



**Whatever You Need  
for Milling and Turning  
We Offer the Best.**



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# Super Vertical Machining Centers



**SV-32 / 32E / 32P**

**SV-40 / 40E / 40P**



# Super Vertical Machining Center



SV-32 / 40



~~Linear Ways~~

~~Welded Construction~~

~~Direct Drive Spindles~~

~~Cheap Single Nut Ballscrews~~

~~Exaggerated Specifications~~

~~Throw Away Machine Tools~~



# What Makes JOHNFORD Verticals Really Super? Everything!

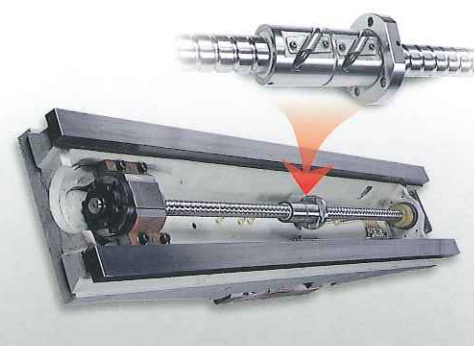
## 10 Johnford features delivering extraordinary VMC value for your hard earned money.

- 1 24 tool (32 optional) high speed, cam-type, twin-arm ATC delivers 1.3 seconds tool to tool changes for maximum productivity.
- 2 High capacity, high speed, precision spindle cartridges with Class 7 ABEC 7 (DIN P4) bearings ensure excellent tool life.
- 3 Oversized 1.57" (40mm) pretensioned, double nut ballscrews minimize thermal growth and guarantee best accuracy.
- 4 Solid box way construction with 1181 IPM (30 m/min) rapid rates ensures speed and rigidity.
- 5 Ultra rigid and heavy Meehanite cast iron construction provides vibration dampening and strength.
- 6 High powered FANUC 15 HP (11 kW) AC digital spindle motor delivers plenty of power and high acceleration rates.
- 7 2 speed, German made ZF helical planetary gearbox delivers 300 ft-lb of spindle torque at 272 rpm.
- 8 Fanuc Oi-MC (optional FANUC 18i-MB) CNC system in an air conditioned electrical cabinet guarantees performance and reliability.
- 9 Servo motors directly coupled to ballscrews ensure high accuracy and precision.
- 10 Standard chip removal system (including a chip flushing system and chip auger) reduces maintenance time.

## Construction

### ← Ballscrews

Even our 1.57" (40 mm) ballscrews are the best you can buy. Not only are they large in diameter, they are double nutted, double anchored, and pretensioned. It takes a heavy, rigid casting to pretension a ballscrew. Using massive bearing blocks with angular contact thrust bearings on both ends of the screw, our ballscrews are stretched under tension to eliminate thermal deformation. Our competitors with weak castings, can't and won't do this. Our bearing blocks are even hand scraped to the mating castings to ensure perfect fit and alignment of the ballscrew.



### → Built Right ..... Built to Last

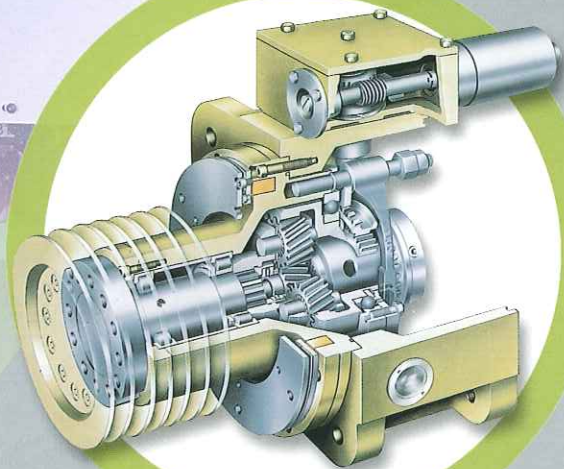
JOHNFORD Super Vertical Machining Centers are built in a classic style. Meehanite cast iron, cast extra heavy for rigidity and damping, precision ground ways induction hardened to 58-62 Rc, and hand scraped Turcite-B applied to all mating surfaces ensure fit, precision, and long-term performance. Building machine tools this way is the only way to do it! Performance you see in your finishes and feel in your wallet.





# Standard Features

## Performance Enhancing Features



### ← ZF 2 Speed Gear Box

A 2 speed ZF helical planetary gearbox is standard. This German made gearbox is over 95% efficient, transmitting more power to the spindle than any other gearbox. Our cutting power is unmatched - 300 ft-lb of torque at only 272 rpm !



