

WELE

WELE

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WELE

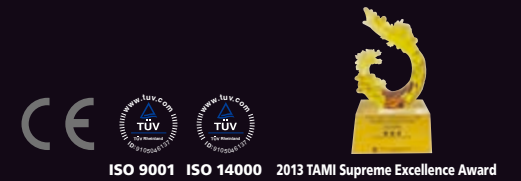
We lead the way by a new business model

MVB SERIES



Moving Cross-Rail type
Double Column
Machining Center ▶▶▶▶▶

WELE MECHATRONIC CO., LTD

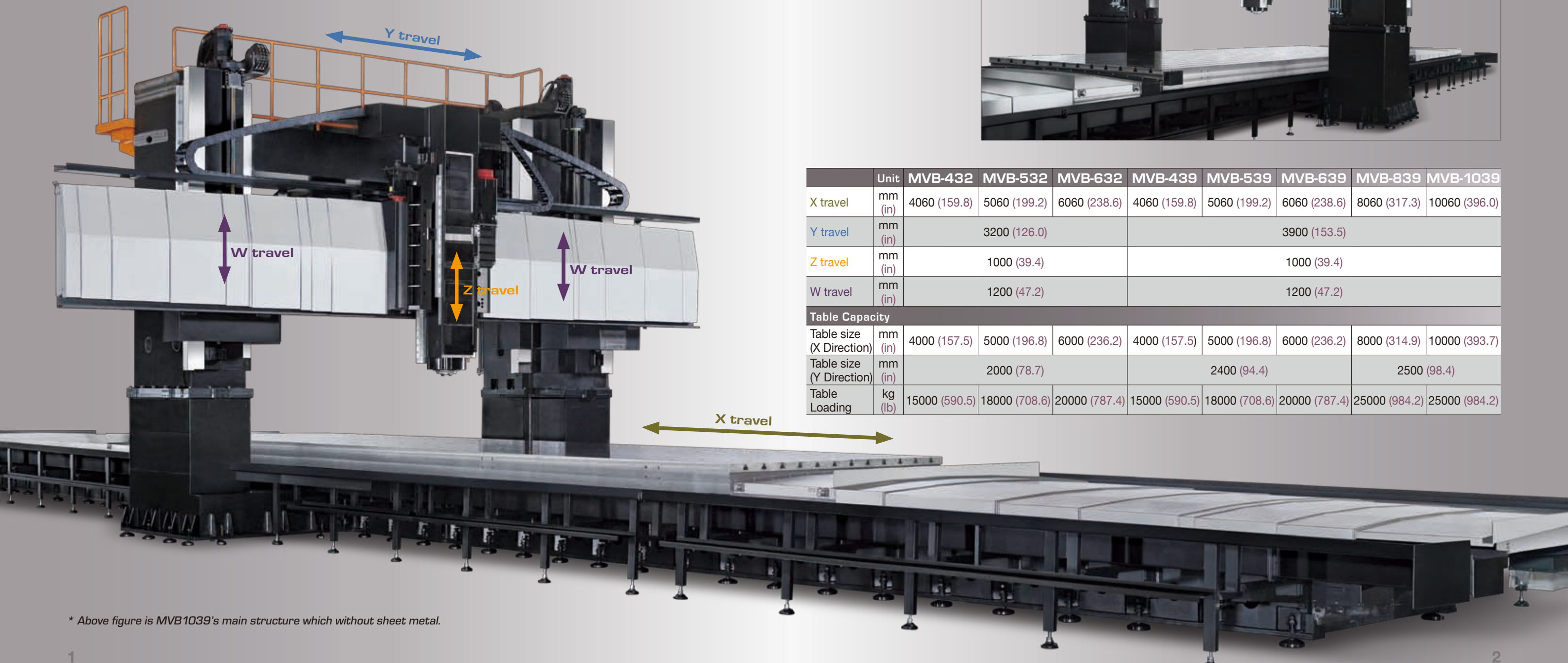


MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039	AA65 Series	AA80 Series	AA90 Series	AQ Series	VQ Series	UG Series	VTC Series	
		MVB-432	MVB-532	MVB-632	RB Series	SB Series	LB Series	MB Series	HB Series	UB Series	MG Series	MVB Series

MVB series

(Moving cross-rail Type Double Column machining center)

- The robust and heavy duty structure of "MVB" series machine is designed by CAD/CAE system.
- The bridge and the bed are made by Meehanite casting and steel fabrication in one piece.
- All casting and welding parts had been fully annealed to guarantee long term accuracy for the machine.
- Fully automatic 5 sides machining function which to satisfy the customers' various applications and demands.



	Unit	MVB-432	MVB-532	MVB-632	MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039
X travel	mm (in)	4060 (159.8)	5060 (199.2)	6060 (238.6)	4060 (159.8)	5060 (199.2)	6060 (238.6)	8060 (317.3)	10060 (396.0)
Y travel	mm (in)	3200 (126.0)			3900 (153.5)				
Z travel	mm (in)	1000 (39.4)			1000 (39.4)				
W travel	mm (in)	1200 (47.2)			1200 (47.2)				
Table Capacity									
Table size (X Direction)	mm (in)	4000 (157.5)	5000 (196.8)	6000 (236.2)	4000 (157.5)	5000 (196.8)	6000 (236.2)	8000 (314.9)	10000 (393.7)
Table size (Y Direction)	mm (in)	2000 (78.7)			2400 (94.4)			2500 (98.4)	
Table Loading	kg (lb)	15000 (590.5)	18000 (708.6)	20000 (787.4)	15000 (590.5)	18000 (708.6)	20000 (787.4)	25000 (984.2)	25000 (984.2)

* Above figure is MVB1039's main structure which without sheet metal.

MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039	AA65 Series	AA80 Series	AA90 Series	AQ Series	VQ Series	UG Series	VTC Series	
		MVB-432	MVB-532	MVB-632	RB Series	SB Series	LB Series	MB Series	HB Series	UB Series	MG Series	MVB Series

Application and Facility:

- Fully automatic 5 sides machining function will satisfy the customers' various applications and demands.
- The high output torque spindle is 1077Nm (max.) that can apply to do heavy and large cutting jobs.



* Above figure is MVB1039's main structure with partial sheet metal.

MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039	AA65 Series	AA80 Series	AA90 Series	AQ Series	VQ Series	UG Series	VTC Series	
		MVB-432	MVB-532	MVB-632	RB Series	SB Series	LB Series	MB Series	HB Series	UB Series	MG Series	MVB Series

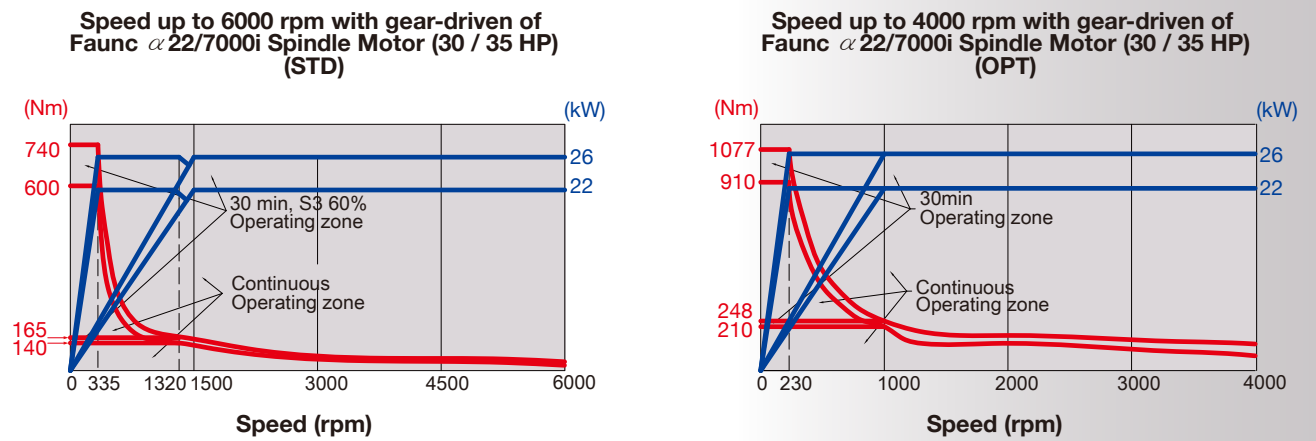
Sturdy structure design and Powerful spindle



The new generation's multi-head mechanism design

Type	90° Head	Extension Head	30° Head	Universal Head
Specification				
Spindle Taper	#50	#50	#50	#50
Sub Spindle Taper	BT50	BT50	BT50	BT50
Max. Tool diameter, mm(in)	215 (8.46)	215 (8.46)	215 (8.46)	215 (8.46)
Max. output torque, kW(HP)	15 (20)	18.5 (25)	15 (20)	15 (20)
Spindle speed, (rpm)	3000	4000	2000	2000
Description				
Tool Clamp method	Automatic	Manual	Manual	Manual
Head exchange method	Automatic	Automatic	Automatic	Automatic
Index method	Auto C axis every 5° index	Not necessary	Auto C axis every 5° index	Auto C axis, manual A axis every 5° index.

Spindle output torque chart



Full automatic exchange system for head and tool in vertical/ horizontal type



- Round type head storage system.
- Tool exchange in horizontal type.
- Tool exchange in vertical type.



- Above figure shown that MVB machine has equipped with optional accessories such as oil skimmer and round type head storage.

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Genius Design and Experienced Technology



- Machine accuracy is base on the flatness less than $3\text{ }\mu\text{m}$ in 1.2m by 1.2m. (JIS 0 grade standard: flatness less than $7\text{ }\mu\text{m}$ in 1m by 1m).



- Keep improving MC quality by the strict accuracy control and machining test data through high precision 3D CMM measuring equipment WENZEL (Germany).



- Own developed key component capable to keep high performance and geometric accuracy quality.

