

NMV Series

High Performance High Rigidity Vertical Machining Center



YCM®

NMV Series

NMV Series Vertical Machining Center is the latest developed machine for efficient production industries; widely adopted in automobile, aerospace, electronic and precision die & mold industries ; especially its large Y-axis travel design accommodates most parts applications.



Rapid Feedrate
36/36/24 m/min.



Spindle Speed
Std. 12,000rpm IDD PLUS



Auto Tool Change Time
1.8 Sec.



Tool Magazine Capacity
Max. 40T (NMV106A)



■ Auto Tool Change (T-T): 1.8 sec.
IDD Spindle



■ 24T(30T/40T) (opt.) NMV106A



■ Absolute Encoder ATC System



■ High Rigidity Structural Design

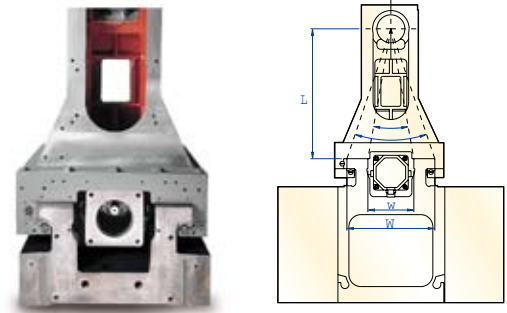
- The rigid body construction makes for uncompromising precision and rigidity.
- Finite Element Method analysis (FEM) is adopted to simulate the structural deformation of the body under various conditions, integrated with YCM hand scrapping skills for box guideways, which ensures the best accuracy and life.
- Boxway design on three axis is suitable for heavy cutting.
- No counter-weight design on z-axis provides the best dynamic accuracy.

■ YCM In-house IDD Spindle

- Symmetrical Head Stock design homogeneously absorbs the thermal expansion and avoids thermal deformation.
- High precision ceramic ball bearing with low centrifugal force, low vibration and low coefficient of thermal expansion.
- Tool unclamping cushion design extends spindle bearing life by protecting spindle bearing from tool unclamping force.
- High precision helical springs features excellent balance.

■ High Stability Tool Magazine

- The bi-directional tool selection design takes the shortest random path.
- The standard tool magazine is equipped with 24T, for more machining demands, the tool magazine can be expanded to 40T(NMV106A).
- Absolut encoder and inventor control in ATC improve the tool change time 1.8 sec. only.
- Tool change speed can be adjustable.



■ Automatic Tool Magazine Door Design

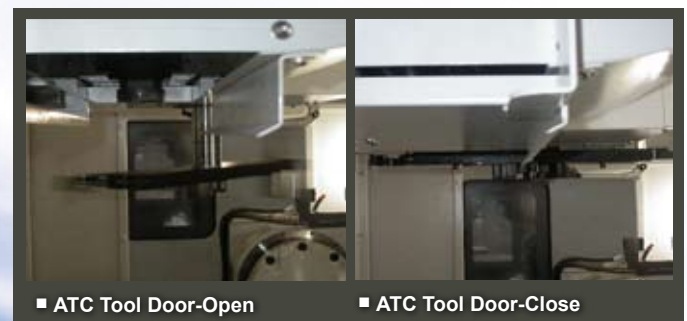
- Pneumatic cylinder driven.
- Prevent coolant and chips from entering tool magazine.

■ Brand New Exterior Design

- Full enclosure exterior (including top cover).
- Convertible side window for convenient chip removal.
- Aesthetic rear cover design.
- Smooth chip removal.

The Z-axis is outside support design

- 1) The best L/W ratio.
- 2) Secure the utmost cutting rigidity.
- 3) The Z-axial movement is very smooth.

