

**YAMA SEIKI**  
MACHINING CENTERS by **AWEDA**

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ISO 9001



ISO 14001



# EH SERIES

High Performance Horizontal Machining Centers



**YAMA SEIKI**  
MACHINING CENTERS by **AWEDA**

# EH Series 75R / 75I / 117 / 117R / 117I / 119GR / 119GI

## High Performance Horizontal Machining Center

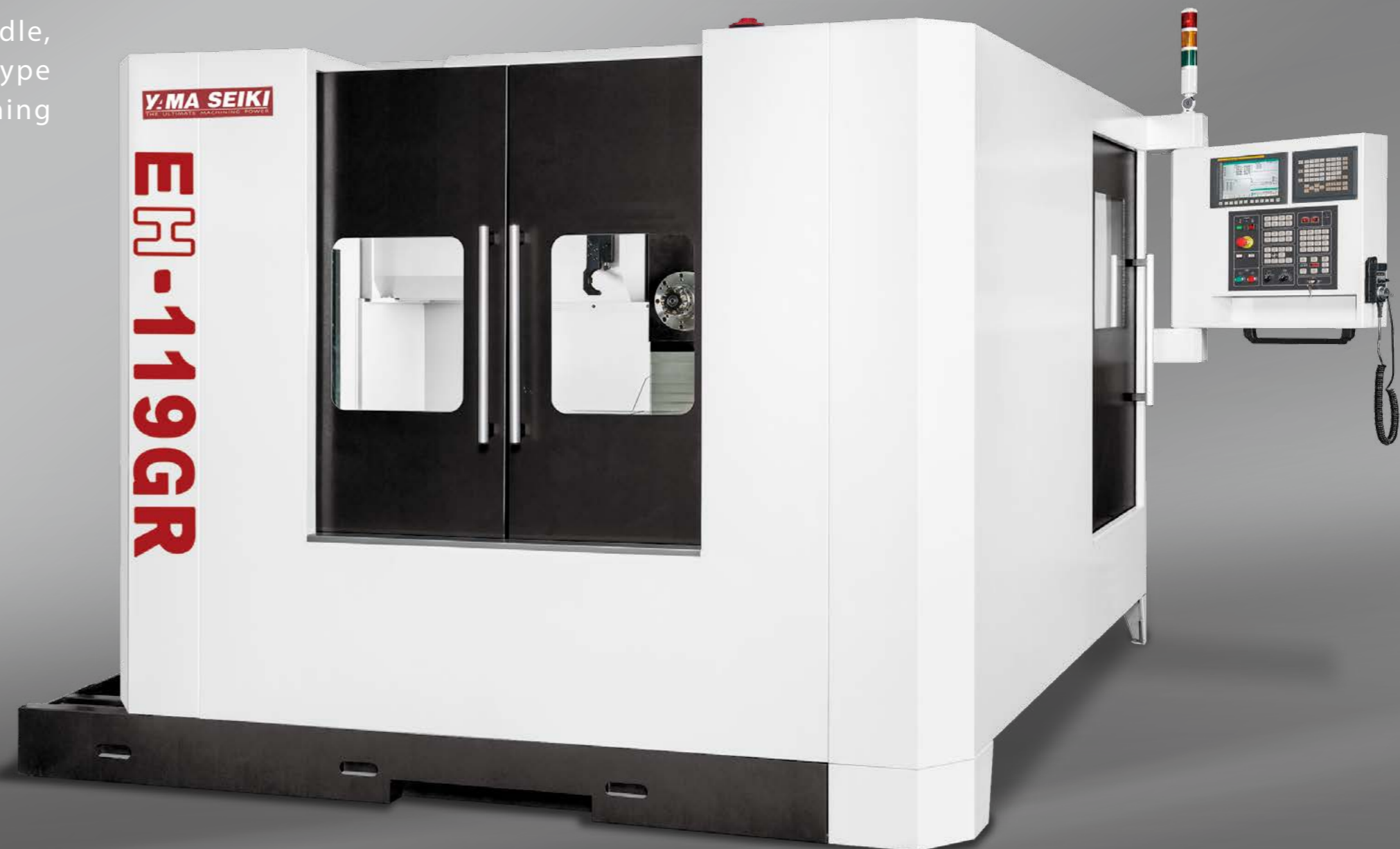
With rich experience of manufacturing machine tools, YAMA SEIKI has continuously developed and provided creative machine tools for professional customers. We're always looking for solutions to improve our products and give you the better quality, reliable machines and service.

