

NMV Series

High Performance High Rigidity Vertical Machining Center



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

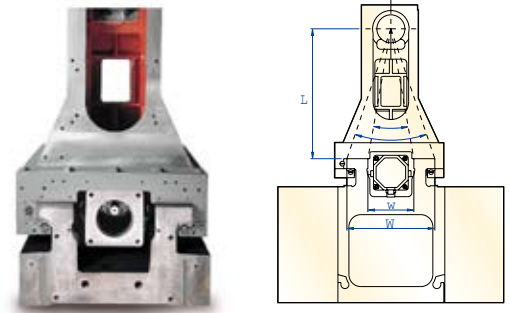
- The rigid body construction makes for uncompromising precision and rigidity.
- Finite Element Method analysis (FEM) is adopted to simulate the structural deformation of the body under various conditions, integrated with YCM hand scrapping skills for box guideways, which ensures the best accuracy and 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

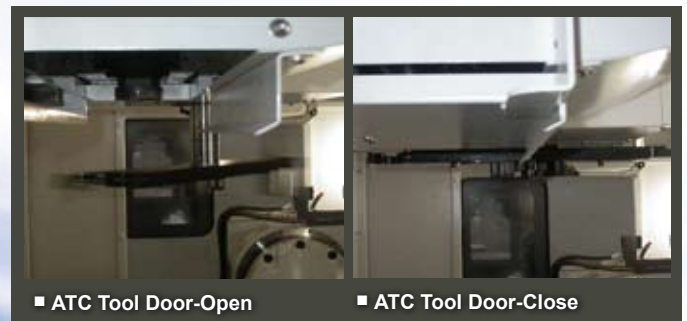
- Pneumatic cylinder driven.
- Prevent coolant and chips from entering tool magazine.

■ Brand New Exterior Design

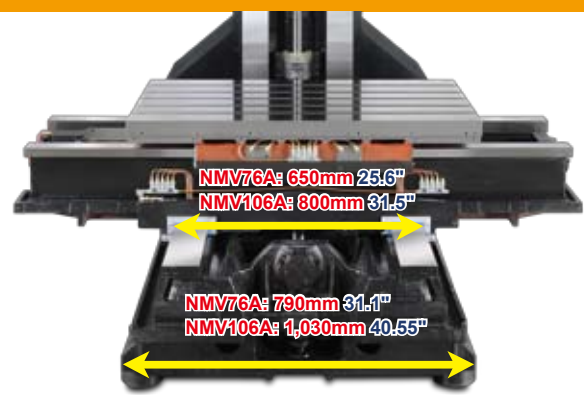
- Full enclosure exterior (including top cover).
- Convertible side window for convenient chip removal.
- Aesthetic rear cover design.
- Smooth chip removal.

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.



■ 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 45.04 kgf-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 (Spindle cooling system: opt.)
- The rear chip disposal design can meet the needs of production planning.



NMV 76A Rapid Feedrate

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

■ ACCURACY

NMV 76A		
ACCURACY	ISO 10791-4	YCM*
Axial Travel	Full Length	
Positioning (X/Y/Z) A	0.025/0.025/0.025 mm 0.001"/0.001"/0.001"	0.01/0.01/0.01 mm 0.0004"/0.0004"/0.0004"
Repeatability (X/Y/Z) R	0.015/0.015/0.015 mm 0.0006"/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 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 45.04 kgf-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 (Spindle cooling system: opt.)
- Dual chip augers combined with chip conveyor for fast chip disposal (opt.)



NMV 106A Rapid Feedrate

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

■ 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.

■ Cutting Capacity

NMV 106A BBT40/12,000rpm

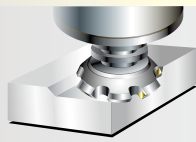
FACE MILL

S45C Steel

Depth of Cut

6.5
mm

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



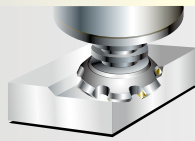
FACE MILL

S45C Steel

Material Removal Rate

648
cc/min.

