



Vertical Machining Centers



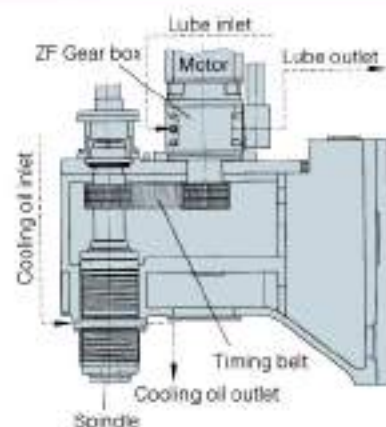
VMC-1300/1300HD/1300-2H
VMC-1600/1600HD/1600S/1600SHD
VMC-2000S/2000SHD/3000S/3000SHD

Vertical Machining Center

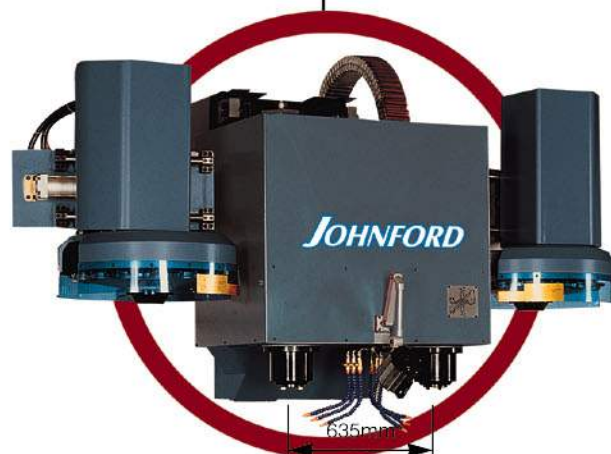


VMC-1300 / 1300HD / 1300-2H

Item	Model	VMC-1300	VMC-1300HD	VMC-1300-2H
Table working surface		1500 x 750 mm (59.1" x 29.5")		
X-axis travel		1300 mm (51")		
Y-axis travel		850 mm (33.5")		
Z-axis travel		800 mm (31.5")	710 mm (28")	
Spindle motor		11 / 7.5 kW	18.5 / 15 kW	15 / 11 kW
Table load capacity		3270 kg (7100 lb)		
Machine dimensions (LxWxH)		3800 x 4525 x 3480 mm (149.6" x 178.1" x 137")		3800 x 4525 x 3200 mm (149.6" x 178.1" x 126")
Machine weight		13500 kg (29700 lb)		14000 kg (30800 lb)

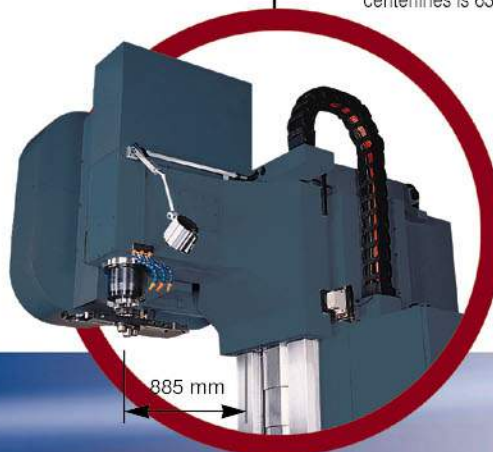


HD Type With ZF Gear Box



↑ Twin Spindle Head-2H

- The distance between two spindle centerlines is 635 mm.

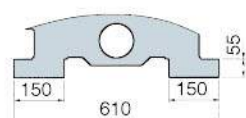


↑ Heavy-Duty Head-HD

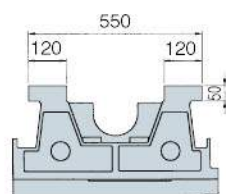
- The distance between spindle center and column is 885 mm.

Symmetrical and High-rigid Structure

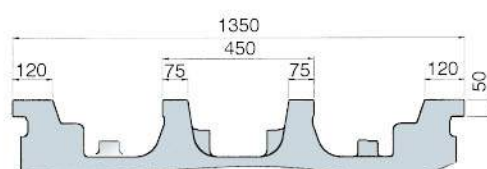
- High rigidity and mass Meehanite cast iron construction.
- One piece base with four guide ways.
- Turcite-B on 3 axes, best damping and strength



Column



Saddle



Four guide ways on base

- ➔ High-Quality
- ➔ High-Reliability
- ➔ High-Stability



Vertical Machining Center

Heavy-Duty Head-HD

- Distance Between Spindle Center and Column

Model	A
VMC-1600 (No.40)	885 mm (34.8")
VMC-1600HD (No.50)	885 mm (34.8")
VMC-1600S (No.40)	1150 mm (45.3")
VMC-1600SHD (No.50)	1150 mm (45.3")

Highly Cost-Effective Machines

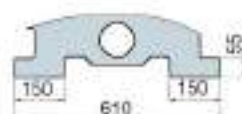
- Large capacity, high accuracy and rigid structure.
- Wide machining area provides a wide range of operation.
- Maximum 4600kg (10000lb) table loading capacity ensures reliable machining of heavy workpieces.

Zero Table Overhang

- Overhang has been eliminated on all axes to ensure excellent rigidity and high machining accuracy.
- The thick-walled, well-ribbed and box-shaped casting structure.
- Hand scraped turcite-B on 3 axes ensures long term, static and dynamic accuracy.

