




ISO14001 CERTIFIED MANUFACTURE

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032010-E01-2000

# H630B

HIGH PRODUCTION HORIZONTAL MACHINING CENTER



# H630B

Introducing the new H630B high production horizontal machining center. H630B incorporates state-of-the-art dual drive technology and utmost rigid structural design to satisfy high accuracy requirements in any high production environment.



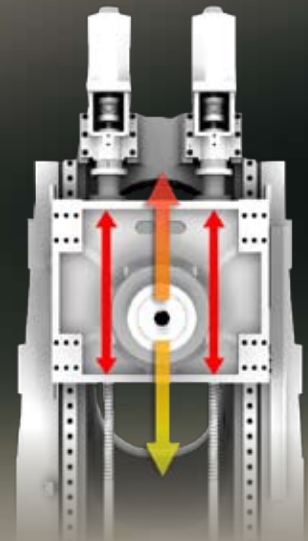




# Y-axis Dual Drive System

- Headstock is driven at the center of the gravity to minimize vibration, delivering high quality machining with high speed
- Efficiently controls vibration, and optimizes the quality of machined surfaces, accuracy, machining time and tool life
- The absolute positioning optical scale on Y-axis demonstrates superior accuracy

■ 40T (std.)



Dual Drive

Ø1,050mm (41.3")

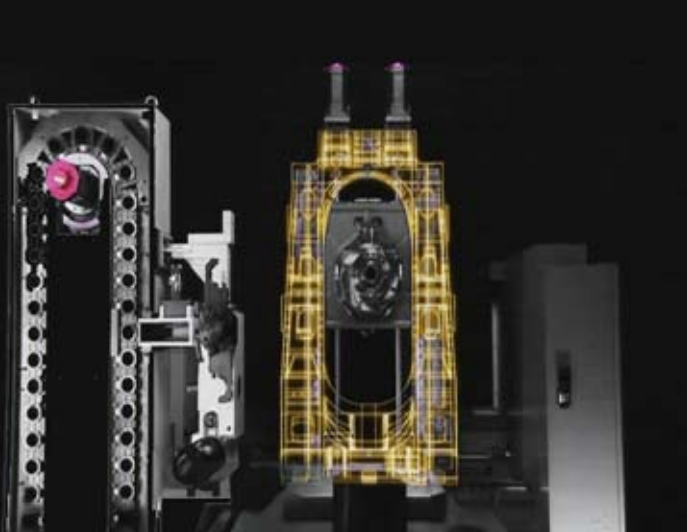
LOAD

1,200kg

1,000mm (39.4")

■ Table Size:  
630 × 630mm

■ FEM Analysis



■ Dual Wall Rigid Structure



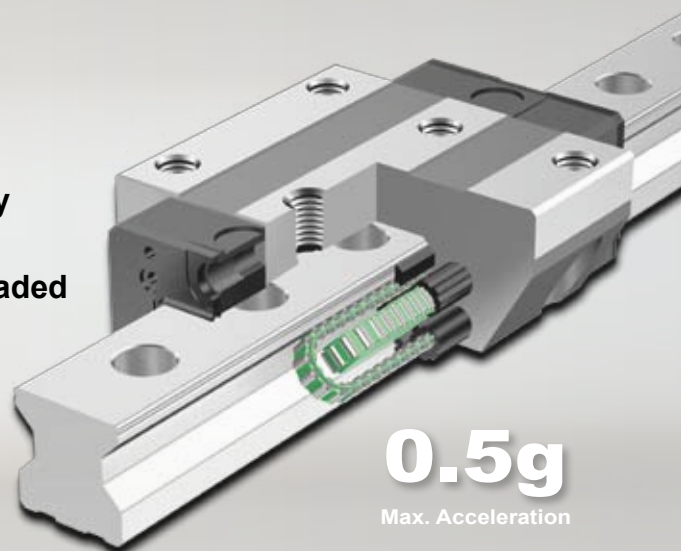
■ Circulated Oil Jacket Cooling System

## Circulated Oil Jacket Cooling System

- Circulated oil jacket cooling for 3 axes motor seats and ball screw nuts insulates machine from heat resources to reduce thermal deformation, providing high, and stable machining accuracy

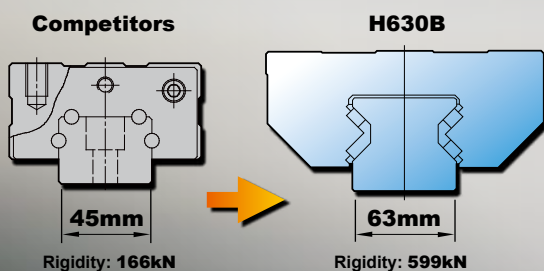
## All Roller Type Guideways

- Oversize roller type guideways with high rigidity and precision
- High dynamic AC servo direct drives with preloaded ball screws, delivering high control qualities
- 40m/min. rapid feedrate
- Max. 0.5g acceleration/deceleration



**0.5g**

Max. Acceleration



**+260%**

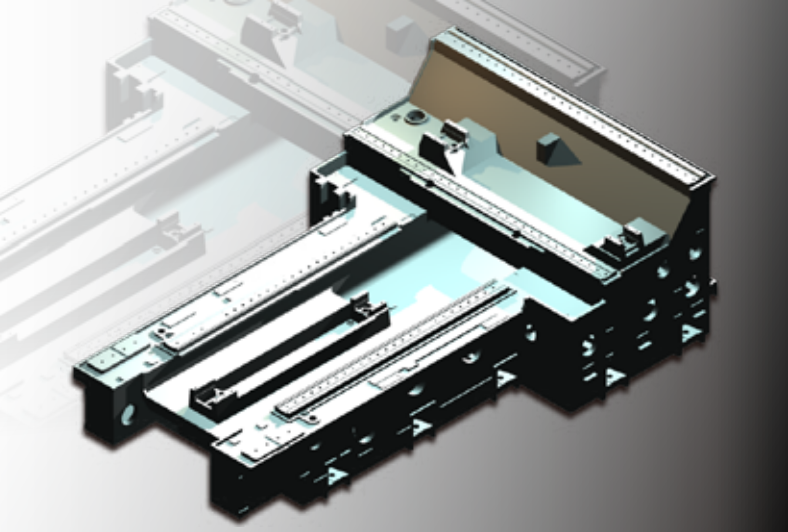
Rigidity Increased by

H630B		ACCURACY	
Standard		ISO 10791-4	JIS B 6338
Tolerances			
Axial Travel		Full Length	
Positioning A	0.010mm	±0.006mm	
Repeatability R	0.007mm	±0.0025mm	

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for the machine in good air-conditioned environments.