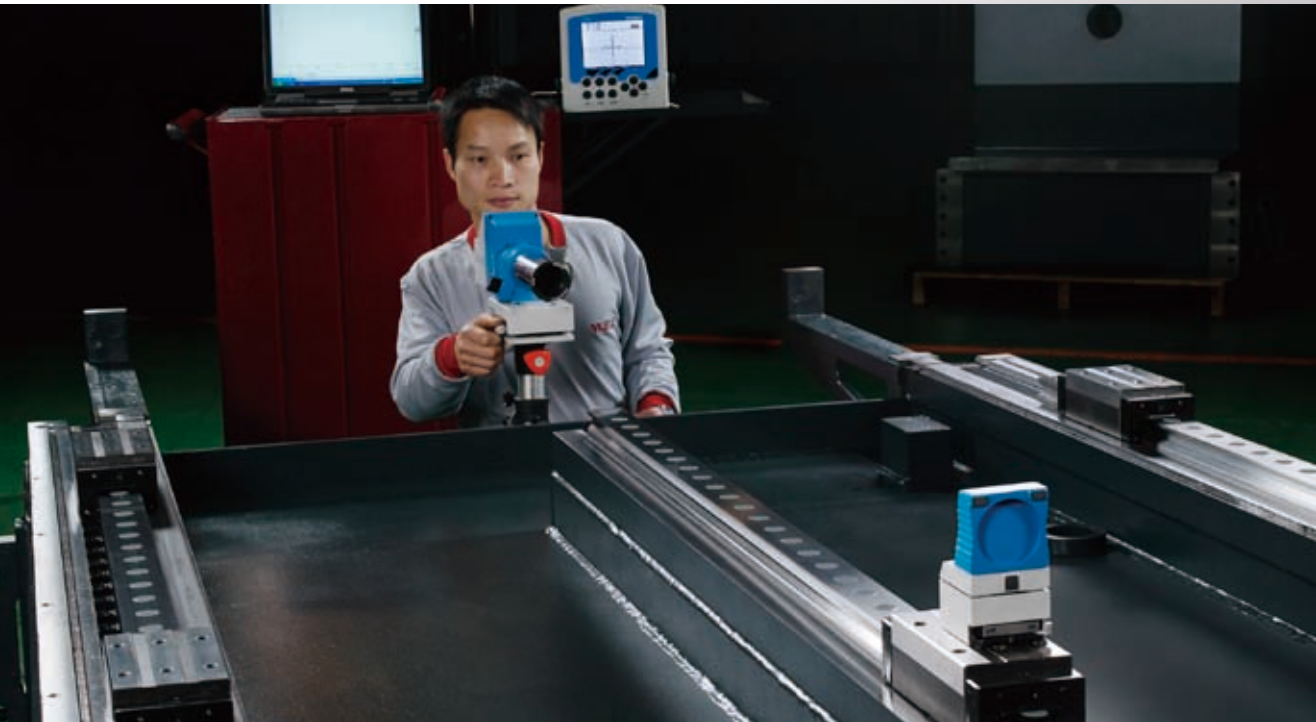


- 24 hours gear transmission trial run to conform spindle noise and temperature variation to stable condition.



- More than 20 years design and manufacture experiences to build every spindle through dynamic balance check with constant temperature control.

Strictly Quality Assurance



- 50% higher than JIS standard make excellent quality and geometric accuracy by German standard VDI 3441.



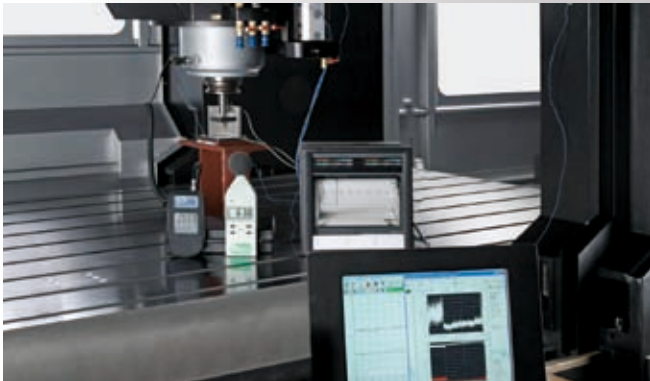
- Positioning and repeatability accuracy measurement.



- Circular interpolation test



- NASA standard test process guarantees machine performance with geometric and dimension accuracy.



- Noise and vibration measurement .

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Leading and Reliable Controller software Technology

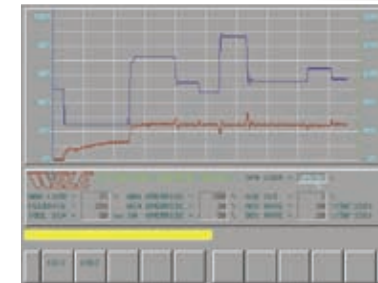
- Friendly operator control panel.
- On AUTO mode, execute the tool exchange at magazine side.
- Prevent over travel (OT) error in operation
- High efficiency heat exchanger to cooling the electrical cabinet
- UL wiring and CE certification are optional available.
- Centralized automatic lubricating system on all axial guideway and feed system.
- Design for monitor of spindle overloading and protection.
- Auto-backup function for machine parameter.
- USB interface for data transfer.
- Mix type tool number management including random and fix Tool#.
- Trouble shooting screen in NC memory.
- AICC look ahead in 200 blocks/sec. as standard; 600, 1000 blocks/sec. are optional available.

Advance Technology and Convenient Functions



Thermal Compensation Mode (TCM - Option)

Environmental and machining temperature can bring the caused the machine deformation. An unique technology of thermal compensation function can be reduced the machine error correctly.



