RB·SB·LB SERIES Double Column Vertical Machining Centers

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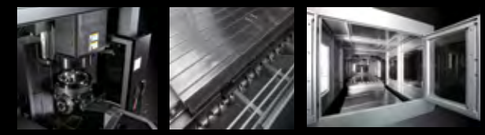
Your local distributor is:



RB·SB·LB SERIES

Double Column Vertical Machining Centers

JTEKT Koyo TOYODA

WELE a TOYODA Strategic Alliance Company

BRIDGE MACHINING CENTERS

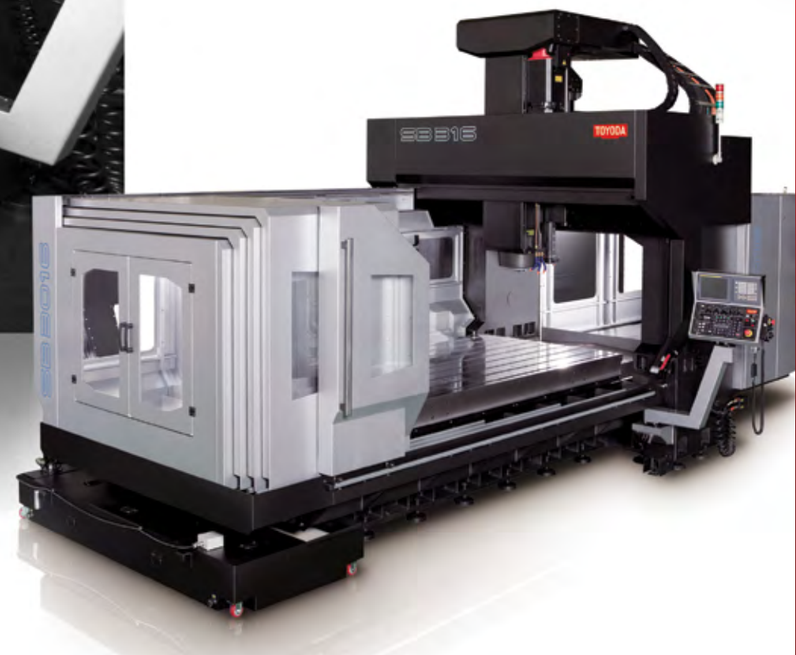
Make the most of complex and large-part machining with more standardized features and five-face machining capabilities.

RB Series

SB Series

LB Series

WELE
a TOYODA Strategic Alliance Company



Contents

Solid Construction

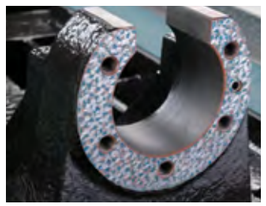
All models feature massive single-piece, high-grade cast iron bases and dual bridge columns. Designed for thermal stability, these castings provide excellent vibration dampening and extreme rigidity for rapid material removal of large workpieces.

RB and SB Series

LB Series

Handscraped Metal-to-Metal Surfaces

All contact surfaces are handscraped for geometrical accuracy.



Powerful Drive Motors

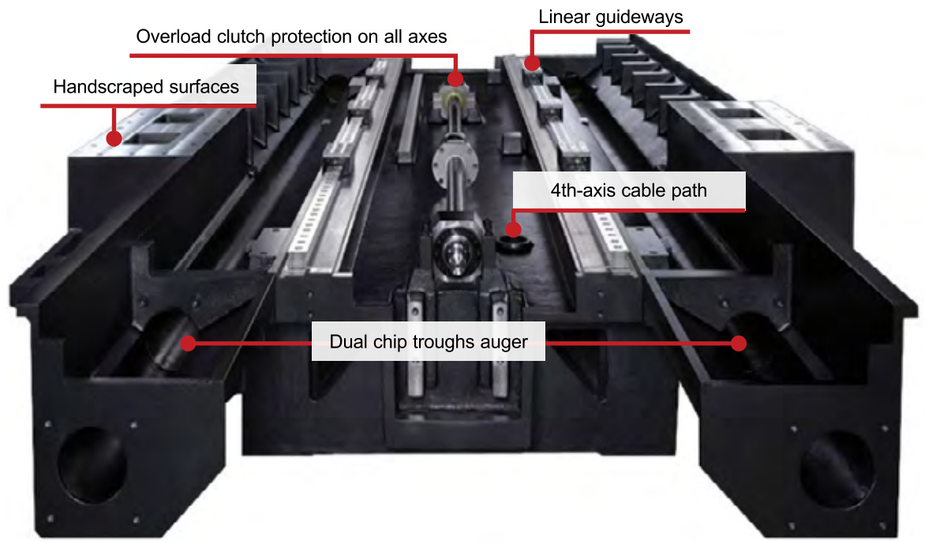
Equipped with Fanuc motors and drives for optimum power and efficiency, the motors are controlled by an advanced digital signal for faster processing of position feedback. The axis motors are joined to the ballscrew with couplings designed to support high thrust loads and instantaneous response without backlash. The result is a smoother finish and a higher accuracy in the finished part.