■ One-piece T-base Design



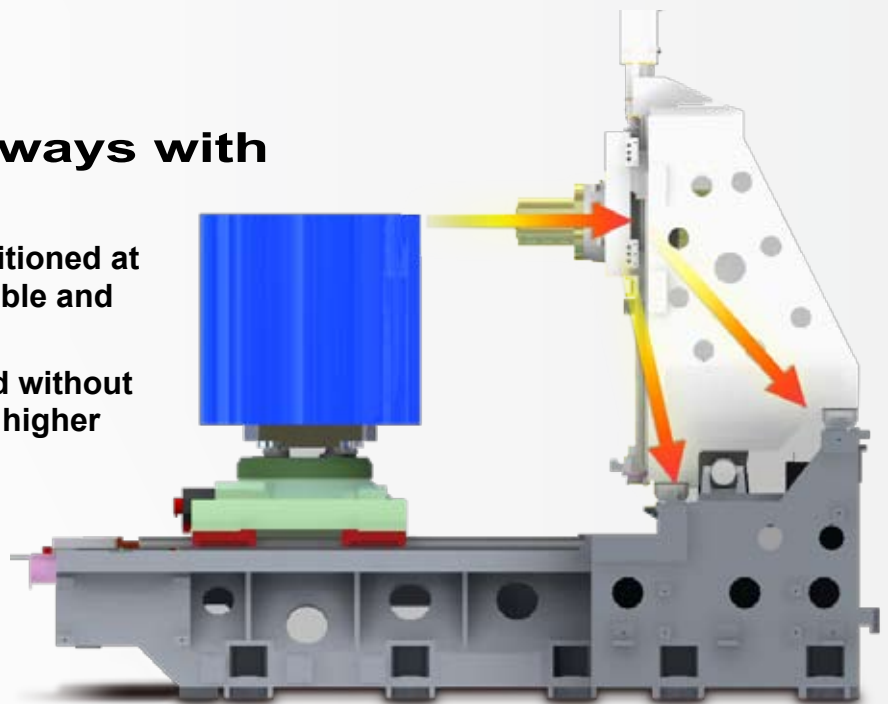
■ Step X-axis Guideways with Slant Bed Design

## One-piece T-base Design

- Rugged T-base foundation with rib construction for unprecedented rigidity
- High geometrical accuracy
- Optimum structure behavior

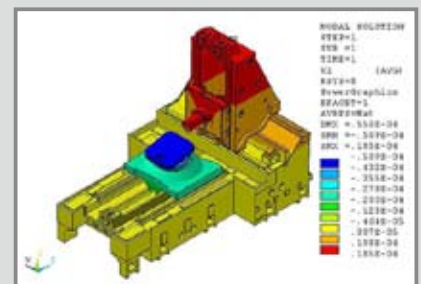
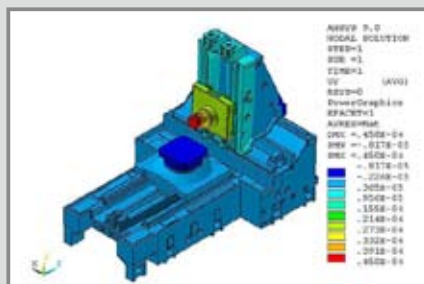
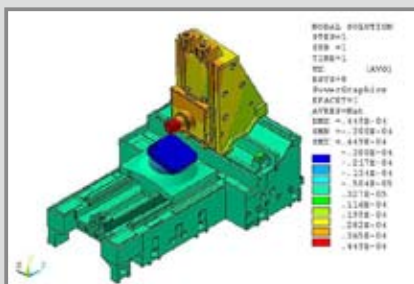
## Step X-axis Guideways with Slant Bed Design

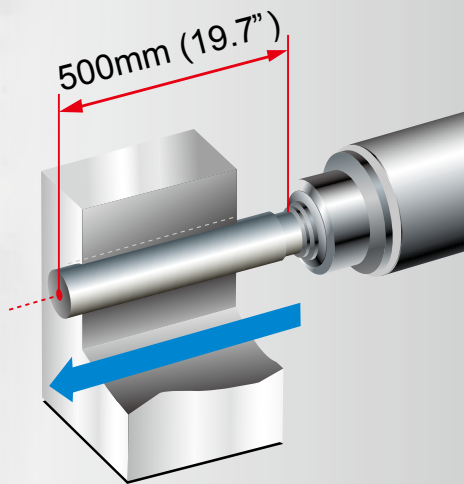
- Two X-axis guideways are positioned at different height to increase stable and reliable rapid axial movement
- Column weight can be reduced without affecting its rigidity, achieving higher acceleration performance



## FEM Analysis

- Achieves the optimum machine structure design
- Stable base supports high speed and high precision machining





■ Max. Tool Length: 500mm (19.7")

■ Tool to Tool: 3 sec.

## Reliable Tool Magazine System

- Servo motor driven reduces tool change time
- Tool to tool: 3 sec.
- Chip to chip: 6 sec.



■ 40T



■ 60T (opt.)



■ 120T (opt.)

