

# NSV

Series

66A ■ 85A ■ 102A

ULTRA HIGH PERFORMANCE VERTICAL MACHINING CENTER



# NSV 66A - 85A - 102A

## ULTRA HIGH PERFORMANCE VERTICAL MACHING CENTER

Introducing the new NSV series ultra fast vertical machining center for high speed machining needs. The NSV102A's fast 12,000rpm and powerful 30HP horsepower IDD spindle design is combined with angular contact ceramic ball bearings to provide superb axial and radial cutting rigidity. Combined with roller type linear motion guides and heavy frame, the NSV series, is ideal for jobs that require high chip removal rate.

- The large travel capability of 1,020 × 600 × 600mm provides extra working capacity to meet wider variety of job requirement.
- Equipped with oversized roller type linear motion guides, the NSV series ensures the optimal balance between machining rigidity, accuracy and efficiency.
- The 12,000rpm IDD spindle with 22kW (30HP) provides both speed and power that is necessary to machine wide range of materials.
- Spindle cooling system and oil-air bearing lubrication are standard to optimize the spindle life from running at long hours.
- Complimented with high speed 30 tools swing-arm type ATC system, the NSV series is ideal for large volume production with cost down needs.

### Advanced Structure Engineering

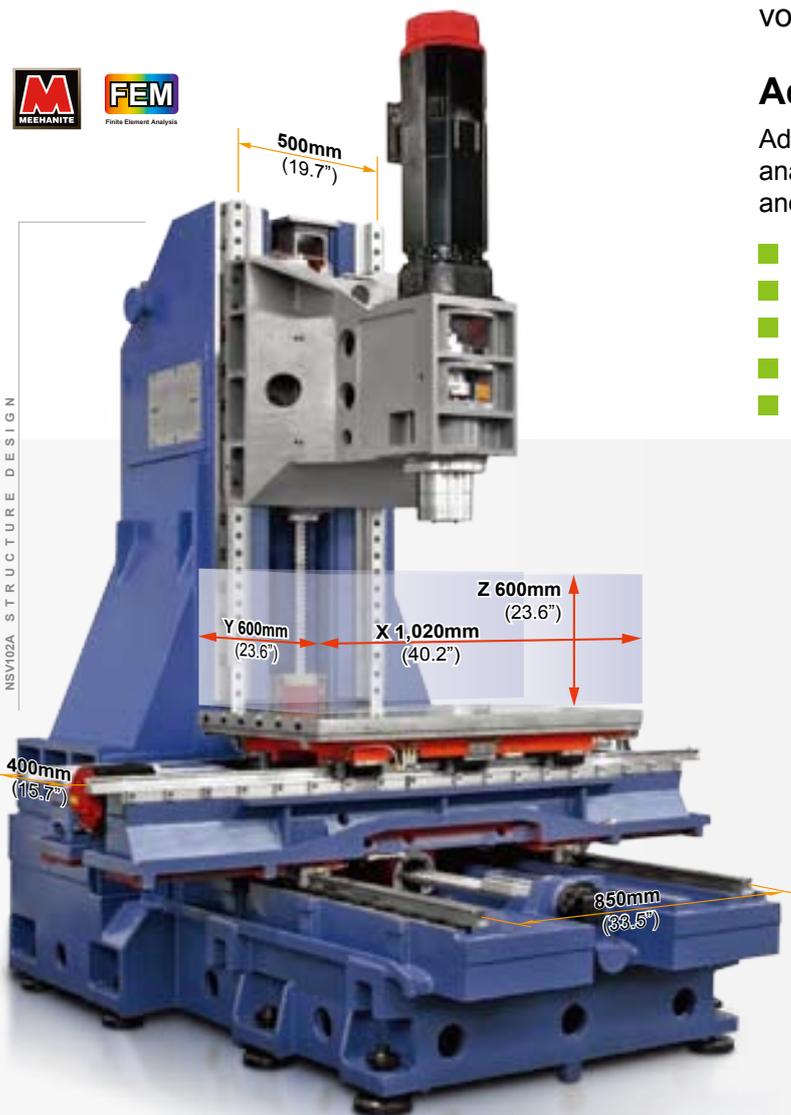
Advanced design with reinforced body structure via FEM analysis, the NSV series offers superb cutting performance and reduces vibration to meet highest machining demand.