Cutting Saddle Designed for High Performance

The upper linear guide has been installed on top of the crossrail of the saddle slide section (Y axis), greatly increasing structural strength. This minimizes spindle centerline opening from the cross beam, increasing rigidity during heavy cutting.

Precision Roller Guideways

All models feature THK heavy-duty roller guideways on the X, Y, and Z axes. These guideways provide dynamic accuracy despite heavy table loads.



High-Performance Spindle

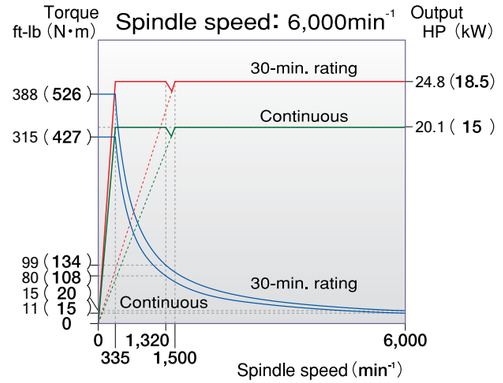
In a standard configuration, the robust, cast iron headstock is paired with a 6,000 RPM geared-head spindle. This combination ensures high revolution accuracy and excellent vibration-dampening capabilities, while large bearings give these two-gear, CAT50 spindles increased rigidity and the ability to machine higher load capacities. Other available headstock options include a CAT50 taper, 10,000 RPM direct-drive spindle, and a CAT40 taper, 15,000 RPM direct-drive spindle.

The spindle head is uniquely engineered with a minimal overhang of 3.3” (85 mm) between the centerline and Z-axis guideway center, reducing the possibility of deformation caused by cutting force or thermal expansion.

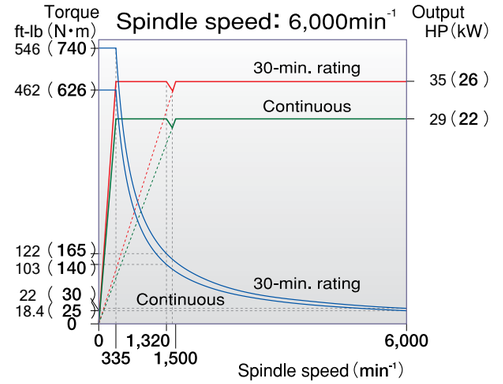
Thermal expansion is controlled by an oil circulating heat exchanger with temperature-controlled spindle and gear box lubrication.

The SB and LB series standard configuration utilizes 35 HP (26 kW) stepless variable speed range with a two-step gear box up to 6,000 RPM.

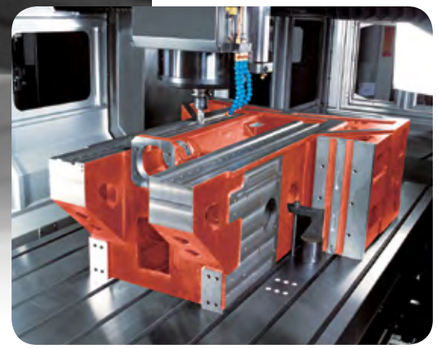
CAT50 Taper Spindle Output & Torque Diagram



