



Agent



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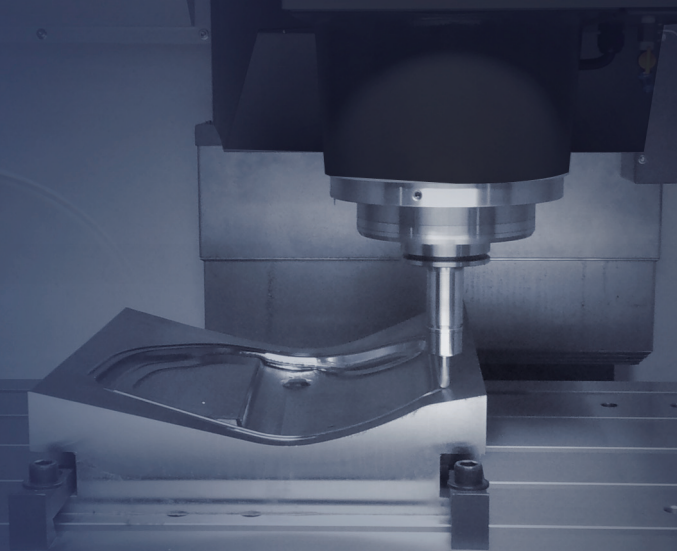
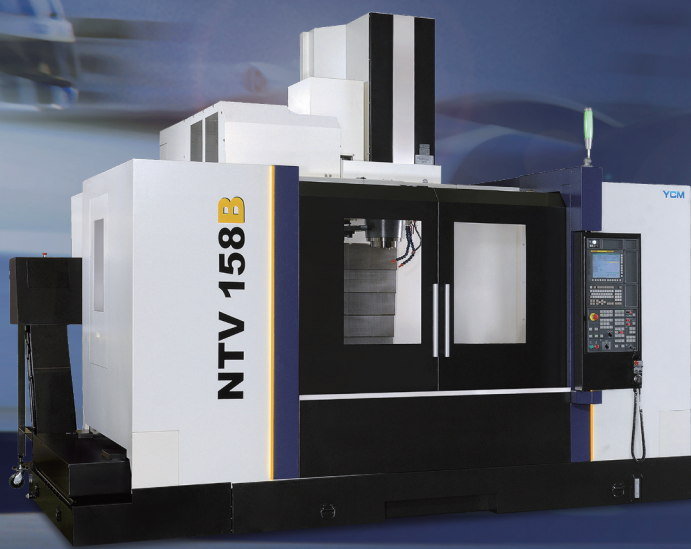
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201507-E04-2000

# NTV Series

High Efficiency T-base Vertical Machining Center



# NTV 158A

**NTV158A offers a high rapid feedrate with large Y-axis which provides mold maker and job shop an excellent machine selection.**

## Unique One-piece T-base Structure Design

- With the unique T-base structure, the machine footprint can be reduced effectively.
- Overhang-free table movement is supported by high-rigidity base to ensure the best dynamic accuracy.
- Dual screw-type chip augers efficiently elevate chip removal rate.

## YCM In-house IDD Spindle

- Equipped with YCM in-house IDD spindle, the standard speed can reach up to 10,000rpm.
- YCM's uniquely designed IDD Spindle ensures direct transmission and is proven to maximize both spindle and tool life under harsh working environments.
- The cooling system for spindle motor seat and spindle makes real time control of spindle temperature. (opt.)
- 12,000 & 15,000rpm spindle with oil-air lubrication system ensures the spindle to work for high-speed and long period of time. (opt.)

## High Speed Axial Movement

- All axes are equipped with roller type linear guideways to ensure higher dynamic accuracy, durability and rigidity.
- Preload high precision ball screws are directly driven by servo motor will efficiently eliminate axial backlash and vibrations.
- X-axis with 6 guideway blocks fully supports the saddle and efficiently releases loading from the table.
- No more counter weight design on Z-axis reduces friction and ensures fine surface roughness.

## Efficiency-friendly Design

- The casting rigidity is enhanced through FEM analysis.
- Roller type guideways provides low friction which reduces energy waste.
- 10,000rpm IDD spindle lubricated by grease without gearbox and oil cooler to avoids wasting oil.

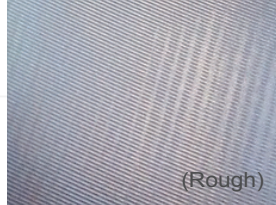
- Unique One-piece T-base Structure Design



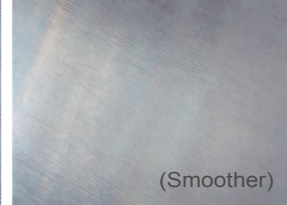
## Without Counter-weight Design

- High response axial control provides smooth movement.
- Low inertia avoids vibration during high speed feedrate.

With Counter-weight



Without Counter-weight



■ MEEHANITE® casting.

# NTV 158B

NTV158B is specially developed for die & mold industry. The Z-axis dual drive system and roller type guideways on all axes ensure perfect rapid feedrate which is suitable for various heavy cutting applications.

