



QP-L Series

High-speed Vertical Machining Center

High Precision. Rigid. Efficient.



CHEVALIER®
Grinding / Turning / Milling

We shape your ideas.™



Heavy-duty construction for superior stability and rapid speed

High Precision. Rigid. Efficient.

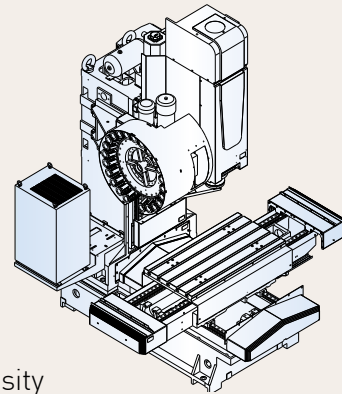
The QP-L Series of VMCs is powerful, reliable and offer fast movement of interpolation that meets your needs to stay productive. This series is designed with efficiency to meet the need for large quantity machining with shorter cycling time.

Major parts of the QP-L structure are constructed of high-density cast iron for stability. The base is supported by full-travel, enabling high-speed machining.

The QP-L Series serves a variety of industries, including aerospace, defense, automotive, energy, gas and oil, medical and job shops.

Our exclusive iMachine Communications System™ (iMCS) software features remote machine monitoring, data analysis, alarm history and maintenance updates for overall equipment effectiveness (OEE).

And to ensure the affordable QP-L VMCs continue to operate efficiently for years to come, we back them with our no-nonsense standards and legendary service for reliable performance.



The QP2033-L is shown with optional accessories.

Key Features and Benefits

The QP-L Series vertical machining center is engineered with high efficiency and high accuracy to satisfy the need for large quantity machining.

- 1— Eco-friendly design includes a skimmer that separates oils from the coolant, making coolant cleaner and enabling it to be re-used instead of being discarded as toxic waste.
- 2— Optimized structure and one-piece bearing seat and base design enhance the rigidity of axial transmission and ensure high machining accuracy (QP20/24-L Series).
- 3— The one-piece bed and wide column base are heavily ribbed to prevent twisting and distortion under even the most severe cutting forces. The rigid cast-iron frame contributes to unparalleled damping characteristics.
- 4— Heavy duty and precise linear guideways on three axes are high grade, providing stability and heavy cutting.
- 5— 3 axes direct transmission between servo motor and ballscrew that greatly boost your efficiency.
- 6— Offers iMCS for IoT readiness for 24/7 productivity.
- 7— Legendary Chevalier service.

The QP-L Series is built with linear ways for smooth quick movement



QP1620-L

Machine Construction QP-L Series

For machining precision, the QP-L Series VMCs is designed with Finite Element Method (FEM) to calculate the displacements and stresses in the machine design due to operational loads. The series achieves superior stability with a high-density, dense cast iron construction of its main structure (base, table, column, saddle). Precision is further enhanced by using pretensioned Class C3 ballscrews in all three axes, which are built with linear ways for smooth quick movement; the large Y-axis gives more room for machining wider parts. Servo motors directly coupled to the ballscrews increase movement sensitivity while dramatically reducing backlash. The machine base is supported by full travel, making it suitable for high speed machining.



QP1620-L

Spindle speed

- #30 Direct drive: 15,000 rpm
- #40 Belt drive: 10,000 rpm
- Rapid on (X / Y / Z) axis
48 / 48 / 36 m/min
(1,889 / 1,889 / 1,417 ipm)

Spindle design (#30 direct drive)

- Spindle motor:
Fanuc α 2/15,000i,
2.2 / 3.7 kW cont./15 min.
 α 3/12,000i, 3.7 / 5.5 kW
cont./30 min. (optional)
- Large diameter spindle design includes four Class P4 high-precision angular contact ball bearings to increase spindle rigidity and loading capacity and maintain high accuracy during high speed machining.
- Maximum rigid tapping speed: up to 6,000 rpm.



The QP1620-L is shown with optional accessories.

Large-diameter spindle design increases spindle rigidity and maintains accuracy during high-speed machining



Tool magazine system

- Tool shank: #30, #40
- Tool capacity: 20+1 tools
- Max. tool length: 200 mm (7.9")
- Max. tool weight: 4 kg (8.8 lbs.) (#30), 7 kg (15.4 lbs.) (#40)
- Max. tool diameter:
with adjacent tool - $\varnothing$ 75 mm ($\varnothing$ 3.0") (#30),
 $\varnothing$ 80 mm ($\varnothing$ 3.1") (#40)
without adjacent tool - $\varnothing$ 150 mm ($\varnothing$ 5.9")
- Drive type: Cam type
- Tool change time T-T: 1 sec.
- Tool changing: Arm type

Machine Construction

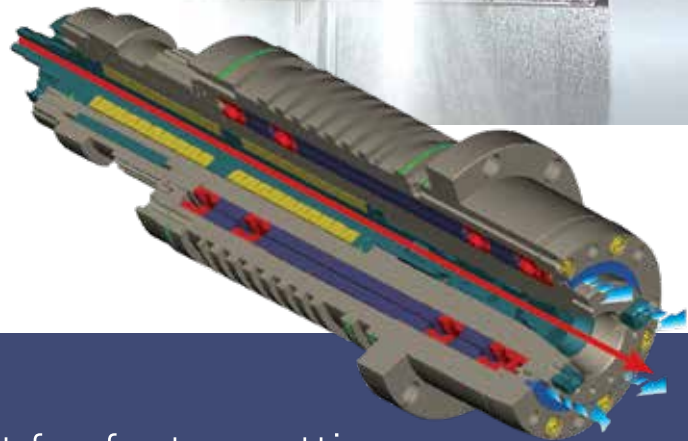
Coolant through spindle

The QP-L Series features high-pressure coolant efficiently takes out chips and heat from deep-hole machining and greatly enhances tool cutting performance and longevity, as well as parts accuracy.