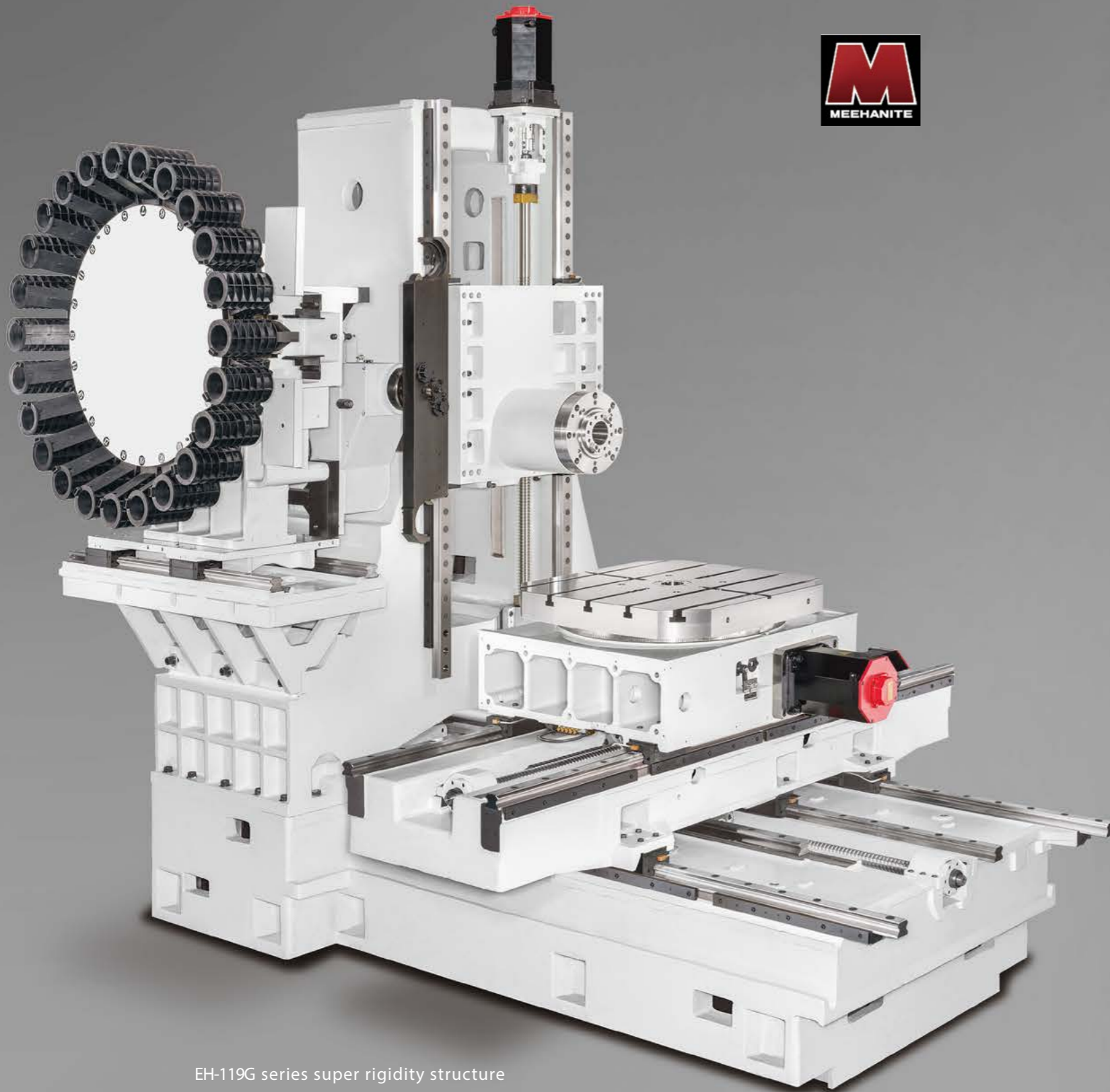
The EH series featured with high torque spindle, servo motor, indexing rotary table and arm type tool magazine which provide optimal machining capabilities to fulfill your requests in the future.



■ Operation space at the side of machine

- High torque gear spindle can easily achieve machining requirements of heavy cutting. ( EH-119G series )
- All axes use high speed linear guide ways to offer super rigidity and superior acceleration / deceleration performance.
- Equipped with arm type 24T ATC system ensures reliability and efficiency.
- Coolant nozzles around spindle featured with high efficiency chips removal design ensures the outstanding machining accuracy.
- Compact exterior design saves floor space as well as lower shipping cost while travel.