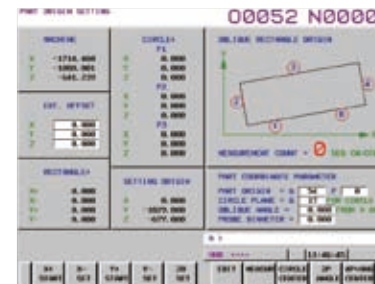
Feed Adaptive Control (FAC)

To provide the customer increase their working efficiency. We called it FAC (Feed Adaptive Control). It does not need any adjustment the machine can reach a perfect cutting condition while the machine in operation.



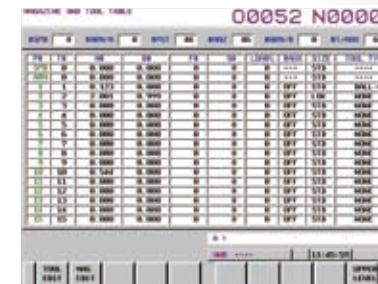
Parts Origin Setting (POS)

Parts origin normally is setting up at the center of the workpiece or center of the hole. Basically controller has this function (such as Manual guide i), however WELE combine the requirement of the customer to customaries the part origin setting display.



Oblique Part Origin (OPO)

The function is not only create the reference points in one workpiece but also calculates the length, width, and diameter of workpiece. and it will be defined the workpiece dimension rapidly.



Tool Table Management (TTM)

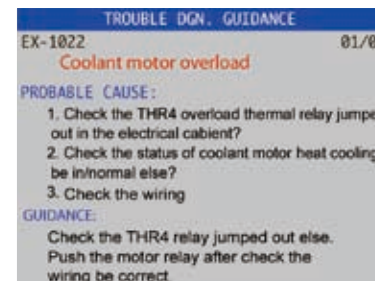
The WELE Tool Table has its advantage as below:

- Tool number management
 - Geometric compensation
 - Cutting condition setting
 - Random tool management.
- Mentioned above function can be provided to meet the requirement of the customer.



Optimum Contour Cutting Parameter (OCCP)

WELE own developed the unique optimized cutting condition software which can be adjusting the cutting condition automatically according to the machine response presently. When the machine is using for a while, the optimized cutting condition software can be detected the variation of the machine performance and verify the parameter in accordingly.



Trouble Shooting Guidance Display

When machine alarm occurred. The display will show how to check and solve the problems immediately. User could easy to find the method from the display.