- Extra large span of guide ways
- Six slider blocks on X-axis
- All roller type linear motion guides
- Double nuts ballscrew
- One piece motor housing

The NSV series is capable of maximum rapid feed-rate and maximum 1G\* axial acceleration.

	NSV 66A	NSV 85A-102A
<b>X</b>	50m/min. 1968ipm	48m/min. 1889ipm
<b>Y</b>	50m/min. 1968ipm	48m/min. 1889ipm
<b>Z</b>	48m/min. 1889ipm	48m/min. 1889ipm

\* Require proper floor foundation.  
Table load not exceeds 100kg (NSV66A)/200kg (NSV85/102A).



NSV 102A ACCURACY		
Standard	ISO 10791-4 (JIS B 6336-4)	JIS B 6338 (1985)
<b>Tolerances</b>		
<b>Axial Travel</b>	Full Length	-
<b>Positioning A</b>	0.010mm 0.0004"	0.003/300mm 0.00012"/12"
<b>Repeatability R</b>	0.007mm 0.0003"	±0.002mm ±0.00008"

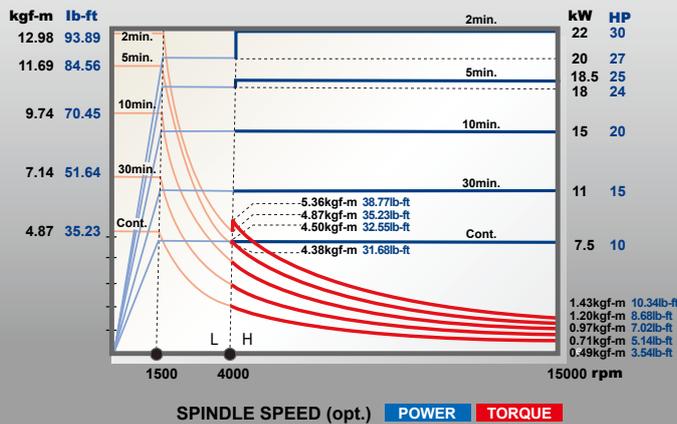
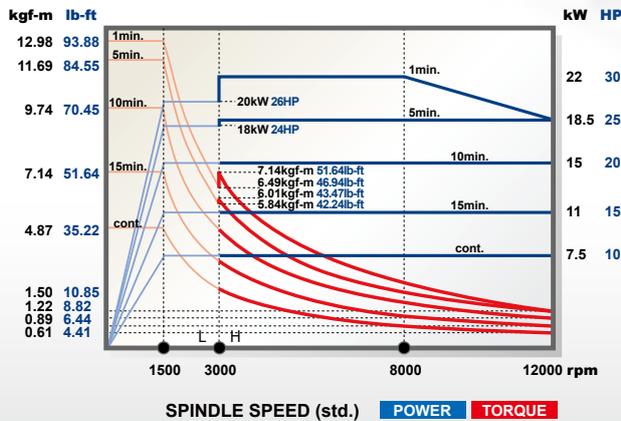
VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for machine in good air conditioned environments.

# Unique IDD Spindle

- The unique IDD spindle design offers low spindle vibration and optimal heat isolation that results in excellent surface finish while maximizing both spindle and tool life under hard machining conditions.
- The oversized angular contact ceramic ball bearing generates very little heat and provides excellent radial and axial rigidity for heavy-duty machining operation.
- Powerful dual winding AC digital spindle motor provides high torque at low spindle speed and maximized horsepower output at high speed operation.

# 22kW

# 30HP

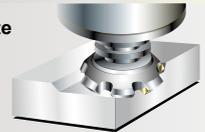


## FACE MILL S45C Steel

Material Removal Rate

# 594

cc/min.



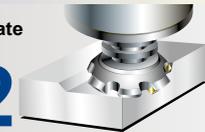
Tool  $\varnothing$ 63mmx6T  
 Spindle Speed 1500rpm  
 Feed-rate 2250mm/min.  
 Width of Cut 60mm  
 Depth of Cut 4.4mm

## FACE MILL S45C Steel

Material Removal Rate

# 116.2

cc/min.