VMC-1600 / 1600HD / 1600S / 1600

Item	Model	VMC-1600	VMC-1600HD	VMC-1600S	VMC-1600S
Table working surface		1800 x 750 mm (70.9" x 29.5")		1800 x 1000 mm (70.9" x 39.4")	
X-axis Travel		1600 mm (63")			
Y-axis Travel		850 mm (33.5")		1100 mm (43.3")	
Z-axis Travel		800 mm (31.5")	710 mm (28")	800 mm (31.5")	
Spindle motor		11 / 7.5 kW Auto Hi-Lo	18.5 / 15 kW Auto Hi-Lo	11 / 7.5 kW Auto Hi-Lo	18.5 / 15 kW Auto Hi-Lo
Table load capacity		4600 kg (10000 lb)			
Machine dimensions (LxWxH)		4500 x 4525 x 3480 mm (177.2" x 178.1" x 137")		4500 x 5330 x 3250 mm (177.2" x 209.8" x 128")	
Machine weight		17500 kg (38500 lb)		18600 kg (40920 lb)	

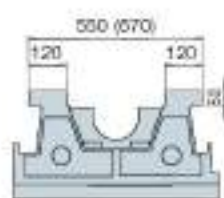


Column

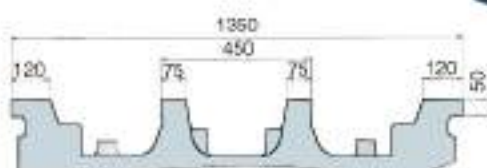


SHD

() For 1600S / 1600SHD



Saddle



Four guide ways on base



Vertical Machining Center

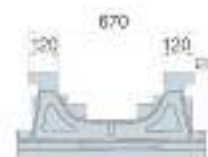


VMC-2000S / 2000SHD / 3000S / 3000SHD

Item	Model	VMC-2000S	VMC-2000SHD	VMC-3000S	VMC-3000SHD
Table working surface		2200 x 1000 mm (86.6" x 39.4")		3200 x 1000 mm (126" x 39.4")	
X-axis Travel		2050 mm (80.7")		3050 mm (120")	
Y-axis Travel		1100 mm (43.3")			
Z-axis Travel		800 mm (31.5")			
Spindle motor		11 / 7.5 kW Auto Hi-Ls	18.5 / 15 kW Auto Hi-Ls	11 / 7.5 kW Auto Hi-Ls	18.5 / 15 kW Auto Hi-Ls
Table load capacity		4000 kg (10600 lb)			
Machine dimensions (LxWxH)		5600 x 5330 x 3250 mm (216.5" x 209.6" x 128")		7600 x 5330 x 3250 mm (299.2" x 209.6" x 128")	
Machine weight		20000 kg (44000 lb)		23000 kg (50600 lb)	



Column



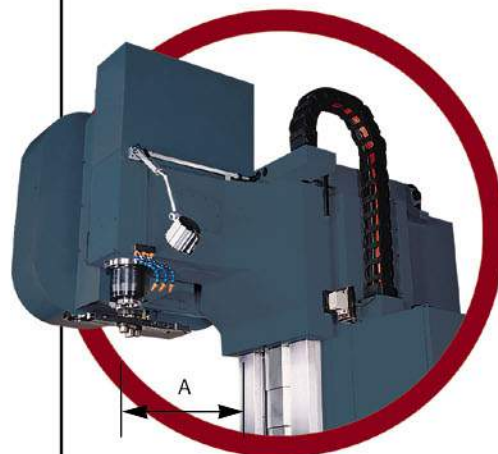
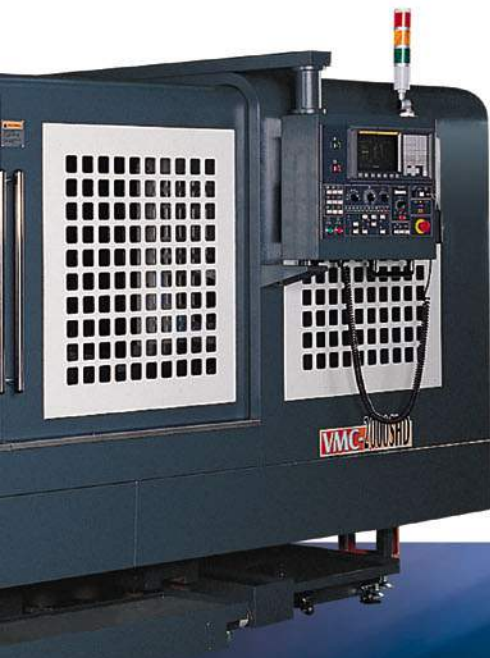
Saddle

High Total Accuracy

- The big box ways are on all 3 axes.
- The base is built with a wide distance between the guides.
- Extra wide saddle allows for full movement of the table without an overhang condition occurring.

Big Capacity for Jobs

- These machines can take a workpiece up the weight of 4800kg.
- With ZF 2-step gearbox, the high torque spindle performs a heavy cutting.