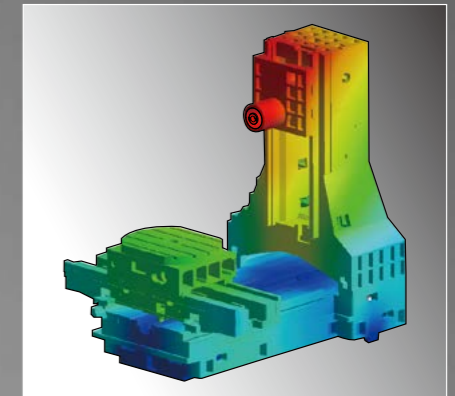




EH-119G series super rigidity structure

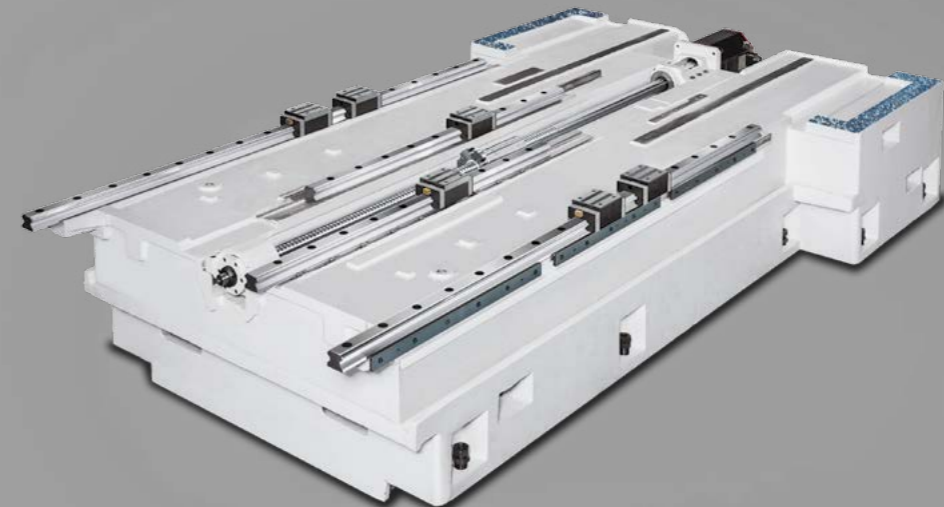
## Super Rigidity Structure

- The Meehanite casting structure provides solid support and capable of performing heavy cutting.
- One-piece wide span structure of column offers structural stiffness and superior cutting rigidity while shifting headstock in high speed.
- By carrying the weight of tool magazine and tools on casting body can enforce reliability of tool change and extend usage of tool magazine.
- The Finite Element Analysis ( FEA ) is used on all castings to ensure high stiffness and minimize deformation.



## Structure of Bed

- Super rigidity 4 linear guide ways on bed fulfill machining needs of heavy cutting. Meantime, symmetrically central driven design, which ball screw locates at center of moving trail on Z-axis, provides high accuracy and heavy load axial system. ( EH-119G series )



### Long Nose Spindle

Efficiently shortening the distance between tool and work-piece minimizes the overhanging of tool.

### Ball Screw

C3 class ball screw with double nuts ensures optimal accuracy and long-lasting. Besides, pre-tension design on all axes eliminates thermal deformation to ensure outstanding machining accuracy.

### Direct drive Servo Motor

3 axes are adopted direct drive servo motor to provide great thrust and fast movement.

### Non-counter Weight Design

Non-counter weight balancing with brake system on Y-axis offers rapid movement and ensures machining accuracy.