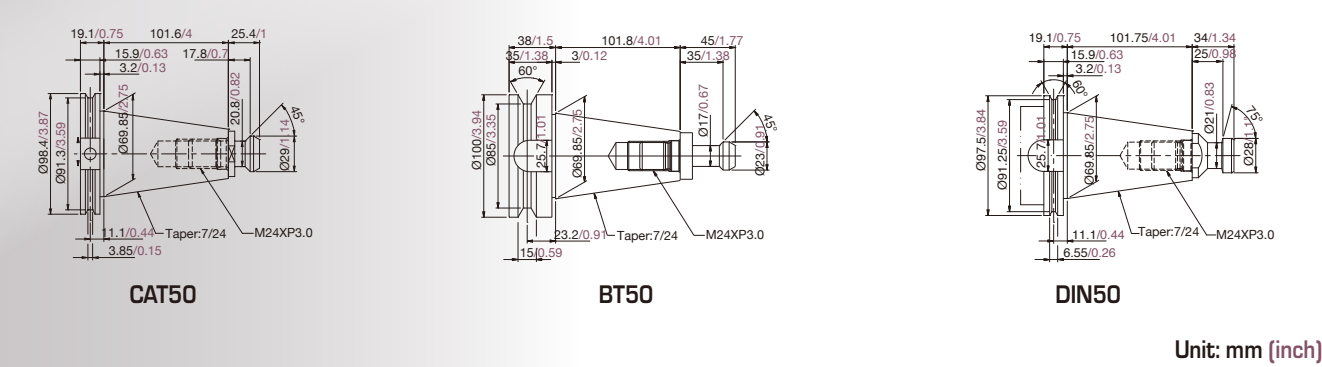


Tool Magazine Panel and I/O diagnose

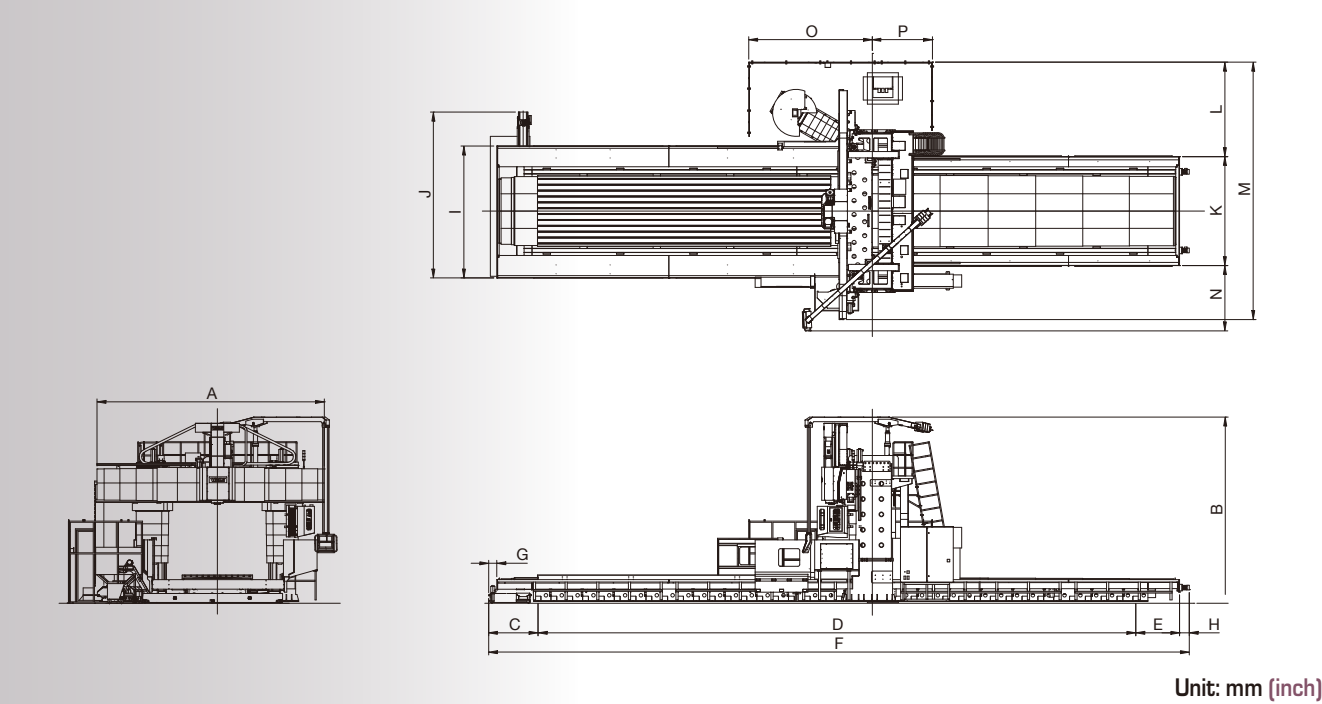
Providing the customers diagnose the tool magazine's I/O status conveniently and do the trouble shooting on line.

MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039	AA65 Series	AA80 Series	AA90 Series	AQ Series	VQ Series	UG Series	VTC Series	
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Tool Shank and Pull Stud Dimensions