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



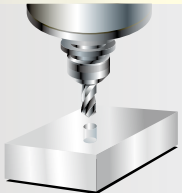
U-DRILL

S45C Steel

Drilling (Max.)

$\phi 44$
mm

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



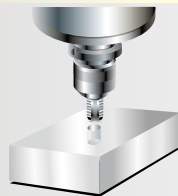
TAP

S45C Steel

Tapping (Max.)

M24

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



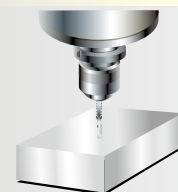
RIGID TAP

A6061 Aluminum

Tapping (Min.)

M1.2

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

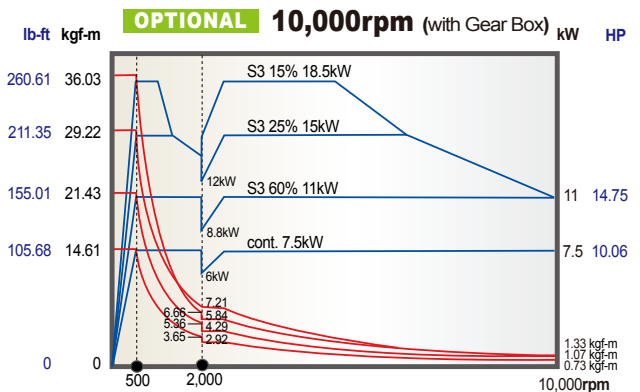
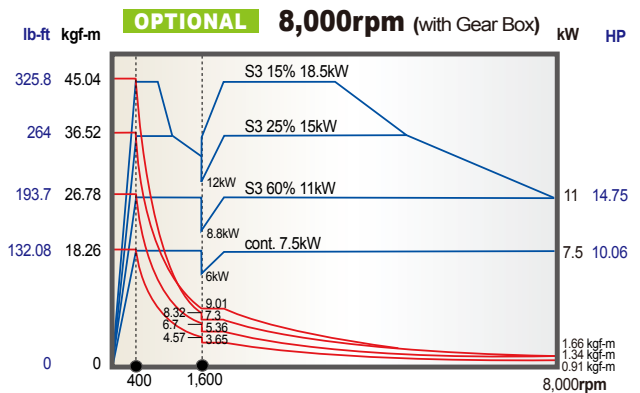
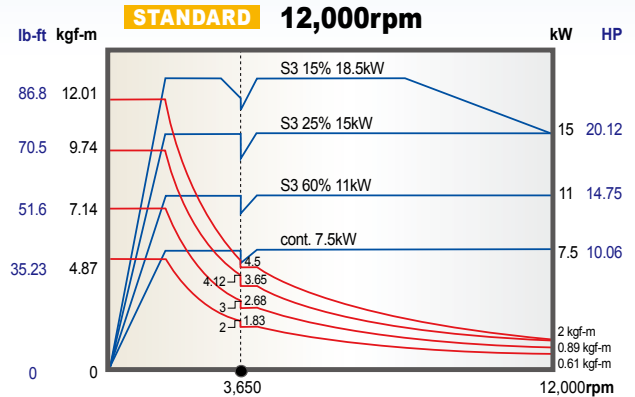


