

# Machine Accessories

NO	Features	VMP-23(A)	VMP-23A-APC	VMP-30(A)	VMP-32(A)	VMP-32A-APC	VMP-40(A)	VMP-45(A)	VMP-50(A)	VMP-65(A)
1	3-Axis Pre-Tensioned Ball Screw	•	•	•	•	•	•	•	•	•
2	3-Color Signal Light	•	•	•	•	•	•	•	•	•
3	Automatic Lubrication System	•	•	•	•	•	•	•	•	•
4	Dust-Proof Electrical Cabinet	•	•	•	•	•	•	•	•	•
5	Ethernet Interface	•	•	•	•	•	•	•	•	•
6	Enclosed Splash Guard	•	•	•	•	•	•	•	•	•
7	Heat Exchanger	•	•	•	•	•	•	•	•	•
8	Outside Air Blast	•	•	•	•	•	•	•	•	•
9	Rigid Tapping	•	•	•	•	•	•	•	•	•
10	RS232	•	•	•	•	•	•	•	•	•
11	Spindle Air Blast	•	•	•	•	•	•	•	•	•
12	Spindle Air Sealing	•	•	•	•	•	•	•	•	•
13	Spindle Speed 10000 rpm(Belt-Steel Bearing)	•	•	•	•	•	•	•	•	•
14	Work Light*1	•	•	•	•	•	•	•	•	N/A
15	Work Light*2	○	○	○	○	○	○	○	○	•
16	No Counter Weight (Z axis servo motor with brake)	•	•	•	•	•	•	•	•	N/A
17	Rear Exit Chip Flushing System	•	•	•	○	•	○	•	•	•
18	24T Nos. ATC	○	○	○	•	•	•	•	•	•
19	Spindle Coolant Nozzle	○	○	○	•	•	•	•	•	•
20	Air Gun Interface	○	○	○	•	•	•	•	•	•
21	Oil-Water Separator	N/A	N/A	N/A	•	•	•	•	•	•
22	XYZ Axes with Linear Guide	•	•	•	○	○	○	○	○	○
23	XY Axes with Linear Guide, Z axis with box way	N/A	N/A	N/A	•	•	•	•	•	•
24	Front Side Chip Flushing System	N/A	N/A	N/A	•	○	•	○	○	○
25	30T Nos. ATC	N/A	N/A	N/A	○	○	○	○	○	○
26	4/5 Axes Interface	○	○	○	○	○	○	○	○	○
27	40T Nos. ATC	N/A	N/A	N/A	○	○	○	○	○	○
28	4th Axis Interface	○	○	○	○	○	○	○	○	○
29	Air Condition	○	○	○	○	○	○	○	○	○
30	Auto Tool Length Measurement	○	○	○	○	○	○	○	○	○
31	Auto Workpiece Measurement	○	○	○	○	○	○	○	○	○
32	Automatic Door	○	○	○	○	○	○	○	○	○
33	Automatic Power Off	○	○	○	○	○	○	○	○	○
34	C.T.S with Filter System(top roof must included)	○	○	○	○	○	○	○	○	○
35	Chip Conveyor-Left/Right Side Discharge & Chip Bucket	N/A	N/A	N/A	○	○	○	○	○	○
36	Chip Flushing System	○	○	○	○	○	○	○	○	○
37	Column Raiser	○	○	○	○	○	○	○	○	○
38	Coolant Gun	○	○	○	○	○	○	○	○	○
39	CTS Interface	○	○	○	○	○	○	○	○	○
40	Dual-Chip Augers (With Chip Conveyor)	N/A	N/A	N/A	○	○	○	○	○	○
41	GTP Two-Stage Gearbox	N/A	N/A	N/A	○	○	○	○	○	○
42	High Pressure Pump	○	○	○	○	○	○	○	○	○
43	Linear Scale	○	○	○	○	○	○	○	○	○
44	Oil Skimmer	○	○	○	○	○	○	○	○	○
45	Screw type Chip Conveyor-Left/Right Side Discharge & Chip Bucket	N/A	N/A	N/A	○	N/A	○	○	○	○
46	Spindle Oil cooler	○	○	○	○	○	○	○	○	○
47	Spindle Speed 10000/12000 rpm(DDS)	○	○	○	○	○	○	○	○	○
48	DDS 15000 rpm( include temperature compensation)	○	○	○	○	○	○	○	○	○
49	Temperature Compensation	○	○	○	○	○	○	○	○	○
50	Spindle Speed 12000 rpm(Belt-Ceramic Baring)	○	○	○	○	○	○	○	○	○
51	Top Roof	○	○	○	○	○	○	○	○	○
52	Z axis with Roller Type Linear Guide	○	○	○	○	○	○	○	○	N/A