## Cutting Test

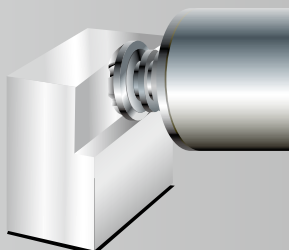
### FACE MILL

S45C Steel

Depth of Cut

**8** mm

Tool  $\phi 160\text{mm} \times 10\text{T}$   
Spindle Speed 500rpm  
Feedrate 300mm/min.  
Width of Cut 125mm  
Spindle Load 100%



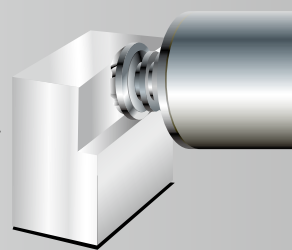
### FACE MILL

S45C Steel

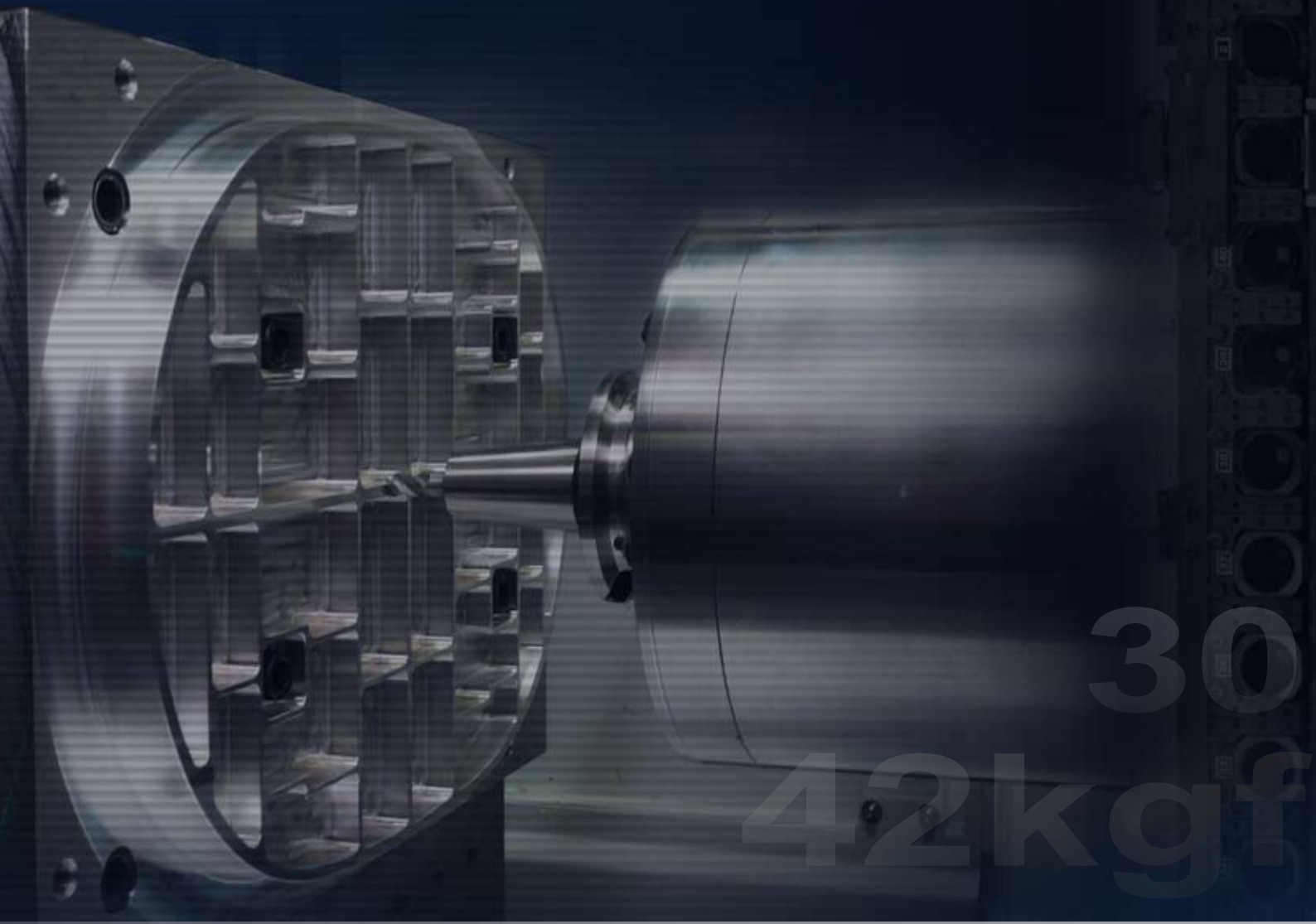
Material Removal Rate

**630** cc/min.

Tool  $\phi 160\text{mm} \times 10\text{T}$   
Spindle Speed 600rpm  
Feedrate 1,800mm/min.  
Width of Cut 125mm  
Depth of Cut 2.8mm  
Spindle Load 130%







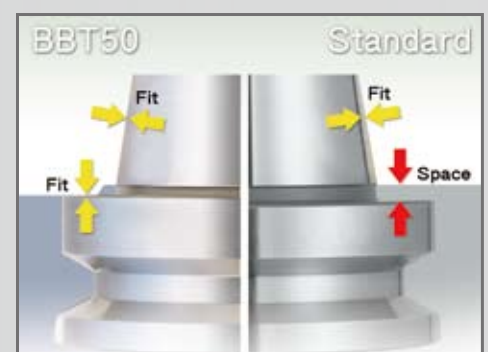
30  
42kgf

## High Performance Built-in Motorized Spindle

- Spindle is integrated with the rotor of the drive motor, reducing vibration during high-speed operation
- Built-in spindle with a max.10,000rpm and an output 30kW, delivers 42kgf-m torque
- Micro oil-air lubrication for angular ceramic ball bearings prolongs spindle life
- Circulated oil jacket cooling system effectively minimizes thermal deformation, ensuring high precision
- Easy spindle unit replacement reduces maintenance time

## BBT50 Double Contact Spindle Taper

Two restrained faces simultaneously couples the taper portion of the shank and the flange end face, improving heavy-duty cutting performance and machining accuracy





