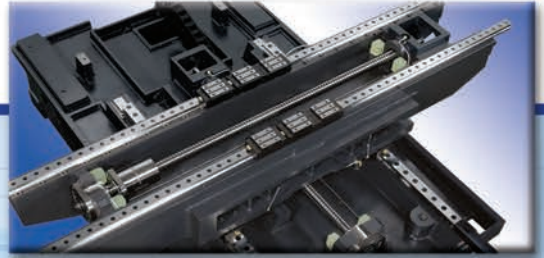
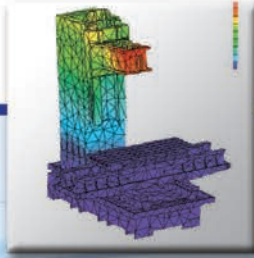
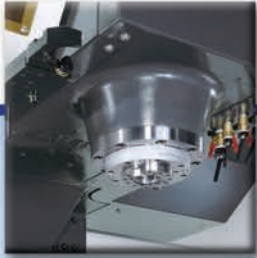


CHEVALIER®

Grinding / Turning / Milling



QP-L Series

High Speed
Vertical Machining Center

QP1620-L • 2033-L • 2040-L
QP2440-L • 2560-L

QP-L Series

High-Speed Vertical Machining Center Engineered for Precision, High Accuracy and Efficiency.

Machine Features

QP-L series is powerful and reliable and offers fast movement of interpolation that meets our customers needs to stay competitive in today's marketplace. This high-speed machine is engineered with efficiency to meet the need for large quantity machining. QP-L series machining center features major parts of the machine constructed of high-quality cast iron offering superior stability. The machine base is supported by full-travel, enabling it to be suitable for high-speed machining. The Z-axis, spindle-head with air counter-balance system provides smooth 3D contouring with quick movement without delay. And the machine is controlled by a reliable FANUC control.

The Series provides fast interpolation and maximizes machining time with high rapid speed. The series has been very well received by our clients in such industries as aerospace, defense, automotive, energy, gas / oil, medical, machining and job shop product fields. They've experienced a dramatic increase in reliability and productivity since the QP-L series shrinks recycle time. And best of all, the series is competitively priced.

QP1620-L

Spindle Speed

- #30 Direct Type : 15,000rpm
- #40 Belt Type : 10,000rpm

Rapid on (X / Y / Z) Axes

- 48 / 48 / 36m/min (1,890 / 1,890 / 1,417 ipm)

Control

- Fanuc OiM
- Siemens 828D (With SHOPMILL)
- Heidenhain TNC640



QP1620-L : (L) 2,762mm x (W) 1,680 (108.7" x 66")

Note : Machine shown with optional accessories

QP1620-L

Machine Construction

Automatic Tool Changing System

- Tool Shank : #30, #40
- Tool Capacity : 20 Tools
- Max. Tool Length : 200mm (7.9")
- Max. Tool Weight : 4kg (#30), 5kg (#40)
- Max. Tool Diameter : with Neighbor Tool : 80mm (3.1") ,
without Neighbor Tool : 125mm (4.9")
- Tool Change Time: #30 Tool To Tool : 2 secs.
#40 Tool To Tool : 2 secs.
- Tool Changing : Arm Type

Spindle Design (#30 Direct Drive)

- Spindle Motor : FANUC α 2 / 15,000i, 2.2 / 3.7kW (cont./15min) ,
 α 3 / 12,000i , 3.7 / 5.5kW (cont. / 30min) (Optional)
- Spindle design : Big diameter spindle design adopt 4 piece P4 (Class) High precision angular contact ball bearings to increase spindle rigidity and loading capacity, and keep high accuracy during high speed machining.
- Max. rigid tapping speed : 6,000rpm

Chip Disposal Design

- Automatic chip flushing system will bring cutting chips to the center part of the machine base. And then screw type chip conveyor will deliver the cutting chips to the chip collector which is located at the rear side of machine base.



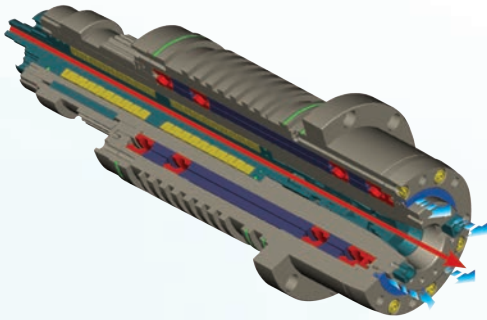
QP1620-L

QP1620-L

Machine Construction

Spindle Air Purge

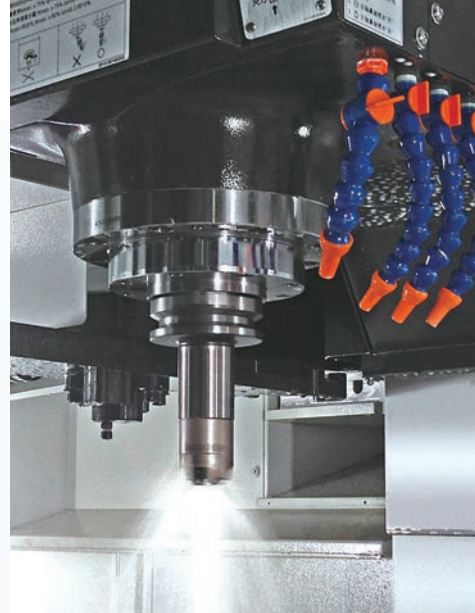
The system is an extremely efficient and reliable method for protecting bearings in a precision spindle assembly while providing some degree of protection against the ingress of coolant and contaminants.



 Spindle air purge (Standard)

Coolant-Through-Spindle

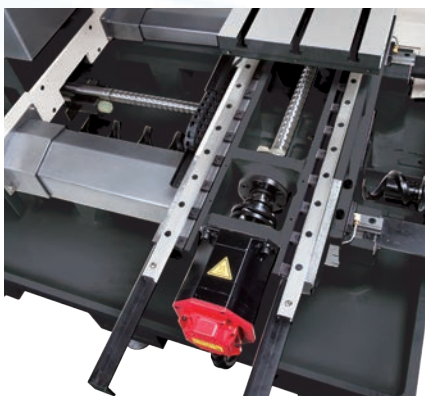
High pressure coolant efficiently takes out chips and heat from deep hole machining and greatly enhancing tool cutting performance and longevity as well as parts accuracy.