• Standard ○ Optional N/A : Not Available

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**WITH YOU  
SUCCESS TOGETHER**



**VMP SERIES**  
Vertical Machining Center

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VMP-23A/30A



VMP-32A/40A



VMP-45A



VMP-23Aapc



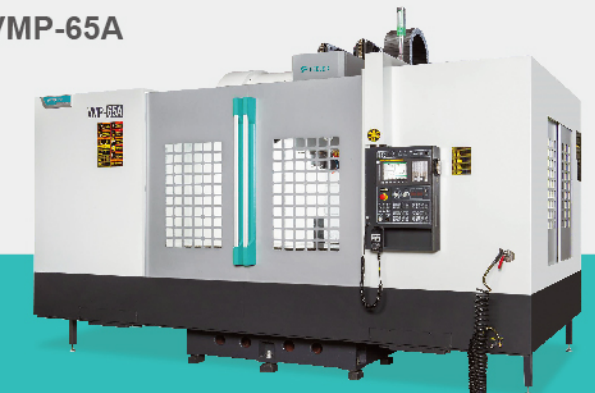
VMP-32Aapc



VMP-50A



VMP-65A



Whether you require in high precision parts machining or general mold making, Fair Friend's new VMP Series Vertical Machining Centers offers unbeatable dependability.

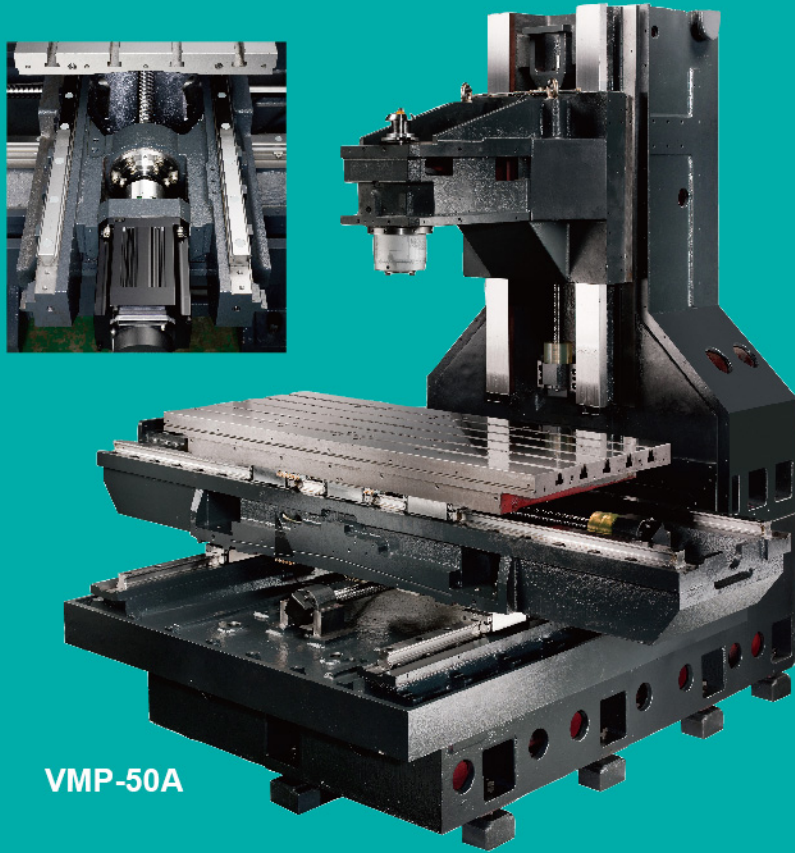
## Vertical Machining Center Provides State-of-the-art Efficiency For Increased Profitability