## Superb Body Structure

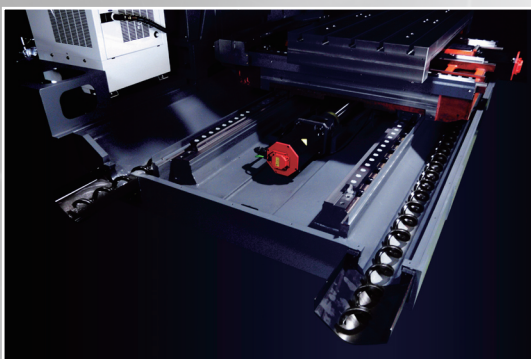
- With the unique T-base structure, the machine footprint can be reduced.
- The overhang-free table is supported by high rigidity base to ensure the best dynamic accuracy.
- Dual drive system on Z-axis elevates exceptional axial smoothness and machining efficiency.
- Dual chip augers greatly increase chip removal efficiency.

## YCM In-house IDD Spindle Design

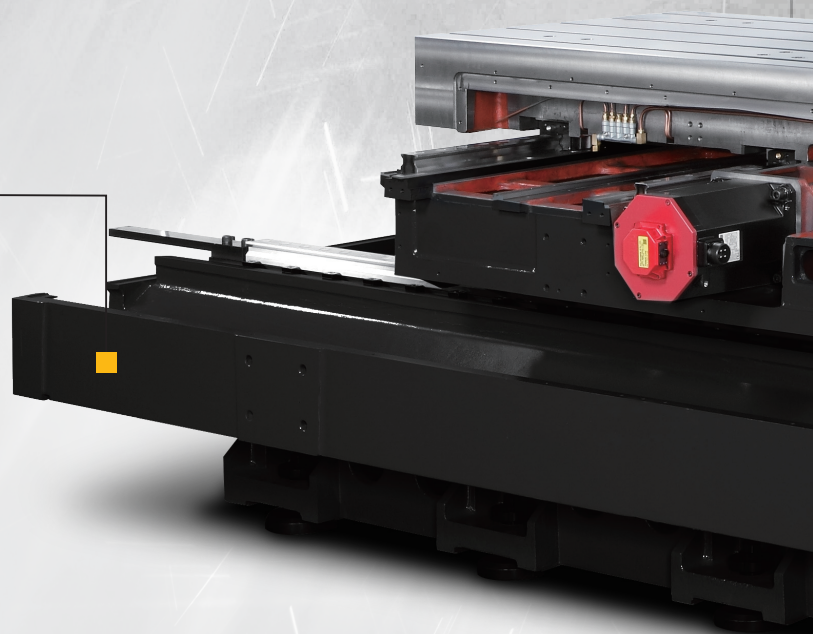
- The standard speed can be reached up to 10,000rpm.
- Reduces noise, backlash and vibration problems and maximizes spindle accuracy and life.
- The cooling system for spindle motor seat and spindle makes real time spindle temperature control. (opt.)
- 15,000rpm spindle provide more flexible applications. (opt.)

## High Reliability Axial Movement

- All axes are equipped with roller type linear guideways to ensure higher dynamic accuracy, durability and rigidity.
- X-axis with 6 guideway blocks fully supports the saddle and efficiently release loading from the table.
- Y-axis is designed with 3 guideways maintaining exceptional dynamic accuracy.
- Without counter-weight design on Z-axis provides friction and ensures fine surface roughness.



- Dual chip augers greatly increase chip removal efficiency.



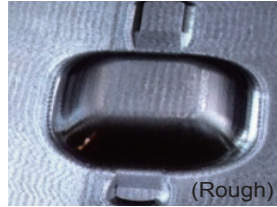


## Without Counter-weight Design

- High response axial control provides smooth movement.
- Low inertia avoids vibration during high speed feedrate.

