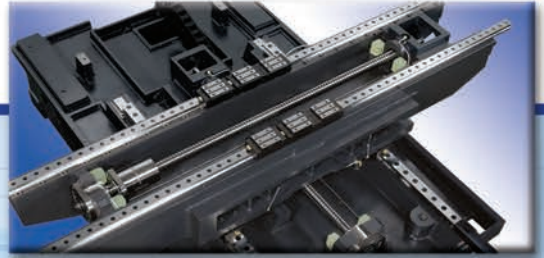
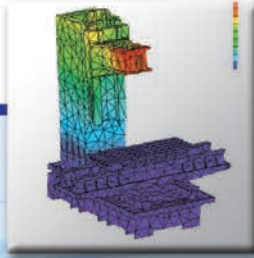
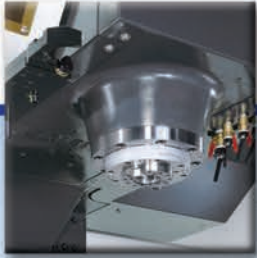


CHEVALIER®

Grinding / Turning / Milling



EM Series

High Speed
Vertical Machining Center

EM1620L • 2033L • 2040L

EM1620L

Vertical Machining Center (Linear Ways)

Machine Features

The NEW EM Series is a high-speed VMC with a cost savings that hammers the competition. It delivers more bang for your buck and increases your production capabilities. The series is engineered with efficiency to satisfy the need for large quantity machining. Chose from three models: EM1620L, EM2033L and EM2040L.

There is nothing sacrificed or compromised in our new EM Series. The major parts of the machine are constructed of high-quality Meehanite cast iron, which offers superior stability. The machine's base is supported by full-travel, enabling it to be suitable for high-speed machining. All three axes are built with high-speed linear ways providing smooth quick movement without delay.

The series provides fast interpolation, minimizing machining time with high, rapid speed, up to 1,889.7ipm. All 3-axes are driven by preloaded P3 ballscrews and super fast linear ways. The powerful 20HP spindle motor handles up to 10,000rpm, combining an attractive finish surface in high-speed with enough torque in lower rpm. Tool capacity is 24 tools with a random tool double arm tool change.

You work with the best when you own a Chevalier. More than 30 years of the industry's top R&D has produced a NEW EM Series that's the best value in VMC machining.

• Spindle Speed

#40 Belt drive : 10,000rpm
: 12,000rpm (Optional)

• Rapid on (X / Y / Z) Axes

48 / 48 / 36m/min (1,891 / 1,891 / 1,417 ipm)

• Tool Change Time

T-T : 3 sec.



EM1620L

Machine Construction

Tool Magazine System

Tool Shank : #40
Tool Capacity : 24 Tools
Max. Tool Length : 200mm (7.9")
Max. Tool Weight : 5kg (#40)
Max. Tool Diameter : with Neighbor Tool : 80mm (3.1") ,
without Neighbor Tool : 120mm (4.7")
Driven Type : Cam Type
Tool Changing : Arm Type 24+1

Spindle Design

- Spindle Motor : FANUC α 3 / 12,000i , 3.7 / 5.5kW (cont. / 30min)
- Spindle design : Large diameter spindle design features 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

Powerful Chip Disposal Design

- Automatic chip flushing system moves cutting chips to the center part of the machine base. Next the screw type chip conveyor delivers the cut chips to the chip collector, which is located at the rear of machine base.

Chip Collector and Coolant System

- Tank Capacity : 160L
- Oil Skimmer (Optional)
- Chip Conveyor (Optional)

Air Counter Balance System

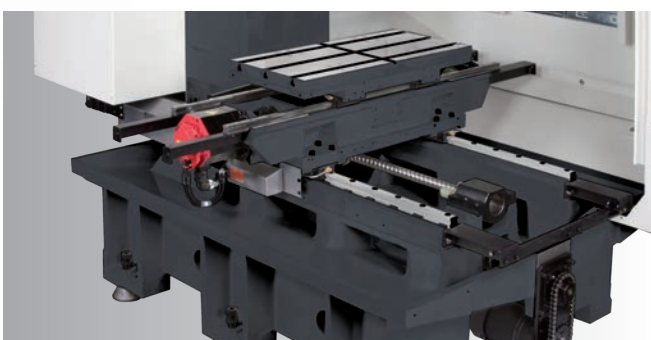
- Z-axis spindle head is equipped with an air counter balance system that ensures the accuracy of Z-axis.