■ Power Chart

POWER TORQUE

FANUC

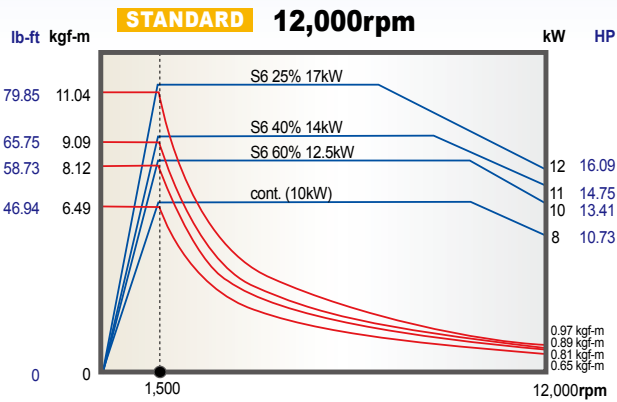
NMV 76A
NMV 106A



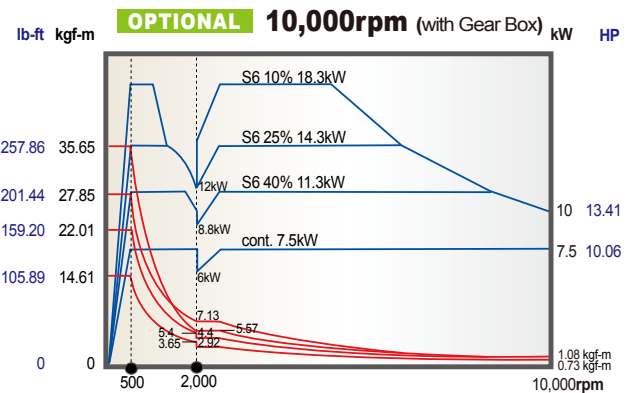
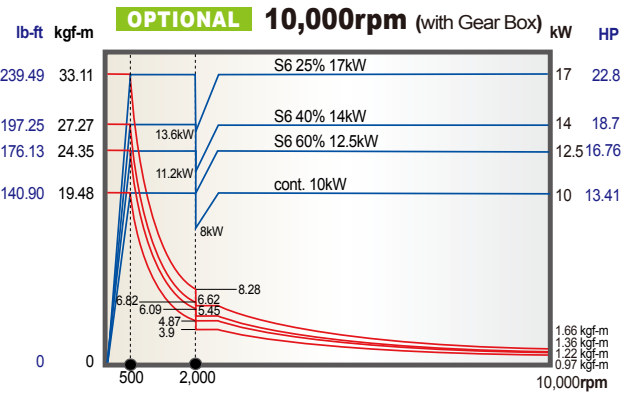
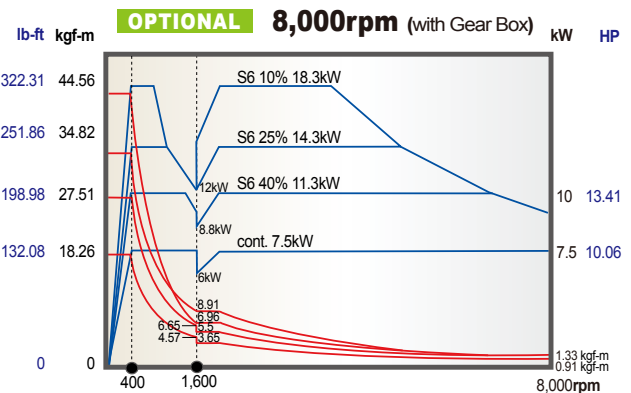
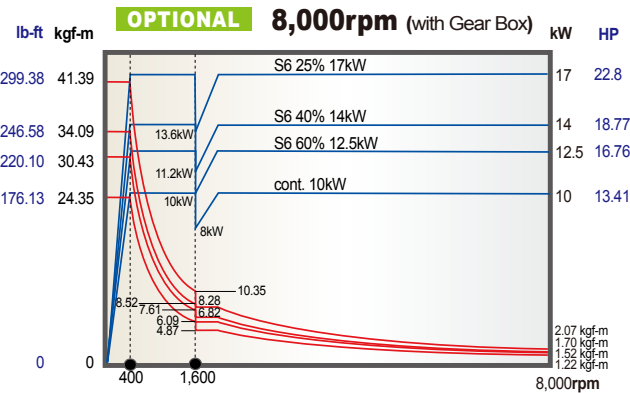
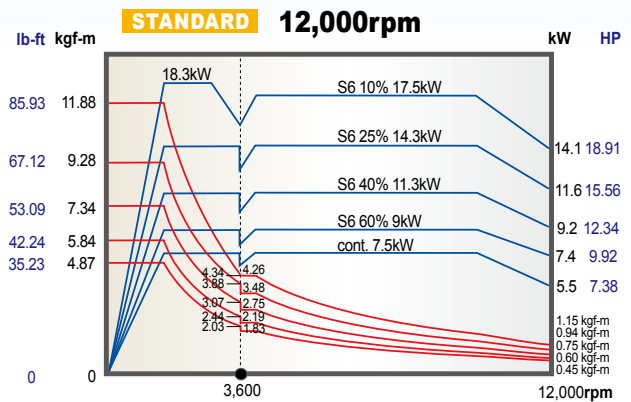
■ IDD PLUS Spindle 12,000 rpm