Tool  $\varnothing$ 80mmx5T  
 Spindle Speed 596rpm  
 Feed-rate 298mm/min.  
 Width of Cut 65mm  
 Depth of Cut 6mm

## DRILLING S45C Steel

Cutter Diameter

# 44

mm

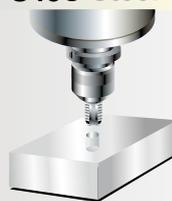


Tool  $\varnothing$ 44mmx2T  
 Spindle Speed 1030rpm  
 Feed-rate 206mm/min.

## TAP S45C Steel

TAP

# M24



Tool M24  
 Spindle Speed 60rpm  
 Feed-rate 180mm/min.

## TAP AL Aluminum

TAP

# 0#



Tool 0#80UNF  
 Spindle Speed 1200rpm  
 Feed-rate 381mm/min.

## Cutting test

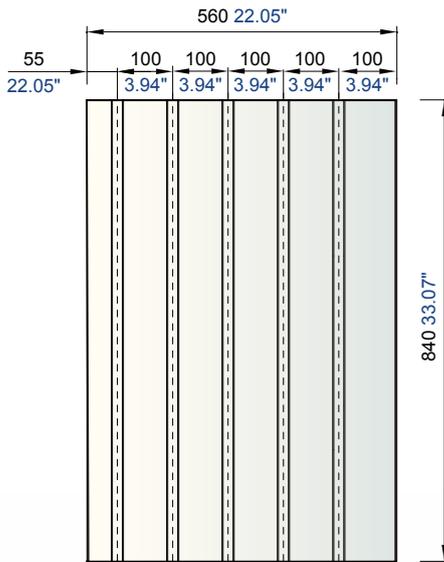
Note: This cutting test data is for reference only. This test is designed to demonstrate maximum machining capabilities, not for preservation of optimum tool life.

# DIMENSIONS

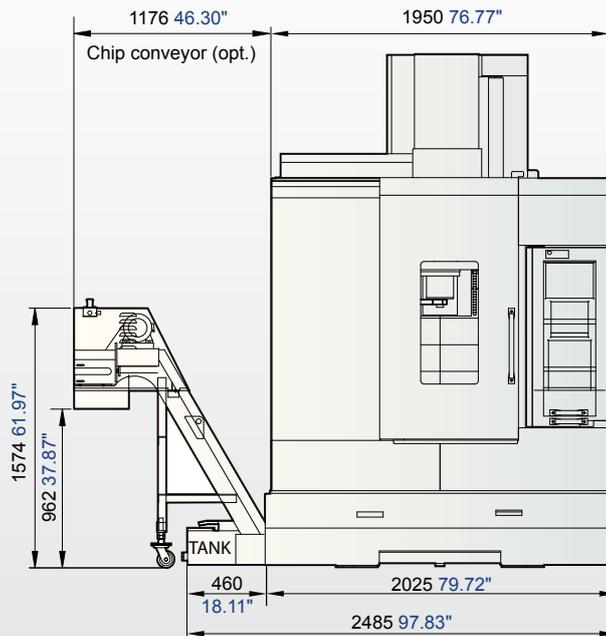
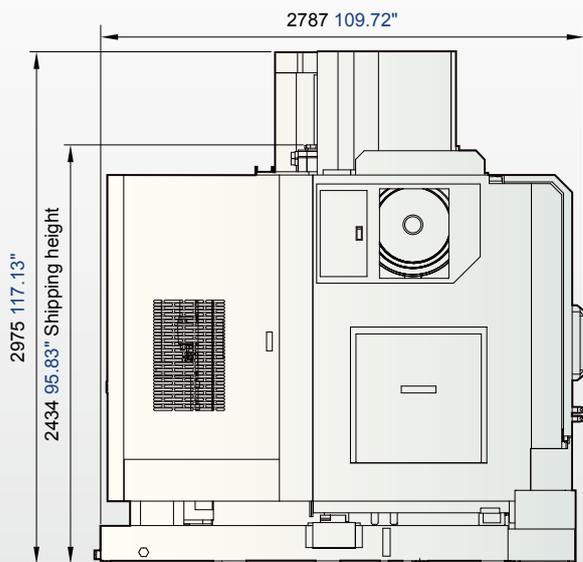
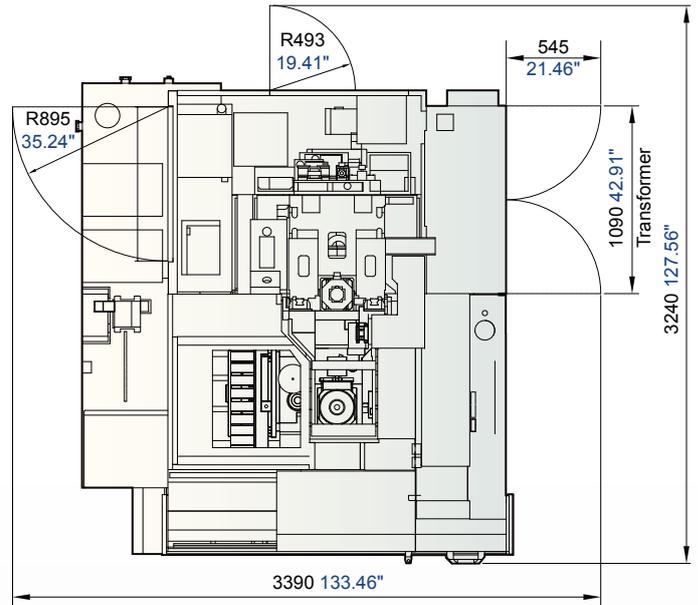
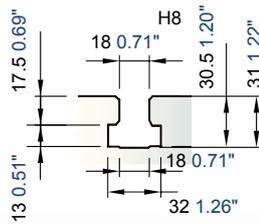
# NSV66A