#40 Spindle

Coolant through spindle (Optional)
Spindle air purge (Standard)

High Rigidity Machine Construction

- The major parts of the machine are constructed of high-quality Meehanite cast iron, which offers superior stability. The machine's base is supported by full-travel, enabling it to be suitable for high-speed machining. All three axes are built with high-speed linear ways providing smooth quick movement without delay.
- Servo motor coupling is directly linked with the screw to ensure machining accuracy.



EM2033L / 2040L

Machine Construction

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**

Belt Drive : 10,000rpm
: 8,000rpm / 12,000rpm (Optional)

- **Rapid on (X / Y / Z) Axes**

36 / 36 / 24m/min (1,417 / 1,417 / 945 ipm)

- **Tool Change Time**

T-T : 3 sec.



EM2040L : (L)2,115mm x (W)2,720mm (83.2"x107")

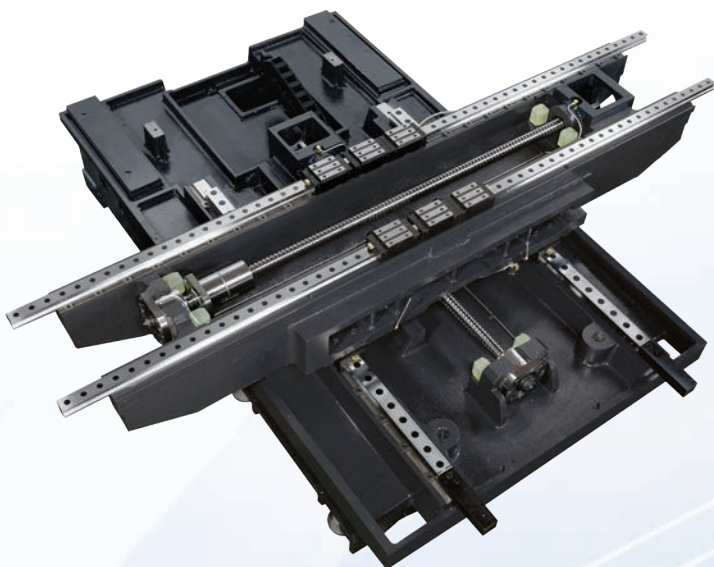
Note: Machine shown with optional accessories

EM2033L / 2040L

Machine Construction

High Accuracy Ballscrews

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



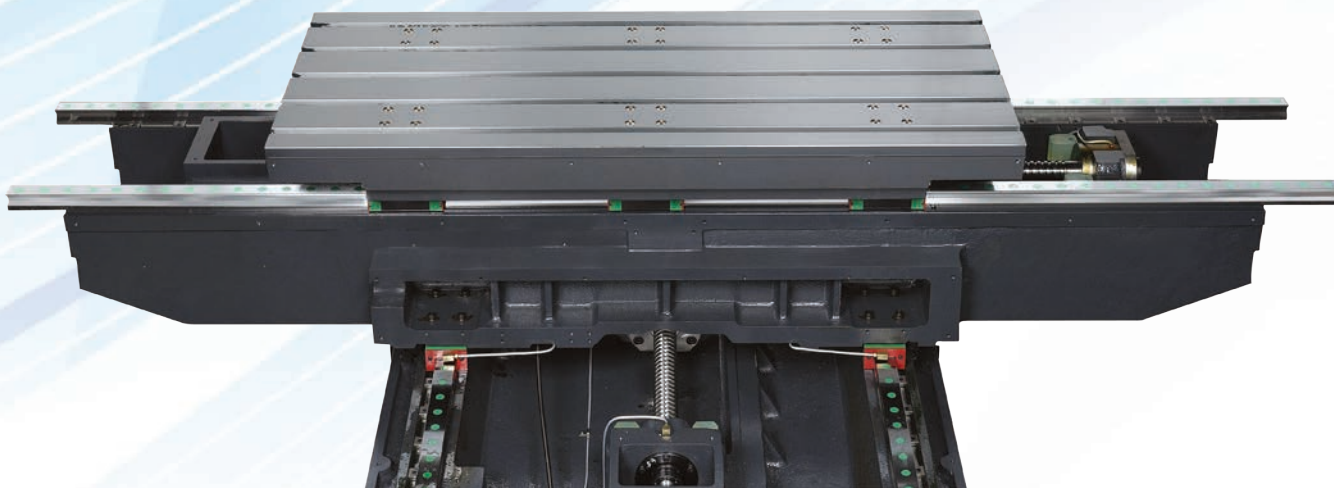
A.T.C Mechanism	Arm
Tool Shank	BT40 / CT40 / DIN40
Tool Capacity	24+1
Tool Selection	Random
Tool Access	Bi-Directional