Note: Internal cutting test data are just for reference. This is tested for the max. machining capability of the machine, but not for the optimum tool life conditions.

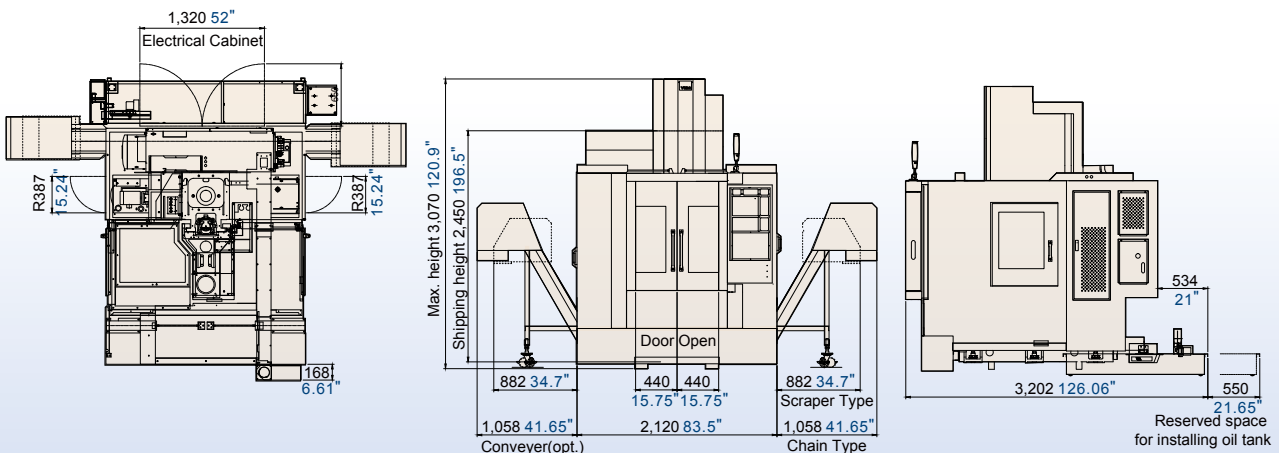
HEIDENHAIN NMV 106A



SIEMENS NMV 106A



DIMENSIONS Unit: mm inch NMV 76A

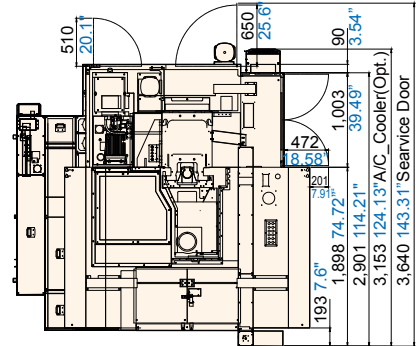
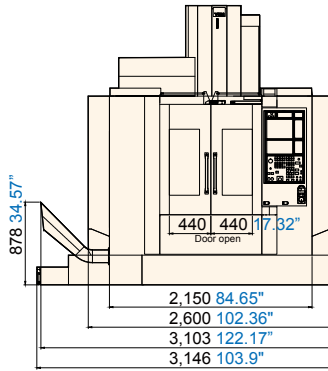
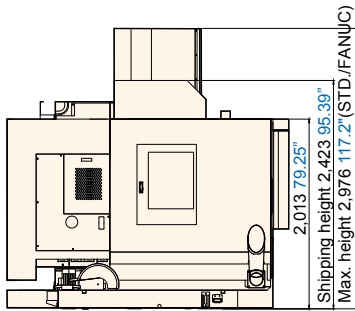