Coolant through spindle (Optional)

Linear Axis

- Large Y axis travel gives more room for machining wider parts.
- All linear axes are direct coupling with ballscrew and servo motor to reduce vibration and backlash.
- Standard linear roller guide ways in all three axes.
- High rigidity components are used and machine base is supported by full travel, thus the machine is very suitable for high-speed machining.
- Servo motor coupling directly linked with the screw to ensure machining accuracy.



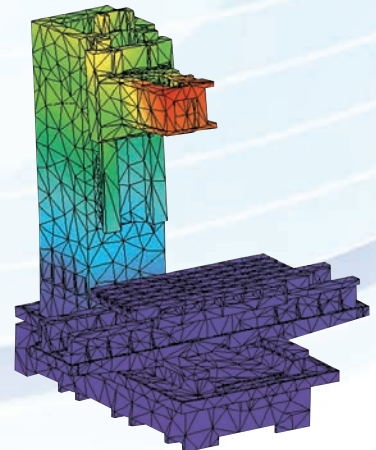
Compact and Rigid Machine Construction

- Compact rigid design features 3-axes linear ways. The major parts of the machine are constructed of high-quality cast iron which offer best stability of the machine.



Finite Element Method (FEM)

Simulation uses FEM methods to calculate the displacements and stresses in a machine design due to operational loads such as: forces, pressures, to ensure superior stability and rigidity.



QP2033-L / 2040-L / 2440-L / 2560-L

Vertical Machining Center (Linear Ways)

Machine Features

These vertical machining centers are designed and built to meet the ever-increasing demands for high efficiency, high accuracy machining, such as 3C components production and other applications that require a powerful and reliable machine to minimize the manufacture cost.

Spindle Speed

(QP2033-L / 2040-L / 2440-L / 2560-L)

- Belt Type : 10,000rpm,
8,000rpm / 12,000rpm (Optional)
- Direct Type : 10,000rpm / 15,000rpm (Optional)

Automatic Tool Changing System

- Tool Changing : Arm Type, 24 Tools (Standard)
Arm Type, 30 Tools; Chain Type, 32 / 40 Tools (Optional)

Rapid on (X / Y / Z) Axes

- QP2033-L / 2040-L / 2440-L
36 / 36 / 24m/min (1,417 / 1,417 / 945ipm)
36 / 36 / 30m/min (1,417 / 1,417 / 1,180ipm) (Optional)
- QP2560-L
30 / 30 / 30m/min (1,180 / 1,180 / 1,180ipm)
24 / 24 / 20m/min (945 / 945 / 787ipm) (Optional)



QP2560-L : (L) 3,560 x (W) 2,250mm (140" x 88.5")

Note : Machine shown with optional accessories

QP2033-L / 2040-L / 2440-L

Vertical Machining Center (Linear Ways)



QP2033-L : (L) 2,430 x (W) 2,115mm (95.6" x 83.2")

QP2440-L : (L) 2,800 x (W) 2,200mm (110" x 86.6")

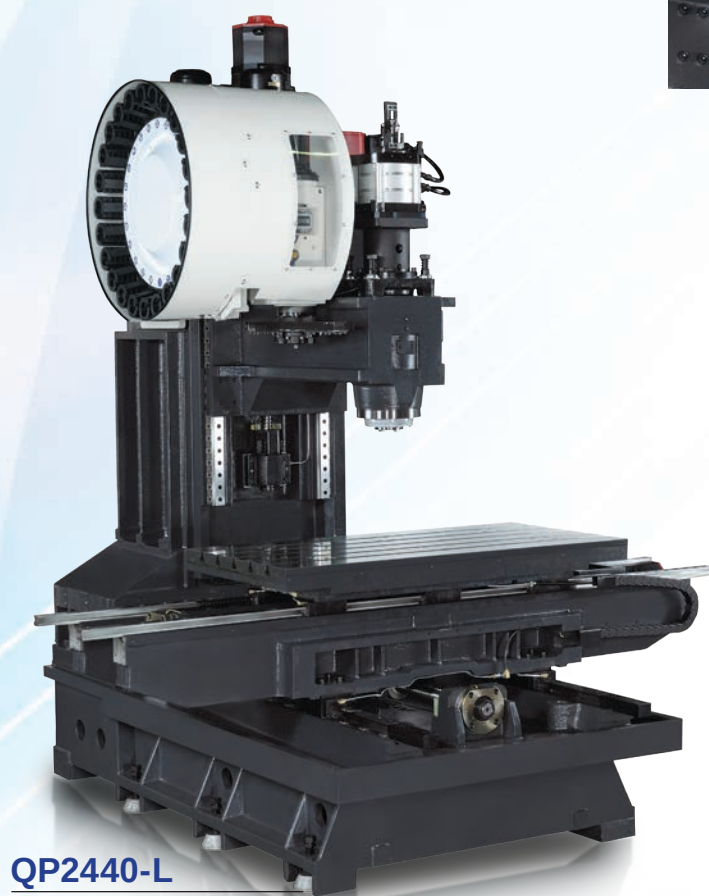
Note : Machine shown with optional accessories