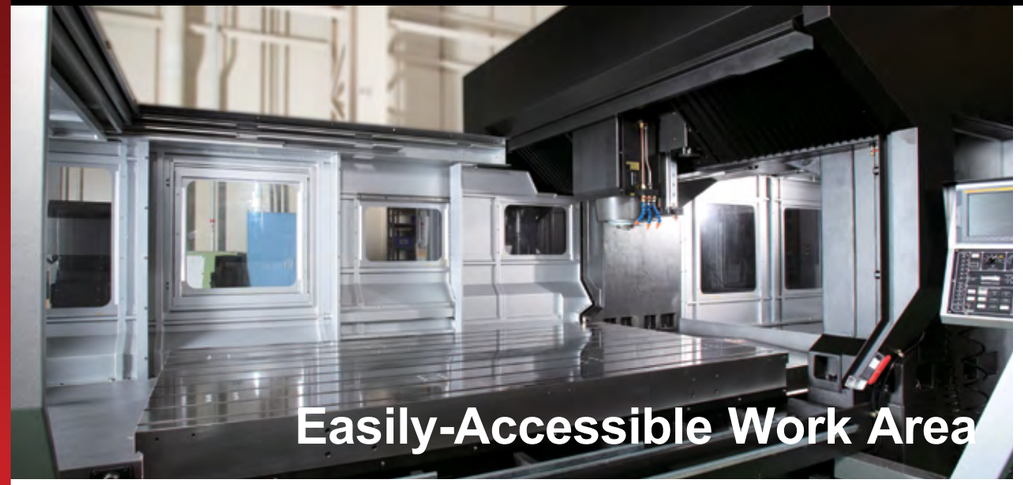
RB Series



SB and LB Series



Built For Power

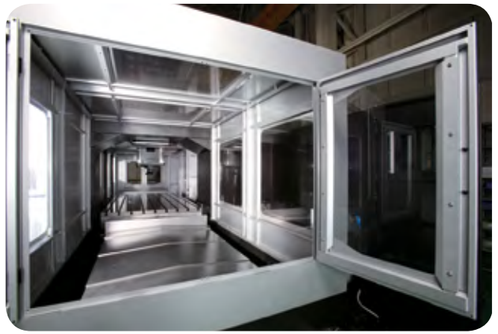


Easily-Accessible Work Area

Workability

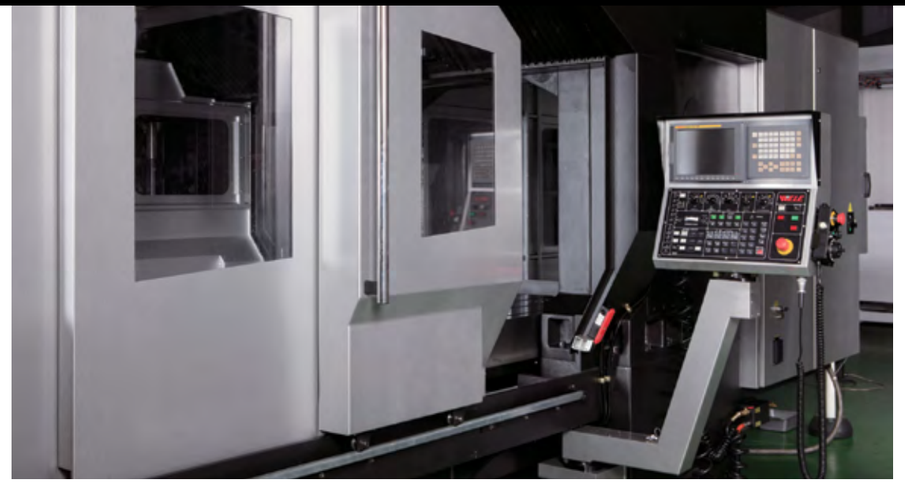
RB, SB, and LB bridges are designed with features that contribute to the productivity, efficiency, safety, and ease of use for the operator.

Operators have full access to the table, allowing for loading via overhead crane, and large side door openings for convenience in maintenance and cleaning.



Efficient Chip Removal

All models have a high volume of coolant flow across the bed to accelerate chip flow. The angled bed and coolant flow flush chips into a dual screw-type auger-to-plate conveyor for efficient removal and reduced operator maintenance.



Advanced Control System

All models rely on the Fanuc 31i MB control to meet the demands of complex applications. This control features a 10.4" color LCD display, rigid tapping, helical interpolation, custom micro B, skip signal (G31), and 4th axis data server interface.

Toyoda's upgraded Fanuc package includes AI Nano, high-speed machining capability with 180-block look ahead, and 3-D tool path verification.

SB and LB models offer automatic tool changes in both horizontal and vertical orientations.

Automatic Tool Changer

Most machine models can be configured with either a vertical or combination vertical and horizontal tool changer. This highly flexible option increases the range of workpieces that can be machined.

Tool Magazine

The RB Series has a machine-mounted tool magazine with a standard capacity of 32 and an optional capacity of 40 tools. The SB and LB series have a floor-mounted, dual-arm tool changer with a standard capacity of 32, and optional capacities of 60, 90, and 120 tools.

