300 |     |
| Machining time stamp                                                          |     |
| Addition of optional block skip: 9 in total                                   |     |
| Tool retract and return                                                       |     |
| Sequence number comparison and stop                                           |     |
| Manual handle interruption                                                    |     |
| Programmable mirror image                                                     | PK1 |
| Optional chamfering / corner R                                                |     |
| Custom macro                                                                  | PK1 |
| Interruption type custom macro                                                |     |
| Addition of custom macro common variables: 600                                |     |
| Figure copy                                                                   |     |
| Coordinate system rotation: G68, G69                                          |     |
| Scaling: G50, G51                                                             |     |
| Chopping (Axis control by PMC)                                                |     |
| Playback                                                                      |     |
| Automatic tool length measurement: G37 / G37.1                                |     |
| Tool life management: 256 sets in total                                       | PK1 |
| Addition of tool life management sets: 1024 sets in total                     |     |
| High-speed skip                                                               |     |
| Run hour and parts count display                                              | PK1 |
| Manual guide i (Milling cycle)                                                |     |

| Original OKK Software                                                 |        |
|-----------------------------------------------------------------------|--------|
| Machining support integrated software (including Help guidance, etc.) | STD    |
| Tool support                                                          | STD    |
| Program editor                                                        | STD    |
| EasyPRO                                                               | STD    |
| Work manager                                                          | OP     |
| HQ control                                                            | STD    |
| Hyper HQ control mode A                                               | OP     |
| Hyper HQ control mode B                                               | PK2 OP |
| Hyper HQ value kit (including the items with "PK2")                   | OP     |
| NC option package (including the items with "PK1")                    | OP     |
| Special canned cycle (including circular cutting)                     | OP     |
| Cycle mate F                                                          | OP     |
| Soft scale II m                                                       | STD    |
| Touch sensor T0 software                                              | OP     |
| Tool failure detection system (Soft CCM)                              | OP     |
| Adaptive control (Soft AC)                                            | OP     |
| Automatic restart at tool damage                                      | OP     |

STD: Standard



**8-10, KITA-ITAMI, ITAMI  
HYOGO 664-0831 JAPAN**

Overseas Sales Department

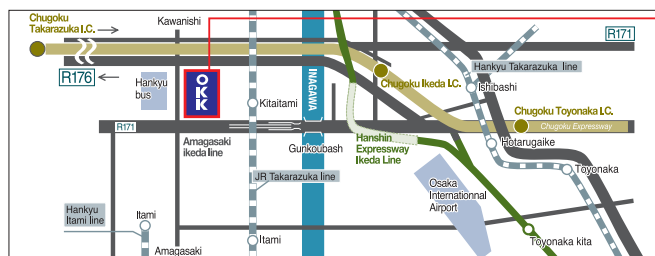
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#### Access map



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From Kansai International Airport :  
Please take a airport bus bound for  
Osaka (Itami) International Airport  
and take a taxi to OKK.



M-Plant



S-Plant



W-Plant

M-plant is for machining and assembly.

S-plant is for machining and assembly of spindles and tables.

W-plant is for final assembly of large sized machining centers.

All are located at Inagawa, Itami city, Hyogo, Japan

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#### NOTE :

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