The VMP Series is a well-engineered high precision unit, ideal for various precision industrial requirements. It promises dramatic productivity gains with many integrated features. Its rugged structure, manufactured from high quality cast iron, assures optimum rigidity and stability for years of dependable operation. The Machine structure design is subject to ANSYS and NASTRAN Finite Element Analysis to achieve the highest standards of machine accuracy and reliability.

Reinforced A-shape column bottom is combined with a massive base for extra rigid support. The 10,000 rpm spindle speed produces the fine surface effect required by precision mold. With the points above and more excellent features combination, you get the most Competitive edge for your precision jobs.



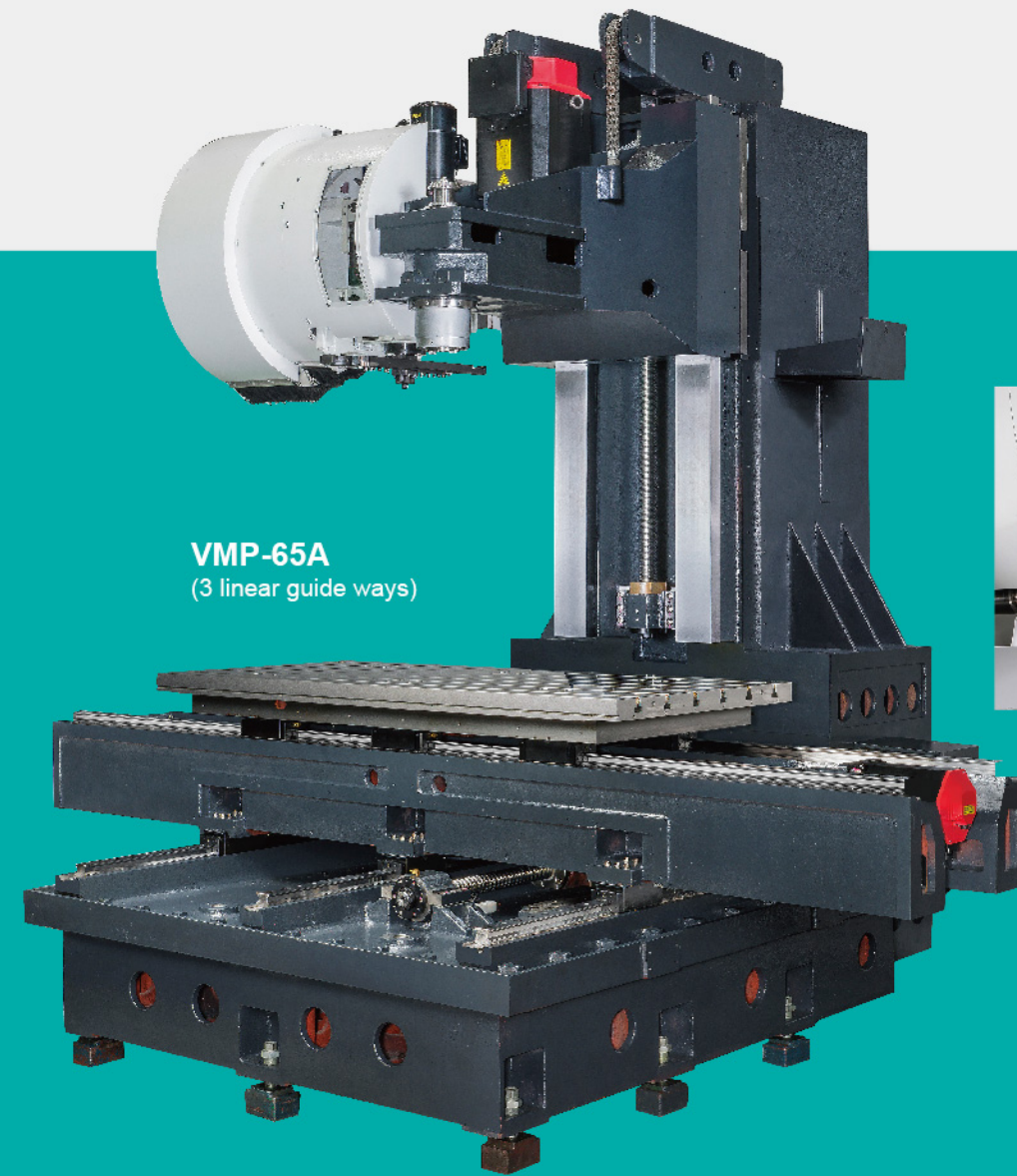
# Perfected Structure Design Brings You Lifetime Accuracy, Rigidity And Stability !