M-Specification: The Automated Head Exchange and ATC Option

1. Fully automatic and programmable 90° head changer with 5° automatic indexing on the C axis
2. Includes automatic 90° head and vertical adapter plate storage
3. Includes automatic tool exchange from vertical and horizontal spindle positions
4. Swing-away operator panel
5. Enables fully automatic, five-face machining

Automatic Head Change Procedure

Drop off vertical ring adapter

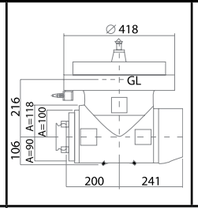
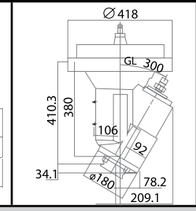
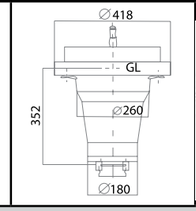
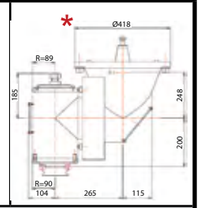
Retract vertical adapter storage arm

Pick up automatic indexing right angle head

Retract right angle head storage arm

Headstock Options

The SB and LB models can be equipped with a 90°, 30°, extension, or universal head to meet your machining demands. This allows for machining of a variety of complex workpieces.

AUTOMATIC HEADSTOCK		90° Head	30° Head	Extension Head	Universal Head
					
Spindle Taper	—	CAT50			
Spindle Revolution	RPM	2,400	3,000	4,000	2,400
Max. Tool Diameter	mm (in)	215 (8.5)			
Max. Output	kW (HP)	15 (20)		18.5 (25)	15 (20)
Clamping Method	—	Manual			
C-Axis Indexing Method	—	Auto indexing		—	Auto indexing
C-Axis Indexing Angle	degrees	5 Standard (1 option)		—	5 Standard (1 option)

* *"A" axis manual positioning in 5° increments*

Automatic Clamping Headstock

The SB and LB models offer the option of an automatic headstock clamping system. This feature minimizes setup changeover by switching headstocks quickly to reduce downtime.

Manual Clamping Headstock

A manual clamping headstock is available for SB and LB models. Manual headstock exchange makes the machine flexible for a wide range of workpieces.

Headstock Storage

Toyoda's SB and LB bridge machines can be equipped with a headstock storage unit capable of holding up to four unique headstocks. This unit can be set up to automatically switch headstocks for seamless machining of complicated applications.

M-spec allows for operator-side, automatic, single-head change and automatic tool exchange in vertical and horizontal orientations.

Storage unit for 90° head (M-spec)

RB Series & SB Series

STROKE		RB212	RB312	SB216	SB316	SB416
X-axis Travel	mm (in)	2,120 (83.5)	3,060 (120.5)	2,120 (83.5)	3,060 (120.5)	4,060 (159.8)
Y-axis Travel	mm (in)	1,200 (47.2)		1,600 (63)		
Y-axis Travel with -YM Configuration	mm (in)	—		2,300 (90.5)		
Z-axis Travel	mm (in)	800 (31.5)		800 (31.5)		
Optional Z-axis Travel	mm (in)	—		1,000 (39.4)		
Distance from Spindle Nose to Table Top	mm (in)	150 - 950 (5.9 - 37.4)		200 - 1,000 (7.9 - 39.4)		
Distance from Spindle Nose to Table Top with Optional Z-axis Travel	mm (in)	—		200 - 1,200 (7.9 - 47.2)		
Distance between Columns	mm (in)	1,300 (51.2)		1,700 (66.9)		
TABLE						
Table Size (X axis)	mm (in)	2,000 (78.7)	3,000 (118)	2,000 (78.7)	3,000 (118)	4,000 (157.4)
Table Size (Y axis)	mm (in)	1,100 (43.3)		1,500 (59)		
Table Load Capacity	kg (lb)	3,500 (7,700)	4,500 (9,900)	8,000 (17,600)	10,000 (22,000)	12,000 (26,450)
SPINDLE						
Spindle Taper	—	CAT50		CAT50		
Spindle Motor (cont. / 30 min.)	kW (HP)	15 / 18.5 (20 / 25)		22 / 26 (30 / 35)		
Spindle Speed	RPM	6,000		6,000		
Spindle Output Torques	Nm (ft-lb)	526 / 740 (388 / 546)		740 (546)		
FEEDRATE						
Rapid Feedrate (X axis)	m/min (ipm)	24 (945)		24 (945)		20 (787)
Rapid Feedrate (Y axis)	m/min (ipm)	24 (945)		24 (945)		
Rapid Feedrate (Z axis)	m/min (ipm)	15 (590)		15 (590)		
Max. Cutting Feedrate	m/min (ipm)	10 (394)		10 (394)		
ATC						
Tool Magazine Capacity	—	32 (40)		32 (60, 90, 120)		
Maximum Tool Diameter / Adjacent Pocket Empty	mm (in)	127 / 215 (5 / 8.5)		127 / 215 (5 / 8.5)		
Max. Tool Weight	kg (lb)	15 (33)		20 (44)		
Max. Tool Length	mm (in)	400 (15.7)		400 (15.7)		
ACCURACY						
Positioning Accuracy	mm (in)	± 0.005 (± 0.0002)		± 0.01 (± 0.0004)		
Repeatability	mm (in)	± 0.003 (± 0.0001)		± 0.003 (± 0.0001)		
CONTROL						
Control Type	—	Fanuc 31i MB		Fanuc 31i MB		
MACHINE SIZE						
Weight	kg (lb)	18,000 (39,600)	22,000 (48,500)	22,000 (48,500)	27,000 (59,500)	29,000 (64,000)
Length	mm (in)	5,860 (231)	7,930 (312)	6,250 (246)	8,300 (327)	10,250 (404)
Width	mm (in)	4,700 (185)		4,650 (183)		
Height	mm (in)	4,150 (163)		4,350 (171)		