QP2440-L / 2560-L

Machine Construction

Automatic Tool Changing System

- Tool Change Time : Tool To Tool : 2 secs.
- Arm Type, 24 Tools



QP2440-L



QP2560-L

QP2033-L / 2040-L / 2440-L / 2560-L

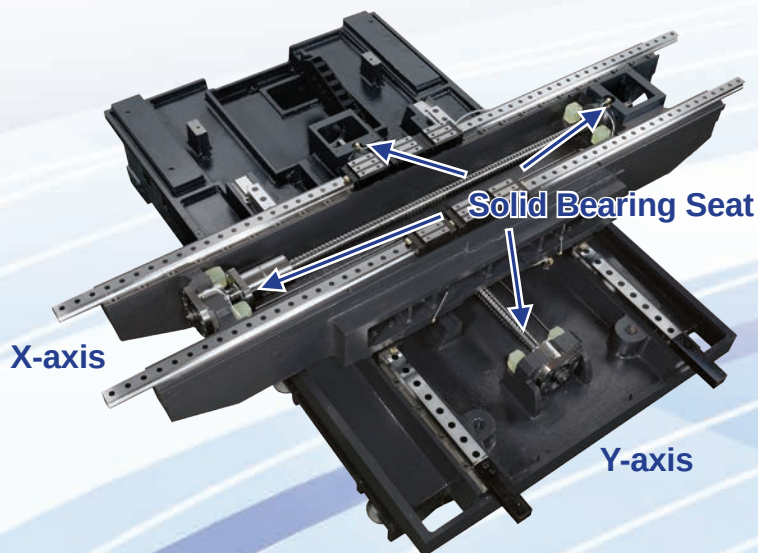
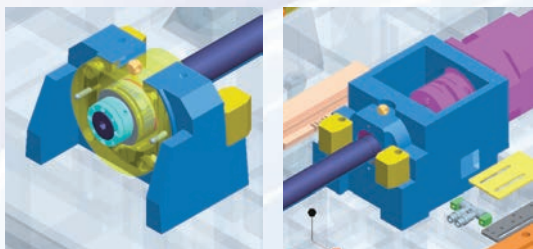
Machine Construction

High Accuracy Ballscrews

3-axes C3 pretensioned ballscrew Ø40mm x P12mm (Ø1.57" x 0.47").

Solid Bearing Seat

Solid bearing seats are integrated into the machine casting to ensure precision, accuracy and decreases vibration.



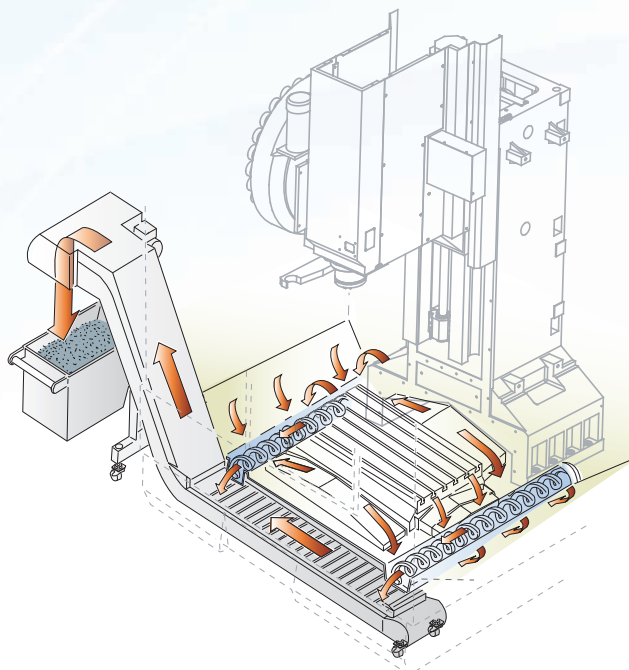
Linear Roller Ways

Larger linear roller guideways are used in all three axes. This feature increases feedrate and enhances the rigidity.



Chip Management

The rear chip flushing system washes the chips into the chip auger, then moves the chips to the front of the lift-up chip conveyor.

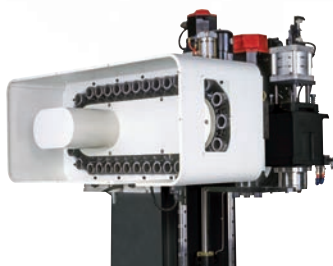


A.T.C System	Arm Type	Chain Type
Tool Shank	BT40 / CT40 / DIN40 / JT40	
Tool Capacity	24 (Standard) 30 (Optional)	32/40 (Optional)
Tool Selection	Random	
Tool Access	Bi-Directional	

Arm Type

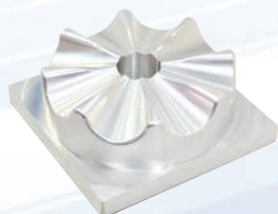


Chain Type



QP-L Series

Application



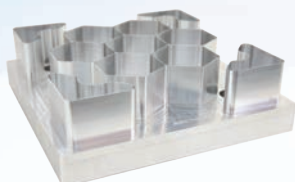
Machine Model : QP20-L / Controller : 0iM

Workpiece	Cutting Material	Tool	Cutting Mode	Speed (RPM)	Feed rate (mm /min)	Total Time	Dimensions
Surface Cutting	AL-6061	EDM D10	Rough	8,000	2,400	12:52:00	100 x 100 x 40mm (3.93" x 3.93" x 1.57")
		BM R4	Rough	8,000	1,800		
		BM R3	Finish	10,000	1,200		



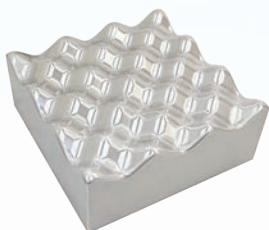
Machine Model : QP20-L (With 4th axis) / Controller : 0iM

Workpiece	Cutting Material	Tool	Cutting Mode	Speed (RPM)	Feed rate (mm /min)	Total Time	Dimensions
Blade	AL-7075	EDM D8	Rough	6,000	1,800	2:30:00	D270 x 32mm (10.6" x 1.26")
		Bull end mill	Finish	8,000	600		



Machine Model : QP20-L / Controller : 0iM

Workpiece	Cutting Material	Tool	Cutting Mode	Speed (RPM)	Feed rate (mm /min)	Total Time	Dimensions
Honeycomb	AL-6061	EDM D10	Rough	10,000	3,000	1:04:00	10 x 170 x 60mm (6.7" x 6.7" x 2.36")
		DRILL D12	Rough	1,600	480		
		EDM D6	Rough	10,000	900		
		EDM D6	Finish	10,000	900		