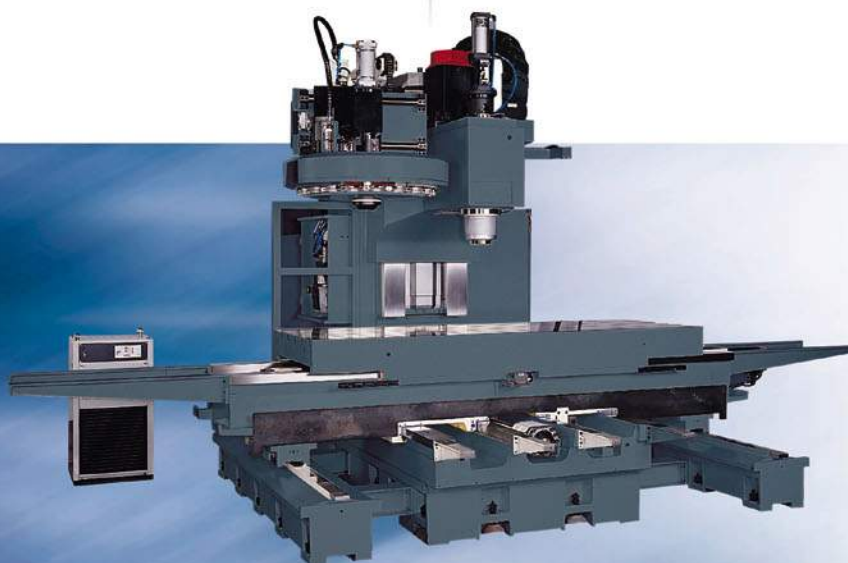


Heavy-Duty Head-HD

- Distance Between Spindle Center and Column

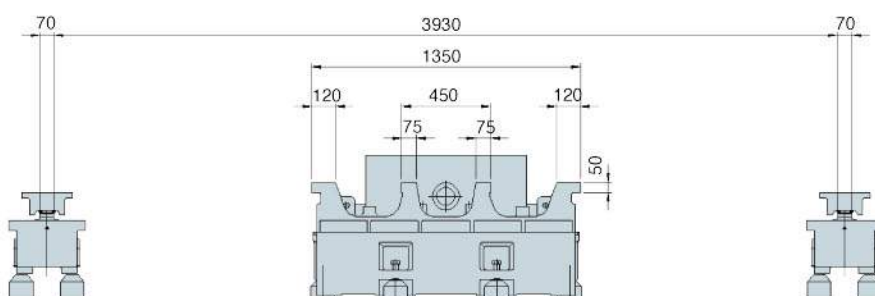
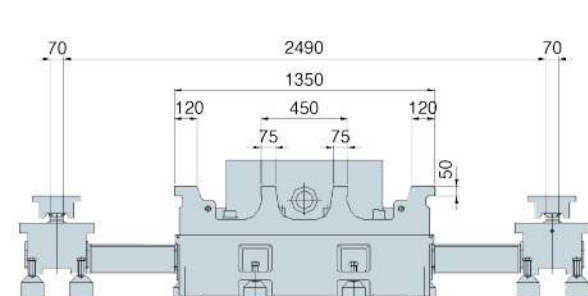
Model	A
VMC-2000S 3000S (No.40)	1150 mm (45.3")
VMC-2000SHD 3000SHD (No.50)	1150 mm (45.3")

000SHD



VMC-2000S / 2000SHD

VMC-3000S / 3000SHD



High rigid guide ways on base

Automatic Pallet Changer

Chain Type (Patented)

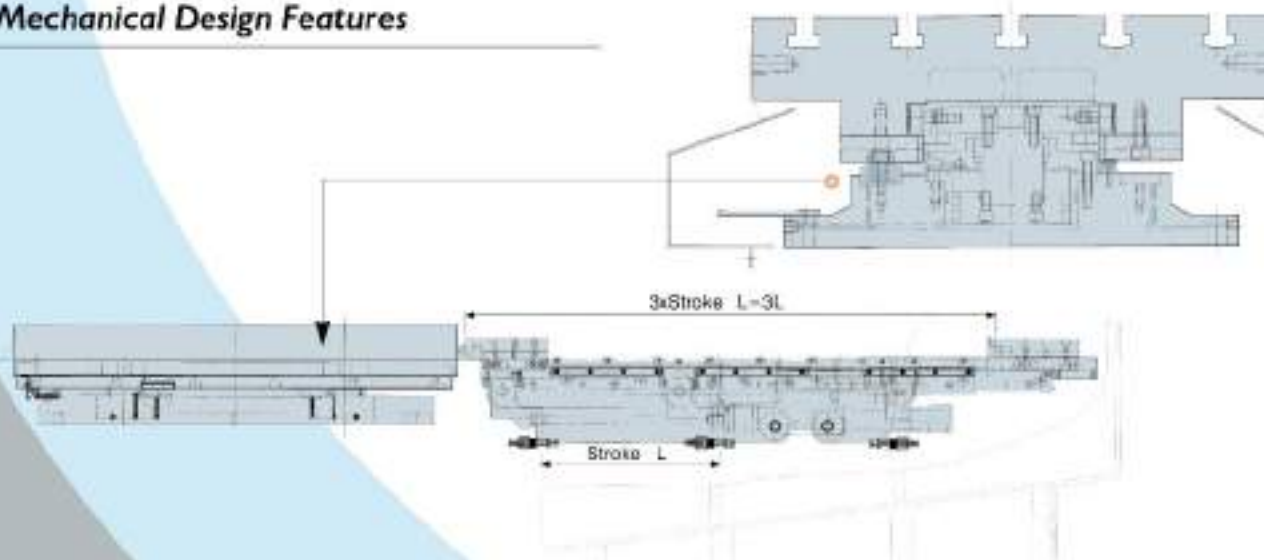
JOHNFORD designed, built and integrated APC is the best you will find. Our side load twin Pallet system is fast, yet heavy duty. A complete pallet exchange takes only 15 seconds, yet our heavy mechanism provides plenty of beef for fixtures and a load of parts. Our pallets are made of cast iron and are available 3-slotted or drilled and tapped. Our hydraulic clamping mechanism provides twin large diameter cylinders for clamping. The pallets locate on precision ground hardened steel pins and bushings. Repeatability is excellent at .001"!