Spindle air purge

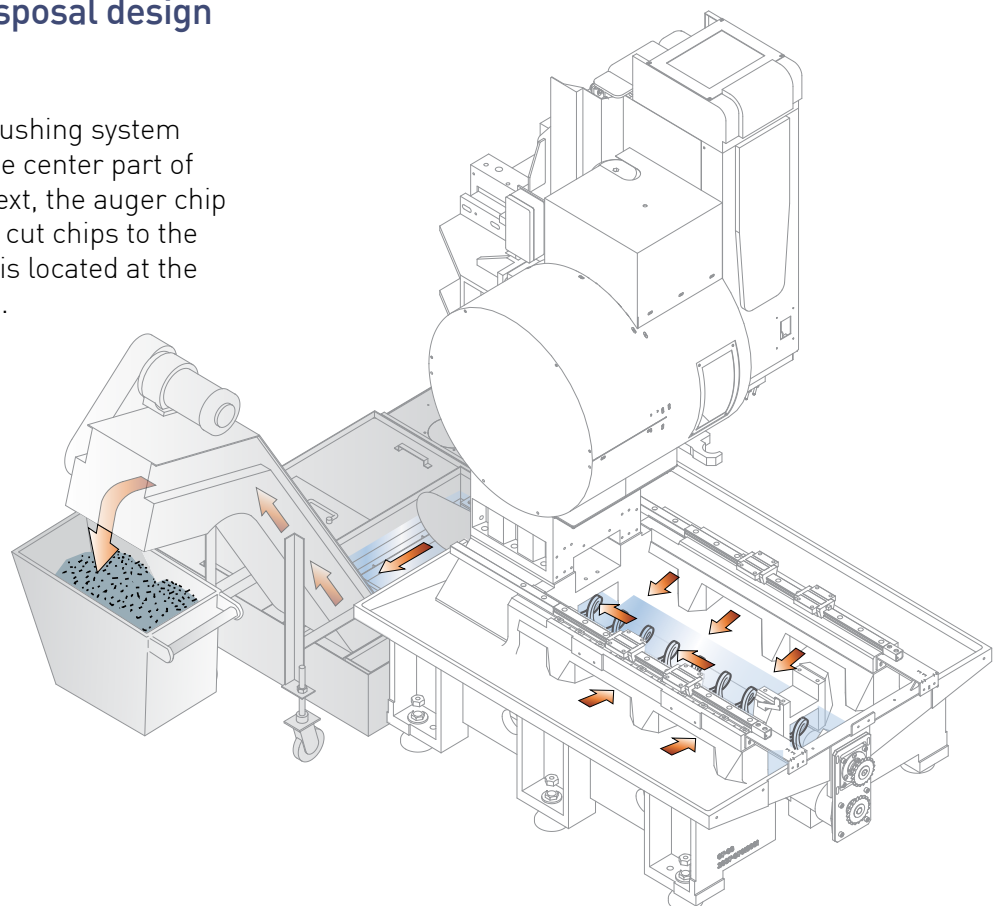
The QP-L system is an extremely efficient and reliable method for protecting bearings in a precision spindle assembly while providing some degree of protection against the ingress of coolant and contaminants.



Through-spindle coolant for faster cutting, better hole quality and greater throughput

Powerful chip disposal design QP1620-L

The automatic chip flushing system moves cut chips to the center part of the machine base. Next, the auger chip conveyor delivers the cut chips to the chip collector, which is located at the rear of machine base.



Machine Construction

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

Spindle speed

- Belt drive: 10,000 rpm
- Direct drive: 12,000 rpm, 15,000 rpm (optional)
- Rapid on (X / Y / Z) axis
QP2033-L / QP2040-L / QP2440-L
36 / 36 / 24 m/min (1,417 / 1,417 / 944 ipm)
36 / 36 / 30 m/min (1,417 / 1,417 / 1,181 ipm) (optional)
QP2560-L
30 / 30 / 24 m/min (1,181 / 1,181 / 944 ipm)
24 / 24 / 20 m/min (944 / 944 / 787 ipm) (optional)



The QP2560-L is shown with optional accessories.



The QP2440-L is shown with optional accessories.

Machine Construction

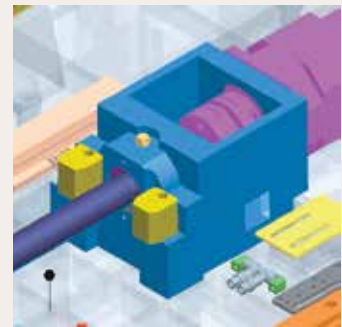
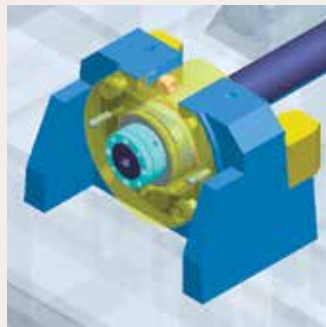
QP2033-L / QP2040-L / QP2440-L / QP2560-L

High accuracy ballscrews

Pretensioned Class C3 ballscrews in all three axes, which are built with linear ways for smooth quick movement. A large Y-axis gives more room for machining wider parts. Ø40 mm x P12 mm (Ø1.57" x P0.47")



The QP-L Series features solid bearing seats that are integrated into the machine casting to ensure precision, accuracy and a reduction in vibration.



Structural design provides high accuracy and rigidity

Linear roller ways

Large linear roller guideways are used in all three axes. Guide way width is 35 mm (1.4") with Z-axis longer block design. This feature increases feedrate and enhances the rigidity. Y-axis travel width is 530 mm (20.9"), enough to cover almost any die and mold working demand.