UNIT: mm inch

## Table size



## T-slots

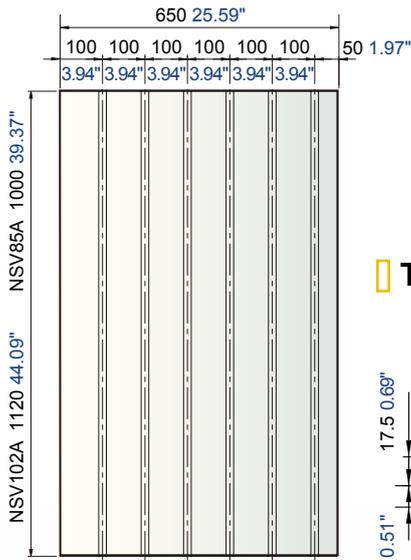


# DIMENSIONS

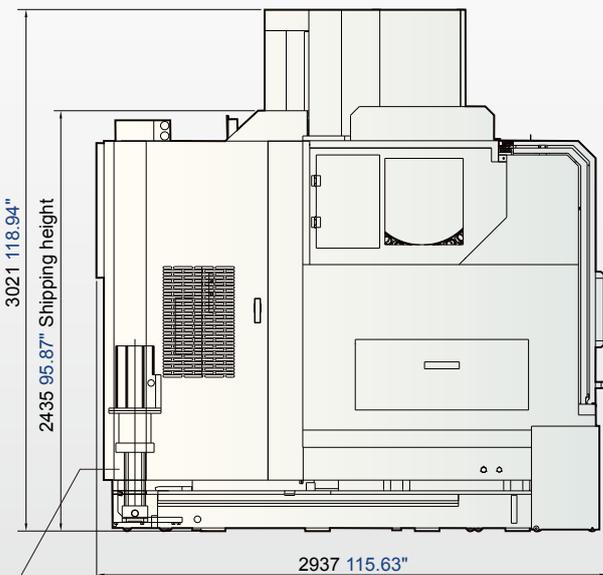
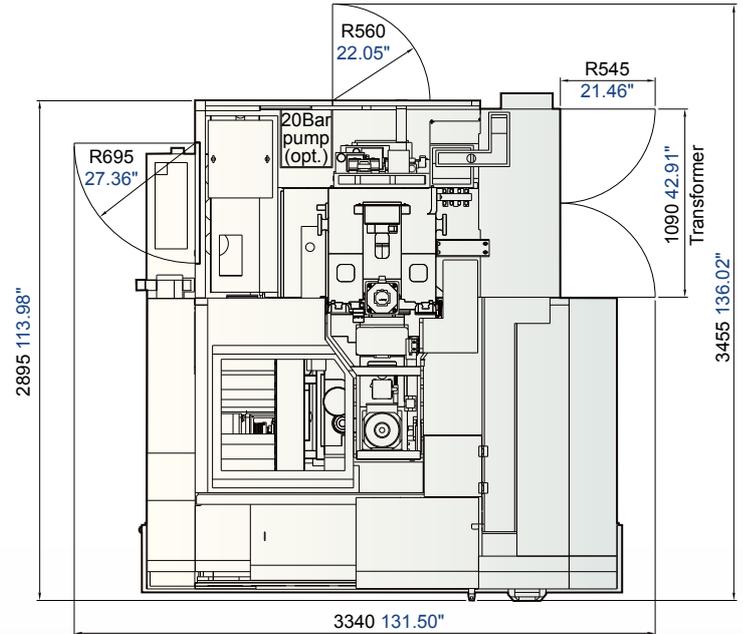
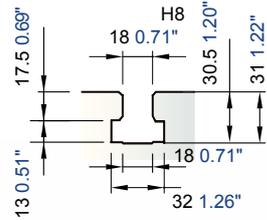
# INSV85A/102A