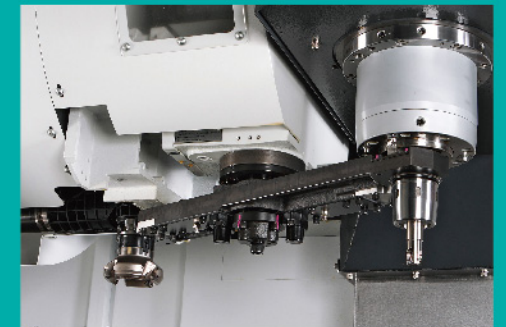
VMP-50A

## Rugged Construction Assures Optimum Rigidity And Stability

- The machine structure and major parts are manufactured from Meehanite cast iron for outstanding material stability and guaranteed long-term deformation-free performance.
- The entire machine construction is subjected to ANSYS and NASTRAN Finite Element Analysis to achieve optimum rigidity and stability.
- The column bottom is specially designed with A-shaped structure. (Except VMP23.30) Outstanding machine structure, combined with high speed servo system, allows rapid traverse up to 40 m/min.
- Servomotor directly drives ballscrew. Ballscrews are pretensioned, ensuring rigidity and accuracy required for the feed transmission system.
- Boxways for Z axis are coated with low friction Turcite B, providing increased cutting rigidity. (Except VMP23.30)
- 634mm span of guideways on Y-axis and 370mm span on Z-axis guarantee superior stability for saddle and spindle head travel.

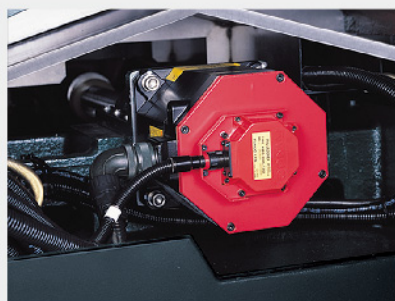


VMP-65A  
(3 linear guide ways)

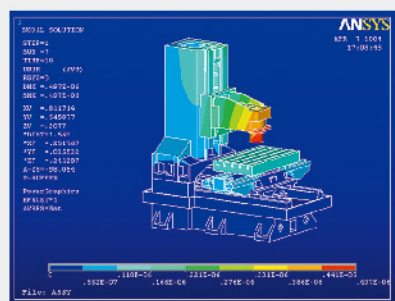


## Dependable, Efficient ATC

FEELER'S ATC designs are all subjected to 1 million cycles of continuous tests for durability and stability to assure maximum dependability of operational performance.