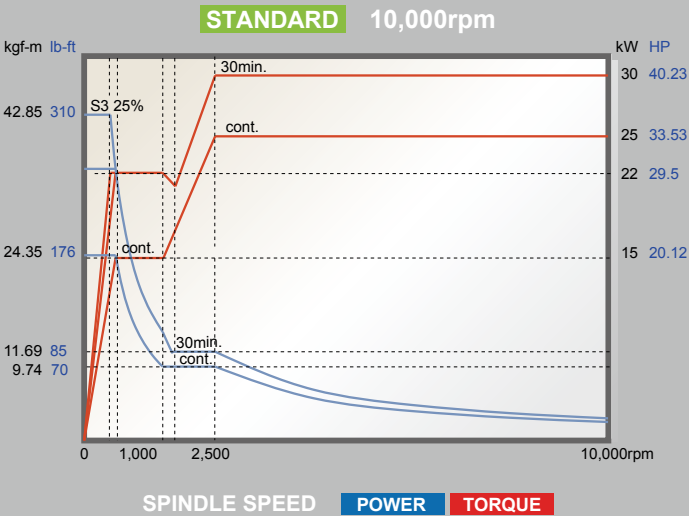
**Max. 30kW**  
**42kgf-m**

### Spindle Oil Cooler

Cool oil is circulated to counter thermal deformation 3,750kcal/h, 25L/min.

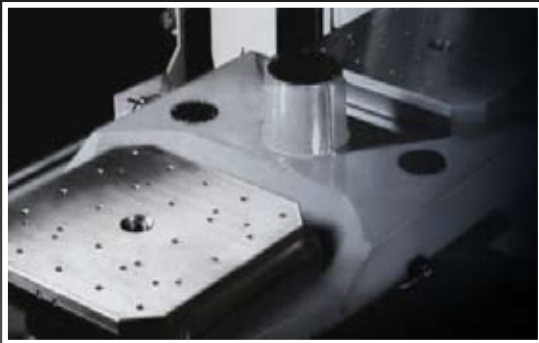


### POWER CHART



# Dependable Pallet Indexing System

- Flange contact taper cone with excellent clamping power and high pallet-positioning precision
- Air jet is discharged to prevent chip contamination

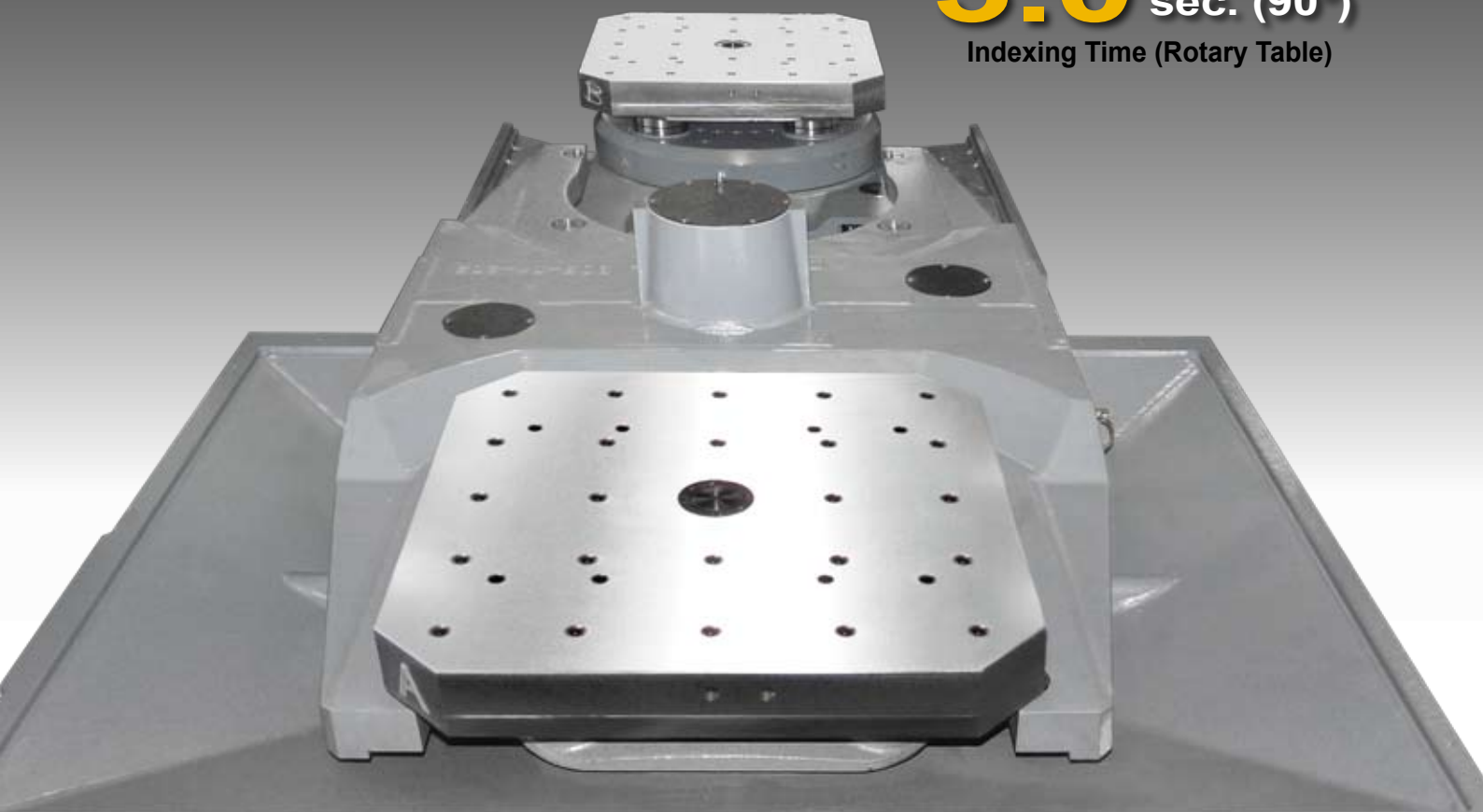


	Min. Table Indexing Angle	Table Indexing Time*
Index Table	1°	5.5 sec. (90°)
Rotary Table	0.001°	3.0 sec. (90°)

\*Including clamping and unclamping time.