Machine Model : QP20-L / Controller : 18iMB

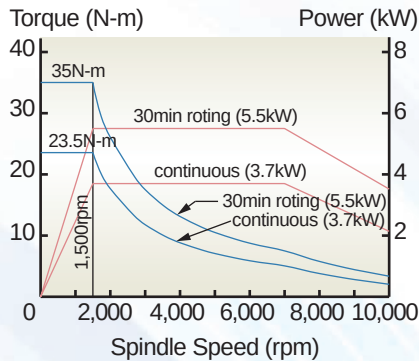
Workpiece	Cutting Material	Tool	Cutting Mode	Speed (RPM)	Feed rate (mm /min)	Total Time	Dimensions
Sponge Mold	NAK80	EDM D6	Rough	10,610	1,597	4:12:00	160 x 160 x 80mm (6.3" x 6.3" x 3.14")
		BM R10	Rough	7,957	1,273		
		BM R3	Finish	11,000	1,320		

QP-L Series

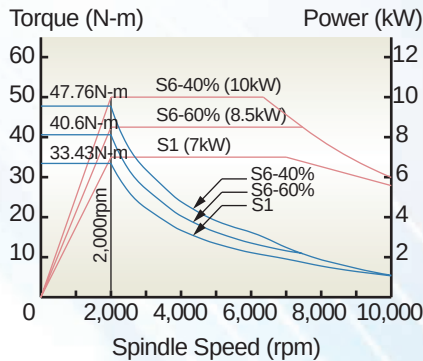
Vertical Machining Center (Linear Ways)

• QP1620-L

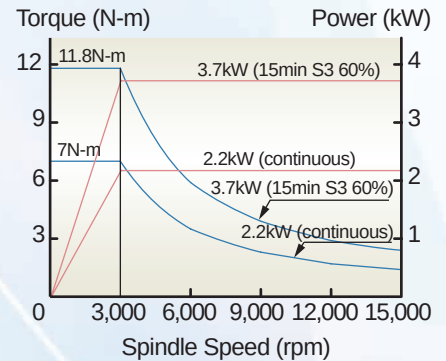
FANUC 5.5kW AC Spindle Motor for #40



SIEMENS 8.5kW AC Spindle Motor for QP1620-L #40

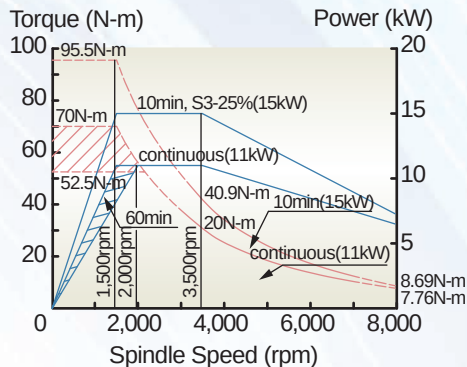


FANUC α 2i/15,000 AC Spindle Motor for QP1620-L #30

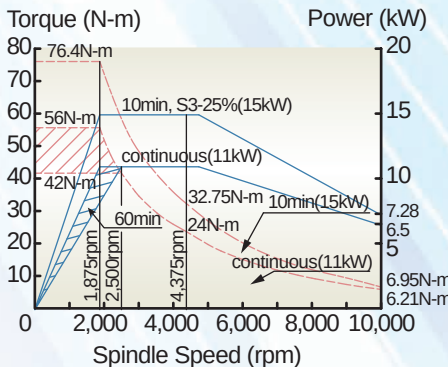


• QP2033 / 2040 / 2440 / 2560-L

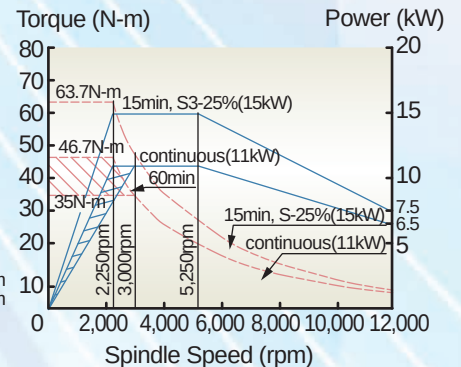
8,000rpm FANUC β 12i (15kW) Spindle Motor



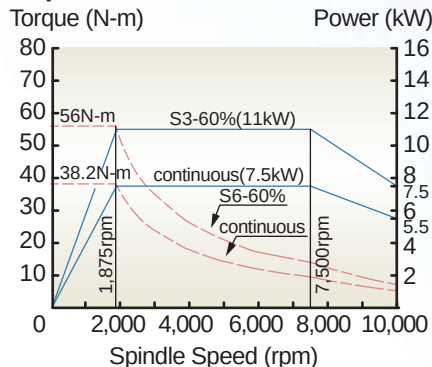
10,000rpm FANUC β 12i (15kW) Spindle Motor



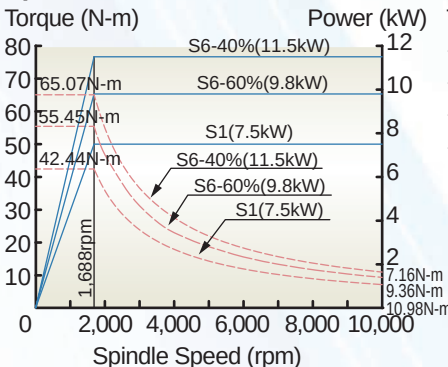
12,000rpm FANUC β 12i (15kW) Spindle Motor



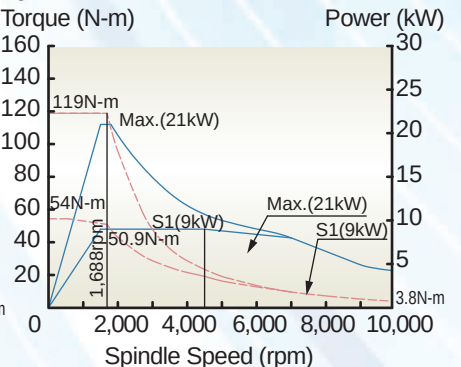
10,000rpm FANUC α 8i (11kW) Spindle Motor