With Counter-weight

Without Counter-weight



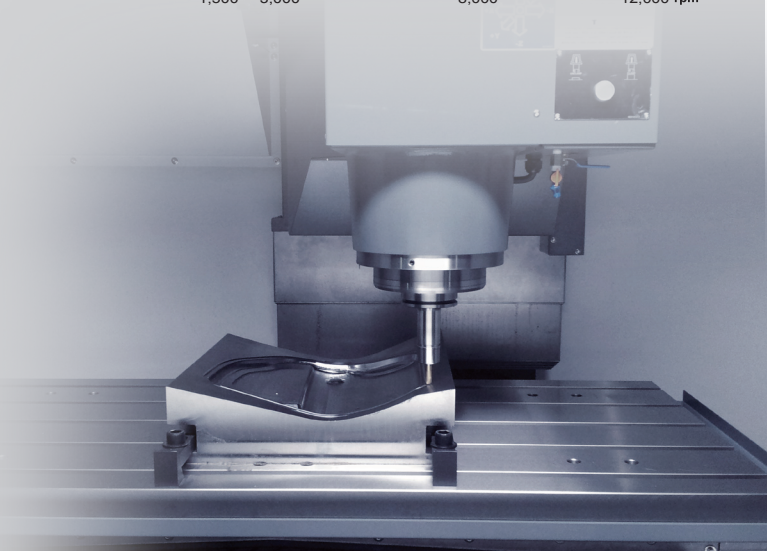
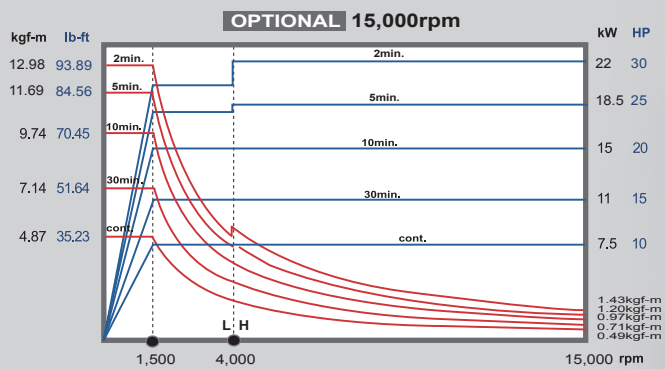
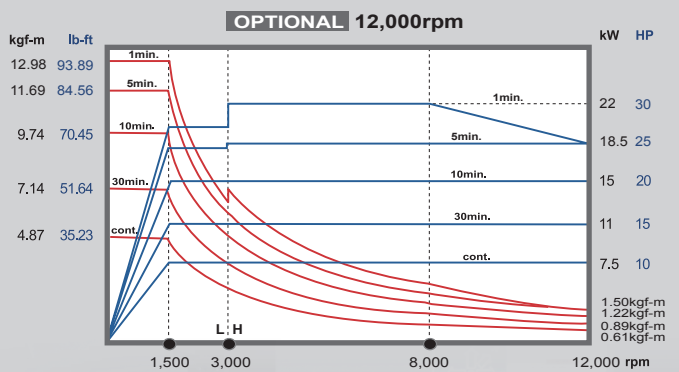
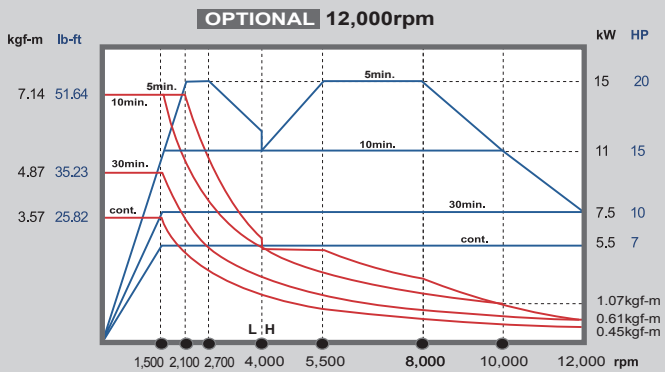
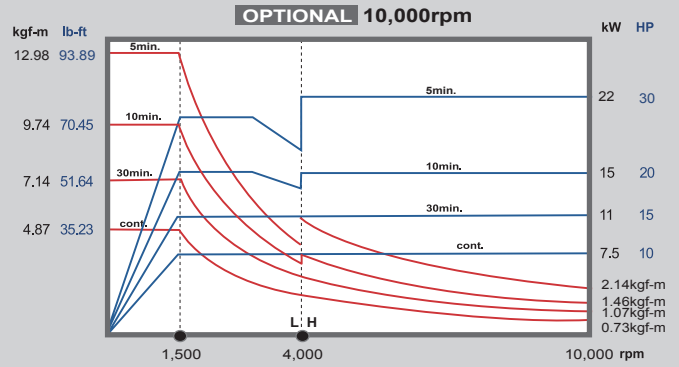
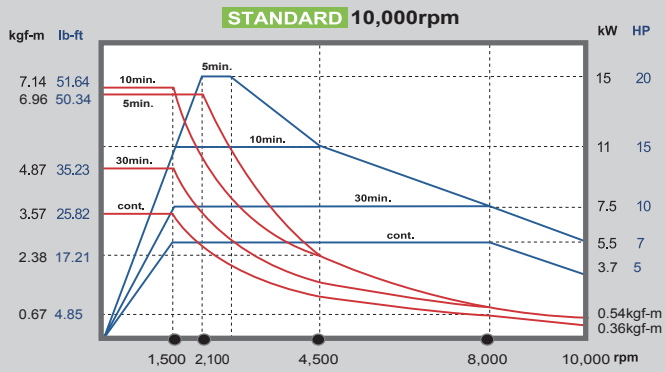
- No counter-weight machine gets smoother surface under the same cutting conditions.

## Z-axis Dual Driven

- Increases the feedrate and acceleration/deceleration.
- High response axial control provide smooth movement.
- Low inertia avoids vibration during high speed feedrate.