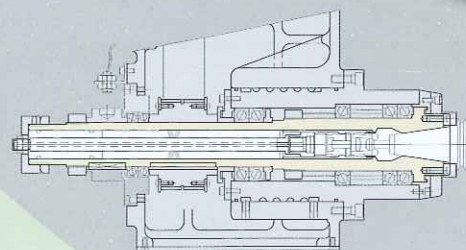
### ← Ultra Fast ATC System

A standard high speed, cam-type, twin arm ATC enhances productivity by reducing tool change time to only 1.3 seconds. This all electrically operated ATC eliminates hydraulics and the associated maintenance.



### → High Performance Cartridge Spindle

With all of that torque, you have to have a great spindle. Our spindle is the best - 65 mm shaft diameter and 7 bearings from top to bottom. Nothing else compares.



## Productivity Enhancing Features

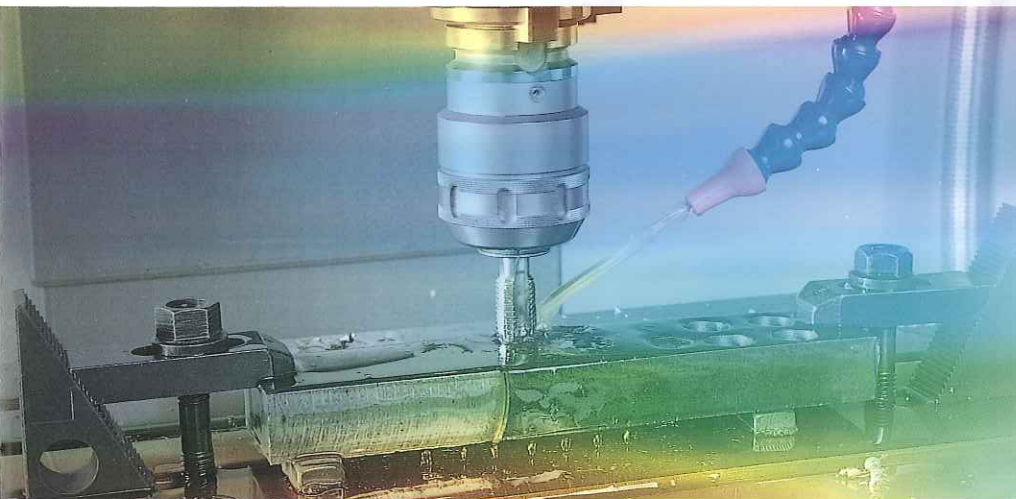
### → High Pressure Coolant

Our standard coolant pumps (for both flood and chip flush) provide abundant amounts of coolant to wash away chips and increase tool life. Our standard pump yields 50 PSI (3.5 kg/cm<sup>2</sup>) and a flow rate of 26 gallons (100 liters ) per minute.



### ← Rigid Tapping

High performance FANUC servo spindle motors allow amazing spindle acceleration/ deceleration performance. From a full stop to 8000 rpm and back to zero in just 3 seconds. Rigid tapping is standard and can be used at up to 4000 rpm.



### ← Automatic Chip Removal

SV Series VMCs are equipped with automatic chip removal systems. Both the standard screw -type chip conveyor and the standard high pressure chip wash pump cycle on and off automatically via timers in the CNC control. Chip removal is complete and automatic, minimizing clean-up time.



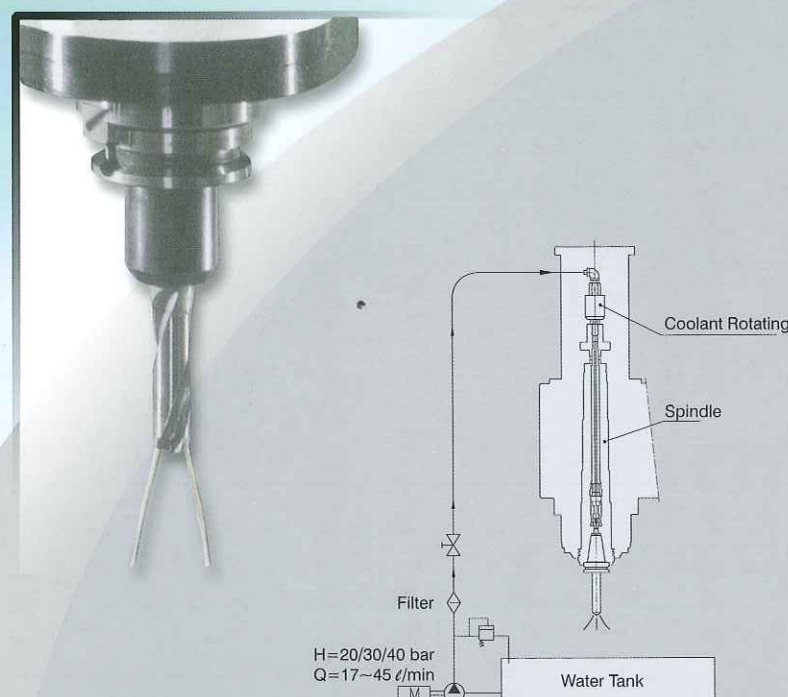
### ↑ Remote Handwheel

Others may call it an option; we call it standard equipment. Our hand held pendant makes set-up a snap.