UNIT: mm inch

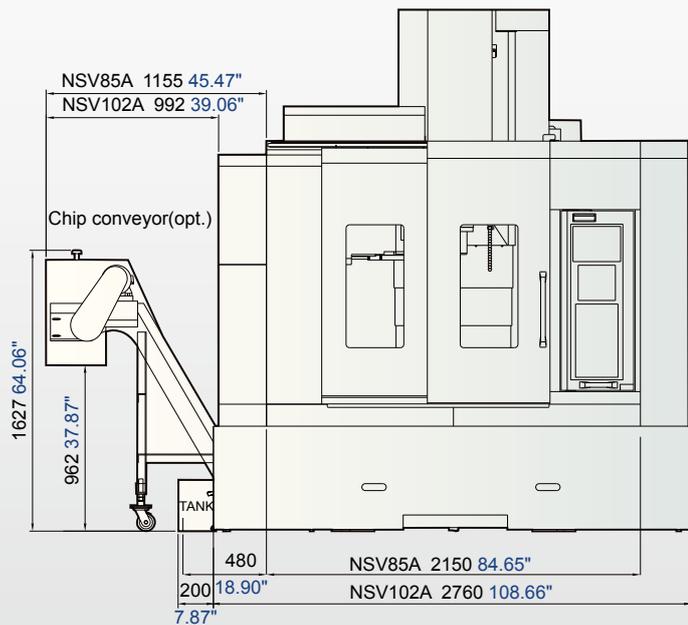
## Table size



## T-slots

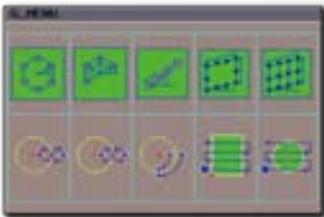


20Bar heavy-duty coolant pump (opt.)





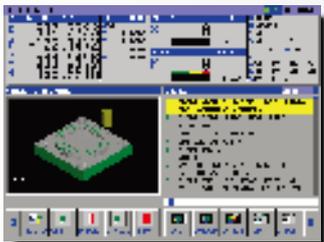
- High Performance AC Digital Servo & Spindle Drives
- High Responsive Vector Drives Technology for High Precision Machining
- Powerful Servomotors with Super Precision Absolute Positioning Encoders
- High-resolution 10.4" TFT Color Display with Dynamic Graphic Display
- Manual Guide *i* Conversational Function Greatly Reduces Programming and Setup Time
- Built-in AI NANO Contour Control and High-Speed JERK Function
- High Speed Rigid Tapping, Helical Interpolation, Custom Macro B, and Tool Path Graphics
- Large Program Capacity with 1,280 Meters of Memory
- Full Alphanumeric Keyboard Allows Easy Program Editing
- PCMCIA Slot for Easy File Transfer and Memory Expansion
- RS-232C Interface Ready for Fast Program Transfer
- Combined Uses of Many High Performance Microprocessors, High Speed Memory and the Adoption of Multi-CPU System for Super High Speed Control Processing
- The Most Reliable CNC Control in The World, with Failure Rate of Under 0.01 Per Unit Per Month



■ **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 work-piece offsets.