Arm



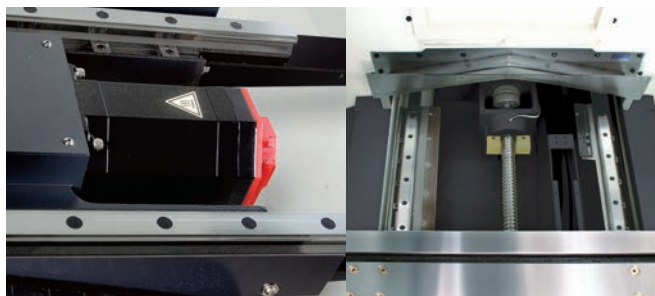
X / Y / Z Linear Ways

- 3-axes linear ways, 35mm (1.38") width, Z-axis use lengthened sliding block for heavier rigidity.
- Y-axis stroke 530mm (20.9") for EM2033L/2040L



X / Y One Piece Motor Seat on Machine Base and Saddle

- This new design provides much higher accuracy and rigidity.



EM Series

Control

SMART



1. Operation system
2. 10.4" TFT
3. Machine lock
4. Software stroke limit
5. Backlash compensation
6. Pitch error compensation
7. Quad-peak error positive compensation
8. Axis coupling
9. Virtual axis
10. Multiple channel
11. Least control unit
12. MPG simulation
13. Optional skip 10 sets
14. B stop/program end
15. Absolute coordinate
16. Workpiece coordinate 100 sets
17. Extension G code
18. Tool life management
19. Background edit
20. Edit protection
21. NETWORK
22. USB 3 sets
23. Alarm
24. Operating records display
25. Graphic simulation
26. Control axes 4/8
27. Block lookahead 2000
28. Block processing time 1500 (block/sec)
29. Constant Jerk control
30. Auto corner deceleration
31. Arc radius speed limit
32. High-speed and high-precision multiple parameter sets
33. SPA function
34. G5.1 path smoothing function

Standard Control

- FANUC 0iM : 8.4" TFT LCD color monitor

Other Control Available (Optional)

- SMART
- SIEMENS 828D Control : 10.4" TFT LCD color monitor and "ShopMill" software
- MITSUBISHI

FANUC 0i-M



1. 3-axes simultaneous controllable
2. Linear interpolation
3. Circular interpolation
4. Helical interpolation
5. Exact stop G09
6. Skip function G31
7. Automatic acceleration / deceleration
8. Plane select G17, G18, G19
9. Polar coordinate command G15 / G16
10. Workpiece coordinate system G52~G59
11. Scaling G50 / G51
12. Automatic override for inner corners G62
13. Coordinate system rotation G68 / G69
14. Rigid tapping M29
15. Program date input G10
16. Canned cycles for drilling
17. Tool function
18. Tool length compensation
19. Tool offset memory 400 piece
20. Part program storage length: 512K
21. Number of registerable program: 400
22. Background editing
23. Manual guide Oi
24. 8.4" LCD

SIEMENS 828D Control



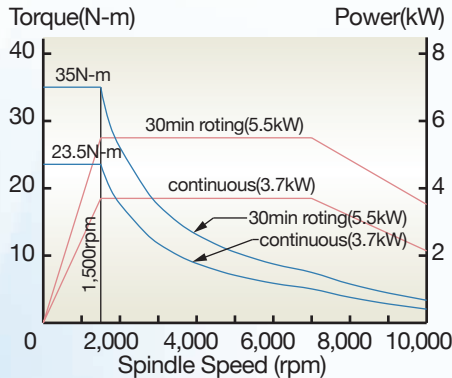
1. LCD color
2. Linear interpolation
3. Circular interpolation
4. Helical interpolation
5. Skip function
6. Plane select
7. Workpiece coordinate system
8. Coordinate system rotation
9. Rigid tapping
10. Mirror image, scaling, rotation
11. Canned cycles for drilling / milling
12. Tool function
13. Tool length / radius compensation
14. Part program storage length: 3MB
15. Background editing