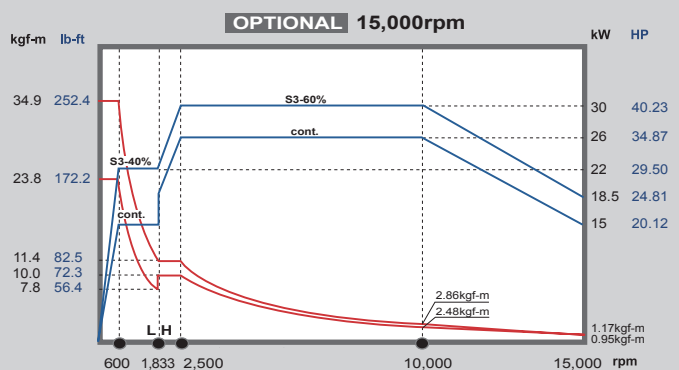
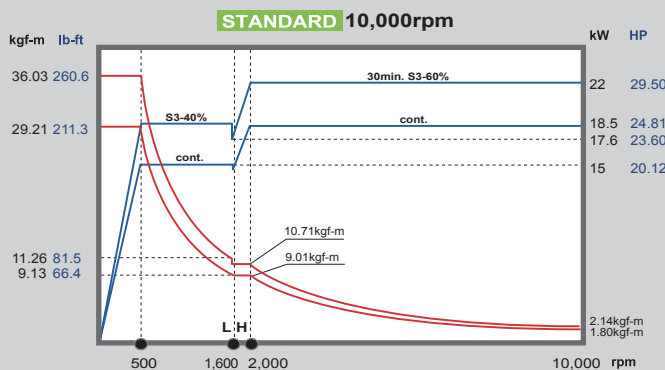
# NTV158A Power Chart

POWER TORQUE



# NTV158B Power Chart

POWER TORQUE



# Cutting Capacity

**NTV158A** **BBT40** 12,000 rpm

**FACE MILL** **S45C Steel**

Depth of Cut  
**4**  
mm



Tool  $\phi 63$  mm x 6T  
Spindle Speed 760 rpm  
Feedrate 456 mm/min.  
Width of Cut 60 mm

**FACE MILL** **S45C Steel**

Material Removal Rate  
**522**  
cc/min.



Tool  $\phi 63$  mm x 6T  
Spindle Speed 2,100 rpm  
Feedrate 3,780 mm/min.  
Width of Cut 60 mm  
Depth of Cut 2.3 mm

**U-DRILL** **S45C Steel**

Cutter Diameter  
 **$\phi 34$**   
mm



Tool  $\phi 34$  mm x 1T  
Spindle Speed 1,500 rpm  
Feedrate 225 mm/min.  
Depth of Cut 10 mm

**TAP** **S45C Steel**

Tapping  
**M24**



Tool M24 x 3P  
Spindle Speed 60 rpm  
Feedrate 180 mm/min.  
Depth of Cut 25 mm

**RIGID TAP** **A6061 Aluminum**

Tapping  
**#0-80UNF**  
equals to M1.6



Tool #0-80UNF  
Spindle Speed 1,200 rpm  
Feedrate 381 mm/min.  
Depth of Cut 4 mm

**NTV158B** **BBT50** 10,000 rpm

**FACE MILL** **S45C Steel**

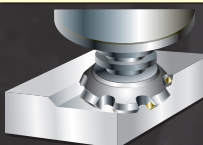
Depth of Cut  
**9**  
mm



Tool  $\phi 160$  mm x 10T  
Spindle Speed 500 rpm  
Feedrate 360 mm/min.  
Width of Cut 125 mm

**FACE MILL** **S45C Steel**

Material Removal Rate  
**693**  
cc/min.



Tool  $\phi 160$  mm x 10T  
Spindle Speed 550 rpm  
Feedrate 1,232 mm/min.  
Width of Cut 125 mm  
Depth of Cut 4.5 mm

**U-DRILL** **S45C Steel**

Cutter Diameter  
 **$\phi 49$**   
mm



Tool  $\phi 49$  mm x 1T  
Spindle Speed 715 rpm  
Feedrate 172 mm/min.  
Depth of Cut 20 mm

**NTV158B** **HSK A100** 15,000 rpm

**FACE MILL** **S45C Steel**

Depth of Cut  
**4**  
mm



Tool  $\phi 125$  mm x 8T  
Spindle Speed 382 rpm  
Feedrate 305 mm/min.  
Width of Cut 120 mm

**FACE MILL** **S45C Steel**

Material Removal Rate  
**720**  
cc/min.



Tool  $\phi 125$  mm x 8T  
Spindle Speed 600 rpm  
Feedrate 2,400 mm/min.  
Width of Cut 120 mm  
Depth of Cut 2.5 mm

**U-DRILL** **S45C Steel**

Cutter Diameter  
 **$\phi 44$**   
mm



Tool  $\phi 44$  mm x 1T  
Spindle Speed 600 rpm  
Feedrate 150 mm/min.  
Depth of Cut 24 mm