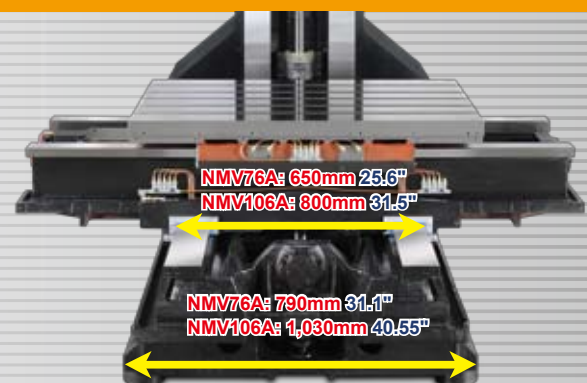


■ ATC Tool Door-Open

■ ATC Tool Door-Close



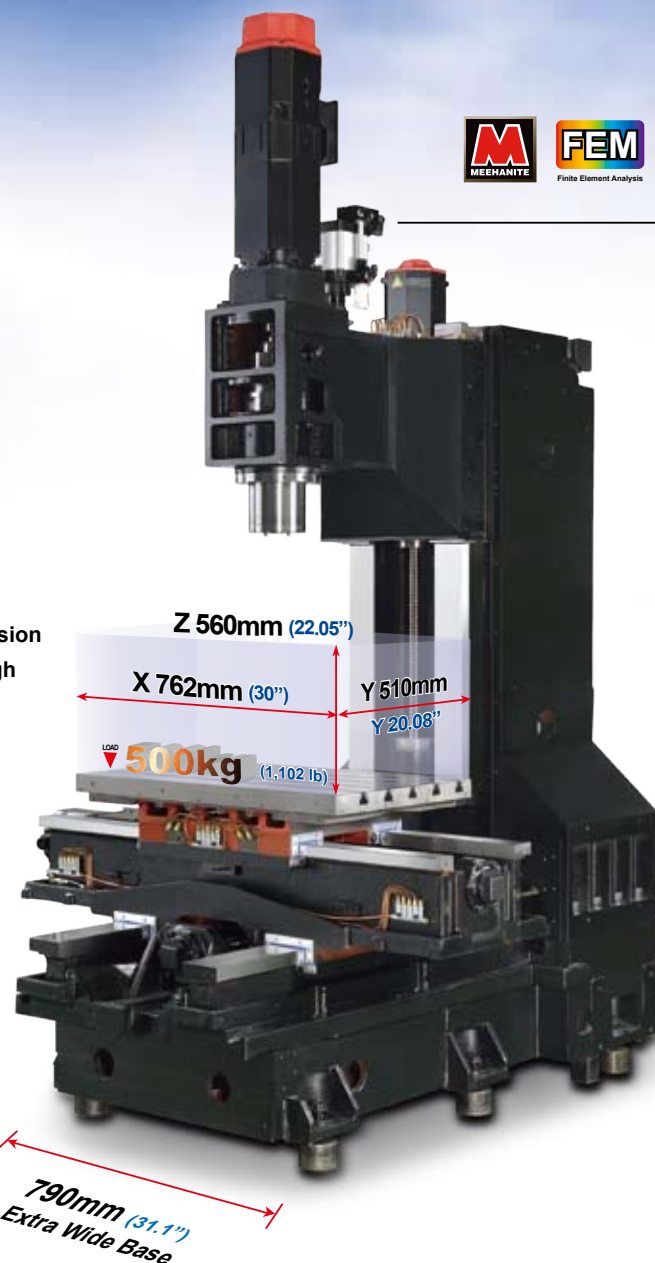
■ One-Piece Motor Seat / Bearing Seat Close-Loop Force Flow



■ Rigid Column & Base Design
Suitable for Heavier Cutting and Stable Accuracy

NMV 76A

- Adopted consistent production process, box guideway type models with high shock absorption and wear resistance, are the best for heavy cutting.
- With rigorous hand scrapping skills for box guideways, it ensures the best dynamic accuracy and durability.
- The wide span 650mm Y-axis with rigid dual-wall saddle design fully supports table movement. No counter weight on Z-axis provides the utmost machining accuracy.
- Direct-drive 12,000 rpm spindle, suitable for parts machining.
- The optional 8,000 rpm spindle design incorporates gear transmission is capable of reaching 36.52kgf-m torque; perfect for casting and titanium machining.
- The optional 10,000rpm spindle combines with gear transmission for heavy cutting. Even using the small-diameter tools for high speed cutting can achieve refined machining roughness (oil cooler: opt.)
- The rear chip disposal design can meet the needs of production planning.