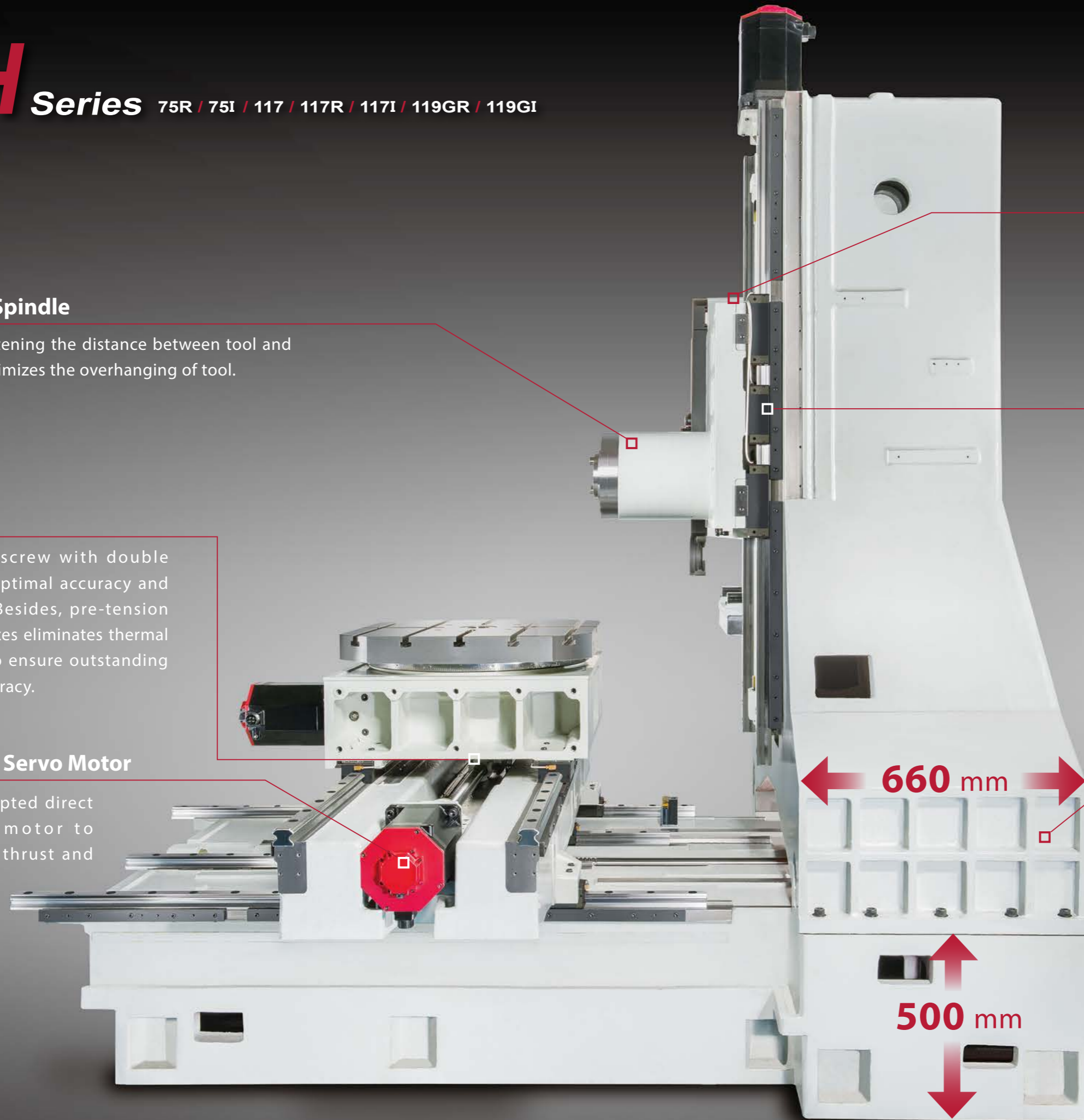
### Heavy Load Linear Blocks

3 sets ( 6 pcs ) of roller type linear guide way block design on Y-axis minimizes vibration and enhances rigidity of headstock to ensure peak machining performance and accuracy.  
( EH-119G series )

**30 / 24 / 30 m/min**  
**X / Y / Z rapid feed rate**

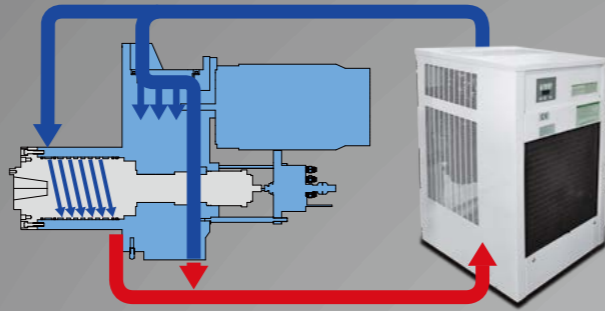
### Enforced Cross Ribs Design

The massive structure of bed, column, and table are all adopted with enforced cross ribs design that offers the best stability and precision for constantly machining.



## Unique Spindle System

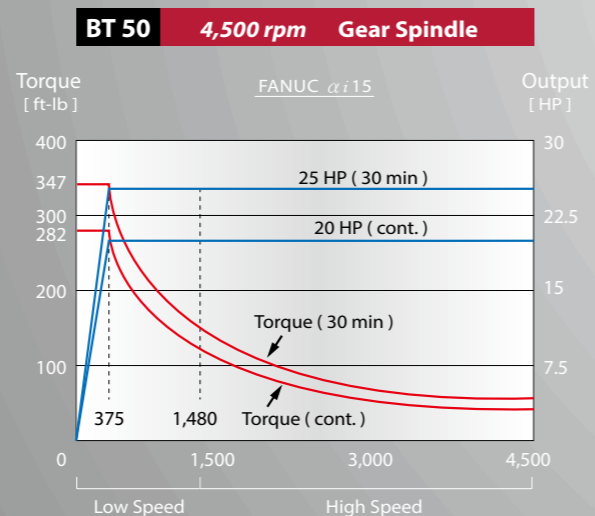
- High torque gear spindle and high C/P value belt drive spindle provides various machining needs.
- All series are standard with spindle oil chiller system to eliminate thermal deformation and ensure high accuracy and long lasting.
- High C/P value belt drive spindle design offers various selections of motors to suit your machining needs.
- 8,000 rpm high C/P value spindle equipped FANUC  $\alpha$  i12 spindle motor ( BT40 ) provides powerful 20 HP output. Equipped FANUC  $\alpha$  i15 spindle motor ( BT50 ) provides powerful 25 HP output.