# Optional Features

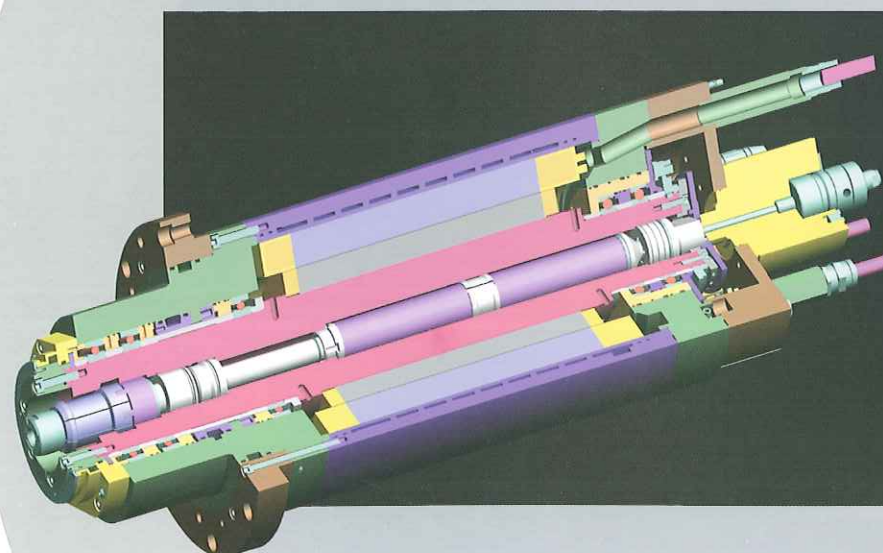
## Maximum Productivity



### High Pressure Coolant Through Spindle Systems

Our basic high pressure C.T.S. system operates at 300 PSI (20 Bar) and 8 gallons per minute. Unlike our competitors' cheap systems, our system filters all coolant across a 20 micron filter prior to being pumped through the spindle. Doing so ensures cleanliness and maximum life from the Deublin rotating joint.

Our best high pressure C.T.S. system operates at 1000 PSI and 10 gallons per minute with dual stage buy filters.



### High Speed Spindles

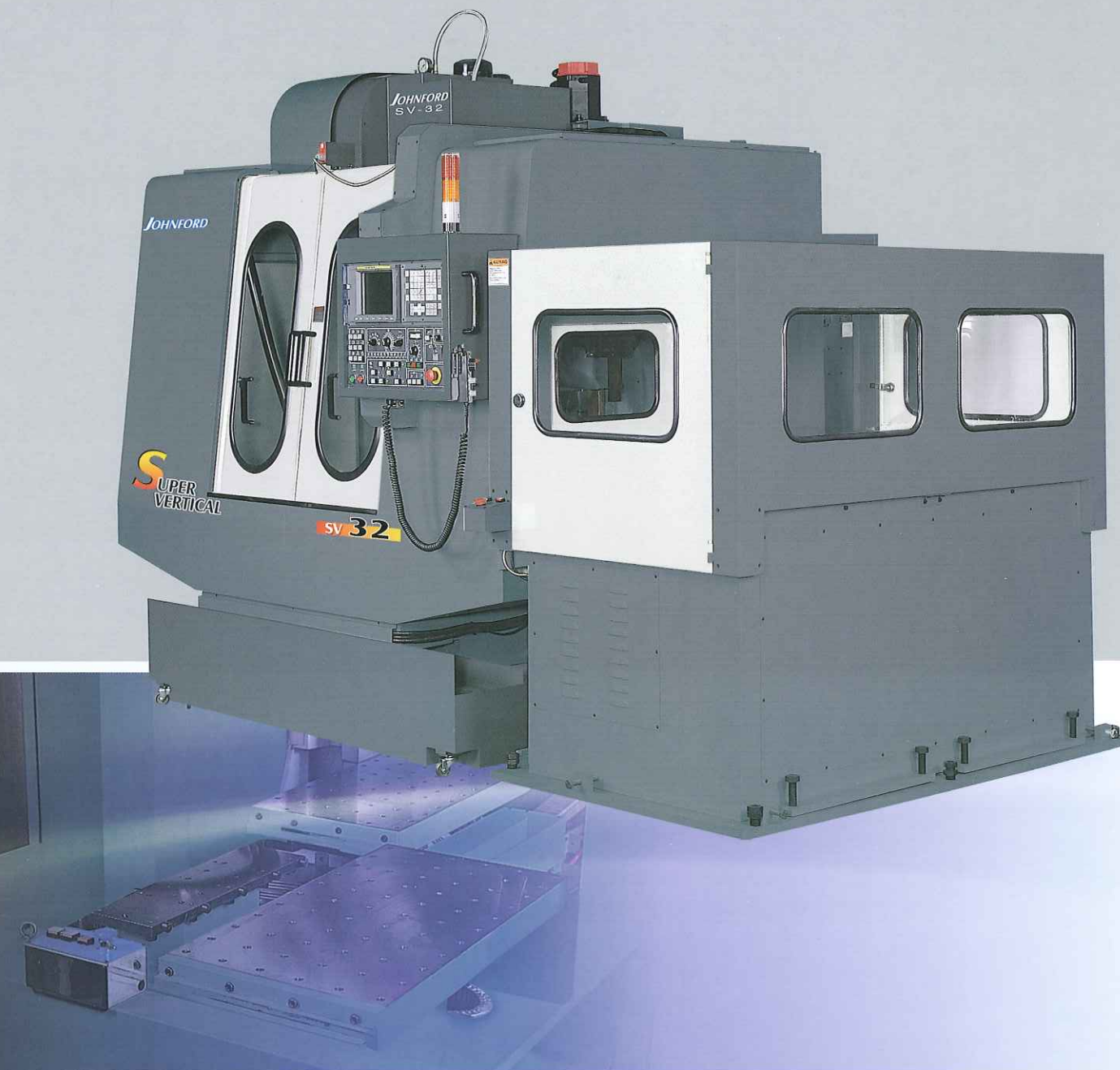
Johnford is a leader in high speed machining. Our standard #40 taper steel bearing spindle can run up to 8000 rpm. With the use of hybrid ceramic bearings we can run 10000, 12000, or 15000 rpm. We also offer an integral high speed spindle system that spins at 24000 rpm with a HSK-A63 tooling system.