EM Series

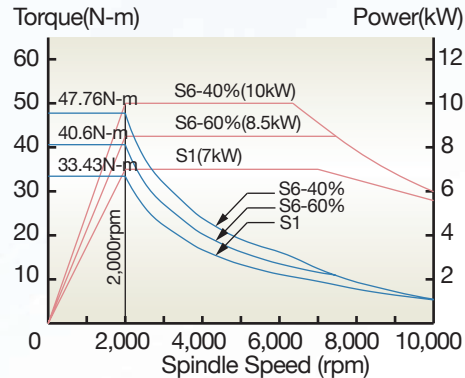
Torque Chart

• EM1620L

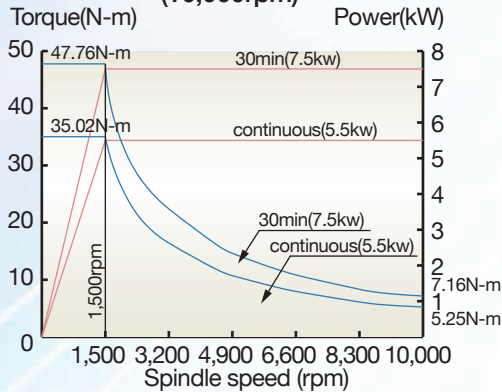
FANUC 5.5kW AC Spindle Motor for #40



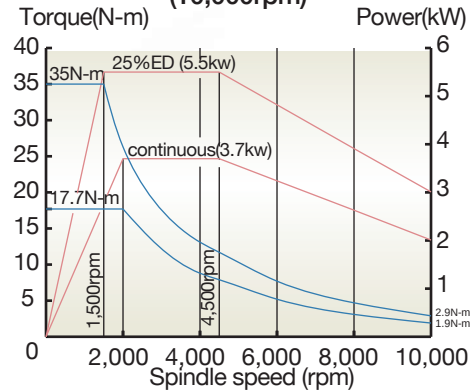
SIEMENS 8.5kW AC Spindle Motor for QP1620-L #40



SMART-IP54-SVM-100S-15-10-E
(10,000rpm)

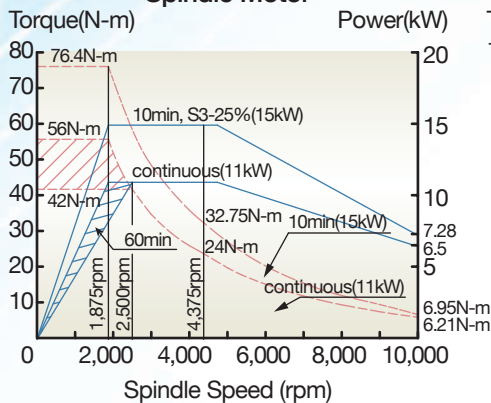


MITSUBISHI-SJ-DJ5.5/120-02
(10,000rpm)

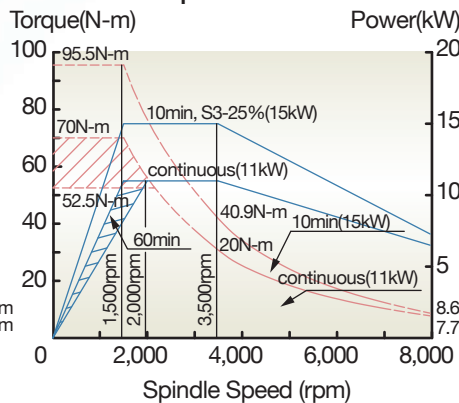


• EM2033L / 2040L

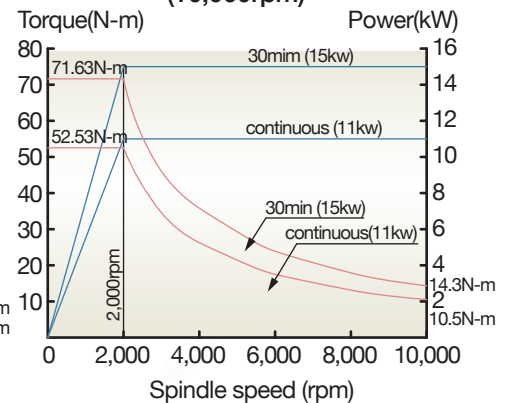
10,000rpm FANUC β 12i (15kW)
Spindle Motor