Tool magazine system

- Tool shank: #40
- Tool capacity:
 - 24+1 tools (standard)
 - Arm type 30 tools (optional)
- Max. tool length: 300 mm (11.8")
- Max. tool weight: 7 kg (15.4 lbs.)
- Max. tool diameter:
 - With adjacent tool - Ø80 mm (Ø3.1")
 - Without adjacent tool - Ø150 mm (Ø5.9")
- Drive type: Cam type
- Tool change time T-T: 2 sec.
- Tool changing: Arm type

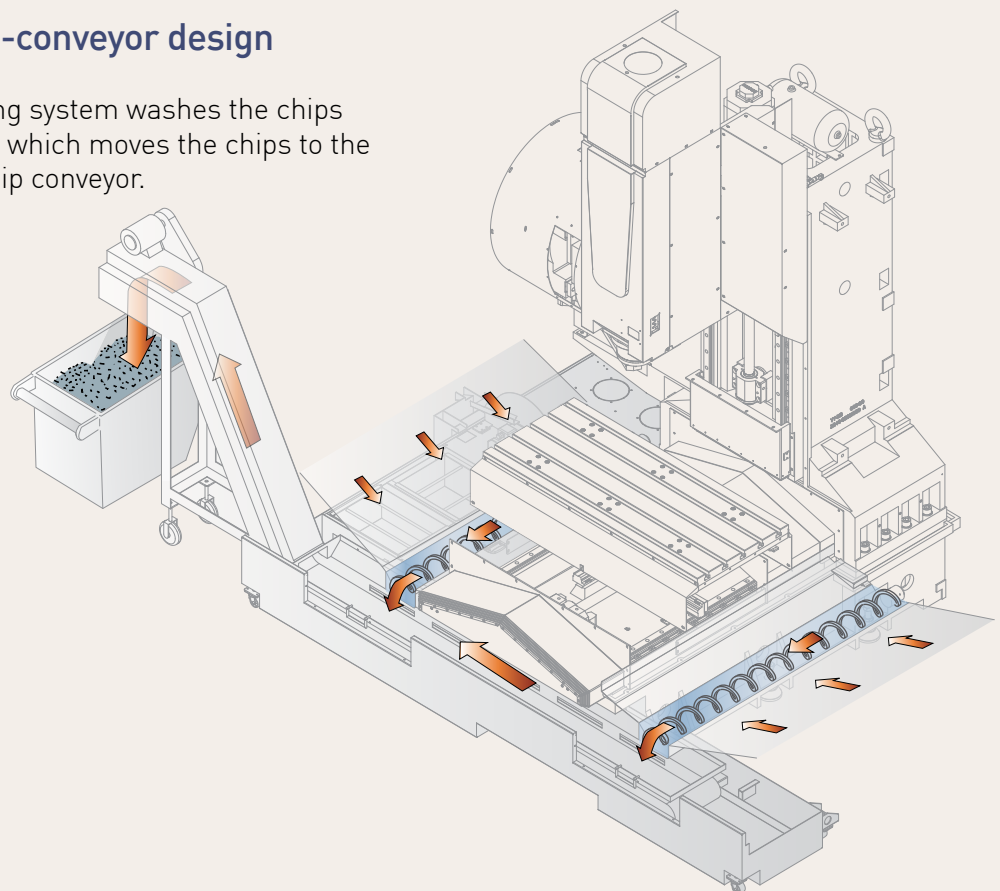


Arm Type

The series is designed with efficiency to meet the need for large quantity machining with shorter cycle time

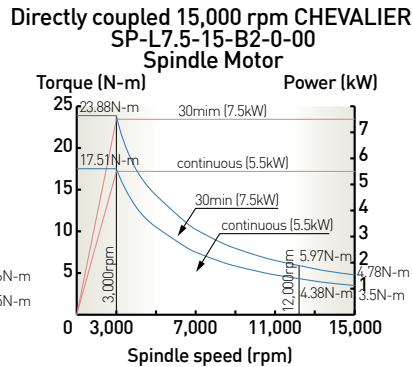
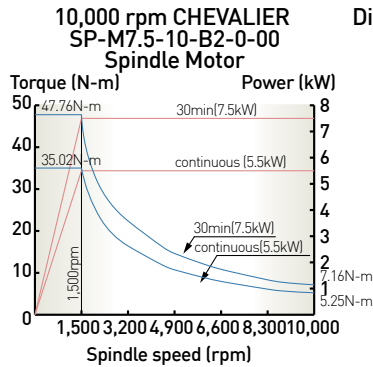
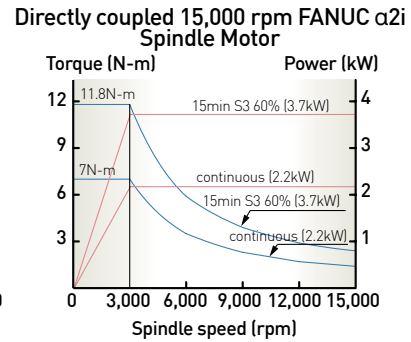
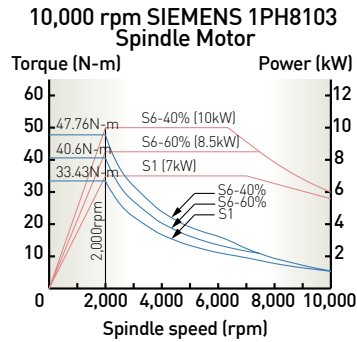
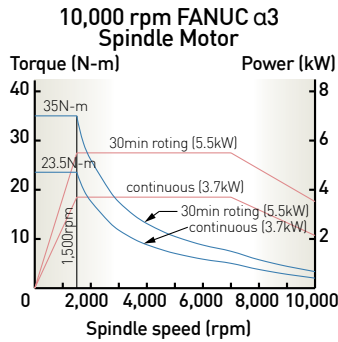
Dual-auger chip-conveyor design

The rear chip-flushing system washes the chips into the dual augers, which moves the chips to the front of the lift-up chip conveyor.