Specifications

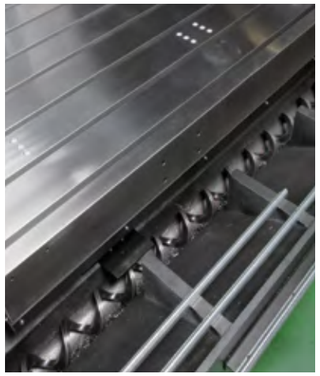
LB Series

STROKE		LB321	LB421	LB521	LB325	LB425	LB525	LB625	LB433	LB533	LB633
X-axis Travel	mm (in)	3,060 (120.5)	4,060 (159.8)	5,060 (199.2)	3,060 (120.5)	4,060 (159.8)	5,060 (199.2)	6,060 (238.5)	4,060 (159.8)	5,060 (199.2)	6,060 (238.5)
Y-axis Travel	mm (in)	2,150 (84.6)			2,550 (100.4)				3,350 (131.9)		
Y-axis Travel with -YM Configuration	mm (in)	2,800 (110.2)			3,200 (125.9)				4,000 (157.4)		
Z-axis Travel	mm (in)	800 (31.5)			800 (31.5)				800 (31.5)		
Optional Z-axis Travel	mm (in)	1,000 (39.4), 1,200 (47.2), 1,400 (55.1)			1,000 (39.4), 1,200 (47.2), 1,400 (55.1)				1,000 (39.4), 1,200 (47.2), 1,400 (55.1)		
Distance from Spindle Nose to Table Top	mm (in)	200 - 1,000 (7.9 - 39.4)			200 - 1,000 (7.9 - 39.4)				200 - 1,000 (7.9 - 39.4)		
Distance from Spindle Nose to Table Top with Optional Z-axis Travel	mm (in)	200 - 1,200 (7.9 - 47.2), 200 - 1,400 (7.9 - 55.1), 200 - 1,600 (7.9 - 63)			200 - 1,200 (7.9 - 47.2), 200 - 1,400 (7.9 - 55.1), 200 - 1,600 (7.9 - 63)				200 - 1,200 (7.9 - 47.2) , 200 - 1,400 (7.9 - 55.1), 200 - 1,600 (7.9 - 63)		
Distance between Columns	mm (in)	2,300 (90.5)			2,700 (106.3)				3,500 (137.8)		
TABLE											
Table Size (X axis)	mm (in)	3,000 (118)	4,000 (157.4)	5,000 (196.8)	3,000 (118)	4,000 (157.4)	5,000 (196.8)	6,000 (236.2)	4,000 (157.4)	5,000 (196.8)	6,000 (236.2)
Table Size (Y axis)	mm (in)	2,000 (78.7)			2,400 (94.5)				2,400 (94.5)		
Table Load Capacity	kg (lb)	12,000 (26,450)	15,000 (33,000)	18,000 (39,600)	12,000 (26,450)	15,000 (33,000)	18,000 (39,600)	20,000 (44,000)	15,000 (33,000)	18,000 (39,600)	20,000 (44,000)
SPINDLE											
Spindle Taper	—	CAT50			CAT50				CAT50		
Spindle Motor (cont. / 30 min.)	kW (HP)	22 / 26 (30 / 35)			22 / 26 (30 / 35)				22 / 26 (30 / 35)		
Spindle Speed	RPM	6,000			6,000				6,000		
Spindle Output Torques	Nm (ft-lb)	740 (546)			740 (546)				740 (546)		
FEEDRATE											
Rapid Feedrate (X axis)	m/min (ipm)	24 (945)	18 (708)	15 (590)	24 (945)	18 (708)	15 (590)	12 (492)	18 (708)	15 (590)	12 (492)
Rapid Feedrate (Y axis)	m/min (ipm)	20 (787)			20 (787)				15 (590)		
Rapid Feedrate (Z axis)	m/min (ipm)	15 (590)			15 (590)				15 (590)		
Max. Cutting Feedrate	m/min (ipm)	10 (394)			10 (394)			8 (315)	10 (394)		
ATC											
Tool Magazine Capacity	—	32 (60, 90, 120)			32 (60, 90, 120)				32 (60, 90, 120)		
Maximum Tool Diameter / Adjacent Pocket Empty	mm (in)	127 / 215 (5.0 / 8.5)			127 / 215 (5.0 / 8.5)				127 / 215 (5.0 / 8.5)		
Max. Tool Weight	kg (lb)	20 (44)			20 (44)				20 (44)		
Max. Tool Length	mm (in)	400 (15.7)			400 (15.7)				400 (15.7)		
ACCURACY											
Positioning Accuracy	mm (in)	± 0.015 (± 0.0006)			± 0.015 (± 0.0006)				± 0.015 (± 0.0006)		
Repeatability	mm (in)	± 0.003 (± 0.0001)			± 0.003 (± 0.0001)				± 0.003 (± 0.0001)		
CONTROL											
Control Type	—	Fanuc 31i MB			Fanuc 31i MB				Fanuc 31i MB		
MACHINE SIZE											
Weight	kg (lb)	29,500 (64,900)	35,500 (78,100)	40,000 (88,000)	32,300 (71,209)	39,000 (85,800)	45,500 (97,900)	48,000 (105,800)	51,000 (112,000)	53,000 (116,600)	55,000 (121,000)
Length	mm (in)	8,610 (339)	10,590 (417)	12,910 (508)	8,610 (339)	10,590 (417)	12,660 (498)	14,415 (568)	10,590 (417)	12,910 (508)	14,660 (577)
Width	mm (in)	5,300 (209)			5,700 (224)				7,300 (287)		
Height	mm (in)	4,350 (171)			4,350 (171)				4,350 (171)		