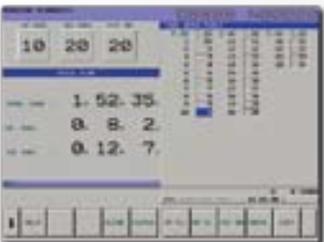


■ **Easy Shop-floor Programming Manual Guide *i***  
Easy to use conversational software offers convenience of part programming right on the shop-floor with 3-D graphical display and full simulation function.

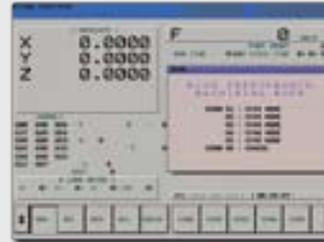


■ **Counter Function**  
Allows user to easily keep track on number of work pieces with:

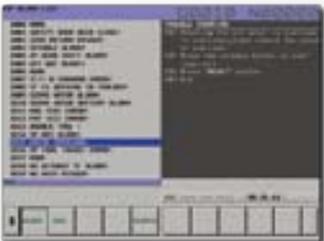
- Main Counter
- Periodical Counter
- Daily Counter
- Over Cycle Alarm



■ **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.

## Multi-function Display

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

- G-modal Status
- Feed Rate
- 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

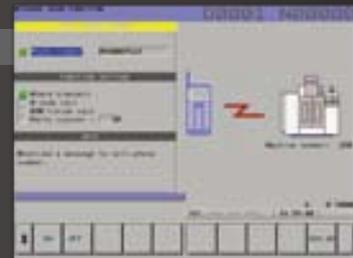
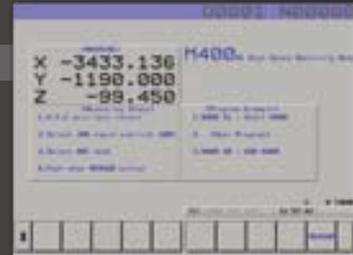
Artificially intelligent machining function that is developed from accumulation of all YCM knowledge and experience on high speed to achieve the fastest cycle time with best machining results. Machining efficiency improved by +25% without sacrificing machining accuracy.

# +25%

Efficiency increased by:

## Wireless Message Notification (Optional)

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

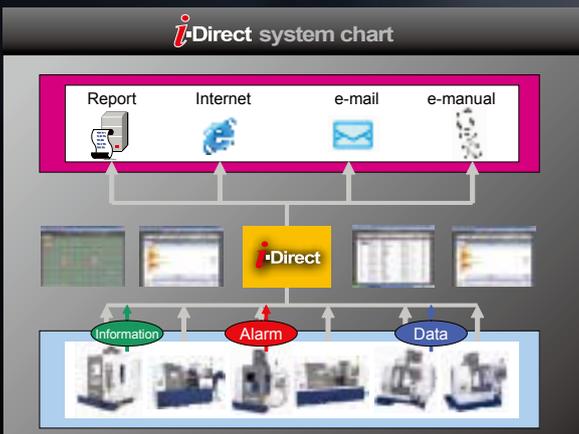


# i-Direct

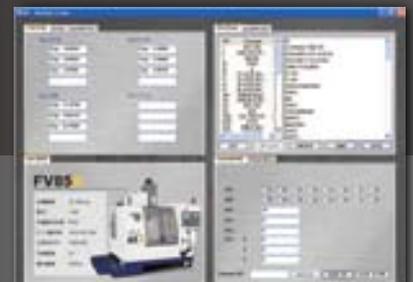
a remote monitoring system

i-Direct, the latest YCM software enhancement innovation for remote factory production line monitoring system.

Its powerful features include complete machine operation status, record, history, and data analysis. During alarm generated events, instant messages can be sent thru email or short message to 3 sets of cellphones. All these are done remotely thru internet with our user friendly interface, truly making unman factory management at your finger tips.