### Spindle Cooling Systems

Although our spindles generate little heat, an optional spindle oil cooler can further enhance thermal stability. For even tougher demands, we can supply a spindle heating/cooling system which maintains the temperature of the headstock all day, every day.



## Automatic Pallet Changer



Item	Model	SV-32+APC	SV-40+APC
Max. Pallet Load		661 lb (300 kg)	882 lb (400 kg)
T-slot		0.71 in. (18 mm)	
Hydraulic Clamping Force		13,228 lb (6000 kg)	
Pallet Change Time		15 seconds	

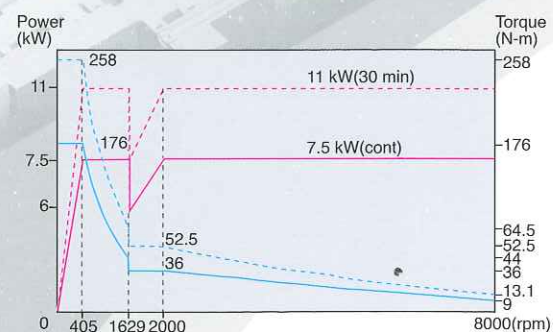
Our factory designed, built and integrated APC is the best you will find. Our side load twin pallet system is fast, yet heavy duty. A complete pallet exchange takes only 15 seconds, yet our heavy mechanism provides plenty of beef for fixtures and a load of parts. Our pallets are made of cast iron and are available T-slotted or drilled and tapped. Our hydraulic clamping mechanism provides twin large diameter cylinders for clamping. The pallets located on precision ground hardened steel pins and bushings. Repeatability is excellent at .0001 in. !



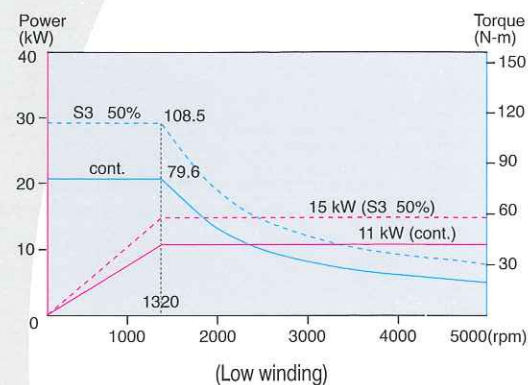
# Spindle Power & Torque Chart

# CNC System-Fanuc 0i-MC

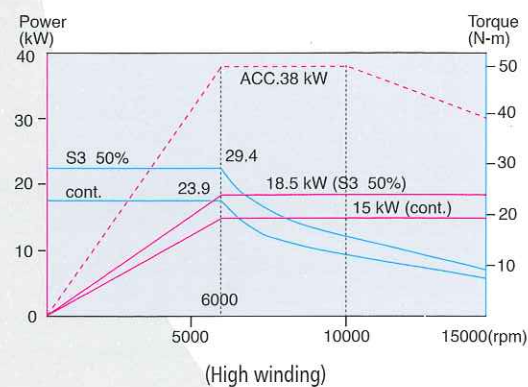
## Torque Power



■ 8000 rpm ZF 2-step gear box (No. 40)