NMV76A EXTRA WIDE COLUMN BASE DESIGN

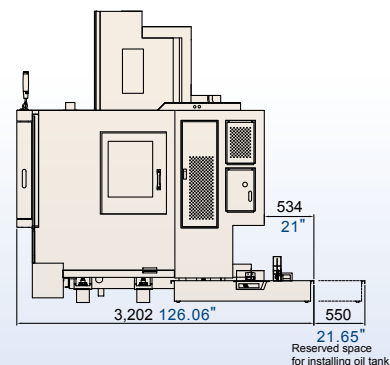
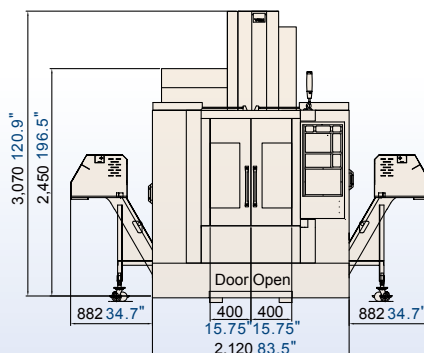
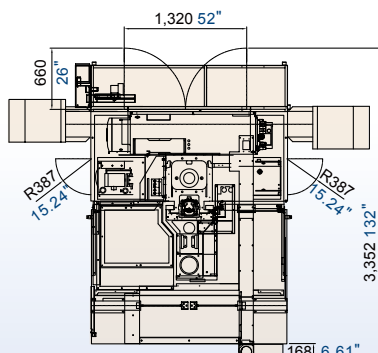
NMV 76A Rapid Feedrate

X	36 m/min	1,417 ipm
Y	36 m/min	1,417 ipm
Z	24 m/min	945 ipm

■ DIMENSIONS

Unit: mm inch

NMV 76A



NMV 106A

- Adopted consistent production process, box guideway type models with high shock absorption and wear resistance, are the best for heavy cutting.
- With rigorous hand scrapping skills for box guideways, it ensures the best dynamic accuracy and durability.
- The wide span 800mm Y-axis with rigid dual-wall saddle design fully supports table movement. No counter weight on Z-axis provides the utmost machining accuracy.
- Direct-drive 12,000 rpm spindle, suitable for parts machining.
- The optional 8,000 rpm spindle design incorporates gear transmission is capable of reaching 36.52kgf-m torque; perfect for casting and titanium machining.
- The optional 10,000rpm spindle combines with gear transmission for heavy cutting. Even using the small-diameter tools for high speed cutting can achieve refined machining roughness (oil cooler: opt.)
- Dual chip augers combined with chip conveyor for fast chip disposal.

NMV 106A Rapid Feedrate

X	36 m/min	1,417 ipm
Y	36 m/min	1,417 ipm
Z	24 m/min	945 ipm



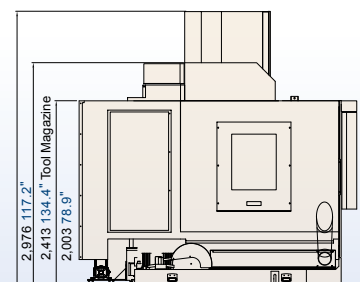
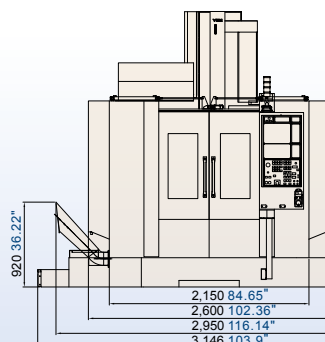
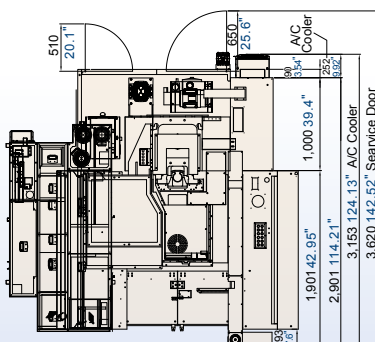
NMV106A EXTRA WIDE COLUMN BASE DESIGN