**TAP** **S45C Steel**

Tapping  
**M33**



Tool M33 x 3P  
Spindle Speed 48 rpm  
Feedrate 144 mm/min.  
Depth of Cut 33 mm

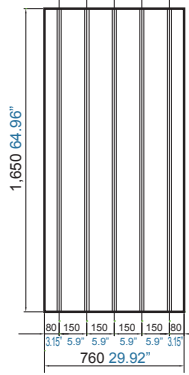


# DIMENSIONS

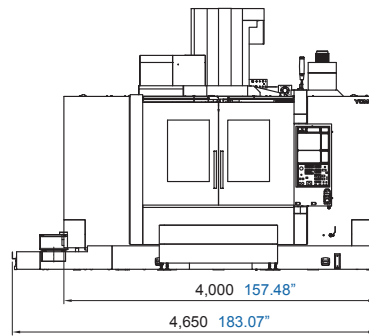
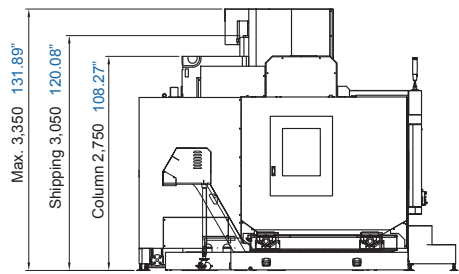
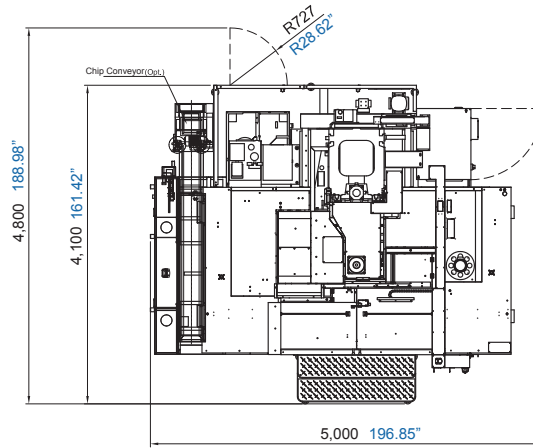
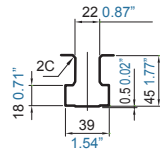
## NTV158A

Unit : mm inch

Table Size



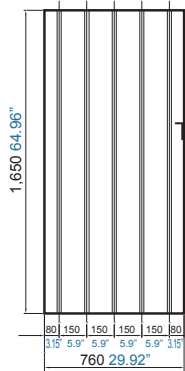
T-slots



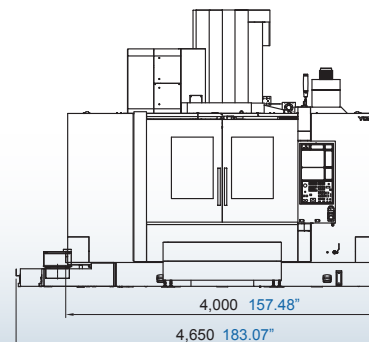
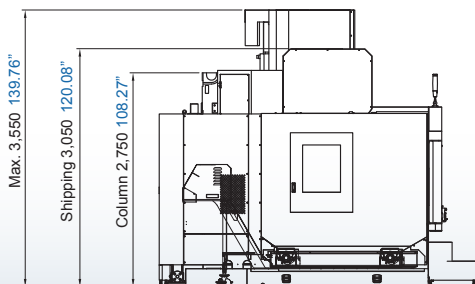
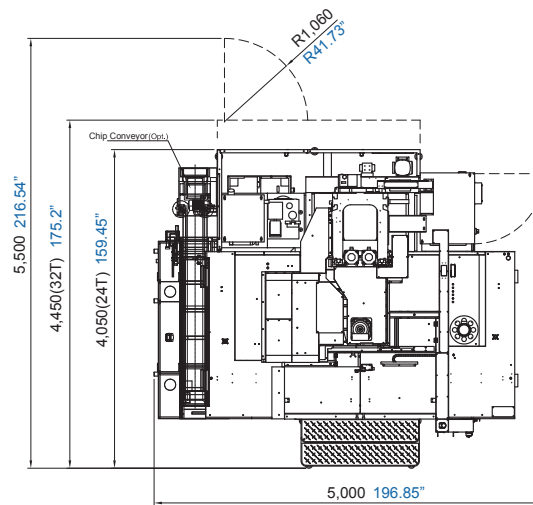
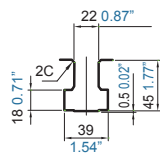
## NTV158B