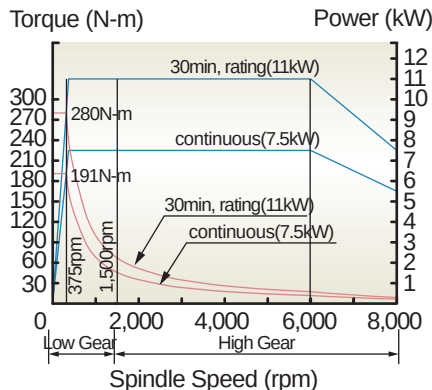
10,000rpm HEIDENHAIN QAN-200L Spindle Motor



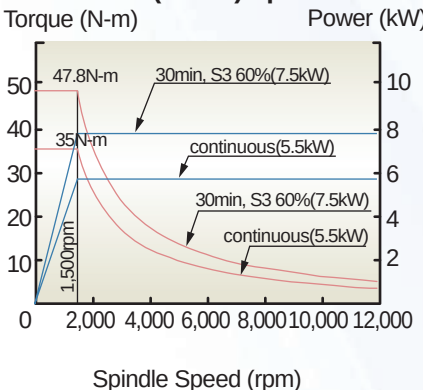
10,000rpm SIEMENS 1PH8107 Spindle Motor



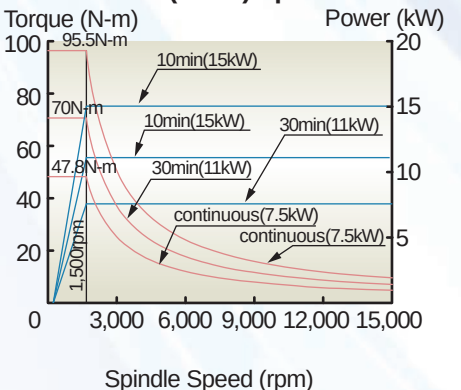
8,000rpm FANUC α 8i (11kW) With ZF Gear Box



Directly coupled 12,000rpm FANUC α 6i (7.5kW) Spindle Motor



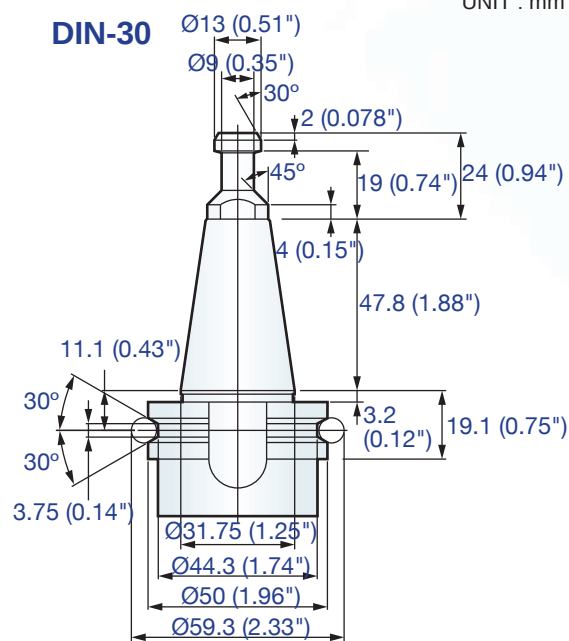
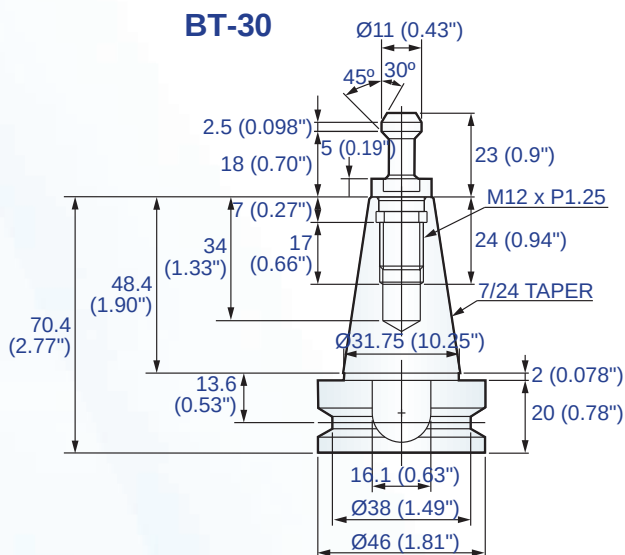
Directly coupled 15,000rpm FANUC α T8i (11kW) Spindle Motor