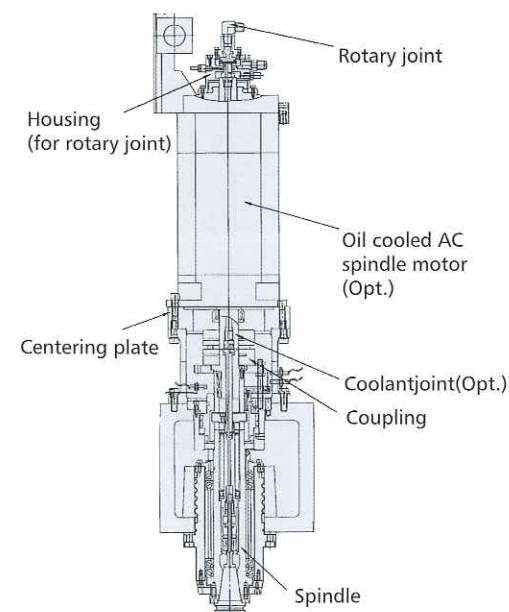
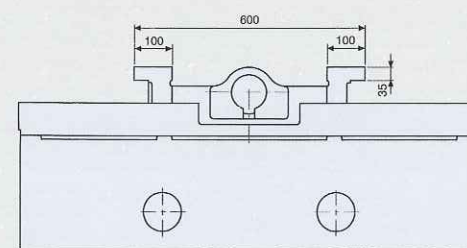
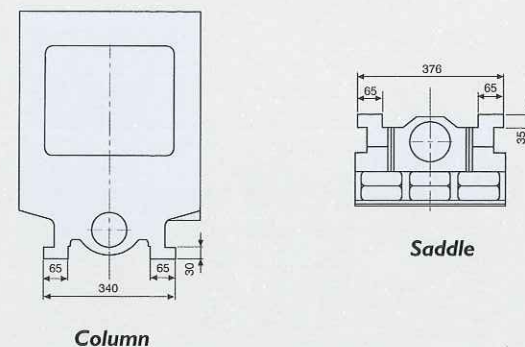
(Low winding)



(High winding)

■ 15000 rpm direct driving spindle (Opt.)

## Dimensions (Box Ways)



**Direct Driving Spindle**  
Spindle taper BT / CAT 40  
Spindle Speed 12000 rpm / 15000 rpm



We use the FANUC CNC system for reliability, performance, and FANUC's excellent worldwide service. Boost your productivity by taking full advantage of the standard 0i-MC CNC system. Features such as a 8.4" color LCD display, Custom Macros, Helical Interpolation, 640 M of memory, Canned Cycles, Full MDI Keyboard, and AI Advanced Preview Control (machining with 20 blocks look ahead) are all standard. For extra high speed and high accuracy machining, the optional AI Contour Control (AICC) function allows machining with up to 40 blocks of look ahead.



## Conversational Programming

Do you want easy programming at the machine? Then consider adding the optional Manual Guide 0i software. The software package comes complete with a 10.4" color LCD, tool and material libraries, solid modeling animation, automatic graphical prompt-driven programming, and a simple question and answer format. With all these user friendly features, programming at the machine will be a breeze!

## User Friendly Operation

CNC data such as parameters, part programs and offset data can be saved to the PCMCIA memory card to communicate with the machine for easy operation. Or you can employ the optional Ethernet and Data Server (up to the maximum capacity of 1 GB) to finish all the cutting programs, transmitting once.