Unit : mm inch

Table Size



T-slots



## SPECIFICATIONS

	NTV158A	NTV158B
<b>SPINDLE</b>		
Spindle Speed (opt.)	10,000 rpm (12,000 / 15,000 rpm)	10,000 rpm (15,000 rpm)
Spindle Power (opt.)	15 kW (22 kW) 20 HP (30 HP)	22 kW (30 kW) 30 HP (40 HP)
Spindle Taper (opt.)	BBT40	BBT50 (HSK A100 for 15,000 rpm)
<b>TRAVEL</b>		
X-axis Travel	1,530 mm 60.2"	1,530 mm 60.2"
Y-axis Travel	762 mm 30"	762 mm 30"
Z-axis Travel	700 mm 27.6"	700 mm 27.6"
Distance Between Spindle Nose & Table Top	150~850 mm 5.91"~33.46"	200~900 mm 7.87"~35.43"
<b>TABLE</b>		
Table Size	1,650 x 760 mm 64.96" x 29.9"	1,650 x 760 mm 64.96" x 29.9"
No. T-slots x Size x Pitch	5 x 22 mm x 150 mm 5 x 0.87" x 5.91"	5 x 22 mm x 150 mm 5 x 0.87" x 5.91"
Max. Load on Table	2,000 kg 4,409 lb	2,000 kg 4,409 lb
<b>FEEDRATE</b>		
Rapid Feedrate	30 / 30 / 24 m/min. 1,181/1,181/945 ipm	30 / 30 / 24 m/min. 1,181/1,181/945 ipm
Cutting Feedrate	1~10,000 mm/min. 0.04~393.7 ipm	1~10,000 mm/min. 0.04~393.7 ipm
<b>ATC</b>		
Tool Magazine Capacity (opt.)	24T (30 / 48T)	24T (32 / 40T)
Max. Tool Weight (per piece)	6 kg 13.2 lb	20 kg 44 lb
Max. Tool Dimensions	24T : $\varnothing 90 \times 300$ mm $\varnothing 3.54" \times 11.81"$ 30 / 48T : $\varnothing 76 \times 300$ mm $\varnothing 2.99" \times 11.81"$	24T : $\varnothing 110 \times 350$ mm $\varnothing 4.33" \times 13.78"$ 32 / 40T : $\varnothing 120 \times 350$ mm $\varnothing 4.72" \times 13.78"$
Max. Tool Dimensions (W/O Adjacent Tools)	24T : $\varnothing 140 \times 300$ mm $\varnothing 5.51" \times 11.81"$ 30 / 48T : $\varnothing 125 \times 300$ mm $\varnothing 4.92" \times 11.81"$	24T : $\varnothing 190 \times 350$ mm $\varnothing 7.48" \times 13.78"$ 32 / 40T : $\varnothing 240 \times 350$ mm $\varnothing 9.45" \times 13.78"$
Tool Changer Method	Arm Type	Arm Type
Tool Selection Method	Random	Random
<b>GENERAL</b>		
Pneumatic Supplier	5.5 kg/cm <sup>2</sup> 78.2 psi	5.5 kg/cm <sup>2</sup> 78.2 psi
Power Consumption (Transformer)	34 kVA (40 kVA)	67 kVA (80 kVA)
Machine Weight	14,170 kg 31,293 lb	15,500 kg 34,171 lb

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.

## ACCURACY

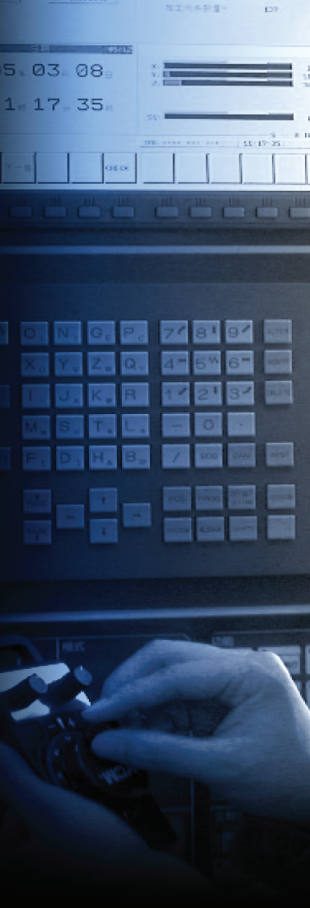
	NTV series	
	ISO 10791-4	YCM*
Axial Travel	Full Length	
Positioning (X/Y/Z) A	0.032 / 0.025 / 0.025 mm 0.00126" / 0.00098" / 0.00098"	0.014 / 0.010 / 0.010 mm 0.00055" / 0.00039" / 0.00039"
Repeatability (X/Y/Z) R	0.018 / 0.015 / 0.015 mm 0.00071" / 0.00059" / 0.00059"	0.010 / 0.007 / 0.007 mm 0.00039" / 0.00028" / 0.00028"

\* All values shown above are measured for the machine in good air-conditioned environments.

## ACCESSORIES

■ : Standard ■ : Option

- Work Lamp
- Pilot Lamp
- Safety Door
- Coolant Gun
- Coolant Equipment System
- Cutting Air Blast
- Spindle Air Seal
- Spindle Air Blast
- Central Lubrication System
- Oil Skimmer
- Guideway Cover (X,Y,Z)
- Leveling Blocks and Bolts
- Foundation Bolts (NTV158B)
- Mechanical, Electrical & Operating Manuals
- Heat Exchanger for Electrical Cabinet
- Full Chip Enclosure
- Dual Chip Augers (X-axis)
- Air Gun
- Spindle Cooling System (NTV158B)
- Circular Coolant Nozzle (NTV158B)
- CNC Control: MXP-200FB
- CE
- Automatic Door
- Optical Scale (X/Y/Z-axis)
- Foundation Bolts (NTV158A)
- Oil-mist Collector
- Oil-mist Coolant System
- Chip Conveyor
- Chip Flush Coolant System
- A/C. Cooler for Electrical Cabinet
- 4th Axis Rotary Table
- Spindle Cooling System (NTV158A)
- Coolant Through Spindle System
- Heavy Duty Coolant Pump
- Workpiece Measurement System
- Auto Tool Length Measurement System
- Circular Coolant Nozzle (NTV158A)
- Oil Hole Holder Function
- CNC Control: MXP-200FC