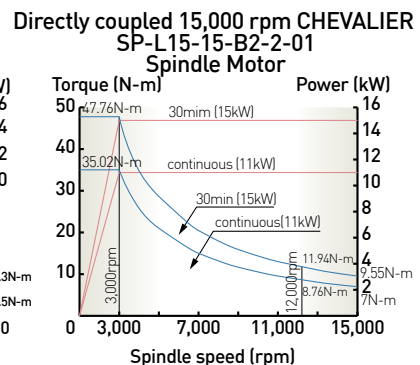
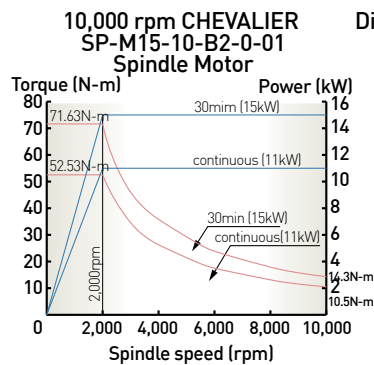
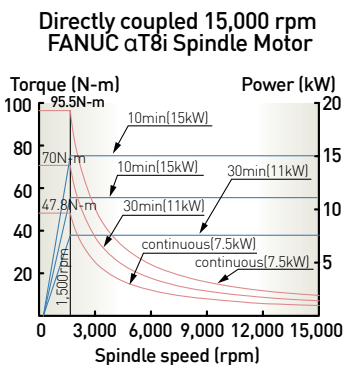
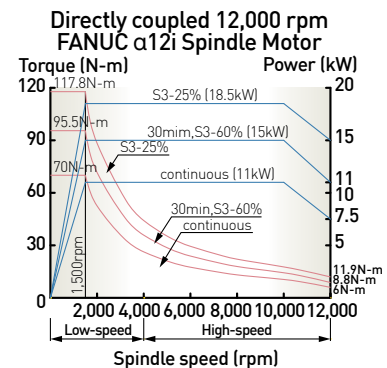
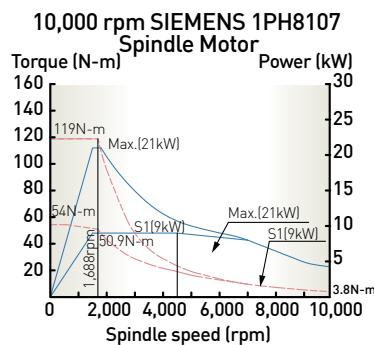
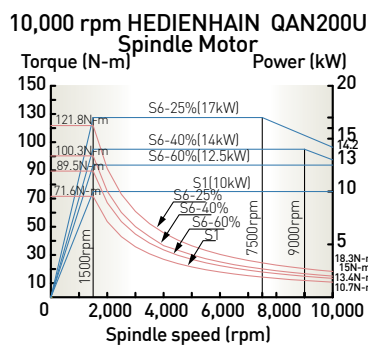
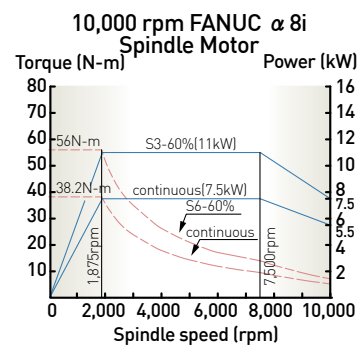
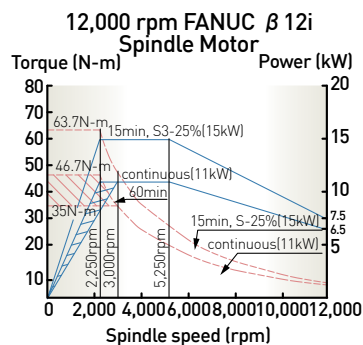
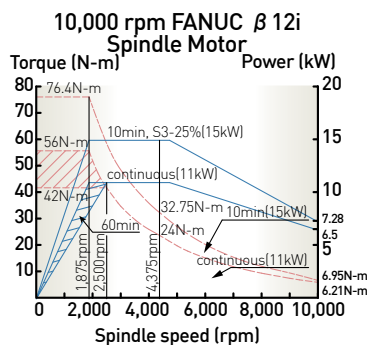


Spindle Speed Torque Chart

QP1620-L



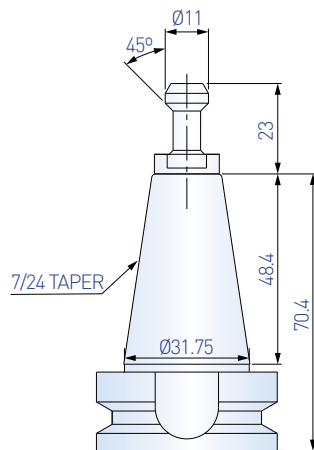
QP2033-L / QP2040-L / QP2440-L / QP2560-L