EH-119G series gear spindle

**347 ft-lb**  
Max. Torque

- Equipped high torque gear spindle enhances heavy cutting capability. ( EH-119G series )
- 2-speeds super heavy-duty gear box.
- 4,500 rpm high torque spindle equipped FANUC  $\alpha$  i15 spindle motor ( BT50 ) provides powerful 25 HP motor delivers maximum torque output of 347 ft-lb at 375 rpm.

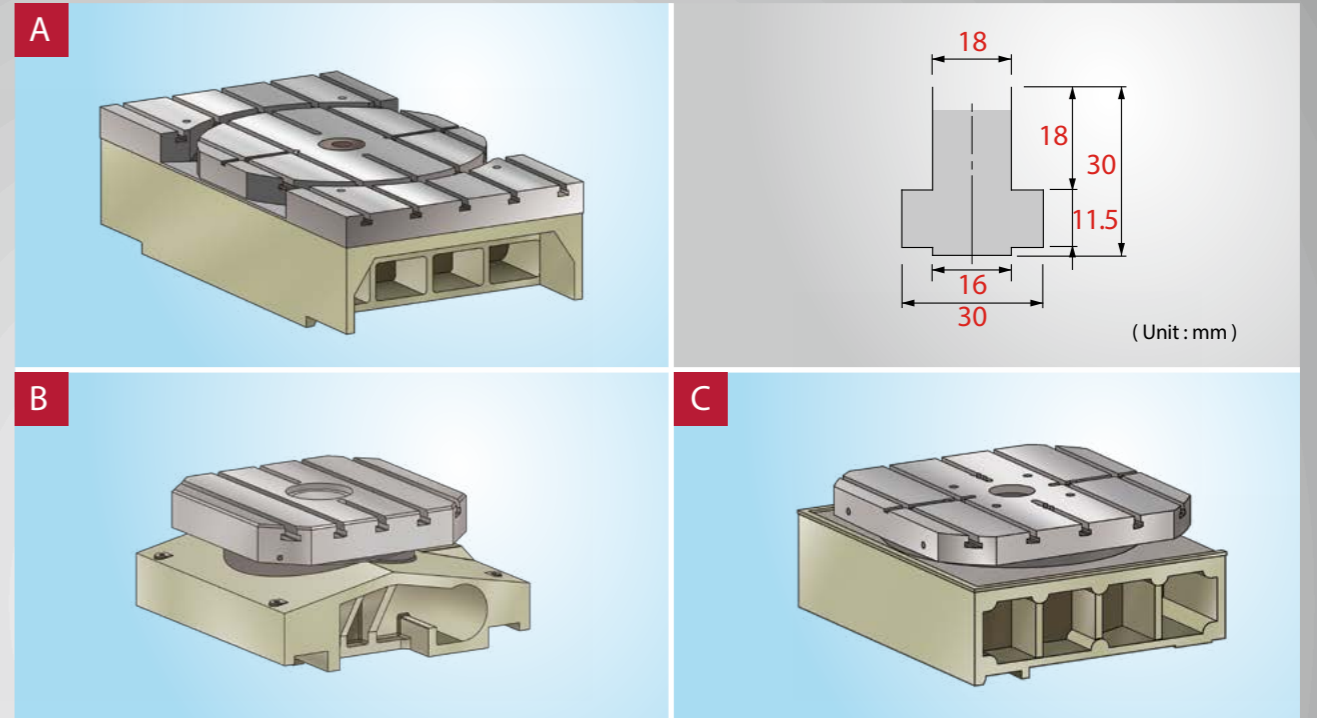
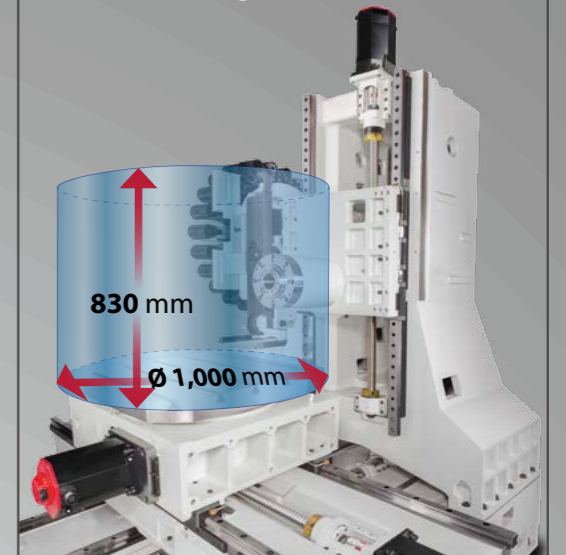


## High Efficiency Rotary Table

- Depend on different machining requirements, 1° and 0.001° indexing / rotary table can fulfill various type of processing needs.
- CNC 0.001° indexing / rotary table equipped with two-piece worm gear system provides high accuracy simultaneous machining capabilities, mostly use of spiral machining, and aerospace industry.