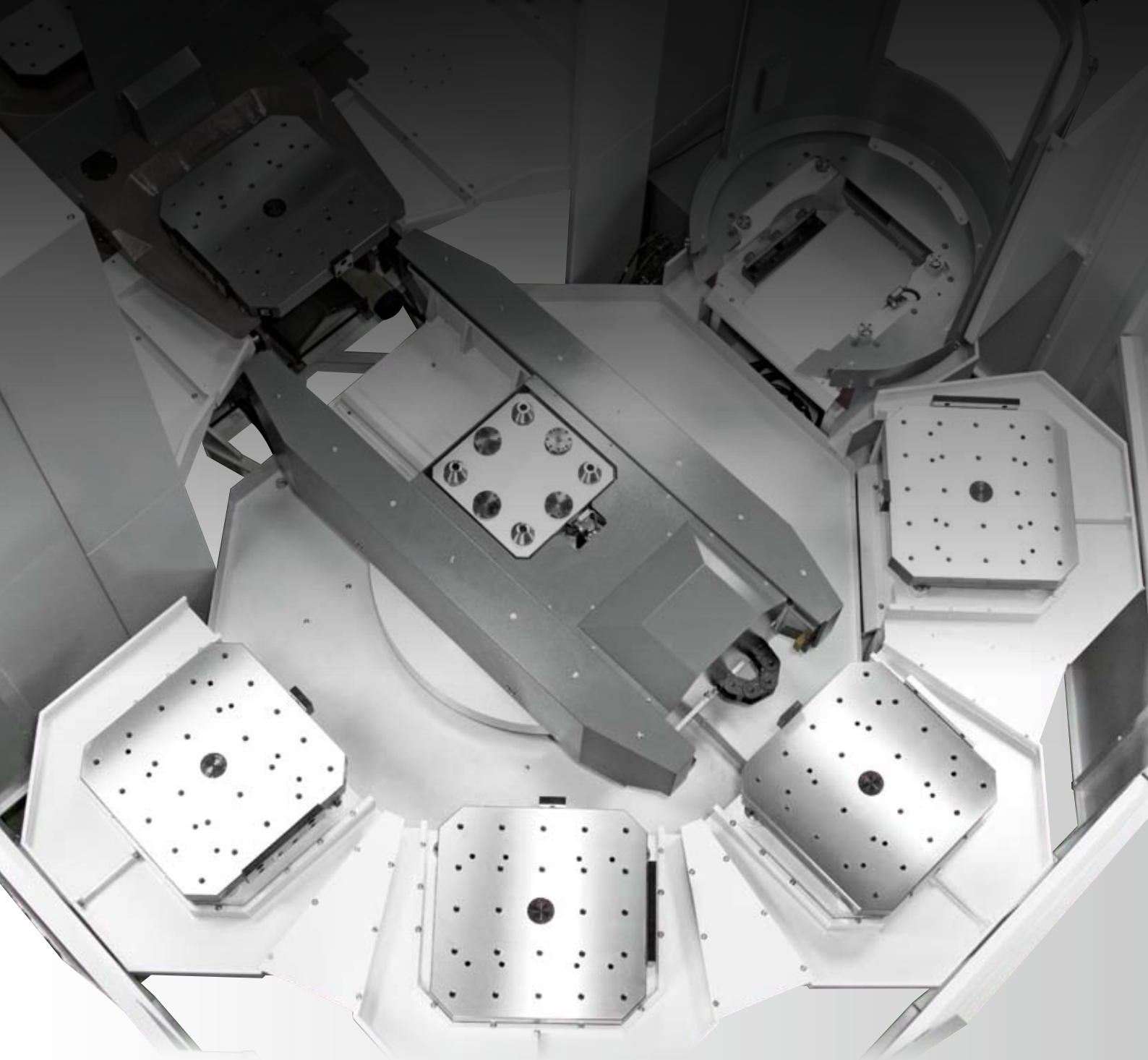
- High efficiency 2-station turn-type APC system
- Pallet change time: 12 sec.