APC Specifications	Model	VMC-1300+APC	VMC-1600+APC	VMC-1600S+APC
Pallet size (L x W)		1400 x 710 mm (55.1" x 28")	1700 x 750 mm (67" x 30")	1700 x 1000 mm (67" x 39.4")
Max. pallet load		800 kg (1762 lb)	900 kg (1982 lb)	1200 kg (2643 lb)
T-slot		18 mm (0.7")	18 mm (0.7")	18 mm (0.7")
Hydraulic clamping force		6000 kg (13216 lb)	9000 kg (19824 lb)	9000 kg (19824 lb)
Pallet change time		20 sec	25 sec	25 sec

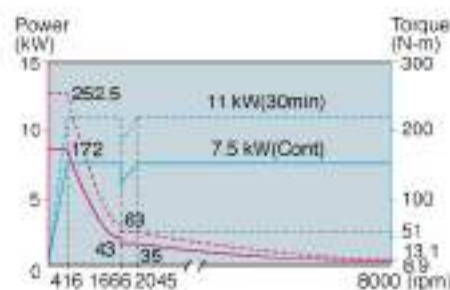
 VMC-1600HD+APC



Mechanical Design Features

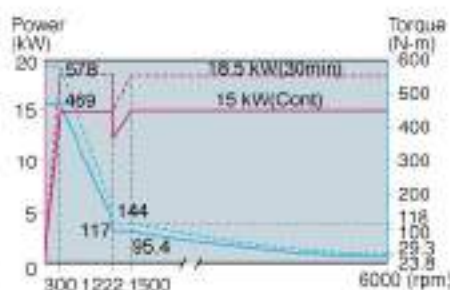


Spindle Power & Torque Chart



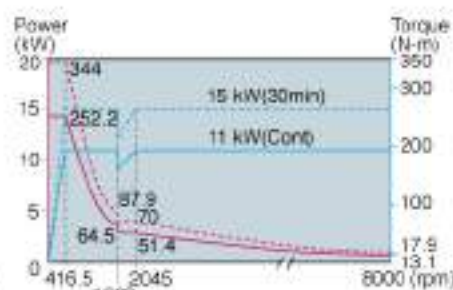
VMC-1300

■ (No.40) 8000 rpm ZF 2-step gear box



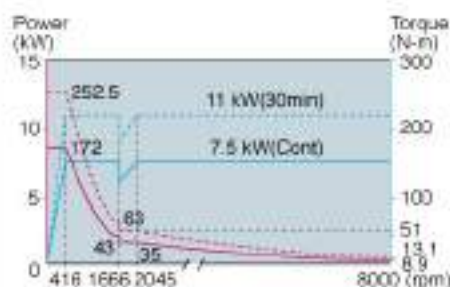
VMC-1300HD

■ (No.50) 6000 rpm ZF 2-step gear box (Opt.)
■ (No.50) 4500 rpm (Std.)



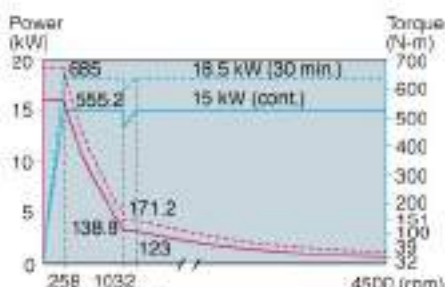
VMC-1300-2H

■ (No.40) 8000 rpm ZF 2-step gear box



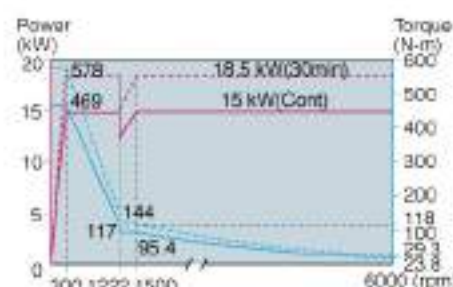
VMC-1600/1600S (No. 40)

■ 8000 rpm ZF 2-step gear box



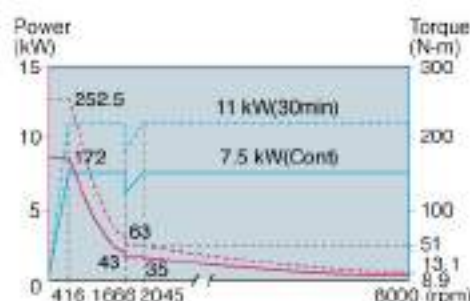
VMC-1600HD/1600SHD (No. 50)

■ 4500 rpm 2-step gear box (Std.)



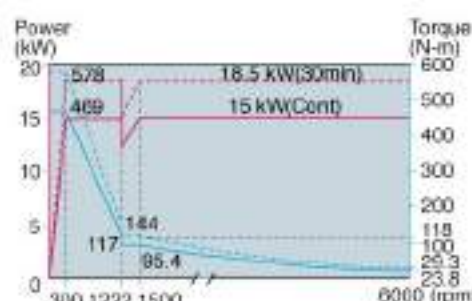
VMC-1600HD/1600SHD (No.50)

■ 6000 rpm ZF 2-step gear box (Opt.)