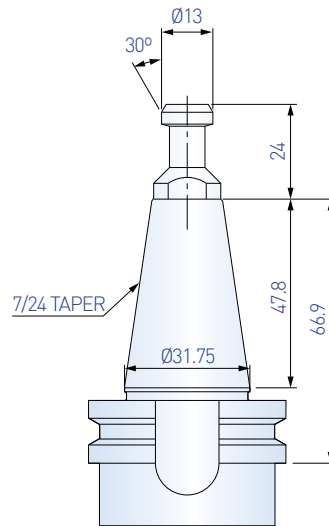
Tool Shank and Pull Stud QP1620-L

Units: mm

BT-30

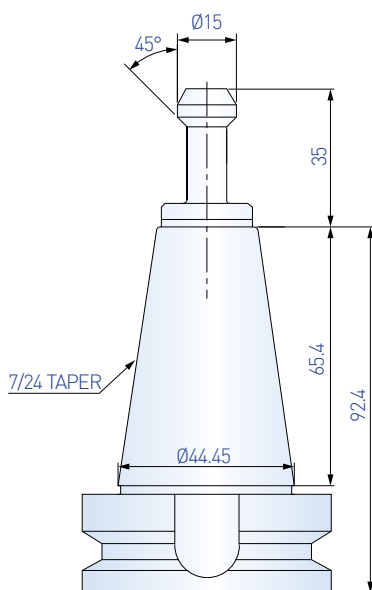


CT-30

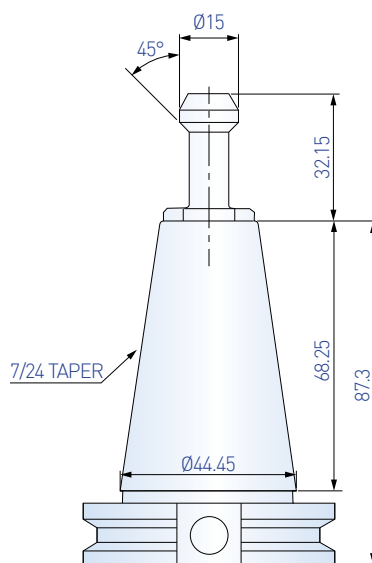


QP1620-L / QP2033-L / QP2040-L / QP2440-L / QP2560-L

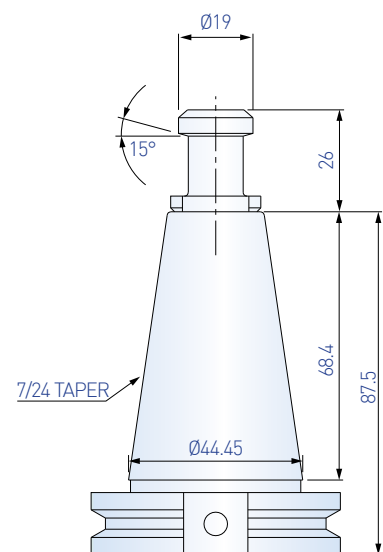
BT-40



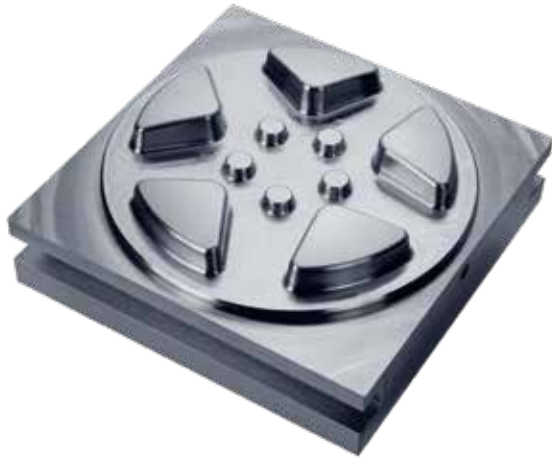
CT-40



DIN-40



Applications



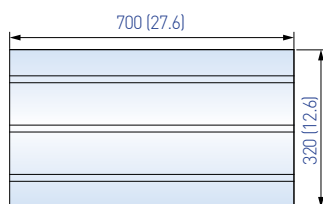
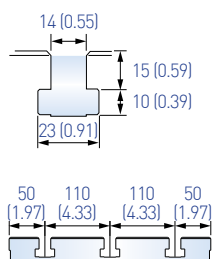
The QP-L Series is the best value from prototypes to volume-based applications



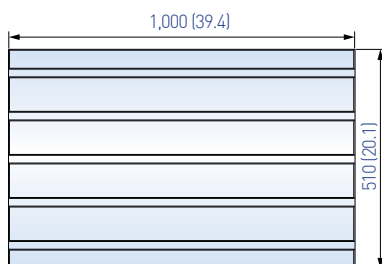
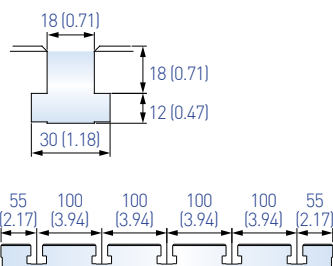
Table and T-slot Dimensions

Units: mm (")

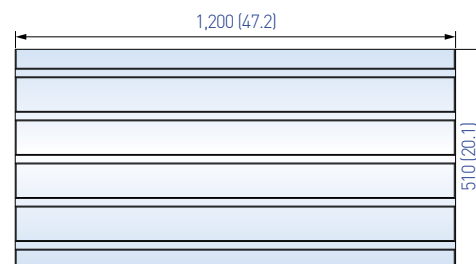
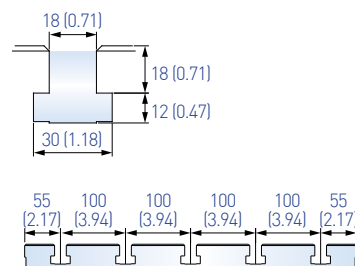
QP1620-L



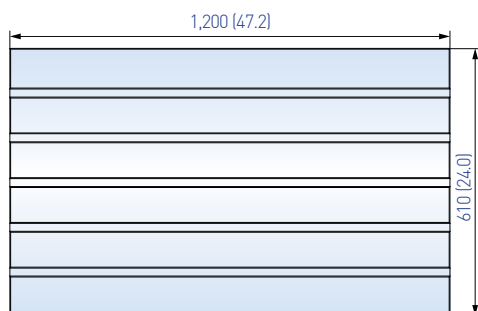
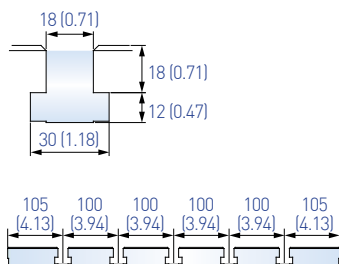
QP2033-L



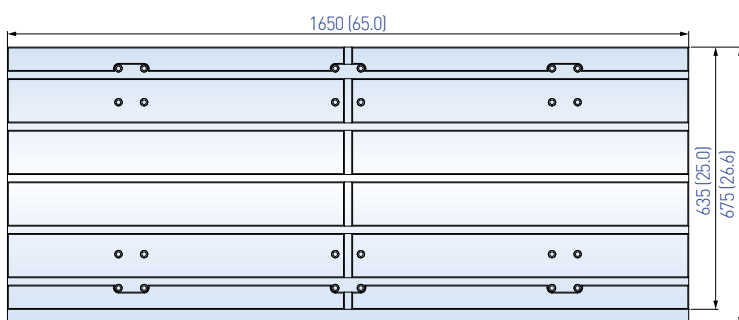
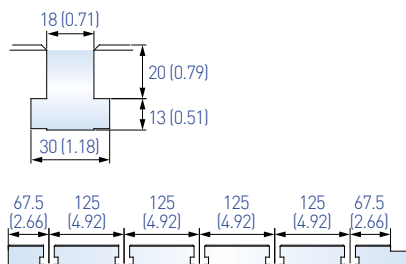
QP2040-L



QP2440-L

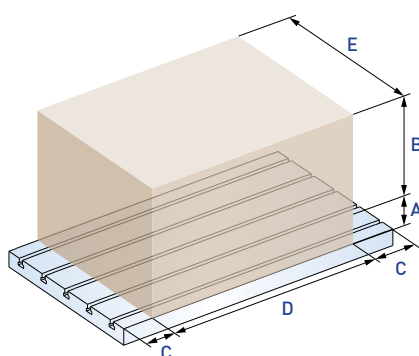


QP2560-L



Max. Working Space

Units: mm (")