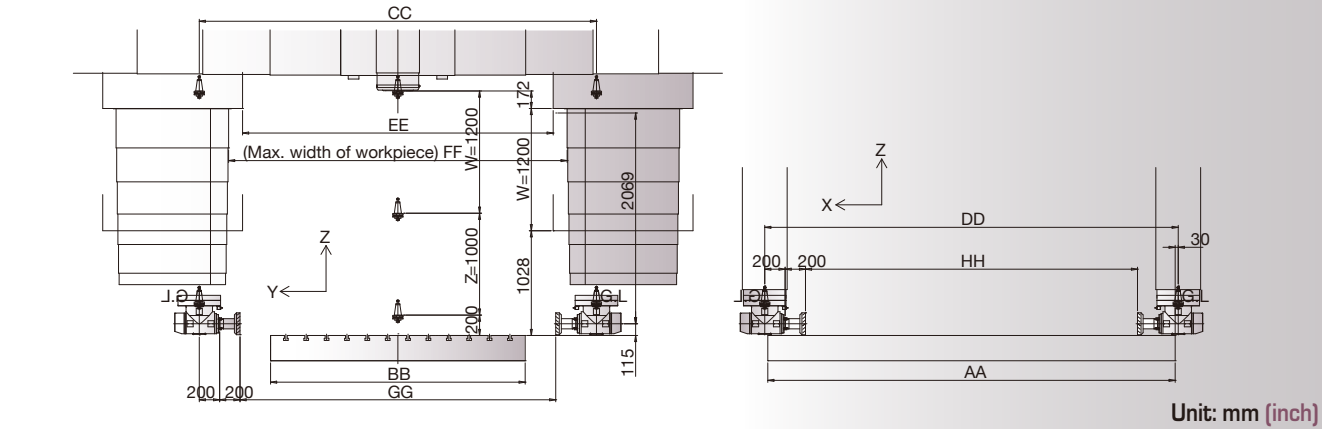


Machine Dimension and Space Requirement



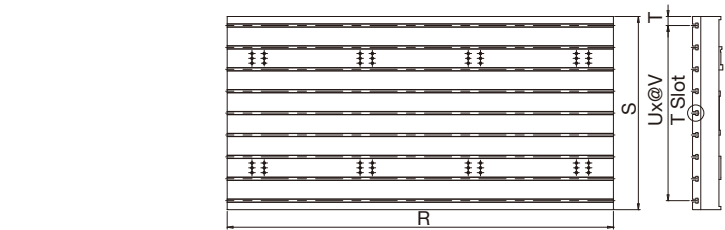
Mode \ Item	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MVB-432	7055 (277.8)	6400 (252)	1385 (54.5)	7644 (300.9)	1240 (48.8)	10590 (416.9)	0 (0)	321 (12.6)	3795 (149.4)	4955 (195.1)	3015 (118.7)	3225 (127)	8080 (318.1)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-532	7055 (277.8)	6400 (252)	1400 (55.1)	9720 (382.7)	1240 (48.8)	12660 (498.4)	21 (0.8)	321 (12.6)	3795 (149.4)	4955 (195.1)	3015 (118.7)	3225 (127)	8080 (318.1)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-632	7055 (277.8)	6400 (252)	1560 (61.4)	11626 (457.7)	1260 (49.6)	14750 (580.7)	17 (0.7)	321 (12.6)	3795 (149.4)	4955 (195.1)	3015 (118.7)	3225 (127)	8080 (318.1)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-439	7755 (305.3)	6400 (252)	1385 (54.5)	7644 (300.9)	1240 (48.8)	10590 (416.9)	0 (0)	321 (12.6)	4495 (177)	5655 (222.6)	3715 (146.3)	3225 (127)	8780 (345.7)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-539	7755 (305.3)	6400 (252)	1400 (55.1)	9720 (382.7)	1240 (48.8)	12660 (498.4)	21 (0.8)	321 (12.6)	4495 (177)	5655 (222.6)	3715 (146.3)	3225 (127)	8780 (345.7)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-639	7755 (305.3)	6400 (252)	1560 (61.4)	11626 (457.7)	1260 (49.6)	14750 (580.7)	17 (0.7)	321 (12.6)	4495 (177)	5655 (222.6)	3715 (146.3)	3225 (127)	8780 (345.7)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-839	7755 (305.3)	6400 (252)	1690 (66.5)	16384 (645)	1495 (58.9)	19950 (785.4)	275 (10.8)	381 (15)	4495 (177)	5655 (222.6)	3715 (146.3)	3225 (127)	8780 (345.7)	2230 (87.8)	4215 (165.9)	2050 (80.7)
MVB-1039	7755 (305.3)	6400 (252)	1690 (66.5)	20384 (802.5)	1495 (58.9)	23950 (942.9)	275 (10.8)	381 (15)	4495 (177)	5655 (222.6)	3715 (146.3)	3225 (127)	8780 (345.7)	2230 (87.8)	4215 (165.9)	2050 (80.7)

Working envelope Dimensions



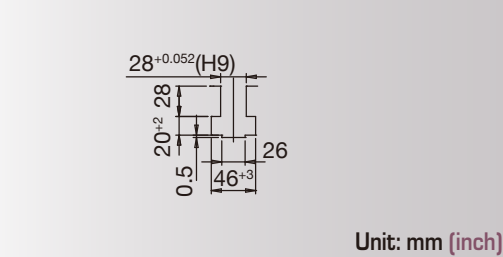
Mode \ Item	AA	BB	CC	DD	EE	FF	GG	HH
MVB-432	4000 (157.5)	2000 (78.7)	3200 (126)	4060 (159.8)	2350 (92.5)	2610 (102.8)	2400 (94.5)	3260 (128.3)
MVB-532	5000 (196.9)	2000 (78.7)	3200 (126)	5060 (199.2)	2350 (92.5)	2610 (102.8)	2400 (94.5)	4260 (167.7)
MVB-632	6000 (236.2)	2000 (78.7)	3200 (126)	6060 (238.6)	2350 (92.5)	2610 (102.8)	2400 (94.5)	5260 (207.1)
MVB-439	4000 (157.5)	2400 (94.5)	3900 (153.5)	4060 (159.8)	3050 (120.1)	3310 (130.3)	3100 (122)	3260 (128.3)
MVB-539	5000 (196.9)	2400 (94.5)	3900 (153.5)	5060 (199.2)	3050 (120.1)	3310 (130.3)	3100 (122)	4260 (167.7)
MVB-639	6000 (236.2)	2400 (94.5)	3900 (153.5)	6060 (238.6)	3050 (120.1)	3310 (130.3)	3100 (122)	5260 (207.1)
MVB-839	8000 (315)	2400 (94.5)	3900 (153.5)	8060 (317.3)	3050 (120.1)	3310 (130.3)	3100 (122)	7260 (285.8)
MVB-1039	10000 (393.7)	2400 (94.5)	3900 (153.5)	10060 (396.1)	3050 (120.1)	3310 (130.3)	3100 (122)	9260 (364.6)

Table Dimensions



Mode \ Item	R	S	T	U	V
MVB-432	4000 (157.5)	2000 (78.7)	100 (3.9)	9	200 (7.9)
MVB-532	5000 (196.9)	2000 (78.7)	100 (3.9)	9	200 (7.9)
MVB-632	6000 (236.2)	2000 (78.7)	100 (3.9)	9	200 (7.9)
MVB-439	4000 (157.5)	2400 (94.5)	100 (3.9)	11	200 (7.9)
MVB-539	5000 (196.9)	2400 (94.5)	100 (3.9)	11	200 (7.9)
MVB-639	6000 (236.2)	2400 (94.5)	150 (5.9)	11	200 (7.9)
MVB-839	8000 (315)	2500 (98.4)	150 (5.9)	11	200 (7.9)
MVB-1039	10000 (393.7)	2500 (98.4)	100 (3.9)	11	200 (7.9)

T-Slot Dimension



Unit: mm (inch)

	MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039	AA65 Series	AA80 Series	AA90 Series	AQ Series	VQ Series	UG Series	VTC Series	
			MVB-432	MVB-532	MVB-632	RB Series	SB Series	LB Series	MB Series	HB Series	UB Series	MG Series	MVB Series