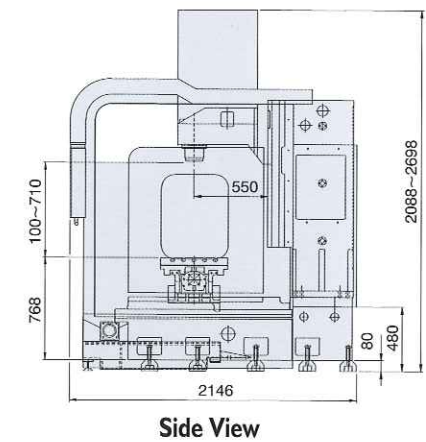
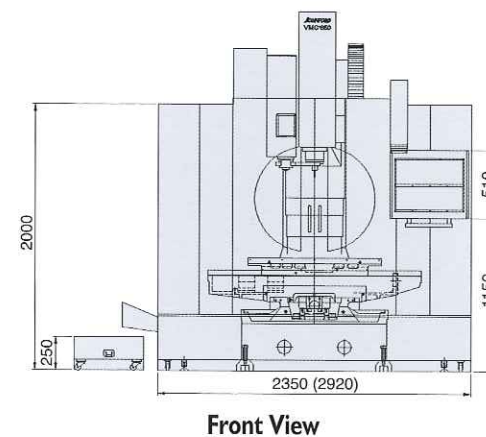
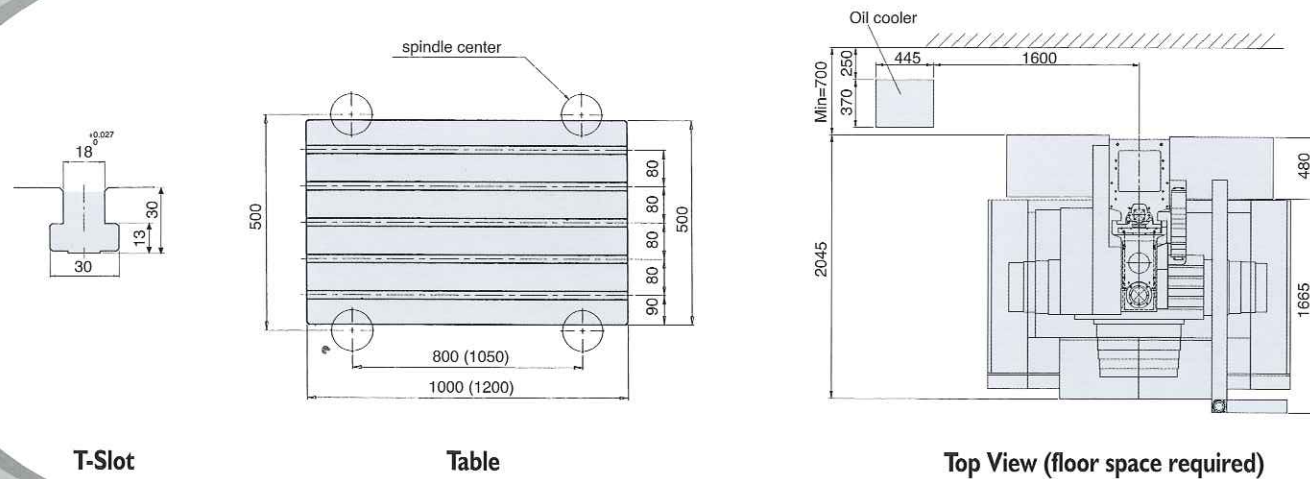




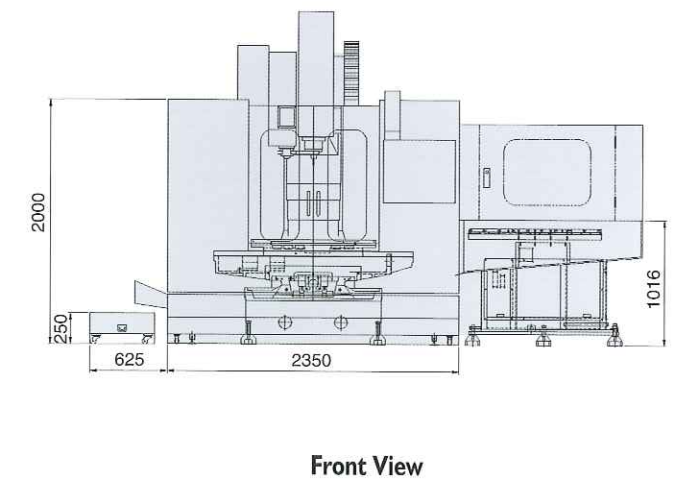
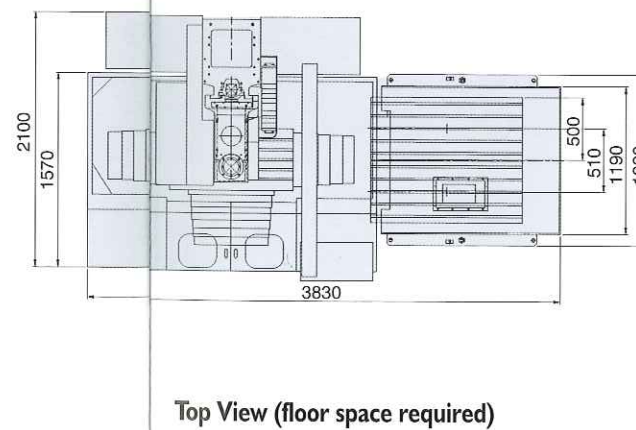
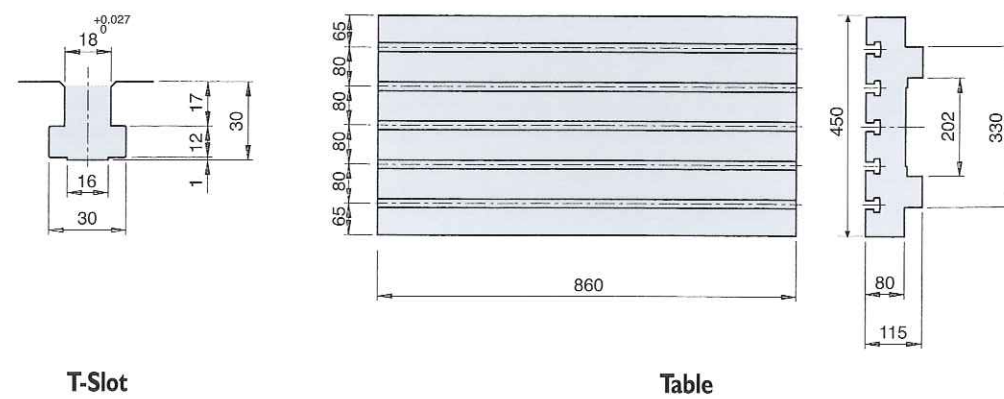
# Dimensions