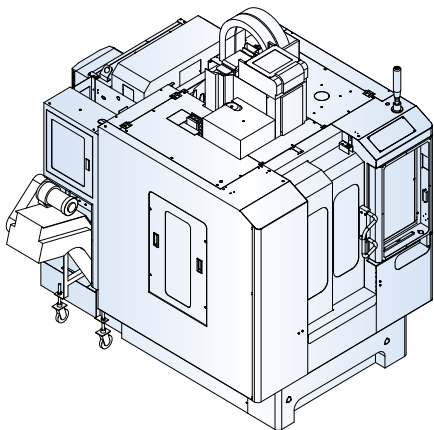
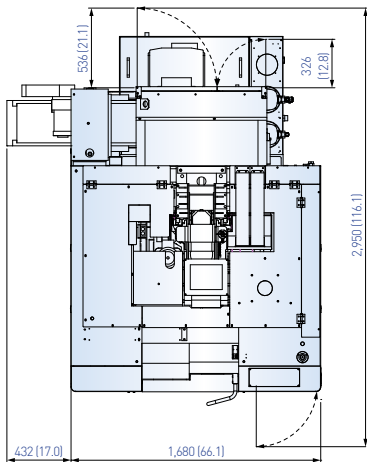


MODEL	A	B	C	D	E
QP1620-L	150 (5.9)	380 (15.0)	90 (3.5)	520 (20.5)	320 (12.6)
QP2033-L	150 (5.9)	510 (20.1)	75 (3.0)	850 (33.5)	510 (20.1)
QP2040-L	130 (5.1)	510 (20.1)	90 (3.5)	1,020 (40.2)	510 (20.1)
QP2440-L	130 (5.1)	550 (21.7)	90 (3.5)	1,020 (40.2)	610 (24.0)
QP2560-L	125 (4.9)	635 (25.0)	62.5 (2.5)	1,525 (60.0)	635 (25.0)

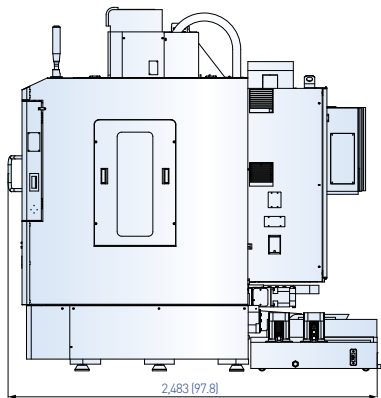
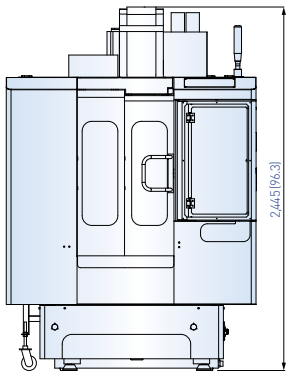
Machine Dimensions

QP1620-L

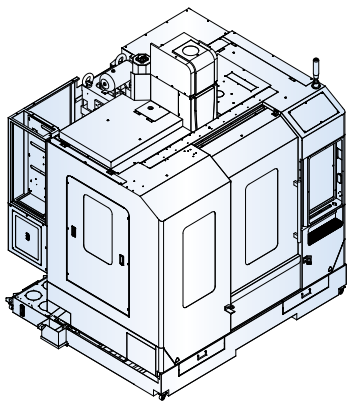
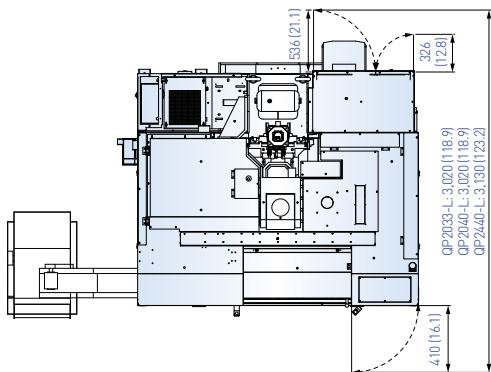
Units: mm (")



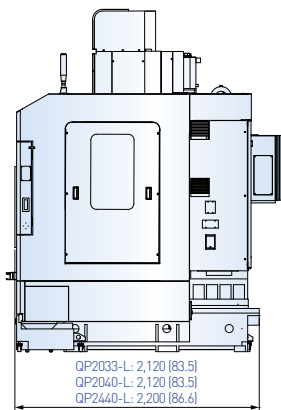
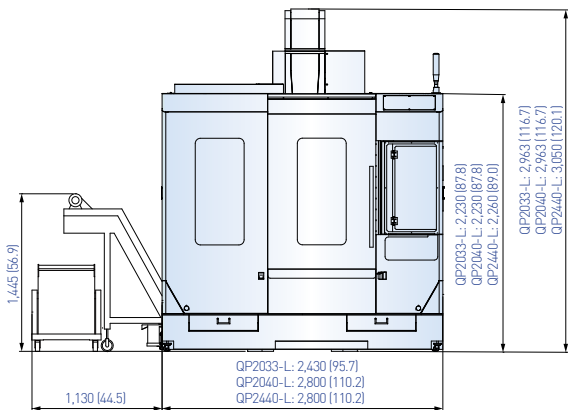
Note: Machine shown with optional accessories.



QP2033-L / QP2040-L / QP2440-L



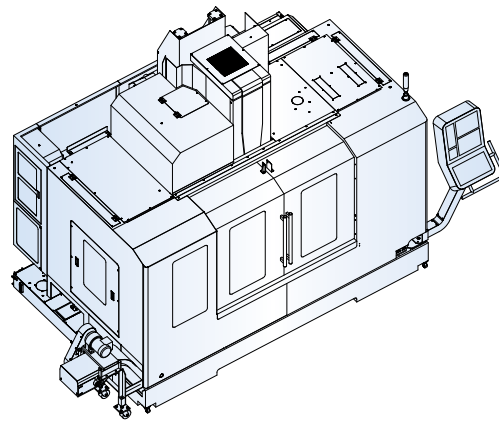
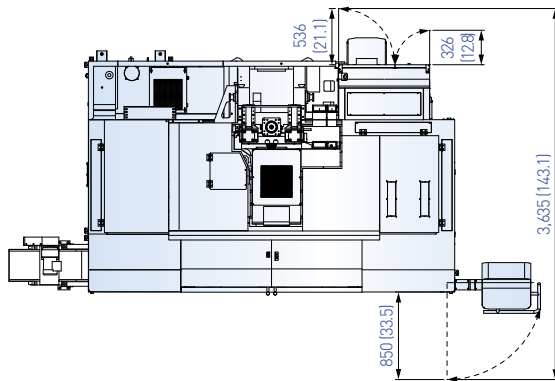
Note: Machine shown with optional accessories.