■ DIMENSIONS Unit: mm inch

NMV 106A

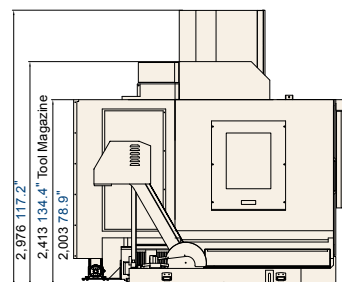
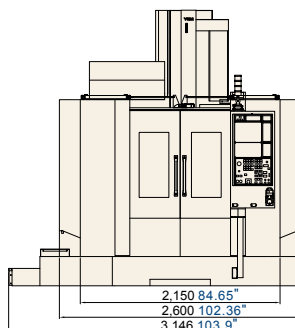
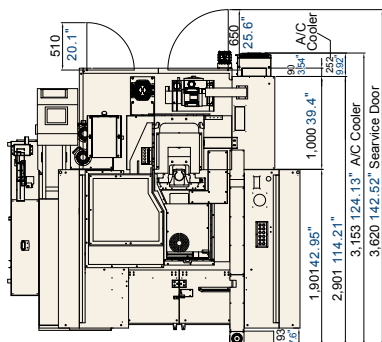
■ Triple-Chip Auger

■ Triple Chip Auger with 45° Pipe



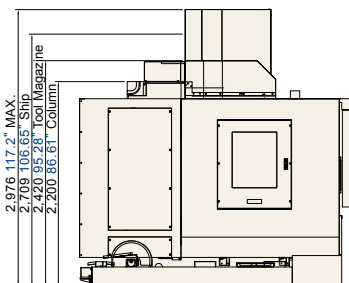
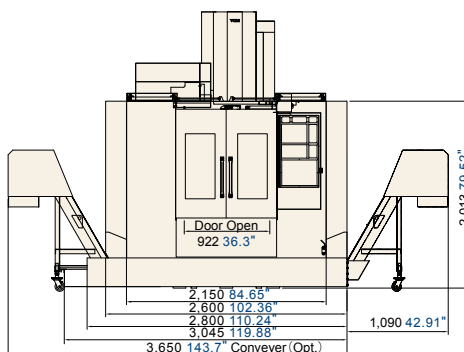
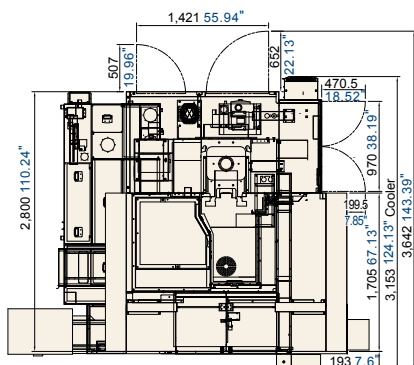
■ Triple-Chip Auger

■ Rear Side Chip Conveyor (opt.)



■ Dual-Chip Auger

■ Right-hand Side Chip Conveyor (opt.)