VMC-2000S/3000S (No. 40)

■ 8000 rpm ZF 2-step gear box



VMC-2000SHD/3000SHD (No. 50)

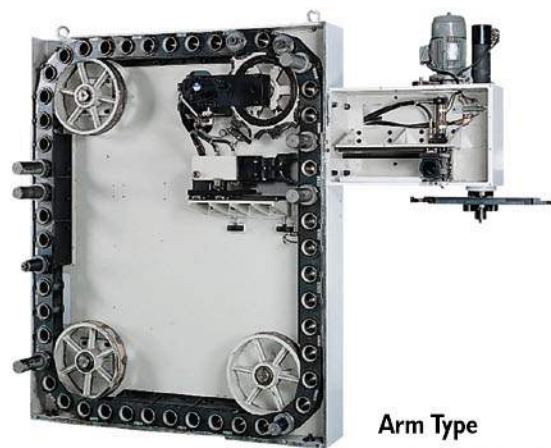
■ 6000 rpm ZF 2-step gear box

Different Accessories for Your C

ATC Units



Twin ATC 40 Tools



Arm Type

■ 50 tools or more for
BT/CAT 40, BT/CAT 50



Armless Type

- 24 tools for BT/CAT-40
- 20 tools for BT/CAT-50



Arm Type

- 24 tools for BT/CAT-40
- 24 tools for BT/CAT-50

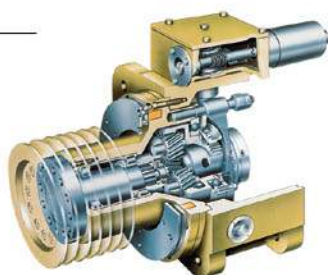


Arm Type

- 32 tools for
BT/CAT-40, BT/CAT-50

Gear Box

- Delivers high torque.
- ZF 2 speed automatic gear box,
- No noise generated,
- No heat transmitted,
- No gear vibration,
- High efficiency (over 95%)



Cooler

- High efficiency.
- Powerful cooling performance.



Standard Features-Great Equipment



Rigid tapping



High pressure coolant
(P:3.5 kg/cm², Q:100 l/min)



Automatic chip removal
(Screw type chip conveyor)

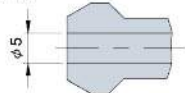


Remote handwheel

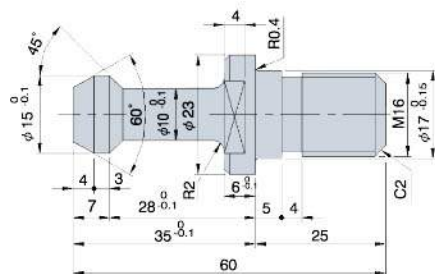
Tool System

Pull Stud

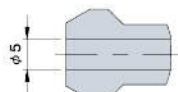
BT-40



for C.T.S.

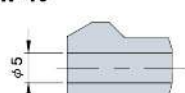


BT-50 / CAT-50

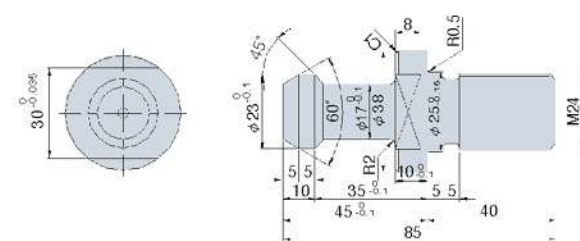
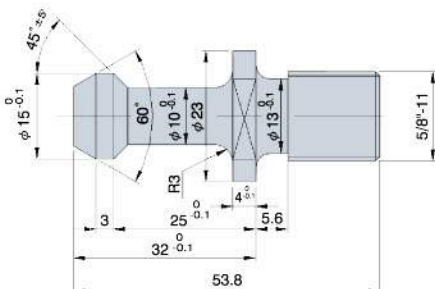


for C.T.S.

CAT-40

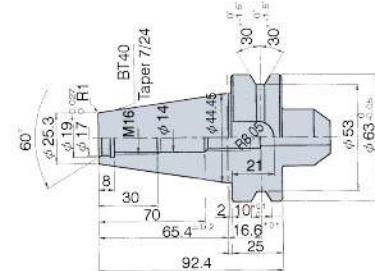
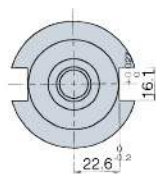


for C.T.S.

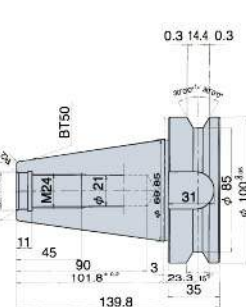


Tool Shank (Std.)

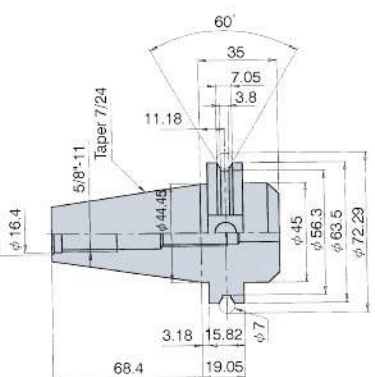
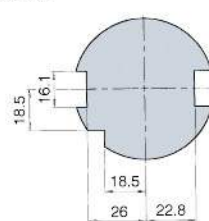
BT-40



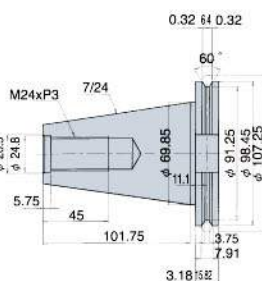
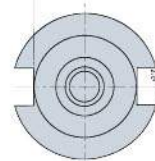
BT-50