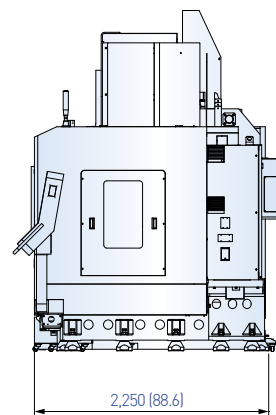
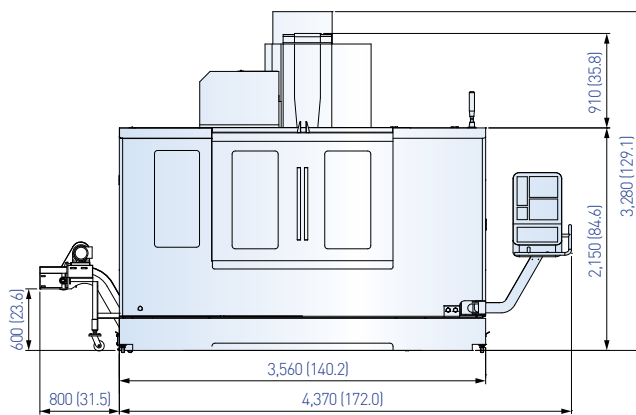
Machine Dimensions

QP2560-L

Units: mm (")



Note: Machine shown with optional accessories.



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 is 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.





Controls

Control specifications

- Standard Fanuc 0iM control
- Part program storage size: 2 MB
- Manual Guide 0i
- 10.4" color LCD
- AICC II (200 Block)

Optional controls

- Chevalier SMART iSE control: 15" color LCD
- Mitsubishi control: 10.4" color LCD
- Siemens control: 10.4" color LCD
- Heidenhain control: 15" color LCD

The perfect control for time-critical CNC machining

Fanuc-0iM

1. 10.4" color LCD
2. 3-axes simultaneous controllable
3. Linear interpolation
4. Circular interpolation
5. Helical interpolation
6. Exact stop G09
7. Skip function G31
8. Automatic acceleration, deceleration
9. Polar coordinate command G15 / G16
10. Scaling G50 / G51
11. Automatic override for inner corners G62
12. Coordinate system rotation G68 / G69
13. Rigid tapping M29
14. Program date input G10
15. Part program storage size: 2 MB
16. Number of registrable programs: 1,000
17. Background editing
18. Manual guide 0i
19. Smooth tolerance control
20. Jerk control

Chevalier SMART iSE*

1. 15" color LCD
2. Software stroke limit
3. Quad-peak error positive compensation
4. Axis coupling
5. Virtual axis
6. Multiple channel
7. MPG simulation
8. Optional skip 10 sets
9. B stop/program end
10. Workpiece coordinate 100 sets
11. Extension G code
12. Tool life management
13. Edit protection
14. Network
15. USB 3 sets
16. Operating records display
17. Graphic simulation

Siemens 828D*

1. 10.4" color LCD
2. Linear interpolation
3. Circular interpolation
4. Helical interpolation
5. Skip function
6. Workpiece coordinate system
7. Coordinate system rotation
8. Rigid tapping
9. Mirror image, scaling, rotation
10. Canned cycles for drilling / milling
11. Part program storage size: 3 MB



iMachine Communications System™ (iMCS)

iMCS is a comprehensive remote monitoring software that integrates with IoT functions on Chevalier's CNC machines to perform 24/7 data collection, utilization monitoring, data analysis, alarm history, maintenance and overall equipment effectiveness (OEE), all which help to avoid downtime and increases productivity. Additional PC and software are required.

Accessories

Standard accessories

- Fanuc 0iM control 10.4" color LCD
- 20+1 station arm type ATC (QP1620-L)
- 24+1 station arm type ATC (QP2033-L/QP2040-L/QP2440-L/QP2560-L)
- Spindle air seal
- Spindle air blast
- Air blast chip blower
- Rear chip flash system
- Auger chip conveyor (QP1620-L on Y axis)
- LED working lamp
- 3 color warning lamp
- Fully enclosed splash guard
- Coolant system
- Central lubrication system
- Leveling bolts and pads
- Bolt kit with tools for foundation
- Tools & tool box
- Rigid tapping
- Remote MPG

- Air gun
- Operation manual and parts list

Optional accessories

- Siemens 828D control
- Chevalier SMART iSE control
- Mitsubishi M80A control
- Heidenhain TNC 640 control (QP2033-L/QP2040-L/QP2440-L/QP2560-L)
- 30 station arm type ATC (QP2033/QP2040-L/QP2440-L/QP2560-L)
- Pull studs BT-30,CT-30 (QP1620-L)
- Pull studs BT-40,CT-40 or DIN-40
- Spindle oil cooler
- CTS preparation device
- Coolant through spindle
- 4th axis preparation
- 4th axis complete set

- Automatic work piece measurement system
- Automatic tool length measurement
- Linear scales
- Oil skimmer
- Coolant gun
- Heat exchanger for electric cabinet
- Steel belt type chip conveyor
- Scraper type chip conveyor
- Auger chip conveyor
- Automatic power off
- Transformer