■ ACCURACY

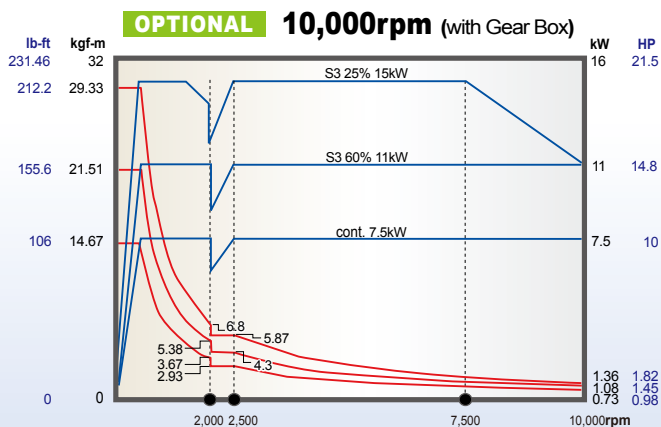
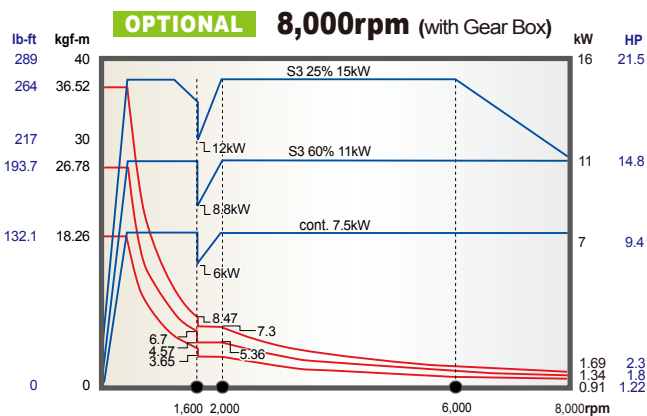
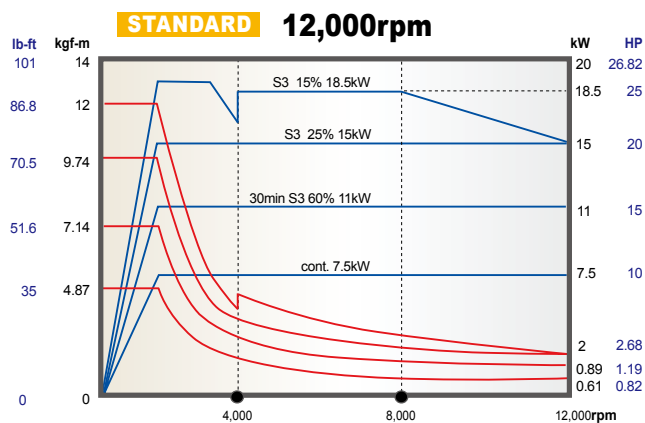
NMV 106A		
ACCURACY	ISO 10791-4	YCM*
Axial Travel	Full Length	
Positioning (X/Y/Z) A	0.032/0.025/0.025 mm 0.00126"/0.001"/0.001"	0.01/0.01/0.01 mm 0.0004"/0.0004"/0.0004"
Repeatability (X/Y/Z) R	0.018/0.015/0.015 mm 0.0007"/0.0006"/0.0006"	0.007/0.007/0.007 mm 0.0003"/0.0003"/0.0003"

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

NMV 76A / NMV 106A



■ IDD PLUS Spindle 12,000 rpm



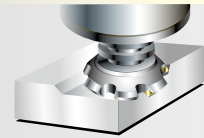
NMV 106A BBT40/12,000rpm

FACE MILL

S45C Steel

Depth of Cut

6.5
mm



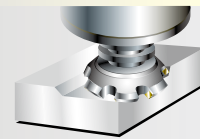
Tool $\varnothing 80\text{mm} \times 5\text{T}$
Spindle Speed 600rpm
Feedrate 450mm/min.
Width of Cut 60mm

FACE MILL

S45C Steel

Material Removal Rate

648
cc/min.



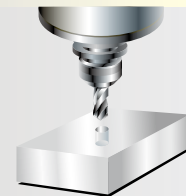
Tool $\varnothing 63\text{mm} \times 6\text{T}$
Spindle Speed 1,500rpm
Feedrate 2,700mm/min.
Width of Cut 60mm
Depth of Cut 4mm

U-DRILL

S45C Steel

Drilling (Max.)

$\varnothing 44$
mm



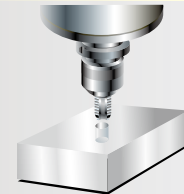
Tool $\varnothing 44\text{mm}$
Spindle Speed 1,500rpm
Feedrate 150mm/min.
Depth of Cut 44mm

TAP

S45C Steel

Tapping (Max.)

M24



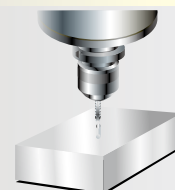
Tool M24 x 3P
Spindle Speed 80rpm
Feedrate 240mm/min.

RIGID TAP

A6061 Aluminum

Tapping (Min.)