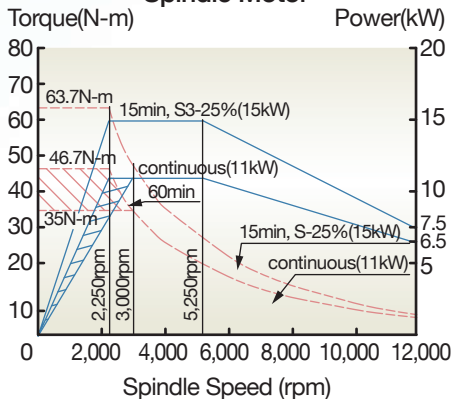
8,000rpm FANUC β 12i (15kW)
Spindle Motor



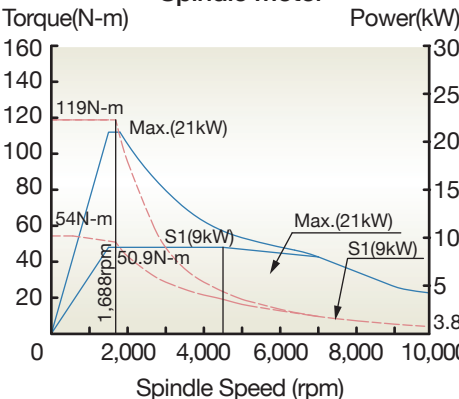
SMART-IP54-SIM-100X12-20-10
(10,000rpm)



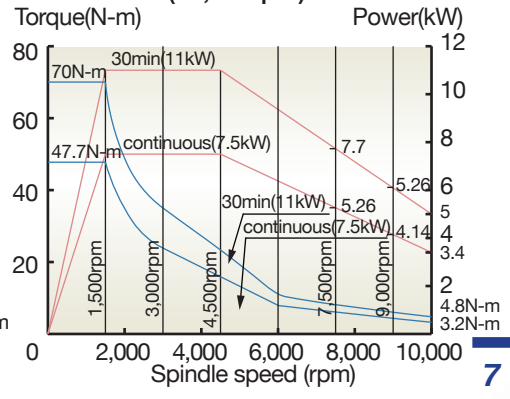
12,000rpm FANUC β 12i (15kW)
Spindle Motor



10,000rpm SIEMENS 1PH8107
Spindle Motor



MITSUBISHI-SJ-D11/100-01
(10,000rpm)



Tool Shank and Pull Stud

UNIT : mm (")

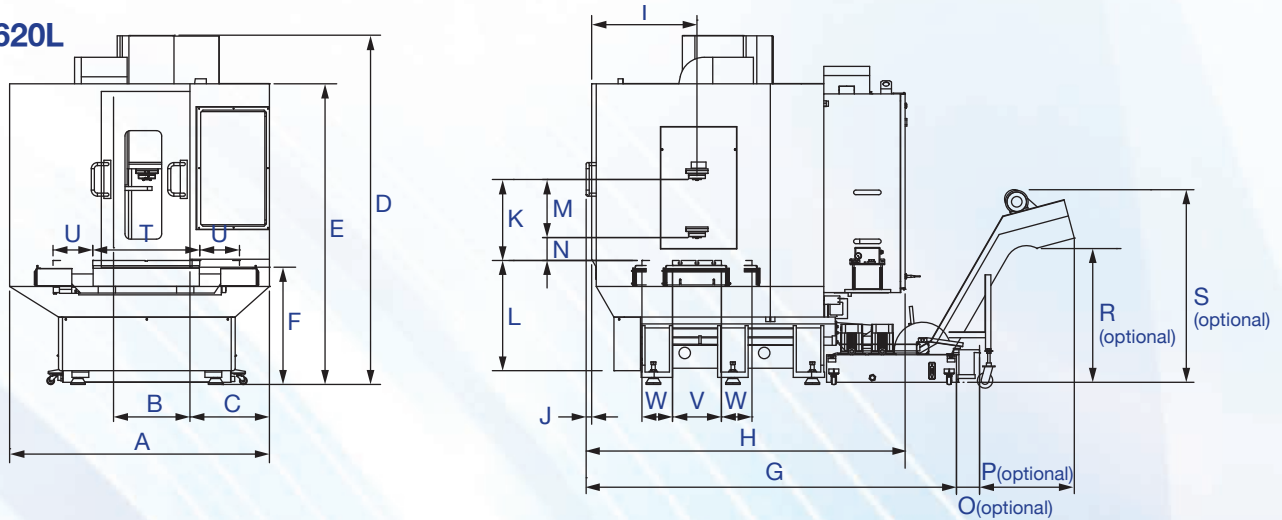
Model	A	B	C	D	E
EM1620L	150 (5.9")	380 (15")	90 (3.5")	520 (20.5")	320 (12.5")
EM2033L	150 (5.9")	510 (20.1")	75 (2.9")	850 (33.5")	510 (20.0")
EM2040L	130 (5.1")	510 (20.1")	90 (3.5")	1,020 (40.1")	510 (20.0")