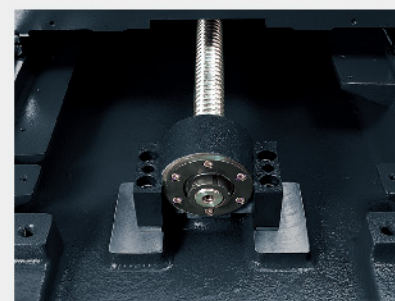


Rear mounted Y-axis servo motor for increased maintenance space.



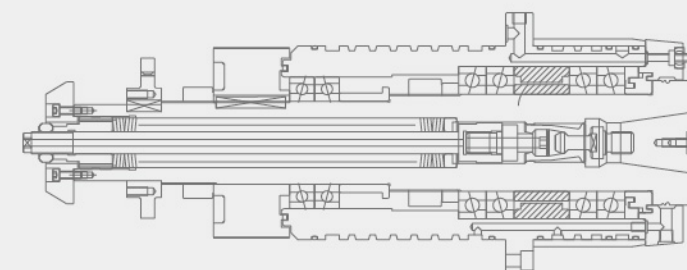
## FEM Analysis

FEELER'S machine structure is designed and analyzed using advanced Finite Element Analysis software for dynamic simulation and structural analysis. This design method assures optimum structural rigidity, machine accuracy and reliability.



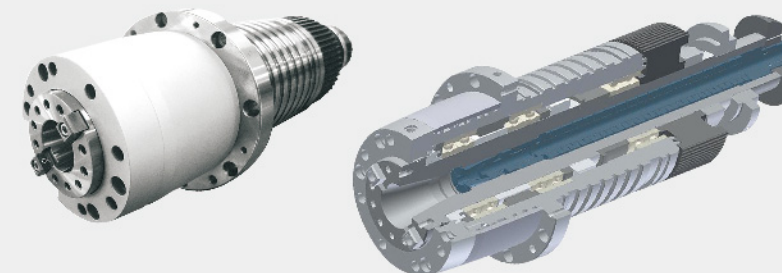
## Precision Ballscrews

Pretensioned ballscrews on X, Y, Z axes ensure accuracy and eliminate positioning errors.



## 10,000 rpm Spindle

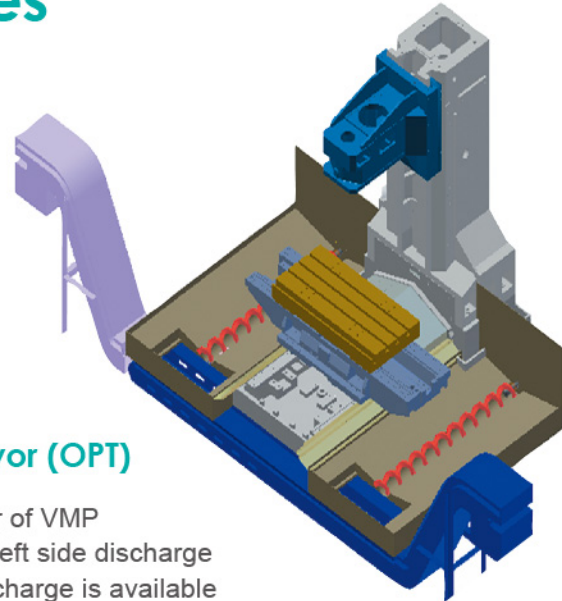
The belt-drive spindle specially-designed bearing layout ensures maximum spindle rigidity. ( Spindles at 10,000rpm and 12,000rpm are available as optional.)





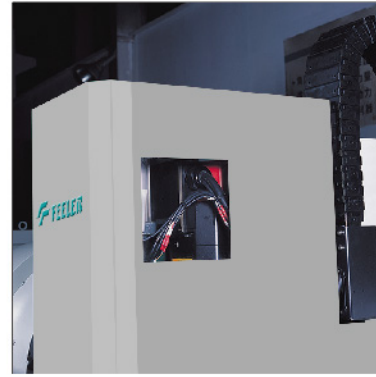
VMP SERIES

# Pragmatic Operational Features



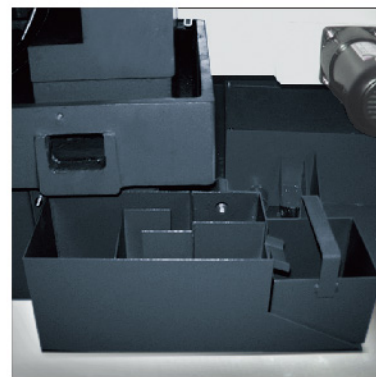
## Chip Conveyor (OPT)