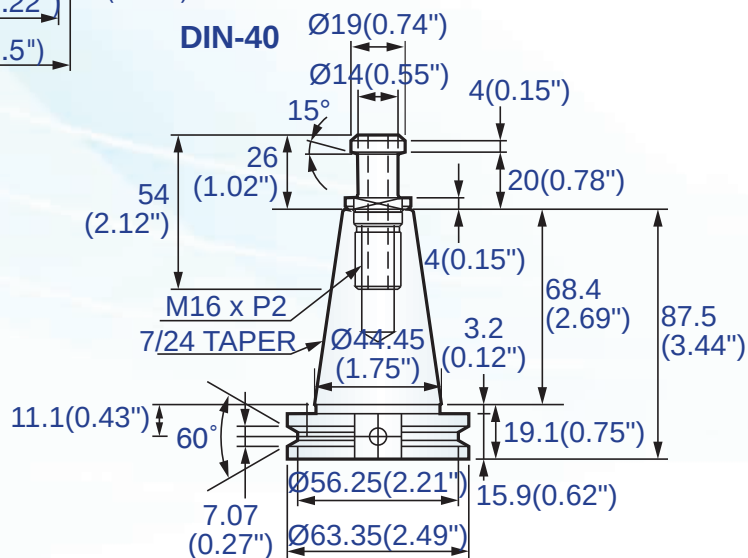
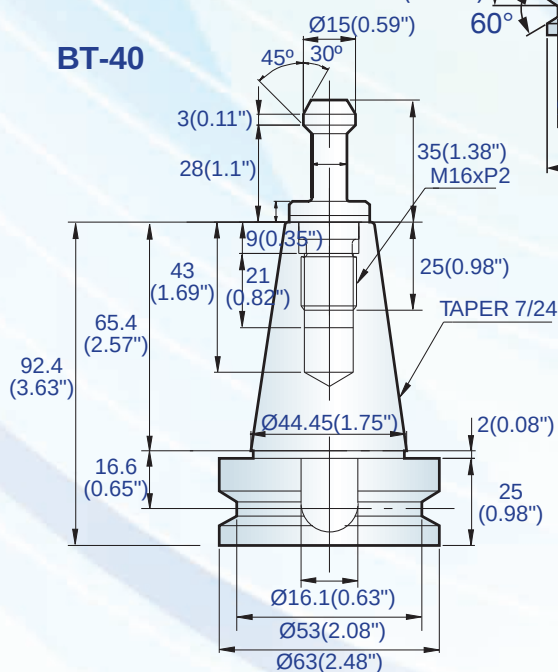
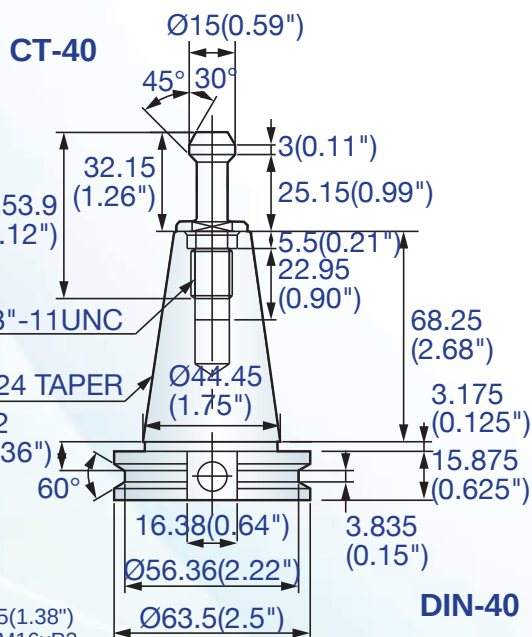
Tool Shank and Pull Stud

QP1620-L (#30)

UNIT : mm (")



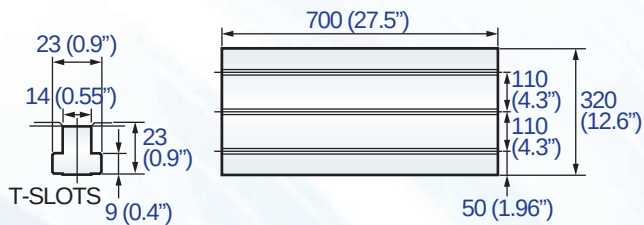
QP2033-L / 2040-L / 2440-L / 2560-L (#40)



QP-L Series

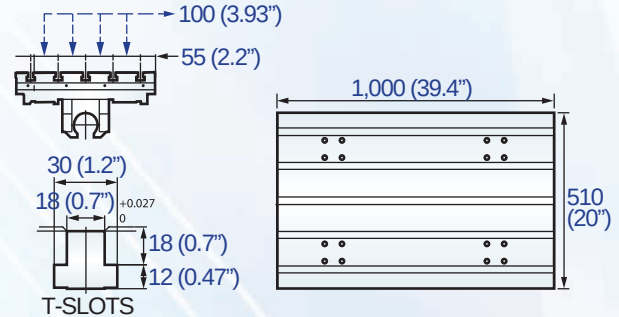
Table Dimensions

QP1620-L

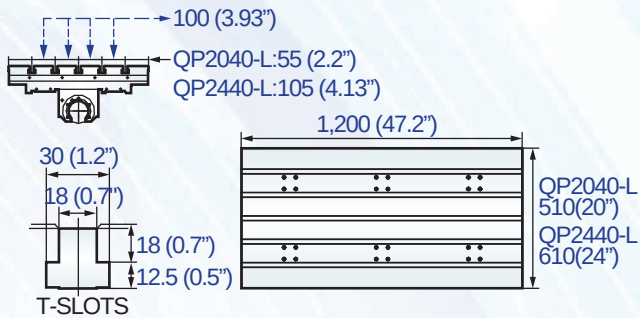


QP2033-L

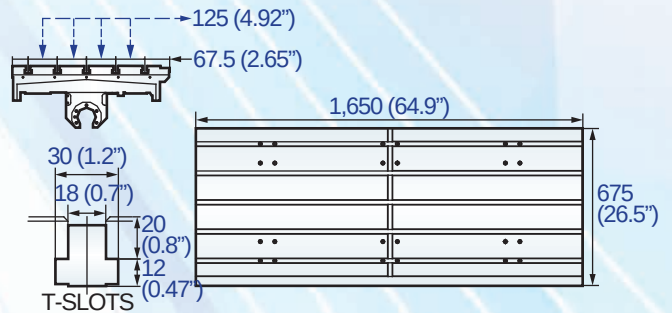
UNIT : mm (")



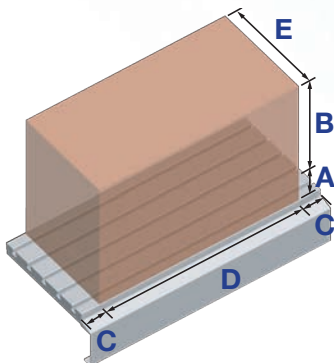
QP2040-L / 2440-L



QP2560-L



Machining Capacity



Model	A	B	C	D	E
QP1620-L	150 (5.9")	380 (14.9")	90 (3.5")	520 (20.4")	320 (12.5")
QP2033-L	150 (5.9")	510 (20.1")	75 (2.9")	850 (33.5")	510 (20")
QP2040-L	130 (5.1")	510 (20.1")	90 (3.5")	1,020 (40.1")	510 (20")
QP2440-L	130 (5.1")	550 (21.6")	90 (3.5")	1,020 (40.1")	610 (24")
QP2560-L	125 (4.9")	635 (25.0")	62.5 (2.5")	1,525 (60")	635 (25")