**3.0** sec. (90°)  
Indexing Time (Rotary Table)





## High Efficiency Six Pallets System for Flexible Production Needs (opt.)



### Simple Pallet Scheduling



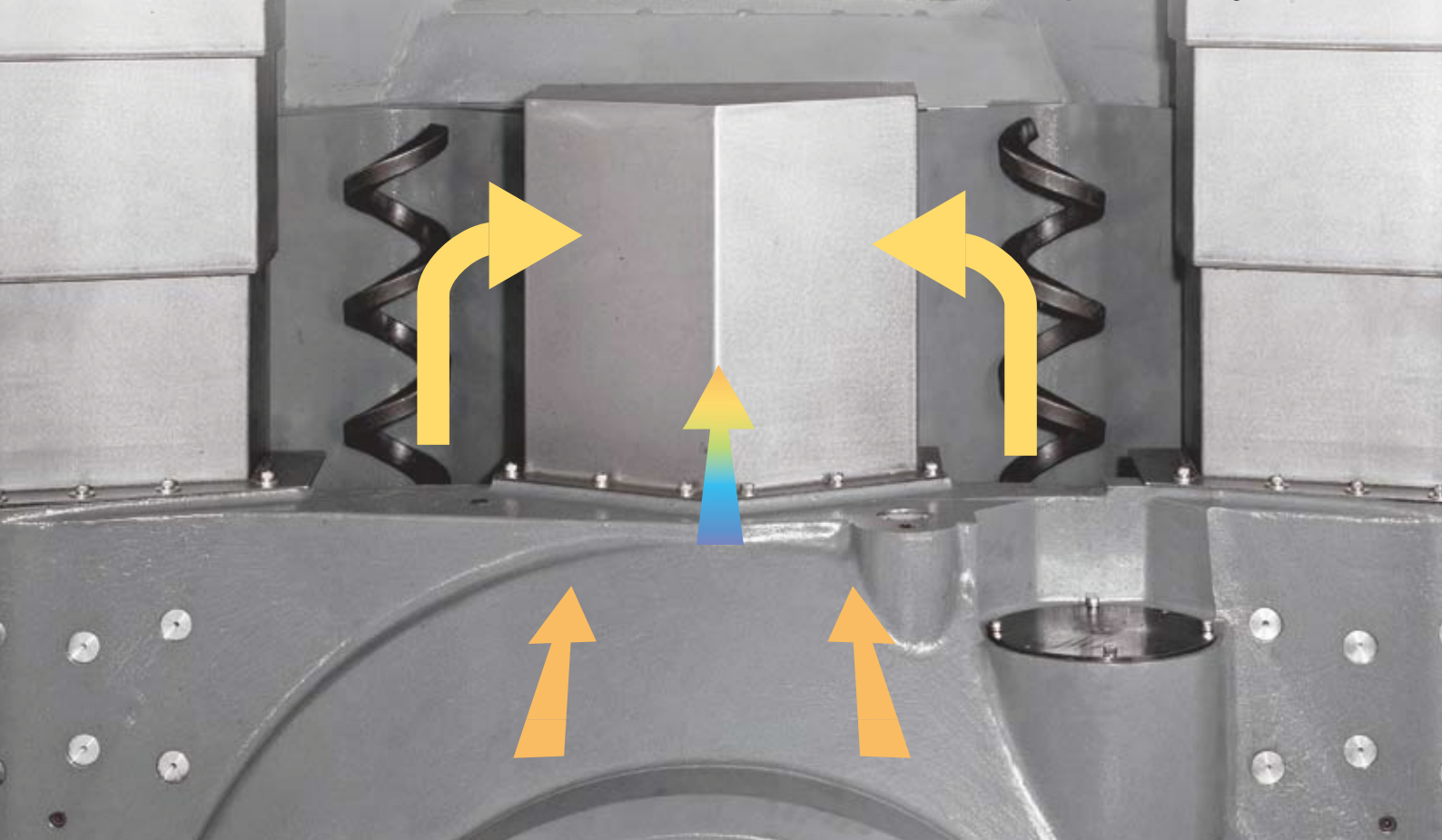
- YCM innovative software greatly enhances pallet change and scheduling efficiency
- Simple, user-friendly scheduling system
- Reduces non-cutting time, boosting high productivity

## Central Chip Disposal System

- The chips drop directly down to the center conveyors from the machining point
- Dual chip augers are utilized for efficient chips removal
- Heavy duty coolant pump



■ Efficient chip removal system



■ 8-Nozzle Coolant Supply Device



■ Coolant Shower System



## User-friendly and Easy Maintenance Design

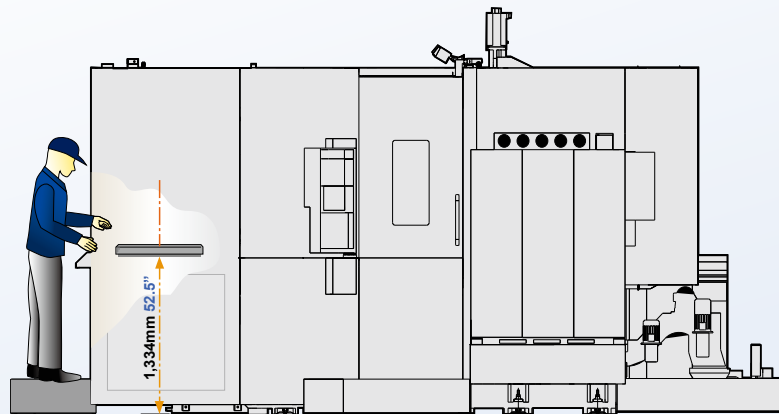


■ Convenient Swivel Control Panel



■ Excellent Tool Change Accessibility

■ Easy Setup

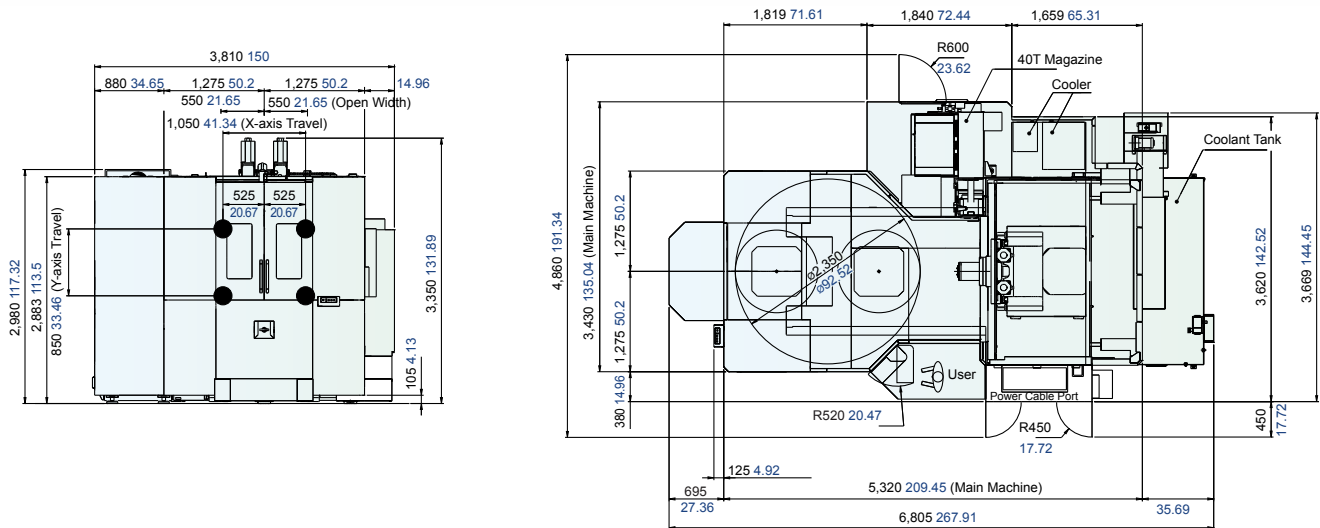


- Air pressure and lubricant units that require daily checking are centrally arranged for easy confirmation and maintenance