M1.2



Tool M1.2 x P0.25
Spindle Speed 1,200rpm
Feedrate 300mm/min.

SPECIFICATIONS

NMV76A			NMV106A		
SPINDLE					
Spindle Speed (opt.)		12,000 rpm (8,000 rpm / 10,000 rpm Gear Box)			
Spindle Power (opt.)		18.5kW (15kW / 15kW Gear Box) 25HP (20HP / 20HP)			
Spindle Taper		BBT40			
TRAVEL					
X-axis Travel		762 mm 30"		1,020 mm 40.16"	
Y-axis Travel		510 mm 20.08"		600 mm 23.62"	
Z-axis Travel		560 mm 20.05"		600 mm 23.62"	
Distance Between Spindle Nose & Table Top		120~680 mm 4.72"~26.77"		80~680 mm 3.15"~26.77"	
TABLE					
Table Size		910 x 560 mm 36.02" x 22.05"		1,120 x 600 mm 44" x 23.62"	
No. T-slots x Size x Pitch		5 x 18 mm x 100 mm 5 x 0.71" x 3.94"			
Max. Load on Table		500 kg 1,102 lb		800 kg 1,763 lb	
FEEDRATE					
X/Y/Z Rapid Feedrate		36 / 36 / 24 m/min. 1,417 / 1,417 / 945 ipm			
Cutting Feedrate		1~20,000 mm/min. 0.04~787 ipm			
ATC					
Tool Magazine Capacity(opt.)		24T (30T)		24T (30 / 40T)	
Max. Tool Weight (per piece)		6kg 13.2 lb			
Max.Tool Dimensions (opt.) (W/O Adjacent Tools)		24T: ø90 mm x 300 mm (ø140 mm x 300 mm) 30 / 40T: ø76mm x 300 mm (ø125 mm x 300 mm) 24T: ø3.54" x 11.81" (ø5.51" x 11.81") 30 / 40T: ø3" x 11.81" (ø4.92" x 11.81")			
Tool Changer Method		Arm Type			
Tool Selection Method		Random			
GENERAL					
Pneumatic Supplier		5.5kg/cm² 78.2psi			
Power Consumption		31 kVA (40 kVA)		35 kVA (40 kVA)	
Machine Weight		5,100 kg 11,243 lb		6,500kg 14,330 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.

ACCESSORIES

● : Standard ○ : Optional – : None

	NMV76A	NMV106A
Tool Kit	●	●
Work Lamp 、 Pilot Lamp	●	●
Oil Skimmer	●	●
Coolant Equipment System	●	●
Full Chip Enclosure	●	●
Coolant Gun	●	●
Spindle Air Blast	●	●
Cutting Air Blast	●	●
Spindle Air Seal	●	●
Central Lubrication System	●	●
Guideway Cover (X/Y/Z)	●	●
Leveling Blocks and Bolts	●	●
Mechanical, Electrical and Operating Manuals	●	●
Heat Exchanger for Electrical Cabinet	●	●
Triple-Chip Augers	–	●
Dual-Chip Augers	●	○
45° Outlet Pipe	–	●
Straight Pipe	–	○
Safety Door	●	●
Air Gun	●	●
Circular Coolant Nozzle	●	●
CNC Control: MXP-200FA	●	●
CE	○	○
Automatic Door	○	○
Optical Scale	○	○
Foundation Bolts	○	○
Coolant Shower	●	●
Spindle Cooling System	○	○
Spindle Cooling System (Gear box 10k)	●	●
Oil-mist Coolant System	○	○
Oil Hole Holder Function	○	○
Coolant Through Spindle System (Form A/20/30/70bar)	○	○
Chip Conveyor	○	○
4th Axis Rotary Table	○	○
A/C. Cooler for Electrical Cabinet	○	○
Automatic Power Off	○	○
Auto Tool Length Measurement System (METROL_T24E-04-08)	○	○
Workpiece Measurement System (RENISHAW_OMP60)	○	○
Oil-mist Collector	○	○
Heavy Duty Coolant Pump	●	●
Extended 250mm Column	–	○
Jerk Control	○	○



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