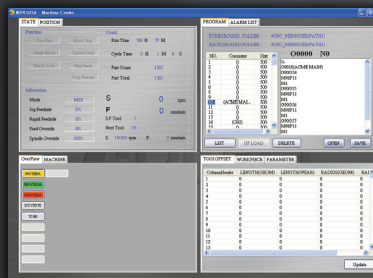
# MXP-200 FB/FC

YCM CONTROL  
by FANUC

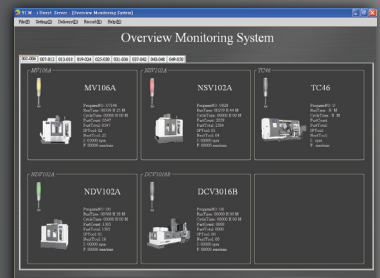
- High Response AC Digital Servo & Spindle Drives with High Definition
- AICC II High Speed High Accuracy with Auto Switching on/off Machining
- JERK Control Function (opt.)
- High Rigidity Tapping, Helical Interpolation
- Custom Marco B and Tool Path Graphics
- Manual Guide i with large Screen Display . (MXP-200FC, opt.)
- Program File Management for Easy Program Classifying
- USB Interface for Easy Parameters & CNC Programs Transfer
- 512KB Memory
- High Speed Positioning Function (MXP-200FC, opt.)
- Memory Card Program Edit & Operation (opt.)
- 3D Interference Check (5-axis control as standard)
- NANO Smoothing Function (opt.)
- 400 pairs tool offset, 1,000 total registered programs
- 48 pairs of workpieces coordinate system
- Extended parts program editing (cut, copy, and paste. maximum 4,000 characters)

## i-Direct A remote monitoring system

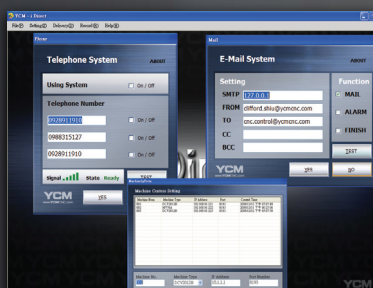
The YCM Production Line Monitoring System i-Direct overcomes the limitations of time and distance. This software provides plant operators with instant production status, including production value, output, standby, alarm time, status display and malfunction records of the machine. These data could be browsed online and printed. When incidents occur, i-Direct will automatically warn plant operators through e-mail or MMS message. With i-Direct Production Line Monitoring System the plant operators can easily keep track of production statuses regardless of time and distance.



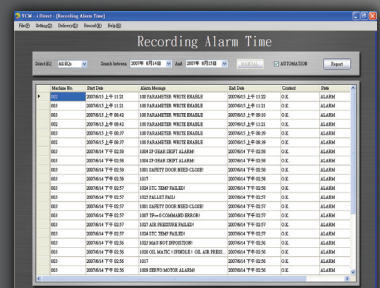
Single Machine Status Browsing  
Machine Status Browsing



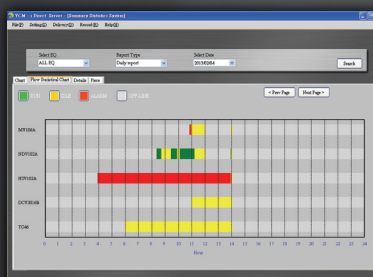
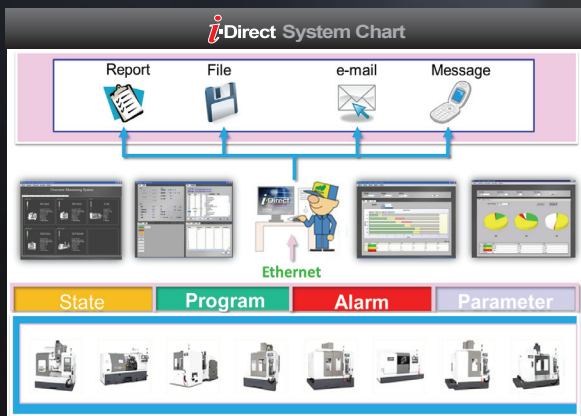
Plant Operation Status Monitoring



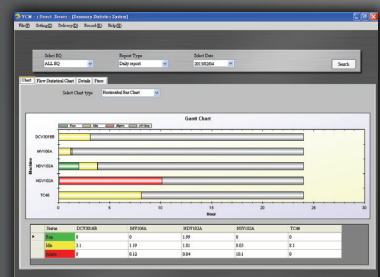
Machine connection, MMS and e-mail settings