## SV-32 / SV-40

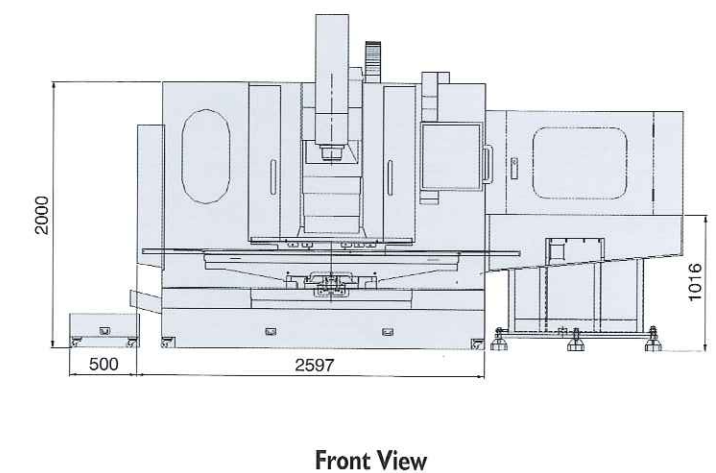
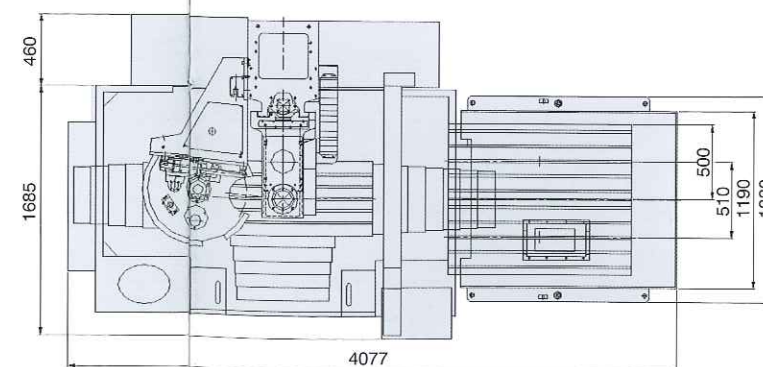
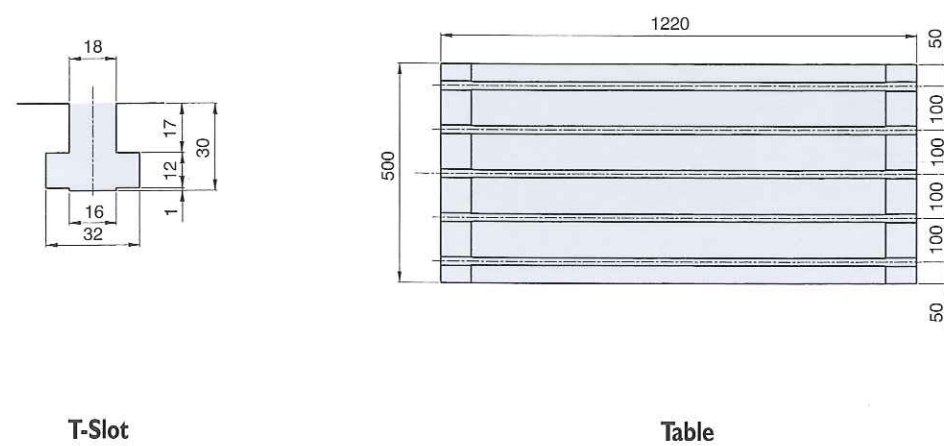
( ) For SV-40