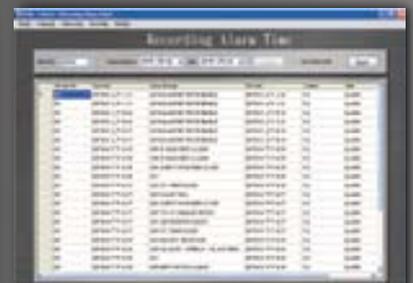
User account administration



Individual machine status display



Machine model, number, email, sms and ip setup



Complete production, standby, and down time record



Over all machine status display



Production data graphical analysis

# SPECIFICATIONS

	<b>NSV66A</b>	<b>NSV85A</b>	<b>NSV102A</b>
<b>SPINDLE</b>			
Spindle Speed (opt.)	12,000rpm (15,000rpm)		
Spindle Power [Cont./30/10/5/1min.]	7.5/11/15/18.5/22kW 10/15/20/25/30HP		
Spindle Taper	BBT40		
<b>TRAVEL</b>			
X Axis Travel	660mm 58.98"	850mm 33.46"	1,020mm 40.16"
Y Axis Travel	510mm 20.08"	600mm 23.62"	
Z Axis Travel	560mm 22.05"	600mm 23.62"	
Distance Between Spindle Nose & Table Top	100~660mm 3.94"~25.98"	100~700mm 3.94"~27.56"	
<b>TABLE</b>			
Table Size	840x560mm 33.07"x22.05"	1,120x650mm 40.16"x25.59"	
No. T-Slots x Size x Pitch	5x18mmx100mm 5x0.71"x3.94"	6x18mmx100mm 6x0.71"x3.94"	
Max. Load on Table	500kg 1,102 lb	1,000kg 2,205 lb	
<b>FEED</b>			
Rapid Feed-rate	50/50/48m/min. 1,969/1,969/1,890ipm	48m/min. 1,890ipm	
Cutting Feed-rate	1~20,000mm/min. 0.04~787ipm		
<b>ACCURACY</b> (Linear)	ISO 10791-4		JIS B 6338 (300mm)
Positioning	0.010mm 0.00039"	0.003mm 0.00012"	
Repeatability	0.007mm 0.00028"	±0.002mm ±0.00008"	
<b>ATC</b>			
Tool Magazine Capacity (opt.)	30T (40T)	30T (48T)	
Max. Tool Weight (Per Piece)	6kg 13.2 lb		
Max. Tool Dimensions	ø76x300mm ø3"x11.8"		
Max. Tool Dimensions (W/O Adjacent Tools)	ø125 ø4.9"		
Tool Change Time (Approx.)	2.5 sec. (T-T)		
Tool Changer Method	Arm Type		
Tool Selection Method	Random		
<b>GENERAL</b>			
Pneumatic Supplier	5.5kg/cm <sup>2</sup> 78.2psi		
Power Consumption	33kVA		
Machine Weight	6,500kg 14,330 lb	7,000kg 15,432 lb	7,400kg 16,314 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.

## STANDARD ACCESSORIES

- Tool Kit
- Work Lamp
- Pilot Lamp
- Coolant Gun
- Air Gun
- Guideway Cover on X/Y/Z
- Coolant Equipment System
- Dual Chip Augers (two sides of Y-axis)
- Spindle Air Blast
- Cutting Air Blast
- Spindle Air Seal
- Spindle Cooling System
- Chip Enclosure
- Leveling Blocks
- Central Lubrication System
- Rigid Tapping
- Heat Exchanger for Electrical Cabinet
- Mechanical, Electrical & Operation Manuals

## OPTIONAL ACCESSORIES

- Safty Door
- Optical Scale
- Foundation Bolt
- Chip Conveyor
- Chips Flush Coolant System
- Oil-mist Coolant System
- Oil-mist Collector
- Oil-hole Holder Function
- Oil Skimmer
- A/C Cooler for Electrical Cabinet
- Coolant through Spindle System
- 4th Axis Rotary Table
- Heavy Duty Coolant Pump
- Work-piece Measurement System
- Auto Tool Length Measurement System
- Heidenhain iTNC-530 Control



■ Air Gun & Coolant Gun



■ Spindle Air Seal



■ Cutting Air Blast



■ Work-piece Measurement System



**YEONG CHIN MACHINERY INDUSTRIES CO., LTD.**

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