Machine Status Time Record



Production Status Process Record



Production Management Statistics

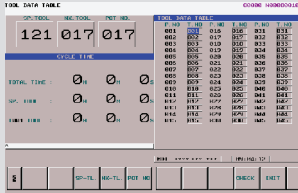
# i-OPERATION Plus II

Software Enhancement Exclusively from YCM

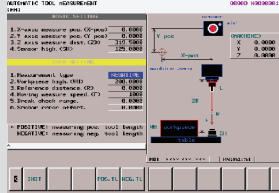


## Pre-machining Preparation

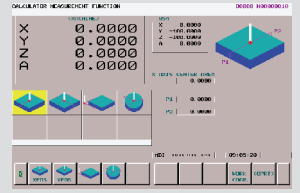
**Intelligent Tool Data Management**  
Comprehensive tool data management function allows operators to monitor and manage all positions in tool magazine



**Tool Length Measurement**  
Graphic measuring interface provides automatic tool length measurement function

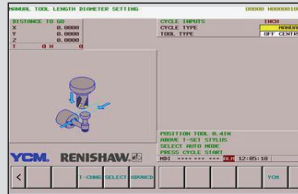


**Workpiece Coordinate Calculation**  
Conversational operating window provides convenient and fast setup of workpiece coordinates

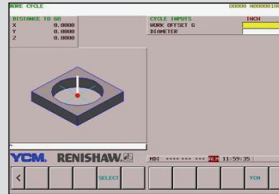


## NEW RENISHAW GUI System (Conversational Graphic Operating Interface)

Tool measurement & measurement correction

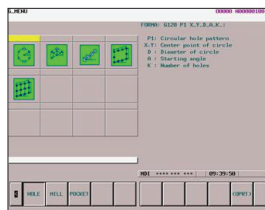
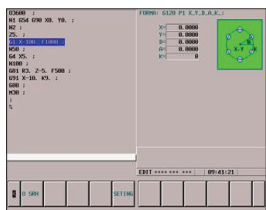


Workpiece measurement

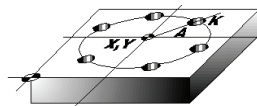


## Programming

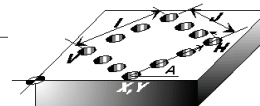
### NEW T-PATTERN



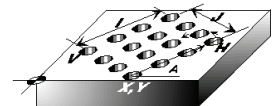
15 sets of machining cycle program  
Reduces program input and memory time  
Graphic interface & conversational command input



CIRCULAR HOLE PATTERN  
(G120 P1) Function



RECTANGULAR HOLE PATTERN  
(G120 P4) Function

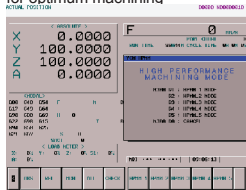


GRID HOLE PATTERN  
(G120 P5) Function

## Machining

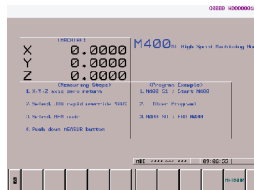
### High Performance Machining Mode M300

With 5 sets of parameter settings, the users choose the most suitable mode for optimum machining



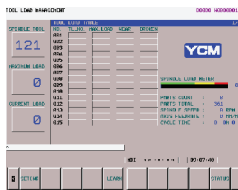
### High Speed Machining Mode M400

Increases drilling and tapping speed, reduces machining time for job shop and precision mold machining



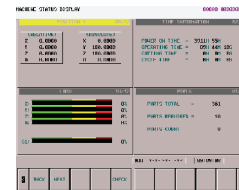
### NEW Tool Load Management

Instant tool load monitoring with alarm function



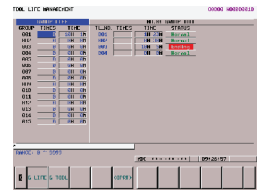
### Multi-display Function

Displays 4 statuses simultaneously with configurable status display



### NEW Tool Life Management

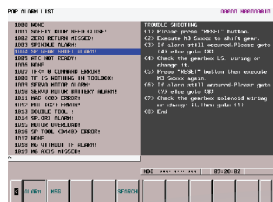
Indicates tool status of each group with tool life alert



## Instant Message Alert

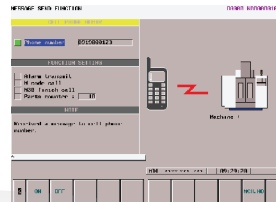
### Pop-up Alarm Display

Instantly provides troubleshooting procedure  
Quick response to alarm



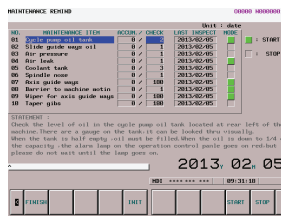
### Wireless Message Notification

Machine status sent to a designated cellphone number.



## Maintenance

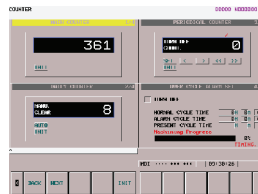
### Intelligent Maintenance



Provide users with periodic maintenance options and descriptions

Instantly provide users with maintenance notifications

### Counter Function



Allow users to keep count of workpieces with the function of overtime cycle alarm provides easy control over machining cycle time

1. Main Counter
2. Periodical Counter
3. Daily Counter
4. Over Cycle Alarm