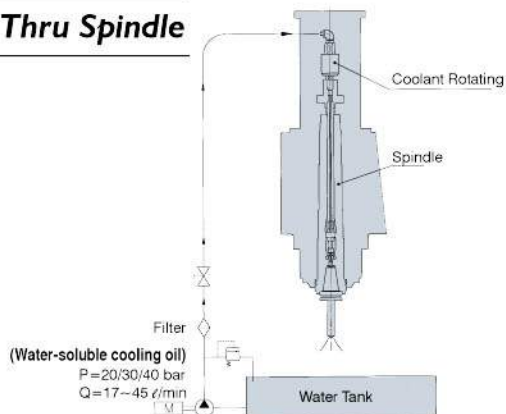
CAT-40



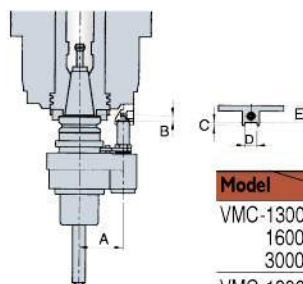
CAT-50



Coolant Thru Spindle



Coolant Thru Tool Tip

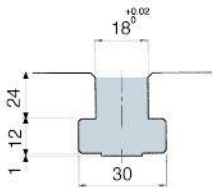


Model	Item	Taper No.	A	B	C	D	E
VMC-1300/1300-2H 1600/2000S 3000S		No.40	65	9	5	18	25.5
VMC-1300HD/1600HD 2000SHD/ 3000SHD		No.50	80	23.5	5	18	36.5

Dimensions

VMC-1300/1300HD/1600/1600HD

() for VMC-1300/1300HD



T-Slot

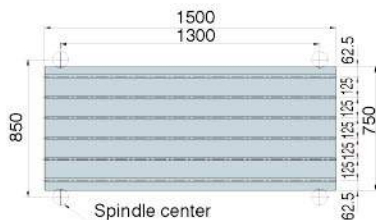


Table (VMC-I 300/I 300HD)

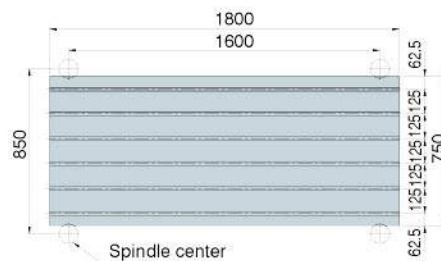
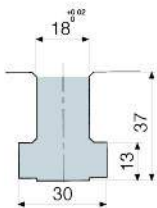


Table (VMC-1600/1600HD)

VMC-1600S/1600SHD/2000S/2000SHD/3000S/3000SHD

() for VMC-2000S/2000SHD [] for VMC-3000S/3000SHD



T-Slot

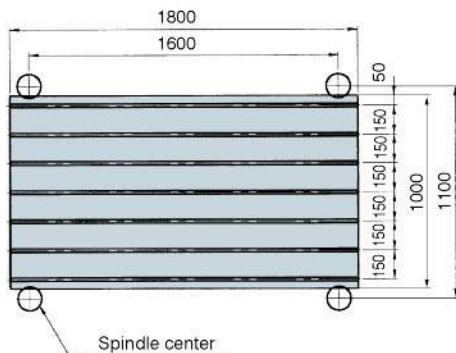


Table (VMC-1600S/1600SHD)

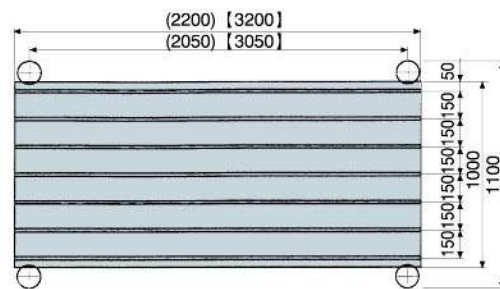
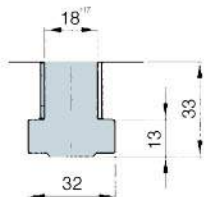


Table (VMC-2000S/3000SHD)

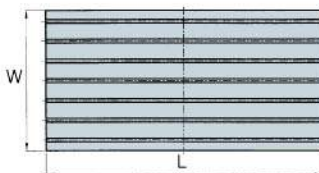
VMC-1300/1600+APC

Unit: mm

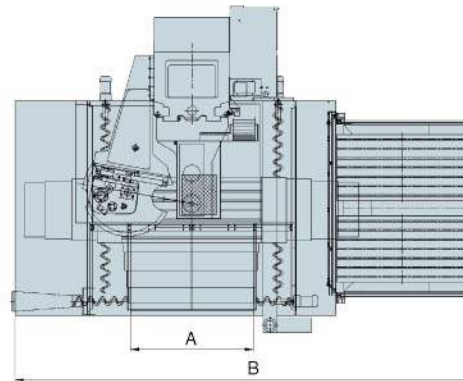
Model \ Item	A	B	C	D	E	F	G	H	I	J	K	L	W
VMC-1300+APC	1320	5132	850	3445	1690	1305	1910	1275	3065	480	3180-3890	1400	710
VMC-1600+APC	1720	6100	850	4185	1915	1276	1880	1250	3065	480	2955-3665	1700	750