■ DIMENSIONS Unit: mm inch

NMV 106A

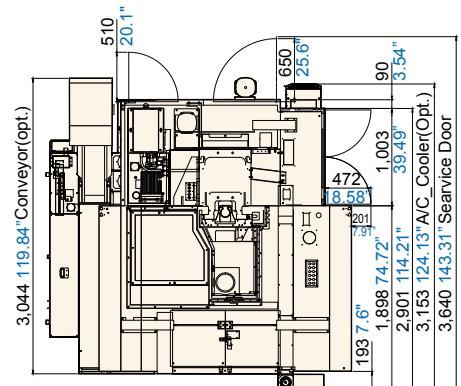
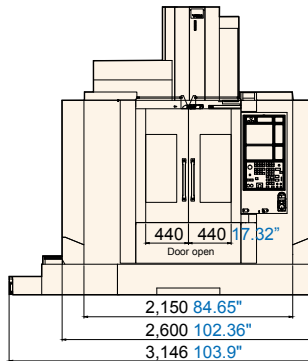
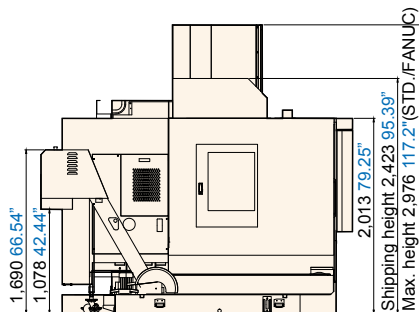
■ Triple-Chip Auger

■ Triple Chip Auger with 45° Pipe



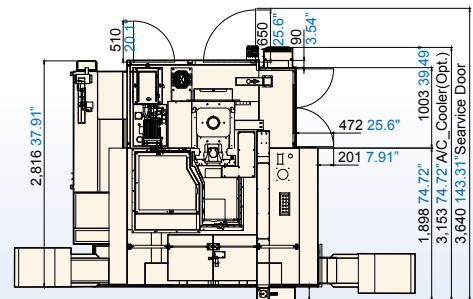
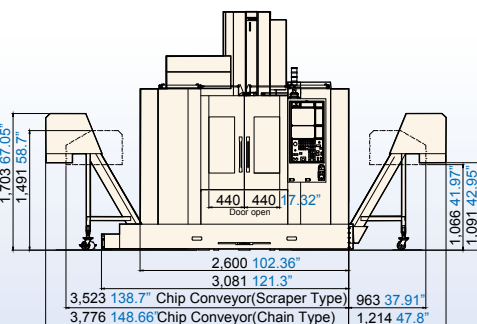
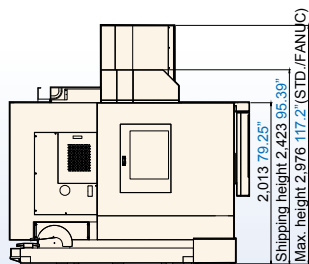
■ Triple-Chip Auger

■ Rear Side Chip Conveyor (opt.)



■ Dual-Chip Auger

■ Left / Right-Hand Side Chip Conveyor (opt.)



■ SPECIFICATIONS

	NMV76A	NMV106A
SPINDLE		
Spindle Speed (opt.)	12,000 rpm (8,000 rpm / 10,000 rpm Gear Box)	
Spindle Power (opt.)	18.5kW (18.5kW / 18.5kW Gear Box) 25HP (25HP / 25HP)	
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	915 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/cm ² 78.2psi	
Power Consumption (Transformer)	32 kVA (40 kVA)	32 kVA (40 kVA)
Machine Weight	5,100 kg 11,243 lb	6,500kg 14,330 lb

Note: Above specifications may vary depending on the machine and the surrounding environment. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. The test data provided in this catalog is performed under specific test procedures and environmental conditions. Above specifications are mainly for FANUC. If you have any questions about other CNC controllers, please contact YCM sales representative.