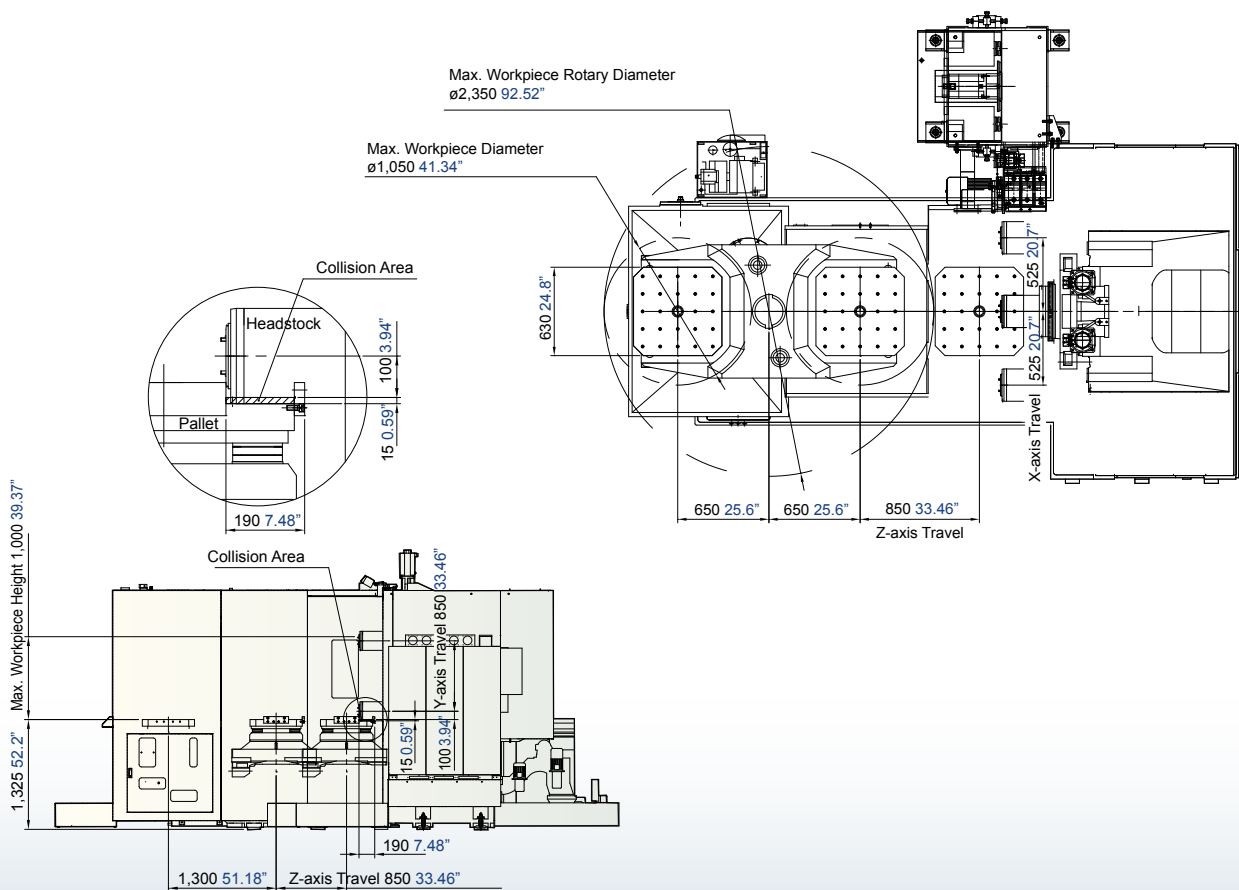




## DIMENSIONS



## DRAWING OF INTERFERENCE



# SPECIFICATIONS

	<b>H630B</b>
<b>SPINDLE</b>	
Spindle Speed	35~10,000rpm
Spindle Power (cont./30min.)	25/30kW (30/40HP)
Spindle Taper	BBT50
<b>TRAVEL</b>	
X-axis Travel	1,050mm (41.3")
Y-axis Travel	850mm (33.5")
Z-axis Travel	850mm (33.5")
Distance Between Spindle Center and Table Top	100~950mm (3.9~37.4")
Distance Between Spindle Nose and Table Center	150~1,000mm (5.9~39.3")
<b>TABLE</b>	
Table Size	630 x 630mm (24.8 x 24.8" )
Max. Load on Table	1,200kg (2,646lb)
Max. Work Dimensions	ø1,050 x 1,000mm (ø41.3 x 39.3")
The Height from Table Top to Floor	1,300mm (51.2")
Table Indexing Angle	1° (0.001°)
APC Time	12sec.
<b>FEEDRATE</b>	
Rapid Feedrate (X/Y/Z)	40/40/40m/min. (1,575/1,575/1,575ipm)
Cutting Feedrate	1~20,000m/min.
<b>ATC</b>	
Tool Magazine Capacity	40T (60/120T)
Max. Tool Weight	25kg (55lb)
Max. Tool Dimensions	ø125 x 500mm (ø4.9 x 19.7")
<b>GENERAL</b>	
Pneumatic Supplier	5kg/cm <sup>2</sup> (71.1psi)
Power Consumption	80kVA
Machine Weight	22,500kg (49,604lb)

Note: The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. All the specifications shown above are just for reference.