Specifications

Item	Description		QP1620-L	
Table	Table size		700 x 320 mm (27.6" x 12.6")	
	T-slots (width x pitch x no.)		14mm x 110 mm x 3 (0.6" x 4.3" x 3)	
	Max. table load		250 kg (550 lbs.)	
Travel	X-travel		520 mm (20.5")	
	Y-travel		368 mm (14.5")	
	Z-travel		380 mm (15.0")	
Spindle	Spindle nose to table surface		150~530 mm (5.9"~20.9")	
	Spindle center to column		368 mm (14.5")	
	Spindle taper		#40 BIG PLUS	#30
	Spindle speed		Belt drive: 10,000 rpm	Direct drive: 15,000 rpm
	Spindle diameter		Ø60 mm (Ø2.4")	Ø50 mm (Ø2.0")
Feed rates	Rapid traverse (X/Y/Z)		48/48/36 m/min (1,889/1,889/1,417 ipm)	
	Cutting feed (X/Y/Z)		1~10 m/min (39.3~393 ipm)	
	Vertical axis counter weight		Pneumatic counterbalance	
Automatic tool changer	Tool storage capacity		20+1 arm type	
	Tool shank		BT40 (Optional CT40* or DIN40)	BT30 (Optional CT30 / DIN30)
	Tool change time (T-T)		1 sec.	
	Pull stud		P40T-1	P30T-1
	Max. tool diameter with adjacent tool		Ø80 mm (Ø3.1")	Ø75 mm (Ø3.0")
	Max. tool length		200 mm (7.9")	
	Max. tool weight		7 kg (15.4 lbs.)	4 kg (8.8 lbs.)
Motors	Spindle motor		Fanuc: 3.7/5.5 kW Siemens: 7 kW Chevalier: 5.5 kW Mitsubishi: 3.7/5.5 kW	Fanuc: 2.2/3.7 kW Siemens: 8.4 kW Chevalier: 5.5 kW
	Axis motors (X/Y/Z)		Fanuc: 1.2/1.2/1.2 kW Siemens: 2.3/2.3/2.3 kW Chevalier: 1.8/1.8/1.8 kW Mitsubishi: 1.5/1.5/2.2 kW	Fanuc: 1.2/1.2/1.2 kW Siemens: 2.3/2.3/2.3 kW Chevalier: 1.8/1.8/1.8 kW
	Coolant motor		0.59 kW (0.8 HP)	
Power and air requirement	Power required		15 kVA	
	Total air consumption	Pressure Flow	6 kg/cm ² (86 psi) 200 NL/min (7 cfm)	
Tank capacity	Hydraulic tank		Optional 40/60 L	
	Spindle/Gearbox coolant tank		Optional 20/30 L	
	Oil/Grease tank		0.7 L	
	Coolant tank		126 L (33 gals.)	
Machine dimension	Floor space (W x D x H)		1,680 x 2,950 x 2,445 mm (66.1" x 116.1" x 96.3")	
	Net weight		2,300 kg (5,070 lbs.)	
Accuracy	Positioning accuracy		0.007 mm (0.00028")	
	Repeatability accuracy		0.005 mm (0.00020")	
	Accuracy standard		VDI 3441	

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

* U.S.A. standard

QP2033-L	QP2040-L	QP2440-L	QP2560-L
1,000 x 510 mm (39.4" x 20.1")	1,200 x 510 mm (47.2" x 20.1")	1,200 x 610 mm (47.2" x 24.0")	1,650 x 635 mm (65.0" x 25.0")
18 mm x 100 mm x 5 (0.7" x 3.9" x 5)		18 mm x 100 mm x 5 (0.7" x 3.9" x 5)	18 mm x 125 mm x 5 (0.7" x 4.9" x 5)
500 kg (1,100 lbs.)	600 kg (1,320 lbs.)	600 kg (1,320 lbs.)	1,500 kg (3,300 lbs.)
850 mm (33.5")	1,020 mm (40.2")	1,020 mm (40.2")	1,525 mm (60.0")
	530 mm (20.9")	610 mm (24.0")	635 mm (25.0")
	510 mm (20.1")	550 mm (21.7")	635 mm (25.0")
150~660 mm (5.9"~26.0")	130~640 mm (5.1"~25.2")	130~680 mm (5.1"~26.8")	125~760 mm (4.9"~29.9")
	585 mm (23.0")		685 mm (27.0")
	#40 BIG PLUS		
	Belt drive: 10,000 rpm		
	Direct drive: 12,000 rpm (Optional 15,000 rpm)		
	Ø70 mm (Ø2.8")		
	36/36/24 m/min (1,417/1,417/944 ipm)		30/30/24 m/min (1,181/1,181/944 ipm)
	Optional 36/36/30 m/min (1,417/1,417/1,181 ipm)		Optional 24/24/20 m/min (944/944/787 ipm)
	1~10 m/min (39.3~393 ipm)		
	-		Pneumatic counterbalance
	24+1 arm type (Optional Arm: 30)		
	BT40 (Optional CT40* or DIN40)		
	2 sec.		
	P40T-1		
	Ø80 mm (Ø3.1")		
	300 mm (11.8")		
	7 kg (15.4 lbs.)		
	Fanuc: 11/15 kW Siemens: 9 kW Chevalier: 11 kW Mitsubishi: 7.5/11 kW Heidenhain: 10 kW		Fanuc: 11/15 kW Siemens: 12 kW Mitsubishi: 15/18.5 kW Heidenhain: 10 kW
	Fanuc: 1.8/1.8/2.5 kW Siemens: 3.3/3.3/3.8 kW Chevalier: 2.9/2.9/4.4 kW Mitsubishi: 2/2/3.5 kW Heidenhain: 3.5/3.5/5.7 kW		Fanuc: 4/4/4 kW Siemens: 3.8/3.8/4.9 kW Mitsubishi: 3.5/3.5/3.5 kW Heidenhain: 5/5/5.7 kW
	0.59 kW (0.8 HP)		
	20 kVA		25 kVA
	6 kg/cm ² (86 psi)		
	200 NL/min (7 cfm)		
	Optional 40/60 L		
	Optional 20/30 L		
	3 L		0.7 L
245 L (64 gals.)	315 L (83 gals.)	325 L (85 gals.)	429 L (113 gals.)
2,430 x 3,020 x 2,963 mm (95.7" x 118.9" x 116.7")	2,800 x 3,020 x 2,963 mm (110.2" x 118.9" x 116.7")	2,800 x 3,130 x 3,050 mm (110.2" x 123.2" x 120.0")	4,370 x 3,635 x 3,280 mm (172.0" x 143.1" x 129.1")
5,800 kg (12,700 lbs.)	6,200 kg (13,600 lbs.)	6,700 kg (14,770 lbs.)	8,500 kg (18,700 lbs.)
	0.010 mm (0.00040")		
	0.007 mm (0.00028")		
	VDI 3441		



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