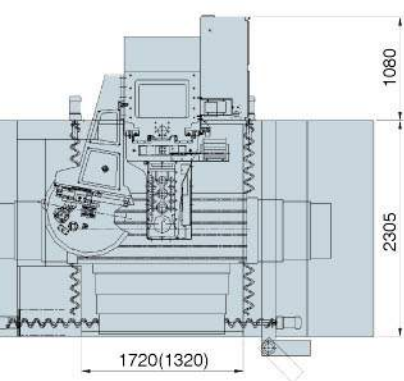
T-Slot



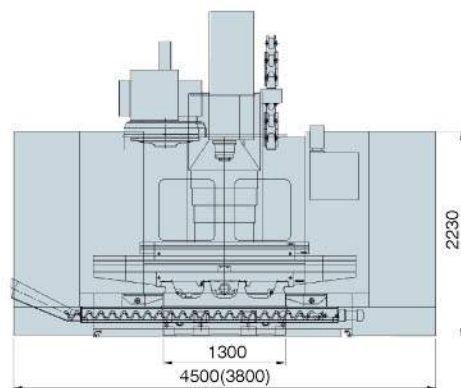
Table



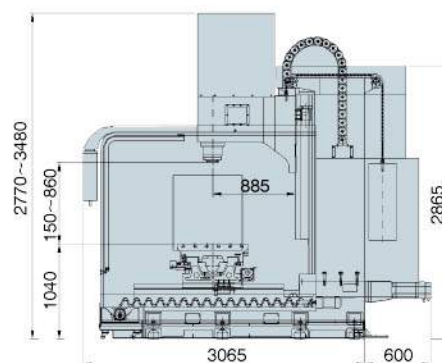
Top View (floor space required)



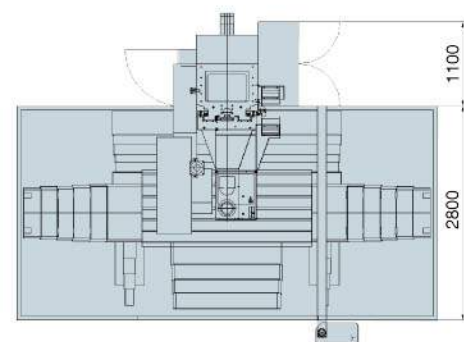
Top View (floor space required)



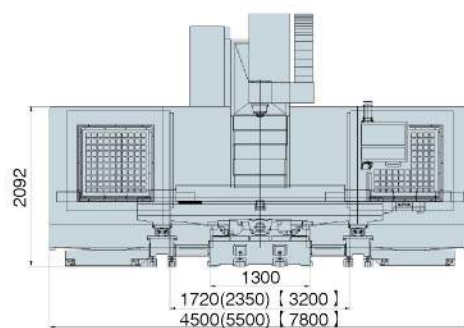
Front View



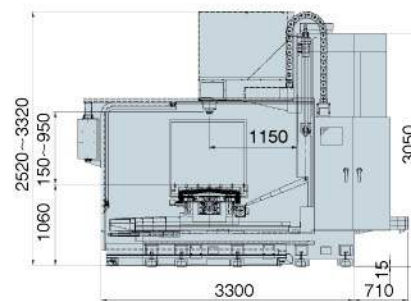
Side View



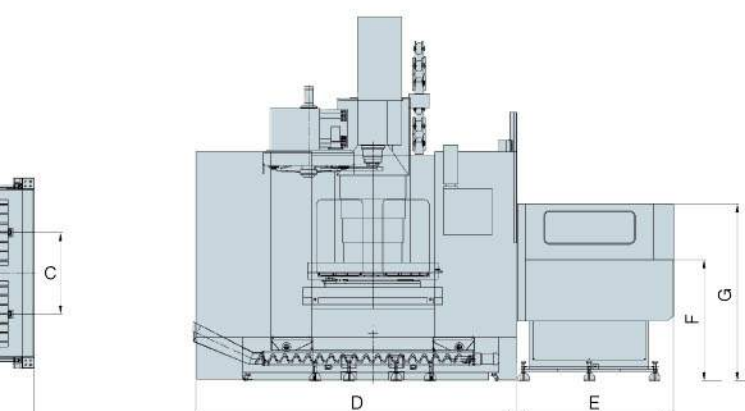
Top View (floor space required)