## ACCESSORIES

■ : Standard    ■ : Option

- Work Lamp
- Pilot Lamp
- Tool Kit
- Cutting Air Blast
- Spindle Air Blast
- Spindle Air Seal
- Spindle Cooling System
- Guideway Cover (X,Y,Z)
- Central Lubrication System
- Hydraulic System
- Tool Magazine (40T)
- Rotary Table (1°Index)
- 2 Pallets
- Hinge Type Chip Conveyor
- Screw Type Chip Augers (On Both Sides of Z-axis)
- Coolant Equipment System
- Coolant Gun
- Heavy Duty Coolant Pump

- Oil Skimmer
- Full Chip Enclosure
- Leveling Blocks and Foundation Bolts
- Heat Exchanger for Electrical Cabinet
- Mechanical, Electrical & Operating Manuals
- Optical Scale
- Oil-mist Coolant System
- Oil Hole Holder Function
- Auxiliary Table
- B-axis
- Coolant Through Spindle System
- A/C. Cooler for Electrical Cabinet
- A.F.C. Adaptive Feedrate Control
- Workpiece Measurement System
- AutoTool Length Measurement
- 6 Pallets
- Tool Magazine (60/120T)



■ Oil-mist Coolant System (opt.)

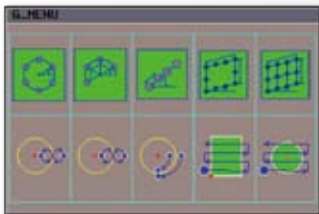


■ Auto Tool Length Measurement (opt.)

# MXP-200 FB / FC YCM CONTROL

by **FANUC**

- High performance AC digital servo & spindle drives
- High resolution 10.4" color LCD monitor with dynamic graphic display
- Manual guide i conversational function greatly reduces programming and setup time
- Built-in AICC II and high speed JERK function
- Auto switching on/off high speed high accuracy machining control function
- High speed rigid tapping, helical interpolation, custom macro B, and tool path graphics
- Combined uses of many high performance microprocessors, high speed memory and the adoption of Multi-CPU system for super high speed control processing
- Large program capacity with 1,280 meters of memory
- Program management by program folders and file names
- Power failure module
- Full alphanumeric keyboard allows easy program editing
- PCMCIA slot for easy file transfer and memory expansion
- Dynamic display language switching function
- RS-232C interface ready for fast program transfer
- Powerful servo motors with super precision absolute positioning encoders (opt.)
- Editing and operation of a memory card and data server (opt.)
- FANUC program transfer tool (opt.)
- Tool management functions (opt.)
- Servo guide mate (opt.)
- Learning control for parts cutting and rigid tapping (opt.)



## ■ G-menu Function

User-friendly G-menu function provides multiple machining cycles that greatly simplifies programming steps



## ■ Calculator Function

Convenient calculator function provides fast calculation and setting of workpiece offsets



## ■ Easy Shop-floor Programming Manual Guide i

Easy to use conversational software offers convenience of part programming right on the shop-floor with 3D graphical display and full simulation function



## ■ Counter Function

Allows user to easily keep track on number of workpieces with:

- Main Counter
- Periodical Counter
- Daily Counter
- Over Cycle Alarm



## ■ Intelligent Tool Data Management

Comprehensive tool data management function allows operators to conveniently monitor and efficiently manages all position in tool magazine



## ■ High Performance Machining Mode: M300

High performance mode with 5 settings that allows user to select for the best machining results



## ■ Pop-up Alarm Display

Detailed troubleshooting procedures are automatically displayed when machine alarm occurs that allows users to quickly restore machine status to minimize downtime



## ■ Intelligent Maintenance Reminder

Pre-set maintenance schedules are programmed to remind operators to inspect periodically and to prolong machine life



## ■ Automatic Tool Length Measurement

Pre-set macros and graphical procedure are provided for operation of automatic tool length measurement function



## ■ Manual Tool Length Measurement

Easy setup of tool length measurement provides convenient setting of tool offsets data from one tool to the other



# i OPERATION *Plus*

Software enhancement exclusively from YCM

## Multi-function Display

Easily select multiple windows from the following list of display for your monitoring needs.

- G-code Status    ■ Feedrate    ■ Parts Count    ■ Controller Running Hours
- M-code Status    ■ Tool Data    ■ Machining Hours    ■ Spindle Load
- Spindle Status    ■ Work Coordination    ■ Date and Time    ■ Function Display

## High Speed Machining Mode: M400

Artificially intelligent machining function that is developed from accumulation of all YCM knowledge and experience on high speed to achieve the fastest cycle time with best machining results. Machining efficiency improved by 25% without sacrificing machining accuracy.

# +25%

Efficiency increased by

## Wireless Message Notification (opt.)

Integrating GSM communication and CNC technology, YCM developed the WMN system for wireless notification of machine and work status report.



# i-Direct

A remote monitoring system

i-Direct, the latest YCM software enhancement innovation is designed for remote monitoring of factory production line. Its powerful features include reporting back complete machine operation status, record, history and data analysis. As soon as the system gets an alarm signal, instant messages will be sent thru e-mail or SMS (can input 3 sets of cell phone numbers).



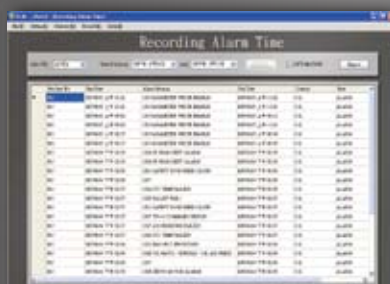
User account administration



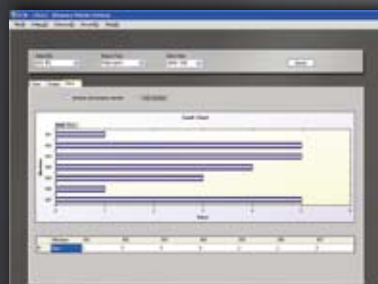
Overall machines status display



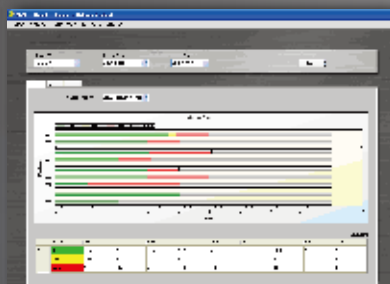
Machine model, number, e-mail, SMS and IP setup



Complete production, standby and down time record



Statistics of part quantity



Production data graphical analysis