Technical Specifications

Specification / Model	UNIT	MVB-432	MVB-532	MVB-632	MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039
Travel									
X travel (Left & right)	mm (in)	4060 (159.8)	5060 (199.2)	6060 (238.6)	4060 (159.8)	5060 (199.2)	6060 (238.6)	8060 (317.3)	10060 (396.0)
Y travel (in & out)	mm (in)	3200 (125.9)			3900 (153.5)				
Z travel (up & down)	mm (in)	1000 (39.4)			1000 (39.4)				
W travel (Cross rail up & down)	mm (in)	1200 (47.2)			1200 (47.2)				
Distance from spindle nose to table top	mm (in)	200-2400 (7.9-94.4)			200-2400 (7.9-94.4)				
Distance between columns	mm (in)	2600 (102.3)			3300 (129.9)				
Table									
Table size (X direction)	mm (in)	4000 (157.5)	5000 (196.8)	6000 (236.2)	4000 (157.5)	5000 (196.8)	6000 (236.2)	8000 (314.9)	10000 (393.7)
Table size (Y direction)	mm (in)	2000 (78.7)			2400 (94.4)			2500 (98.4)	
Table load capacity	kg (lb)	15000 (33000)	18000 (39600)	20000 (44000)	15000 (33000)	18000 (39600)	20000 (44000)	25000 (55000)	25000 (55000)
Table T slot size (W x distance x Number)	mm (in)	28 x 200 x 9 (1.1 x 7.87 x 9)			28 x 200 x 11 (1.1 x 7.87x11)				
Spindle unit									
Spindle motor (cont./30 min. rating)	kW (HP)	22/26 (30/35)			22/26 (30/35)				
Spindle driven type		Gear Driven			Gear Driven				
Spindle speed-Vertical / Horizontal	rpm	10-6000 / 2400			10-6000 / 2400				
Spindle output torques (cont./ 30 min. rating)	Nm (ft-lb)	626.2/740.1 (461.8/545.8)			626.2/740.1 (461.8/545.8)				
Spindle taper		BT#50 (ISO 50)			BT#50 (ISO 50)				
Spindle bearing diameter	mm (in)	100 (3.9)			100 (3.9)				
Feed unit									
Rapid traverse rate X axis	mm (in)/min	18000 (708.6)	12500 (492.1)	9000 (354.3)	18000 (708.6)	12500 (492.1)	9000 (354.3)	5000 (196.8)	4000 (157.4)
Rapid traverse rate X axis-two stages speed variation	mm (in)/min	-	15000 (590.5)	12000 (472.4)	-	15000 (590.5)	12000 (472.4)	8000 (314.9)	6000 (236.2)
Rapid traverse rate Y/Z axis	mm (in)/min	Rapid traverse rate Y axis:14000 (551.2) Rapid traverse rate Z axis:12000 (472.4)			12000 (472.4)				
Rapid traverse rate W axis	mm (in)/min	3000 (118.1)			3000 (118.1)				
Cutting feedrate (max)	mm (in)/min	1-10000 (0.04-393.7)			1-10000 (0.04-393.7)				
Tool magazine									
Tool magazine capacity	pockets	60			60				
Max. tool diameter / adjacent pocket empty	mm (in)	127/215 (5.0/8.5)			127/215 (5.0/8.5)				
Max. tool length (from guage line)	mm (in)	400 (15.7)			400 (15.7)				
Max. tool weight	kg (lb)	20 (44)			20 (44)				
Accuracy									
Positioning accuracy (JIS 6338)	mm (in)	± 0.0015 (± 0.0006)			± 0.0015 (± 0.0006)				
Positioning accuracy (VDI 3441)	mm (in)	P ≤ 0.025 (P ≤ 0.0010)	P ≤ 0.025 (P ≤ 0.0010)	P ≤ 0.030 (P ≤ 0.0012)	P ≤ 0.025 (P ≤ 0.0010)	P ≤ 0.025 (P ≤ 0.0010)	P ≤ 0.030 (P ≤ 0.0012)	P ≤ 0.035 (P ≤ 0.0014)	P ≤ 0.045 (P ≤ 0.0018)
Repeatability (JIS 6338)	mm (in)	± 0.003 (± 0.0001)			± 0.003 (± 0.0001)				
Repeatability (VDI 3441)	mm (in)	Ps ≤ 0.020 (Ps ≤ 0.0008)	Ps ≤ 0.020 (Ps ≤ 0.0008)	Ps ≤ 0.025 (Ps ≤ 0.0010)	Ps ≤ 0.020 (Ps ≤ 0.0008)	Ps ≤ 0.020 (Ps ≤ 0.0008)	Ps ≤ 0.025 (Ps ≤ 0.0010)	Ps ≤ 0.028 (Ps ≤ 0.0011)	Ps ≤ 0.032 (Ps ≤ 0.0013)
Other									
Total required power (AC220V,3 phase,50/60 HZ)	kVA	80			80				
Pneumatic pressure requirement	kg/cm²	5			5				
Lubrication oil tank capacity	liter (gallon)	6 (1.58)			6 (1.58)				
Axis guide-ways		Linear ROLLER WAY in X/Y/Z axis; Box way in W axis.			Linear ROLLER WAY in X/Y/Z axis; Box way in W axis.				
Space requirement									
Machine length (area reuired)	mm (in)	10590 (416.9)	12660 (498.4)	14750 (580.7)	10590 (416.9)	12660 (498.4)	14750 (580.7)	20000 (787.4)	23070 (908.3)
Machine width (area required)	mm (in)	8430 (331.9)			9130 (359.4)				
Machine height	mm (in)	6570 (265.7)			6570 (265.7)				
Machine weight	kg (lb)	61000 (134200)	66500 (146300)	71500 (157300)	63500 (139700)	69000 (151800)	74000 (162800)	85000 (187000)	95000 (209000)