**2,640 lb**  
Table Load Capacity

Max. Work Range



	A	B	C
<b>Model</b>	EH-117	EH-75R EH-75I	EH-117R EH-117I EH-119GR EH-119GI
<b>Table Size</b> mm	1,260 x 700	500 x 500	700 x 700
<b>Indexing table ( B-axis )</b> mm	740 x 700	500 x 500	700 x 700
<b>1° Pos. Accuracy</b> arc-sec	10	10	10
<b>1° Rep. Accuracy</b> arc-sec	2	2	2
<b>0.001° Pos. Accuracy</b> arc-sec	-	15	15
<b>0.001° Rep. Accuracy</b> arc-sec	-	6	4



## ATC System

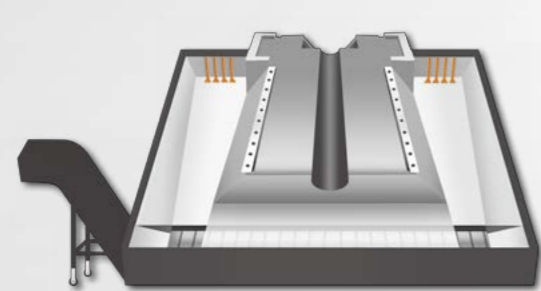
- All series are equipped with efficient arm type 24 tool ATC system which provides smooth tool changing without delay. ( T-T : 1.9 second )
- Chain type 40 tool ATC system is also available for option.
- Two types of magazines, moveable and immovable. Moveable magazine can efficiently enlarge working range and prevent hazards caused by spray of coolant.

# Coolant And Chips Conveyor

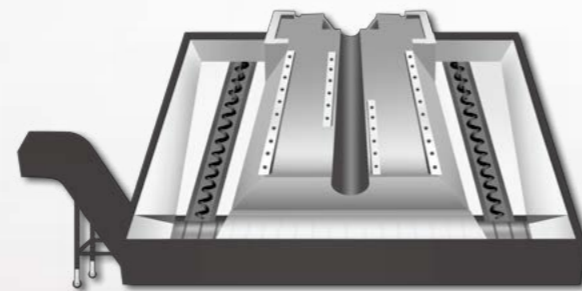
## Coolant system

- All series features powerful coolant nozzles around spindle as standard provides high efficiency chips removals ability and decreases the rise of temperature to remain machining accuracy.
- Coolant through spindle, which not only extends long lasting of tools, but also fulfills machining requests of deep hole drilling and milling, is available for option.