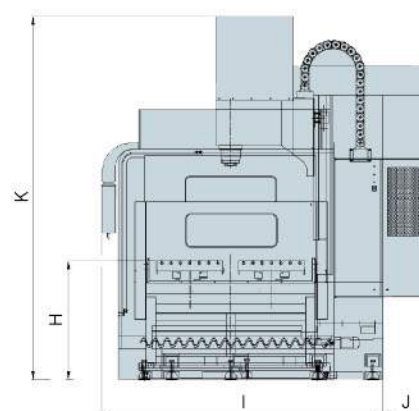
Front View



Side View



Front View



Side View

Specifications

Model		No.40	VMC-I300-2H	VMC-I300	VMC-I600	VMC-I600S	VMC-I600S	VMC-2000S	VMC-3000S
		No.50		I300HD	I600HD	I600SHD	2000SHD	3000SHD	
Table working surface (mm)		1500x750 (59.1" x 29.5")			1800 x 750 (70.9" x 29.5")	1800 x 1000 (70.9" x 39.4")	2200 x 1000 (86.6" x 39.4")	3200 x 1000 (126" x 39.4")	
Longitudinal travel (X) (mm)		1300 (51.2")			1600 (63")		2050 (80.7")	3050 (120")	
Cross travel (Y) (mm)		850 (33.5")				1100 (43.3")			
Vertical travel (Z) (mm)	No.40	710 (28")	800 (31.5")						
	No.50		710 (28")		800 (31.5")				
Spindle nose to table (mm)	No.40	160-870 (6.3" -34.3")	150~950 (5.9" -37.4")		150~950 (5.9"~37.4")				
	No.50		150~860 (5.9" -33.9")						
Spindle center to column (mm)		885 (34.8")	885 (34.8")		1150 (45.3")				
Distance between two spindles (mm)		635 (25")							
Spindle taper		BT-40 / CAT-40			1300 1600 For VMC- 1600S 2000S 3000S	BT-50 / CAT-50		1300HD 1600HD For VMC- 1600SHD 2000SHD 3000SHD	
Spindle diameter (mm)		70 (2.8")				100 (3.9")			
Spindle speed (rpm)		Auto Hi-Lo Gear 80-8000				Auto Hi-Lo Gear 10-4500			
Spindle motor (kW)		11 / 15	7.5 / 11			15 / 18.5			
X-Y-Z Rapid traverse (m/min)		18-18-12					15-15-12	12-12-12	
Cutting feed (mm/min)		1-12000					1-8000		
No.of tools		Armless 24x2	BT-40 / CAT-40: Armless 24, Arm type 24 / 32 (Opt.) BT-50 / CAT-50: Armless 20, Arm type 24 / 32 (Opt.)						
Adjacent pockets Max. tool dia. (mm)		BT-40 / CAT-40, 75 (3")					BT-50 / CAT-50, 125 (5")		
Max. tool diameter (mm)		100 (3.9")	BT-40 / CAT-40 For VMC- 1300 1300-2H 1600 1600S 2000S 3000S			250 (9.8")	BT-50 / CAT-50 For VMC- 1300HD 1600HD 1600SHD 2000SHD 3000SHD		
Max. tool length (mm)		320 (12.6")				400 (15.7")			
Max. tool weight (kg)		10 (22 lb)				15 (33 lb)			
Table load capacity (kg)		3270 (7194 lb)			4600 (10120 lb)		4800 (10560 lb)		
Machine weight (kg)		14000 (30800 lb)	13500 (29700 lb)	17500 (38500 lb)	18600 (40920 lb)	20000 (44000 lb)	23000 (50600 lb)		
Machine dimensions (LxWxH) (mm)		3800 x 4525 x 3200 (149.6"x178.1"x126")	3800 x 4525 x 3480 (149.6"x178.1"x137")	4500 x 4525 x 3480 (177.2"x178.1"x137")	4500 x 5330 x 3250 (177.2"x209.8"x128")	5500 x 5330 x 3250 (216.5"x209.8"x128")	7600 x 5330 x 3250 (299.2"x209.8"x128")		
X-Y-Z Ball screw dia.		φ 50, φ 50, φ 50				φ 50, φ 63, φ 50	φ 63, φ 63, φ 50		
Cutting capacity (S45C)	milling (cc/min)	160	180	1300 1600 For VMC- 1600S 2000S 3000S	320	1300HD 1600HD For VMC- 1600SHD 2000SHD 3000SHD			
	drilling (mm)	φ 30	φ 40		φ 52				
	tapping	M24 x P3.0	M30 x P3.5		M50 x P4.5				

■ All data subject to change without notice.

■ All the specifications are listed with the FANUC CNC system.

Standard Accessories:

1. Coolant system
2. Spindle air blast
3. Auto lubrication with alarm
4. Halogen working lamp
5. Tools, tool box and various manuals
6. Twin spindle/ Twin ATC (VMC-1300-2H)
7. Screw type chip conveyor
8. Full enclosure splash guard
9. Spindle cooler unit (for VMC-HD,SHD series)
10. FANUC Oi-MD Controller

Optional Accessories:

1. Contact / non-contact tool setting system
2. CNC Rotary table
3. Automatic pallet changer (for VMC-1300/HD, 1600/HD)
4. Twin ATC (for VMC-1300)
5. High pressure coolant thru tool tip
6. High pressure coolant thru spindle (20 bar/30 bar)
7. Chain type chip conveyor

CNC Control Specs

■ CNC system type

O: Std. △: Opt. -: Nil

Type	Model	VMC Series
FANUC 0iMD		○
FANUC 21iMB		△
FANUC 18iMB		△
FANUC 18iMB5		△
Heidenhain iTNC530 with MC420		△
Heidenhain iTNC530 with MC422		△
Siemens 840D (572.5)		△
Siemens 840D (573.5)		△

■ Fanuc specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	0iMD	18iMB	21iMB
Display unit	7.2" mono LCD		○	-	-
	8.4" color LCD		△	-	-
	10.4" color LCD		△	○	○
	Data Server with 1GB CF card		△	△	△
	HPCC by 64 bits Risc card		-	△	-
Function	Conversational programming	Manual guide 0i: 0iMD	○	-	-
	with graphic function	Manual guide i: 18iMB / 21iMB / 0iMD (10.4" LCD)	△	○	○
	NC program memory	640 meter (about 256 KB)	○	○	○
	4 th interface		○	○	○

■ Siemens specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	840D
Operation Panel	10.4" color LCD		○
	12.1" color LCD		△
	15.1" color LCD		△
	KB 483C full CNC keyboard		△
	PCU 20 without hard disk		○
Function	Network / disk drive management	CF card	△
	PCU 50 with hard disk	Include HD & Ethernet	△
	ShopMill programming (copy license)		△
	Automatic residual material detection		△
	Universal interpolator NURBS		○
	4 th axis interface		○
	Spline interpolation for 3-axes		△

■ Heidenhain specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	iTNC530 MC420	MC422
Display unit	Visual display unit 15" TFT display		○	○
Function	Main computer	MC420 3.6 ms block processing time	○	-
	NC programming memory	MC422 0.5 ms block processing time	-	○
	4 th interface	26GB on hard disk	○	○
Software option 1	● Cylindrical surface interpolation ● Feed rate in mm/min ● Tilting the working plane ● Circular interpolation in 3 axes with tilted working plane ● HSC path control with special nominal-position value filters ● 3-D tool compensation through surface normal vectors ● Tool Center Point Management (TCPM)		△	○
Software option 2	● Keeping the tool normal to the contour ● Tool radius compensation normal to the direction of the tool ● Linear interpolation in 5 axes (export license required) ● Spline interpolation: execution of splines (3rd degree polynomial) ● 0.5 ms block processing time		△	○



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