EM Series

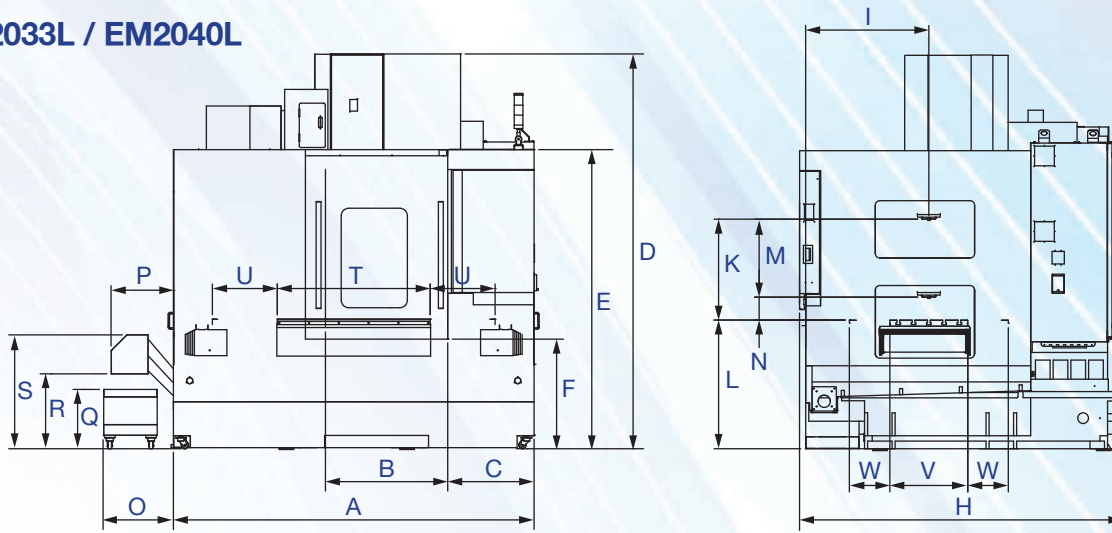
Dimensional Drawings

UNIT : mm (")

EM1620L



EM2033L / EM2040L



Item	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
EM1620L	1,700 (70")	500 (19.6")	520 (20.4")	2,285 (90")	1,967 (77.4")	767 (30.1")	2,425 (95.4")	2,087 (82.1")	689 (27.1")	36 (1.4")	530 (20.8")	811 (31.9")	380 (14.96")	150 (5.9")	Optional / 150(5.9")	Optional / 620(24.4")	NA	Optional / 890(35")	Optional / 1,275(50.2")	700	260	320	200
EM2033L	2,360 (92.9")	800 (31.5")	565 (22.2")	2,599 (102.3")	1,957 (77")	717 (28.2")	NA	2,115	806 (31.7")	NA	660 (26")	850 (33.5")	510 (20.1")	150 (5.9")	460 (18.1")	410 (16.1")	388 (15.3")	490 (19.3")	745 (29.3")	1,000	425	510	265
EM2040L	2,720 (107.1")	970 (38.2")	565 (22.2")	2,599 (102.3")	1,957 (77")	717 (28.2")	NA	2,115	806 (31.7")	NA	640 (25.2")	870 (34.2")	510 (20.1")	130 (5.12")	460 (18.1")	410 (16.1")	388 (15.3")	490 (19.3")	745 (29.3")	1,200	510	510	265