Specifications

Standard Accessories

Dual Chip Augers



Coolant Supply Unit

Lift up Chip Conveyor

Coolant and Air Gun

Tool Load Assist Foot Pedal

Flash Card Slot

Door and Ceiling Work Lights

3-Step Signal Tower

RS232 and Ethernet Port

Table Dimensions

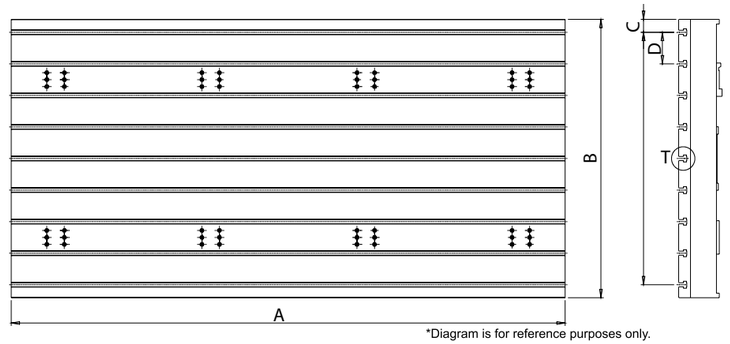
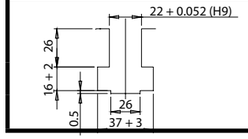
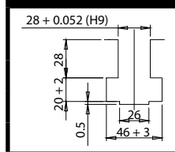


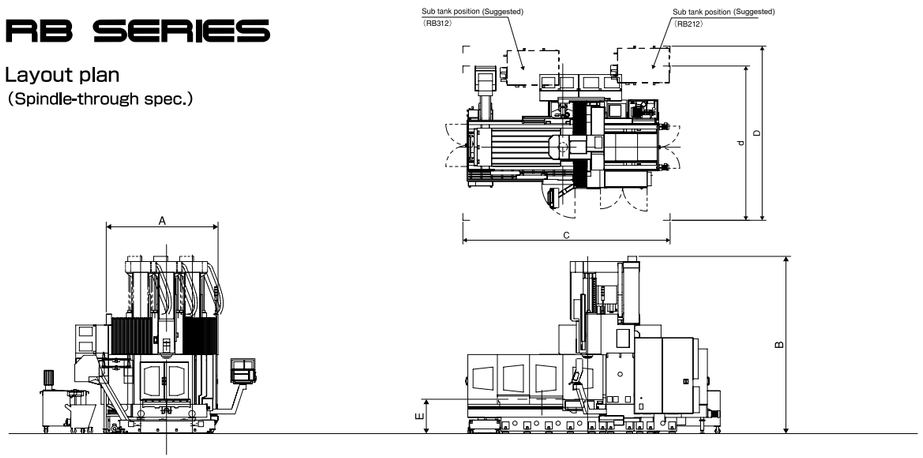
*Diagram is for reference purposes only.