## Chip removal system



- High pressure chips flush coolant  
Caterpillar type chip conveyor



- Screw type chip auger x 2  
Caterpillar type chip conveyor

EH-75R

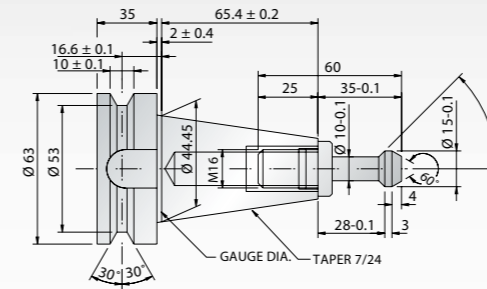
EH-75I

EH-117 EH-117R EH-117I EH-119GR EH-119GI

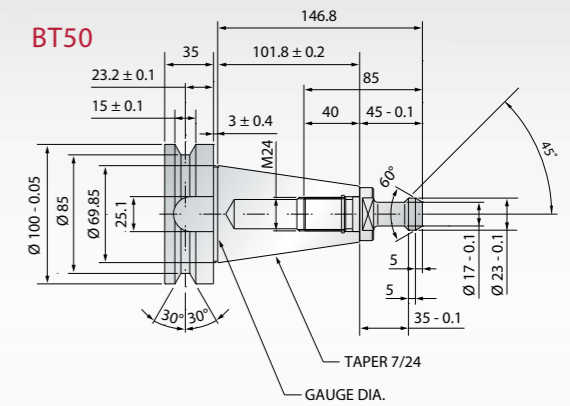
# Dimensions

## Tool shank and Pull Stud Dimensions

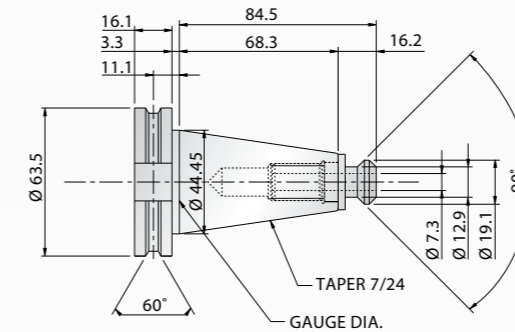
BT40



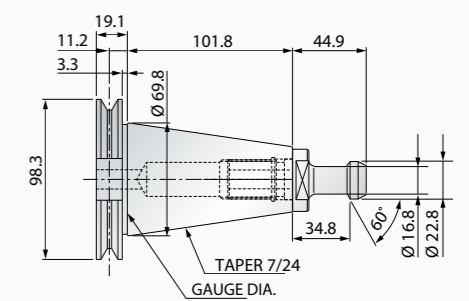
BT50



CAT40

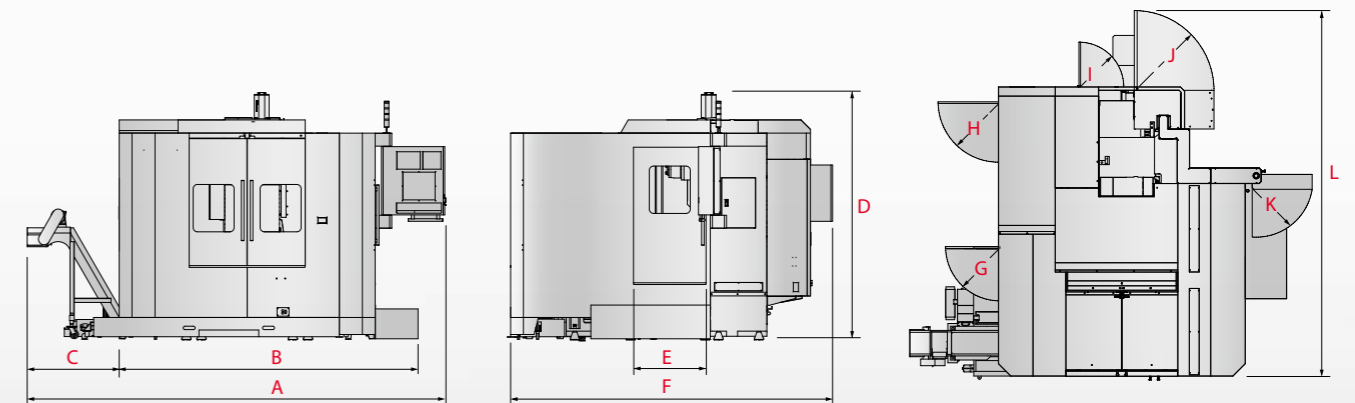


CAT50



(Unit : mm)

## Machine Dimensions



(Unit : mm)

Model	A	B	C	D	E	F	G	H	I	J	K	L
EH-75R	4,030	2,700	1,145	2,670	800	3,200	742	788	560	970	565	4,062
EH-75I	4,030	2,700	1,145	2,670	800	3,200	742	788	560	970	565	4,062
EH-117	5,018	3,940	1,078	2,815	-	4,015	760	760	545	970	-	4,705
EH-117R	5,018	3,940	1,078	2,815	-	4,015	760	760	545	970	-	4,705
EH-117I	5,018	3,940	1,078	2,815	-	4,015	760	760	545	970	-	4,705
EH-119GR	4,584	3,506	1,078	2,896	850	3,773	652	745	545	970	689	4,443
EH-119GI	4,584	3,506	1,078	2,896	850	3,773	652	745	545	970	689	4,443

Specifications are subject to change without notice.