Standard and Optional Accessories

Standard Accessory

1. Arm type ATC (24)
2. Coolant system
3. Semi enclosed splash guard
4. Work light (LED)
5. Central automatic lubrication system
6. Pilot light
7. Spindle air blast
8. Chip flush system
9. Cutting air blast
10. Air purge curtain
11. Tools and tool box
12. Leveling bolts and pads
13. Operation manual and parts list
14. Air gun
15. Screw type chip conveyor with chip cart
(EM1620L on Y axis, EM2033/40L on X axis)

Optional Accessory

1. BT40, CT40, DIN-40 pull studs
2. Chain Type Chip conveyor
3. Spindle oil chiller
4. 4th axis
5. Coolant through spindle
6. Automatic tool length measurement
7. Workpiece measurement
8. Linear scales
9. Oil skimmer
10. Coolant gun
11. Air conditioner for electric box
12. Transformer

EM Series

Specification

Note. (F) FANUC, (SI)Siemens, (SM)SMART Controller

Description		Unit	EM1620L	EM2033L	EM2040L
Table	Table size	mm (")	700 x 320 (27.6 x 12.6)	1,000 x 510 (39.4 x 20.1)	1,200 x 510 (47.2 x 20.1)
	T-Solt (no. x w x dis.)	mm (")	3 x 14 x 110 (3 x 0.6 x 4.3)	5 x 18 x 100 (5 x 0.7 x 3.9)	
	Table load	kg (lbs.)	250 (550)	500 (1,100)	600 (1,320)
Travel	X-Travel	mm (")	520 (20.5)	850 (33.5)	1,020 (40.2)
	Y-Travel	mm (")	368 (14.5)	530 (20.9)	
	Z-Travel	mm (")	380 (15)	510 (20.1)	
Spindle	Spindle nose to table	mm (")	150~530 (5.9~20.9)	150 ~ 660 (5.9~26)	130 ~ 640 (5.1~25.2)
	Spindle center to column	mm (")	368 (14.5)	585 (23)	
	Spindle taper		#40 (7/24)		
	Spindle speed	rpm	Belt Drive: 100~10,000 (Optional 8,000 , 12,000)		
	Spindle diameter	mm (")	60 (2.4)	70 (2.8)	
Feed Rates	Rapid o (X / Y / Z) axes	m/min. (ipm)	48 / 48 / 36 (1,891 / 1,891 / 1,417)	36 / 36 / 24 (1,417 / 1,417 / 945)	
	Cutting feed rate	m/min. (ipm)	1-10 (39.3~394)		
	Vertical axis counter balance		Air Equalizer	NA	
Accuracy	Positioning (ISO 230-2 / VDI 3441)	mm	0.007	0.01	
	Repeatability ISO 230-2 / VDI 3441	mm	0.005	0.007	
ATC	Tool capacity		Arm: 24+1		
	Tool shank		BT40	BT40, (Optional CT40 or DIN40)	
	Changer time	sec.	T-T 3		
	Pull stud		P40T-1		
	Max. tool diameter	mm (")	80 (3.1)		
	Max. tool length	mm (")	200 (7.9)	300 (11.8)	
	Max. tool weight	kg (lbs.)	5 (11)	7 (15.4)	
Motor	Spindle motor	kW (cont./15)	(F) Belt Drive: 3.7 / 5.5 (SI) Belt Drive: 7 (cont.) (SM) Belt Drive: 5.5 / 7.5	(F) Belt Drive: 11 / 15 (SI) Belt Drive: 9 (cont.) (SM) Belt Drive: 11 / 15	
	Drive motor (X, Y, Z)	kW	(F) 1.2 / 1.2 / 1.2 (SI) 2.3 / 2.3 / 2.3 (SM) 1.8 / 1.8 / 1.8	(F) 1.8 / 1.8 / 2.5 (SI) 3.3 / 3.3 / 3.8 (SM) 2.9 / 2.9 / 4.4	
	Coolant pump	HP (kW)	1 (0.76)		
General	Power required	KVA	15	20	
	Air required	kg/cm2 (L/min.)	6		
	Floor space(WxLxH)	mm (")	2,425 x 1,700 x 2,285 (95.5 x 66.9 x 90)	2,360 x 2,115 x 2,583 (92.9 x 83.3 x 101.7)	2,720 x 2,115 x 2,583 (107 x 83.3 x 101.7)
	Machine net weight, approx	kg (lbs.)	2,300 (5,060)	5,800 (12,760)	6,200 (13,640)

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



Grinding Machine

Grinding Machine

Turning Machine

Milling Machine

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