## SV-32 + APC



## SV-40 + APC





# Specifications

Item	Model	SV-32	SV-32E	SV-32P	SV-40	SV-40E	SV-40P
Table working surface		39.4" x 19.7" (1000 mm x 500 mm)			47.2" x 19.7" (1200 mm x 500 mm)		
Longitudinal travel (X)		31.5" (800 mm)			41.3" (1050 mm)		
Cross travel (Y)		19.7" (500 mm)					
Vertical travel (Z)		24" (610 mm)					
Spindle nose to table		3.94"~28" (100~710 mm)					
Spindle center to column		21.7" (550 mm)					
Spindle taper	BT-40 / CAT-40 HSK A63 (Opt.)	BT-40 / CAT-40			BT-40 / CAT-40 HSK A63 (Opt.)	BT-40 / CAT-40	
Spindle diameter		2.56" (65 mm)					
Spindle speed	60-8000 rpm† (10000/12000/15000 Opt. for #40)	60-8000 rpm	60-10000 rpm	60-8000 mm (10000/12000/15000 Opt. for #40)	60-8000 rpm	60-10000 rpm	
Spindle motor	7.5/11 kW Hi-Lo Gear (15/18.5 kW Direct driving)	11 kW, no gear box			7.5/11 kW Hi-Lo Gear (15/18.5 kW direct driving)	11 kW, no gear box	
X-Y-Z Rapid traverse		1181 / 1181 / 787 IPM, (30 / 30 / 20 m/min)					
Cutting feed		0.04~472.5 IPM (1~12000 mm/min)					
Tool selection		Bi-direction random type, shortest path					
Number of tools	Arm type 24 (Std.) Arm type 32 (Opt.)	Armless type 24	Arm type 24 (Std.) Arm type 32 (Opt.)	Arm type 24 (Std.) Arm type 32 (Opt.)	Armless type 24	Arm type 24 (Std.) Arm type 32 (Opt.)	
Adjacent pockets max. tool dia.		3" (75 mm)					
Max. tool diameter		4" (100 mm)					
Max. tool length		12" (300 mm)					
Max. tool weight		22 lb (10 kg)					
Table load capacity		880 lb (400 kg)					
Machine weight		12100 lb (5500 kg)			13200 lb (6000 kg)		
Machine dimensions (L x W x H)		92.5"x126"x106.2" (2350x3200x2698 mm)			115"x126"x106.2" (2920x3200x2698 mm)		
X-Y-Z Ball screw dia.		φ 40x φ 40x φ 40					
Axis thrust (pack) X-Y-Z		5788 lb / 5788 lb / 7718 lb					
Positioning accuracy		±0.00019" (±0.005 mm) / full stroke					
Repeatability		±0.00011" (±0.003 mm) / full stroke					

■ 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 work lamp
5. Tools, tool box and various manual
6. Full enclosure splash guard
7. Screw type chip conveyor
8. Chip flushing coolant
9. Remote manual pulse generator
10. 2 speeds ZF gearbox (for SV-32 / 32P / 40 / 40P)
11. Cycle end light
12. 24 tools arm type ATC (for SV-32 / 32P / 40 / 40P)
13. 24 tools armless type ATC (for SV-32E / 40E)

## Optional Accessories:

1. Contact tool setting system (Renishaw TS-27R or BULM NT-A2/NT-A3)
2. CNC Rotary table
3. Automatic pallet changer
4. Spindle cooling system
5. High pressure coolant thru spindle
6. 10000/12000/15000 rpm spindle (BT-40 / CAT-40)
7. High speed machining package
8. Manual guide i / Oi (Oi-MC) ; Manual guide i (18i-MB / 21i-MB)
9. Chain type chip conveyor

# CNC Control Specs

## ■ CNC system type

O: Std. △: Opt. -: Nil

Type	Model	SV-32 / 32E / 32P	SV-40 / 40E / 40P
FANUC 0i/MC			○
FANUC 21/MB			△
FANUC 18i/MB			△
FANUC 18i/MB5			△
Heidenhain /TNC530 with MC420			△
Heidenhain /TNC530 with MC422			△
Siemens 810D			△
Siemens 840D (572.5)			△
Siemens 840D (573.5)			△

## ■ Fanuc specifications

O: Std. △: Opt. -: Nil

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

## ■ Siemens specifications

O: Std. △: Opt. -: Nil

	Item	Specifications	810D	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		○	○
	Network / disk drive management	CF card	△	△
Function	PCU 50 with hard disk	Include HD & Ethernet	△	△
	ShopMill programming (copy license)		△	△
	Automatic residual material detection		△	△
	Universal interpolator NURBS		○	○
	4 <sup>th</sup> 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 <sup>th</sup> 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			
Software option 2	● HSC path control with special nominal-position value filters			
	● 3-D tool compensation through surface normal vectors			
	● Tool Center Point Management (TCPM)			
	● Keeping the tool normal to the contour		△	○
	● Tool radius compensation normal to the direction of the tool			
	● Linear interpolation in multi axes (export license required)			
	● Spline interpolation: execution of splines (3 <sup>rd</sup> degree polynomial)			
	● 0.5 ms block processing time			