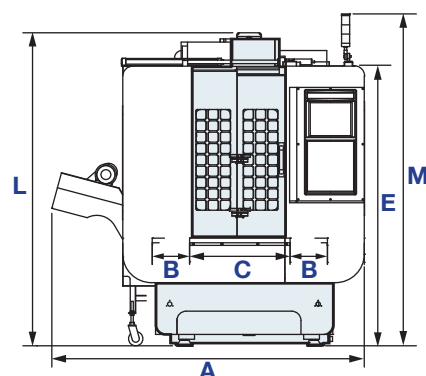
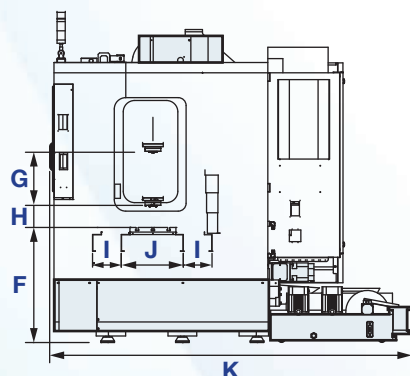
QP-L Series

Dimensional Drawings

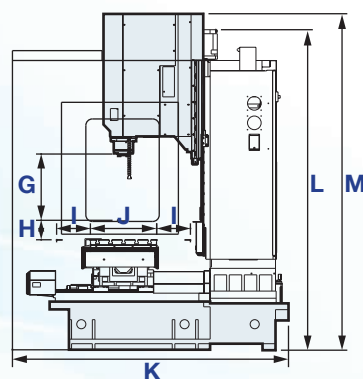
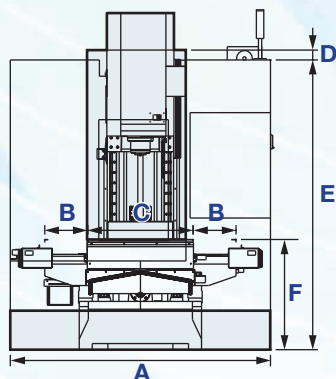
UNIT : mm (")

Item	QP1620-L	QP2033-L	QP2040-L	QP2440-L	QP2560-L
A	2,175 (85.6")	2,430 (95.6")	2,800 (110")	2,800 (110")	3,560 (140")
B	260 (10")	425 (16")	510 (20")	510 (20")	762.5 (30")
C	700 (27.6")	1,000 (39.4")	1,200 (47")	1,200 (47")	1,650 (64.9")
D	-	76 (3")	-	-	-
E	1,893 (74.5")	2,227 (87.6")	-	2,230 (87.8")	2,325 (91.5")
F	811 (32")	850 (33.5")	870 (34.2")	870 (34.2")	943 (37.1")
G	380 (15")	510 (20")	-	550 (21.6")	635 (25")
H	150 (6")	150 (5.9")	130 (5.1")	130 (5.1")	125 (4.9")
I	200 (7.9")	265 (10.4")	-	305 (12")	317.5 (12.5")
J	432 (17")	510 (20")	-	610 (24")	610 (24")
K	2,875 (113.2")	2,115 (83.6")	-	2,200 (86.6")	2,250 (88.6")
L	2,206 (87")	2,467 (97")	-	2,476 (97.5")	2,620 (103.1")
M	2,339 (92")	2,813 (110")	-	2,898 (114")	3,325 (131")

QP1620-L



QP2033-L / QP2040-L / QP2440-L / QP2560-L



QP-L Series Specification

Description		QP1620-L	
Table	Table size	700 x 320mm (27.6" x 12.6")	
	T-Solts (no. x w x dis.)	3pc x 14mm x 110mm (3pc x 0.6" x 4.3")	
	Table load	250 kg (550 lbs)	
Travel	X-Travel	520mm (20.5")	
	Y-Travel	368mm (14.5")	
	Z-Travel	380mm (15")	
Spindle	Spindle nose to table	150~530mm (5.9"~20.9")	
	Spindle center to column	368mm (14.5")	
	Spindle taper	#40	#30
	Spindle speed	Belt Type : 100~10,000rpm	Direct Type : 150~15,000rpm
	Spindle diameter	60mm (2.4")	50mm (2")
Feed Rates	Rapid on (X / Y / Z) axes	48 / 48 / 36m/min. (1,891 / 1,891 / 1,417 ipm)	
	Cutting feed rate	1-10 m/min. (39.4~394ipm)	
	Vertical axis counter balance	Air Equalizer	
Accuracy	Positioning (ISO 230-2 / VDI 3441)	0.007mm	
	Repeatability ISO 230-2 / VDI 3441	0.005mm	
ATC	Tool capacity	Arm : 20 Tools	
	Tool shank	BT40	BT30 (Optional CT30 / DIN30)
	Changer time	T-T 2.0 sec.	
	Pull stud	P40T-1	P30T-1
	Max. tool diameter	80mm (3.1")	
	Max. tool length	200mm (7.9")	
	Max. tool weight	5 kg (11 lbs)	4 kg (8.8 lbs)
Motor	Spindle motor	(F) Belt Type : 3.7 / 5.5kW (S) Belt Type : 7kW (cont.)	Direct Type : 2.2 / 3.7kW
	Drive motor (X, Y, Z)	(F) 1.2 / 1.2 / 1.2kW (S) 2.3 / 2.3 / 2.3kW	(F) 1.2 / 1.2 / 1.2kW
	Coolant pump	1 HP (0.76 kW)	
General	Power required	15 kVA	
	Air required	5.5 kg/cm ² (200 L/min.)	
	Floor space (W x L x H)	1,680 x 2,762 x 2,339mm (66.1" x 108.7" x 92.1")	
	Machine net weight, approx	2,300kg (5,060 lbs)	