T-SLOT	mm (in)	RB212	RB312	SB216	SB316	SB416
	A	2,000 (78.7)	3,000 (118)	2,000 (78.7)	3,000 (118)	4,000 (157.4)
	B	1,100 (43.3)		1,500 (59.1)		
	C	70 (2.7)		70 (2.7)		
	D	160 (6.3)		170 (6.7)		

T-SLOT	mm (in)	LB321	LB421	LB521	LB325	LB425	LB525	LB625	LB433	LB533	LB633
	A	3,000 (118)	4,000 (157.4)	5,000 (196.8)	3,000 (118)	4,000 (157.4)	5,000 (196.8)	6,000 (236.2)	4,000 (157.4)	5,000 (196.8)	6,000 (236.2)
	B	2,000 (78.7)			2,400 (94.5)						
	C	100 (3.9)									
	D	200 (7.87)									

RB SERIES

Layout plan
(Spindle-through spec.)

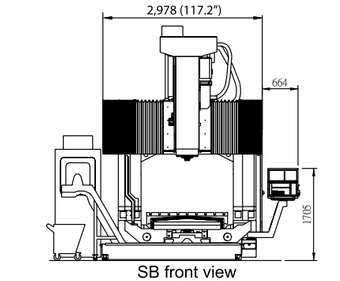


mm (in)	A	B	C	D	d	E
RB212	2,590 (102)	4,200 (165.5)	6,000 (236.2)	5,100 (200.9)	4,500 (177.3)	800 (31.5)
RB312	2,590 (102)	4,200 (165.5)	8,100 (319.1)	4,800 (189.1)	4,500 (177.3)	800 (31.5)

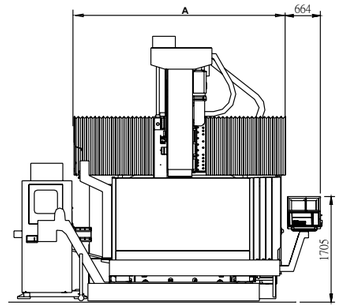
SB LB SERIES

Layout plan

(Spindle-through spec.)

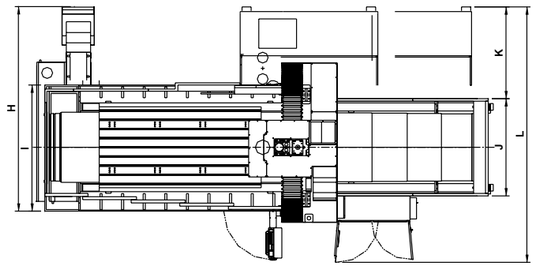


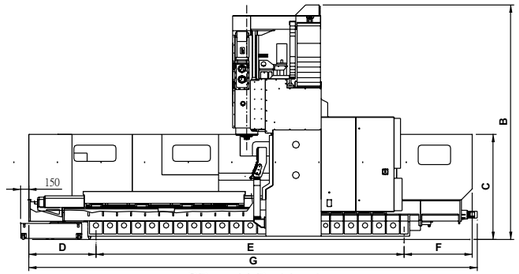
SB front view



LB front view

SB and LB top view





SB and LB side view

Unit: mm (inch)