■ 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	●	●
Dual-Chip Augers	●	-
Dual-Chip Augers (with Left / Right-hand Side Chip Conveyor)	○	○
Triple-Chip Augers (with 45° Outlet Pipe)	-	●
Triple-Chip Augers (with Straight Pipe)	-	○
Triple-Chip Augers (with Rear Side Chip Conveyor)	-	○
Safety Door	●	●
Air Gun	●	●
Circular Coolant Nozzle	●	●
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	○	○
CNC Control : FANUC MXP-200FA	●	●
CNC Control : HEIDENHAIN TNC620	-	○
CNC Control : SIEMENS 828D(PPU280)	-	○

VMC

YCM[®] PRODUCT LINES

Vertical Machining Center

FP Series High Precision High Performance Die Mold Vertical Machining Center / High Precision Graphite Vertical Machining Center
FP55LX, FP66A, FP100A / FP66G

NXV Series High Performance Vertical Machining Center
NXV560A, NXV1020A/AM, NXV1380A, NXV1680A/B

TV Series Heavy Duty Vertical Machining Center
TV116B, TV146B, TV158B, TV188B, TV2110B, TV2610B, TV850B

NTV Series High Efficiency T-base Vertical Machining Center
NTV158A/B

NMV Series High Performance High Rigidity Vertical Machining Center
NMV76A, NMV106A

WV Series Ultra Wide High Performance Vertical Machining Center
WV108A/B

NFX Series High Performance 5-axis Vertical Machining Center
NFX380A

NSV Series Ultra High Performance Vertical Machining Center
NSV66A, NSV102A, NSV102AM, NSV156A

TCV Series High Performance Traveling Column Vertical Machining Center
TCV2000A, TCV3000A, TCV4500B, TCV2300A-4A, TCV3000A-4A/5AF/5AX

DCV Series Advanced Double Column Vertical Machining Center
DCV2012A/B, DCV3016B-6035B, DCV2018A-5AX, DCV4030B-6030B-5AX, DCV4030B-5AF

NDC Series High Performance Double Column Vertical Machining Center
NDC2016B-4016B, NDC3022B-6027B, NDC2018B-4018B-AHC, NDC3022B-6027B-AHC



HMC

Horizontal Machining Center

H Series High Production Horizontal Machining Center
H2612B

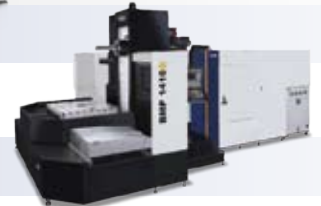
NH Series High Speed High Precision Horizontal Machining Center
NH450A, NH630B, NH800B



HBM

Horizontal Boring Milling Machining Center

BMP Series High Accuracy Heavy Duty Boring Machine
BMP1416B



CNC LATHES

CNC Turning Center

NT Series High Performance Mill/Turn Center
NT-2000Y/SY, NT-2500Y/SY, NT-2000SY2

GT Series High Performance Geo Turning Center
GT-200A/B/MA, GT-250A/B/MA/MB, GT-300A/B/LA/LB/MA/MB/LMA/LMB, GT-380A/B/LA/LB

TC Series High Performance High Precision CNC Lathe
TC-16A/B/LA/LB/MA/MB/LMA/LMB, TC-26, TC-26L, TC-36, TC-36W, TC-46, TC-46M

NTC Series High Efficiency CNC Turning Center
NTC-1600M/Y/L/LM/LS/LY/LSY, NTC-2000M/Y/L/LM/LS/LY/LSY



Integrated Operation Control System **iOPERATION^{plus}**

Spindle Thermal Compensation System **STC PLUS**

Remote Monitoring System **iDirect**

Automation Solutions



INTEGRATION AND SOLUTIONS



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