		EH-75R	EH-75I	EH-117	EH-117R	EH-117I	EH-119GR	EH-119GI
<b>Specification</b>								
X-axis travel	mm ( inch )	700 ( 27.5 )		1,100 ( 43.3 )		1,100 ( 43.3 )		
Y-axis travel	mm ( inch )	660 ( 26.0 )		815 ( 32.1 )	810 ( 31.9 )	810 ( 31.9 )	800 ( 31.5 )	
Z-axis travel	mm ( inch )	625 ( 24.6 )		900 ( 35.4 )		900 ( 35.4 )		
Distance from spindle nose to table center	mm ( inch )	122 ~ 747 ( 4.80 ~ 29.4 )		100 ~ 1,000 ( 3.93 ~ 39.3 )		100 ~ 1,000 ( 3.93 ~ 39.3 )		
Distance from spindle nose to column	mm ( inch )	302 ( 11.9 )		441 ( 17.4 )		441 ( 17.4 )		
Distance from spindle center to table	mm ( inch )	20 ~ 680 ( 0.78 ~ 26.8 )		0 ~ 810 ( 0 ~ 31.9 )		0 ~ 810 ( 0 ~ 31.9 )		
Distance from floor surface to table surface	mm ( inch )	1,056 ( 41.6 )		1,160 ( 45.7 )		1,150 ( 45.3 )		
<b>Working Table</b>								
Table size	mm ( inch )	500 x 500 ( 19.7 x 19.7 )		1,260 x 700 ( 49.6 x 27.6 )	700 x 700 ( 27.6 x 27.6 )		700 x 700 ( 27.6 x 27.6 )	
Indexing table ( B-axis )	mm ( inch )	500 x 500 ( 19.7 x 19.7 )		740 x 700 ( 29.1 x 27.6 )	700 x 700 ( 27.6 x 27.6 )		700 x 700 ( 27.6 x 27.6 )	
T-slot ( width x no. x space )	mm ( inch )	18 x 5 x 100 ( 0.71 x 5 x 3.93 )		18 x 5 x 145 ( 0.71 x 5 x 5.71 )		18 x 5 x 125 ( 0.71 x 5 x 4.92 )		
Table load capacity	kg ( lb )	400 ( 880 )		800 ( 1,760 )	800 ( 1,760 )	1,200 ( 2,640 )	1,200 ( 2,640 )	
Max. work-piece height	mm ( inch )	680 ( 26.8 )		815 ( 32.1 )	810 ( 31.9 )	810 ( 31.9 )	810 ( 31.9 )	
Min. indexing angle	degree	0.001	1	1	0.001	1	0.001	1
<b>Spindle</b>								
Spindle motor ( cont. / 30 min )	kW ( HP )	11 / 15 ( 15 / 20 )		15 / 18.5 ( 20 / 25 )				
Spindle speed	rpm	8,000 [ Opt. 10,000 ]		4,500 [ Opt. 6,000 ]		4,500		
Spindle taper		# 40		# 50				
<b>Feed Rate</b>								
X / Y / Z axes rapid feed rate	m/min ( IPM )	30 ( 1,181 ) / 24 ( 945 ) / 30 ( 1,181 )		30 ( 1,181 ) / 24 ( 945 ) / 30 ( 1,181 )				
Cutting feed rate	m/min ( IPM )	10 ( 394 )		10 ( 394 )				
<b>ATC</b>								
ATC type		Arm type		Arm type [ Opt. Moveable arm type ]		Moveable arm type		
Tool magazine capacity	T	24 [ 40 Opt. ]		24 [ Opt. 40 ]				
Max. tool diameter	mm ( inch )	Ø 76 ( 2.99 ) / Ø 150 ( 5.91 )		Ø 126 ( 4.96 ) / Ø 250 ( 9.84 )				
Max. tool length	mm ( inch )	250 ( 9.84 )		300 ( 11.8 ) [ Opt. 400 ( 15.7 ) ]				
Max. tool weight	kg ( lb )	7 ( 15.4 )		15 ( 33 )				
<b>Accuracy</b>								
Positioning accuracy ( JIS B 6338 )	mm ( inch )	± 0.005 ( ± 0.00019 ) / 300 ( 11.8 )		± 0.005 ( ± 0.00019 ) / 300 ( 11.8 )				
Repeatability ( JIS B 6338 )	mm ( inch )	± 0.003 ( ± 0.00011 )		± 0.003 ( ± 0.00011 )				
<b>General</b>								
Power requirement	kVA	43		55				
Coolant tank capacity	liter ( gal )	250 ( 66.0 )		390 ( 103 )				
Machine weight	kg ( lb )	6,600 ( 14,550 )		10,500 ( 23,150 )	10,700 ( 23,590 )	10,700 ( 23,590 )	11,000 ( 24,250 )	11,000 ( 24,250 )
Floor Space ( L / W / H )	mm ( inch )	2,850 / 3,200 / 2,670 ( 112.2 / 126.0 / 105.1 )		4,220 / 3,425 / 2,900 ( 166.1 / 134.8 / 114.2 )		3,502 / 3,514 / 2,896 ( 137.9 / 138.3 / 114.0 )		

Specifications are subject to change without notice.

### Standard Accessories

- Spindle air blast
- Spindle chiller
- Coolant nozzels around spindle
- Fully enclosed splash guard
- Coolant system with pump and tank
- Centralized automatic lubricating system
- Arm type 24 tool ATC system
- Halogen work light
- Alarm light
- Air gun system
- Adjusting tools and tool box
- Automatic power off system
- Leveling bolts & pads
- Operating manual
- Mechanical manual
- Electrical manual
- Catepillar type chip conveyor

### Optional Accessories

- Oil skimmer
- Coolant through spindle ( 20 bar )
- Automatic tool length measurement
- Air condition for electric cabinet
- Chain type 40 tool ATC system
- Transformer
- Automatic voltage regulator
- Moveable arm type 24 tool ATC system
- X / Y / Z axes optical linear scale

### Control system

- FANUC
- SIEMENS
- MITSUBISHI
- HEIDENHAIN