	A	B	C	D	E	F	G	H	I	J	K	L
SB216	-	4,353 (171.4)	1,950 (76.8)	1,000 (39.4)	3,772 (148.5)	1,326 (52.2)	6,104 (240.3)	3,973 (156.4)	2,337 (92)	1,801 (70.9)	1,701 (66.98)	4,739 (186.56)
SB316	-	4,353 (171.4)	1,950 (76.8)	1,246 (49.05)	5,715 (225)	1,260 (49.6)	8,316 (327.4)	3,973 (156.4)	2,337 (92)	1,801 (70.9)	1,701 (66.98)	4,739 (186.56)
SB416	-	4,353 (171.4)	1,950 (76.8)	1,246 (49.05)	7,785 (306.5)	1,300 (51.2)	10,358 (407.8)	3,973 (156.4)	2,337 (92)	1,801 (70.9)	1,701 (66.98)	4,739 (186.56)
LB321	3,620 (142.5)	4,350 (171.3)	1,950 (76.8)	1,350 (53.1)	5,544 (218.3)	1,200 (47.2)	8,365 (329.4)	4,550 (179.1)	2,935 (115.6)	2,550 (100.4)	1,680 (66.1)	5,400 (212.6)
LB421	3,620 (142.5)	4,350 (171.3)	1,950 (76.8)	1,345 (53.0)	7,644 (300.9)	1,260 (49.6)	10,525 (414.4)	4,550 (179.1)	2,935 (115.6)	2,550 (100.4)	1,680 (66.1)	5,400 (212.6)
LB521	3,620 (142.5)	4,350 (171.3)	1,950 (76.8)	1,410 (55.5)	9,720 (382.7)	1,240 (48.8)	12,665 (498.6)	4,550 (179.1)	2,935 (115.6)	2,550 (100.4)	1,680 (66.1)	5,400 (212.6)
LB325	4,020 (158.3)	4,350 (171.3)	1,950 (76.8)	1,350 (53.1)	5,544 (218.3)	1,200 (47.2)	8,365 (329.4)	4,750 (187)	3,355 (132.1)	2,950 (116.1)	1,680 (66.1)	5,700 (224.2)
LB425	4,020 (158.3)	4,350 (171.3)	1,950 (76.8)	1,345 (53.0)	7,644 (300.9)	1,260 (49.6)	10,525 (414.4)	4,750 (187)	3,355 (132.1)	2,950 (116.1)	1,680 (66.1)	5,700 (224.2)
LB525	4,020 (158.3)	4,350 (171.3)	1,950 (76.8)	1,410 (55.5)	9,720 (382.7)	1,240 (48.8)	12,665 (498.6)	4,750 (187)	3,355 (132.1)	2,950 (116.1)	1,680 (66.1)	5,700 (224.2)
LB625	4,020 (158.3)	4,350 (171.3)	1,950 (76.8)	1,580 (62.2)	11,626 (457.7)	1,255 (49.4)	14,760 (581.1)	4,750 (187)	3,355 (132.1)	2,950 (116.1)	1,680 (66.1)	5,700 (224.2)
LB433	4,003 (157.6)	4,353 (171.4)	1,950 (76.8)	1,359 (53.5)	7,650 (301.2)	1,242 (48.9)	10,597 (417.2)	5,756 (226.6)	4,137 (162.9)	3,754 (147.8)	1,681 (66.2)	6,604 (260)
LB533	5,003 (197)	4,353 (171.4)	1,950 (76.8)	1,402 (55.2)	9,728 (383)	1,790 (70.5)	12,921 (508.7)	5,756 (226.6)	4,137 (162.9)	3,754 (147.8)	1,681 (66.2)	6,604 (260)
LB633	6,004 (236.4)	4,353 (171.4)	1,950 (76.8)	1,562 (61.5)	11,636 (458.1)	1,816 (71.5)	15,011 (591)	5,756 (226.6)	4,137 (162.9)	3,754 (147.8)	1,681 (66.2)	6,604 (260)

Production Experience

Toyoda is one of the world's largest machine tool builders, but we also have a successful production side to our business. Every year, Toyoda manufactures and sells more than $1.5 billion in steering and driveline systems to automotive OEMs around the world. This gives our company unique insight into the shop floor challenges our customers face every day.

Proven Technology

Our experience with high-volume production helps us design and build machine tools that perform under pressure. We continually refine processes, build reliable machines, and test them in our own factories. When you decide to buy a Toyoda machining center or grinding machine for your business, you can be confident that you are investing in proven technology.

Customer Support

Toyoda works closely with its nationwide dealer network to keep local service engineers on call. In addition, our own factory-trained service engineers are stationed across the U.S., Canada, and Mexico, should you ever need them. Our extensive spare parts inventory ($20 million) ensures that virtually any replacement part will be shipped to you in 24 hours.

THE TOYODA DIFFERENCE

Toyoda Machinery USA

Toyoda Machinery USA is headquartered just northwest of Chicago in Arlington Heights, Illinois. Our office in Monterrey, Mexico proudly serves Toyoda's Latin American market, while our Minnesota- and Massachusetts-based tech centers cater to their respective regions.

Toyoda's Remanufactured Products Division, located just outside Detroit in Wixom, Michigan, provides rebuild, remanufacturing, and service support for the machine tool industry.

WELE: A Toyoda Strategic Alliance Company

Toyoda and WELE are key components of JTEKT Corporation's machine tool offering. As 40% owner of WELE Mechatronics in Taiwan, JTEKT ships vertical machining centers, bridge- and gantry-type mills, and other products from WELE throughout the world. Toyoda Machinery USA, together with the WELE factories, design and build quality machine tools fit for most applications.

WELE a TOYODA Strategic Alliance Company