** Product specifications and accessories are subject to change without notice.

Standard and optional accessories:

Specification \ Model	MVB-432	MVB-532	MVB-632	MVB-439	MVB-539	MVB-639	MVB-839	MVB-1039
*BT50 spindle taper+MAS pull stud	●	●	●	●	●	●	●	●
*DIN50 spindle taper	○	○	○	○	○	○	○	○
*CAT50 spindle taper+ANSI pull stud	○	○	○	○	○	○	○	○
*4000 rpm geared spindle (30/35HP)	○	○	○	○	○	○	○	○
*6000 rpm geared spindle (30/35HP)	●	●	●	●	●	●	●	●
*Automatic index in every 5° mechanism	●	●	●	●	●	●	●	●
*Automatic head exchange system and one horizontal head	●	●	●	●	●	●	●	●
*30° head (tool exchange automatically is not possible)	○	○	○	○	○	○	○	○
*Universal head (tool exchange automatically is not possible)	○	○	○	○	○	○	○	○
*Extension head (tool exchange automatically is not possible)	○	○	○	○	○	○	○	○
*Z travel of 1000 mm (39.4"), geared 6000 rpm, G0: 12m/min.	●	●	●	●	●	●	●	●
*Z travel of 1200 mm (47.2"), geared 6000 rpm, G0: 10m/min.	○	○	○	○	○	○	○	○
*Z travel of 1400 mm (55.1"), geared 6000 rpm, G0: 10m/min.	○	○	○	○	○	○	○	○
*Spindle & gearbox temperature control system	●	●	●	●	●	●	●	●
*Adjustable torque-limit clutch (XYZ axes)	●	●	●	●	●	●	●	●
*External pulse coder (XYZ axes)	●	●	●	●	●	●	●	●
*Centralized automatic lubricating system	●	●	●	●	●	●	●	●
*Sliding operator's door	●	●	●	●	●	●	●	●
*Four splash guard	●	●	●	●	●	●	●	●
*Full splash guard	○	○	○	○	○	○	○	○
*Flood Coolant system (Pump & tank)	●	●	●	●	●	●	●	●
*Recycling lubricating oil collector for X,Y,Z, and W axes	●	●	●	●	●	●	●	●
*Twin screws & caterpillar types chip conveyor and bucket	●	●	●	●	●	●	●	●
*Arm type automatic tool exchanger (Vertical & Horizontal types)	●	●	●	●	●	●	●	●
*60 tools capacity of tool magazine	●	●	●	●	●	●	●	●
*90 tools capacity of tool magazine	○	○	○	○	○	○	○	○
*120 tools capacity of tool magazine	○	○	○	○	○	○	○	○
*Rigid tapping	●	●	●	●	●	●	●	●
*Footswitch for tool clamping	●	●	●	●	●	●	●	●
*Remote handwheel control	●	●	●	●	●	●	●	●
*Work light	●	●	●	●	●	●	●	●
*Operation cycle finish and alarm lights	●	●	●	●	●	●	●	●
*RS232 interface	●	●	●	●	●	●	●	●
*Spray hose for chip wash down	●	●	●	●	●	●	●	●
*Air conditioner replace heat exchanger for electric cabinet	○	○	○	○	○	○	○	○
*Oil Skimmer	○	○	○	○	○	○	○	○
*Foundation bolt kit	●	●	●	●	●	●	●	●
*Machine manuals	●	●	●	●	●	●	●	●
*Linear scale feedback system for X,Y,Z, and W axes	●: W ○:XYZ	●: XW ○:YZ	●: XW ○:YZ	●: W ○:XYZ	●: XW ○:YZ	●: XW ○:YZ	●: XW ○:YZ	●: XW ○:YZ
*Coolant through the tool adapter	○	○	○	○	○	○	○	○
*Coolant through the spindle (Form A) w/1000 liter tank	○	○	○	○	○	○	○	○
*Head storage on column (Store one head)	●	●	●	●	●	●	●	●
*Round type head storage system (Store three heads)	○	○	○	○	○	○	○	○
*Hanging type operator panel (moveable in four direction)	●	●	●	●	●	●	●	●
*Automatic tool length measurement (Renishaw or Blum)	○	○	○	○	○	○	○	○
*Automatic workpiece measuring system (Renishaw or Blum)	○	○	○	○	○	○	○	○
*FANUC 31iMB controller	●	●	●	●	●	●	●	●
*Heidenhain iTNC 530 controller	○	○	○	○	○	○	○	○
*4th axis interface prepared	○	○	○	○	○	○	○	○
*CNC rotary table	○	○	○	○	○	○	○	○

** Product specifications and accessories are subject to change without notice.