Standard Accessory

1. Arm type ATC
2. Coolant system
3. Fully enclosed splash guard
4. Working lamp
5. Central lubrication system
6. Indication lamp
7. Spindle air blast
8. Rear chip flush system
9. Air blast chip blower (cutting air blast)
10. Air purge curtain
11. Tool kits
12. Leveling bolts and pads
13. Operation manual and parts list
14. Screw type chip conveyor (Only QP1620-L)
15. Air gun
16. Heat exchanger for electric cabinet (Only QP16/ 24/ 25-L)
17. Remote type manual pulse generator (MPG)

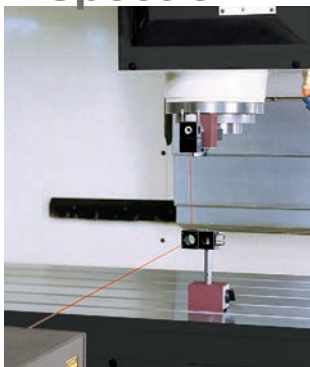
Optional Accessory

1. BT40, CT40, DIN-40, JT-40 pull studs
2. Chip conveyor
3. Belt type spindle : 8,000 / 12,000rpm (Only QP20/ 24/ 25-L)
4. Direct type spindle : 10,000 / 15,000rpm (Only QP20/ 24/ 25-L)
5. 4th axis preparation
6. 4th axis complete set
7. Spindle oil chiller
8. Coolant through spindle
9. Automatic tool length measurement
10. Dual screw type chip conveyor (N/A on QP1620-L)
11. Chain type, 32 / 40 tools ATC (N/A on QP1620-L)
12. Oil skimmer (N/A on QP1620-L)
13. Coolant gun
14. Linear scales
15. ZF gear box (N/A on QP1620-L)
16. Heat exchanger for electric cabinet
17. Workpiece measurement
18. Transformer

	QP2033-L	QP2040-L	QP2440-L	QP2560-L
	1,000 x 510mm (39.4" x 20.1")	1,200 x 510mm (47.2" x 20.1")	1,200 x 600mm (47.2" x 23.6")	1,650 x 635mm (65" x 25")
	5pc x 18mm x 100 mm (5pc x 0.7" x 3.9")		5pc x 18mm x 100mm (5pc x 0.7" x 3.9")	5pc x 18mm x 125mm (5pc x 0.7" x 4.9")
	500 kg (1,100 lbs)	600 kg (1,320 lbs)	600kg (1,320 lbs)	1,500kg (3,300 lbs)
	850mm (33.5")	1,020 (40.2")	1,020mm (40.2")	1,525mm (60")
	530mm (20.9")		610mm (24")	635mm (25")
	510mm (20.1")		550mm (21.7")	635mm (25")
	150~660mm (5.9"~26")	130~640mm (5.1"~25.2")	130~680mm (5.1"~26.8")	125~760mm (4.9"~29.9")
	585mm (23")		685mm (27")	
	#40			
	Belt Type : 100~10,000rpm (Optional 8,000 , 12,000rpm) Direct Type : 120~12,000rpm (Optional 10,000 , 15,000rpm)			
	70mm (2.8")			
	36 / 36 / 24m/min. (1,417 / 1,417 / 945 ipm), Optional 36 / 36 / 30m/min. (1,417 / 1,417 / 1,180 ipm)			30 / 30 / 30 m/min. (1,180 / 1,180 / 1,180 ipm), Optional 24 / 24 / 20 m/min. (945 / 945 / 787 ipm)
	1-10 m/min. (39.4~394ipm)			
	N/A			Air Equalizer
	0.01mm			
	0.007mm			
	Arm : 24Tools (Optional Arm: 30 or Chain: 32 / 40)			
	BT40, (Optional CT40 or DIN40)			
	T-T 2.0 sec.			
	P40T-1			
	80mm (3.1")			
	300mm (11.8")			
	7 kg (15.4 lbs)			
	(F) Belt Type : 11 / 15kW (F) Direct Type : 7.5 / 11kW (S) Belt Type : 9kW (cont.) (H) Belt Type : 7.5kW (cont.)			(F) Belt Type : 7.5 / 11kW (F) Direct Type : 7.5 / 11kW (S) Belt Type : 12kW (cont.) (H) Belt Type : 10kW (cont.)
	(F) 1.8 / 1.8 / 2.5kW, Optional 3.0 / 3.0 / 4.0kW (S) 3.3 / 3.3 / 4.87kW (H) 3.5 / 3.5 / 5.7kW			(F) 4.0 / 4.0 / 4.0kW (S) 3.77 / 3.77 / 4.87kW (H) 5 / 5 / 5.7kW
	1 HP (0.76 kW)			
	20 kVA			25 kVA
	5.5 kg/cm ² (200 L/min.)			
	2,430x2,115x2,813mm (95.7" x 83.3" x 110")	2,800 x 2,115 x 2,813mm (110.2" x 83.3" x 110")	2,800 x 2,200 x 2,898mm (110.2" x 86.6" x 114")	3,560 x 2,250 x 3,325mm (140.2" x 88.6" x 131")
	5,800kg (12,760 lbs)	6,200kg (13,640 lbs)	6,700kg (14,740 lbs)	8,500kg (18,700 lbs)

All content is for reference only and may be subject to change without prior notice or obligation.

Inspection



Laser Calibration

After assembling, all machines are measured and calibrated by state-of-the-art laser calibration equipment. This ensures precise verification and compensation of the machines, resulting in increased accuracy and repeatability.



Ball Bar Testing

The machine put through a series of circular moves in the X / Y plane, and 1/2 circle moves in the X / Z and Y / Z planes. Encoder data from the bar is fed into a computer, which outputs a chart of machine accuracy. Any deviations in squareness or length show up as distorted circles that are very easy for a technician to spot. This chart assures that the machine is accurate and properly aligned.



Grinding Machine

Grinding Machine

Turning Machine

Milling Machine

Headquarters

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