- Chip conveyor of VMP series is with left side discharge (right side discharge is available upon request).
- VMP32A/40A's chip conveyor is placed in front side with left side discharge, please refer to above drawing.
- VMP23A/30A/45A/50A's chip conveyor is placed in the rear side of machine with left side discharge.



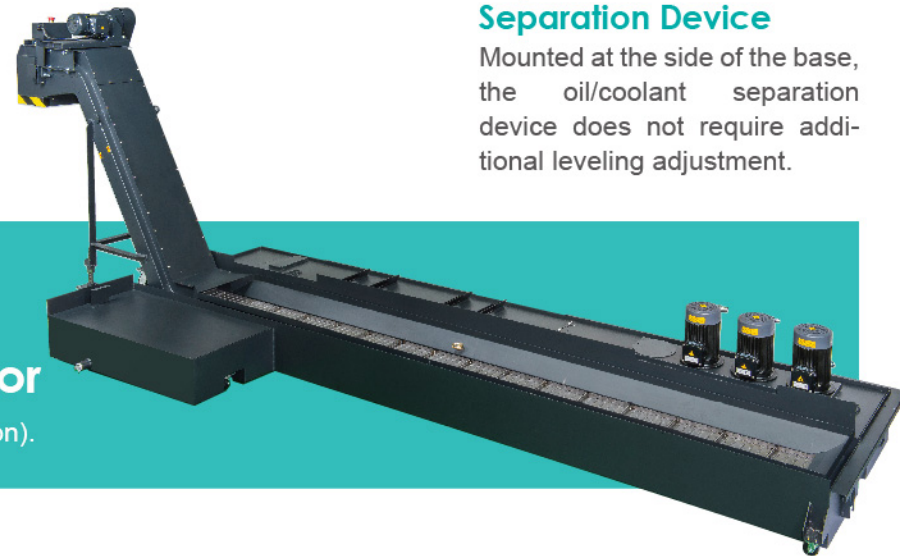
## See-Through Window

The additional see-through window on the spindle head cover provides convenient checking.



## Oil/Coolant Separation Device

Mounted at the side of the base, the oil/coolant separation device does not require additional leveling adjustment.



## VMP-45/50 Rear Side Chip Conveyor

VMP 45/50: 265L (Rear side position).



## VMP-40 Coolant Tank

VMP 32/40: 300L (Front side position)



## VMP-30 Rear Side Coolant Tank

# Providing High Efficient Machining Performance

- **Model Chosen**  
Based on workpiece to choose high C/P value and good efficiency machine model to meet processing requirements.
- **Engineering Analysis**  
Assisting to do cycle time, tooling and fixture evaluation.
- **Automation/Turn-key Project**  
Assisting automation /Turn-key project evaluation and engineering application.

Model	VMP-40
Using Tool	D80 6 Edges Face Mill
Dry Cutting	S45C

Drilling	Tapping	Face Milling
Tool Diam. (mm) x Feed (mm/rev) Ø40 x 0.1	Tool Diam. (mm) x Pitch (mm/rev) M24 x 3.0	Width(mm) x Depth(mm) x Feed(mm/min) 308 c.c. 80x3.5x1100



VMP SERIES

# Various Advanced CNC Controllers to Choose From



FANUC Oi MF Plus



MITSUBISHI M80



HEIDENHAIN TNC 640



SIEMENS 828D

## An Innovative Structural Design that Allows for Many Options

### Mold Machining Package (OPT)

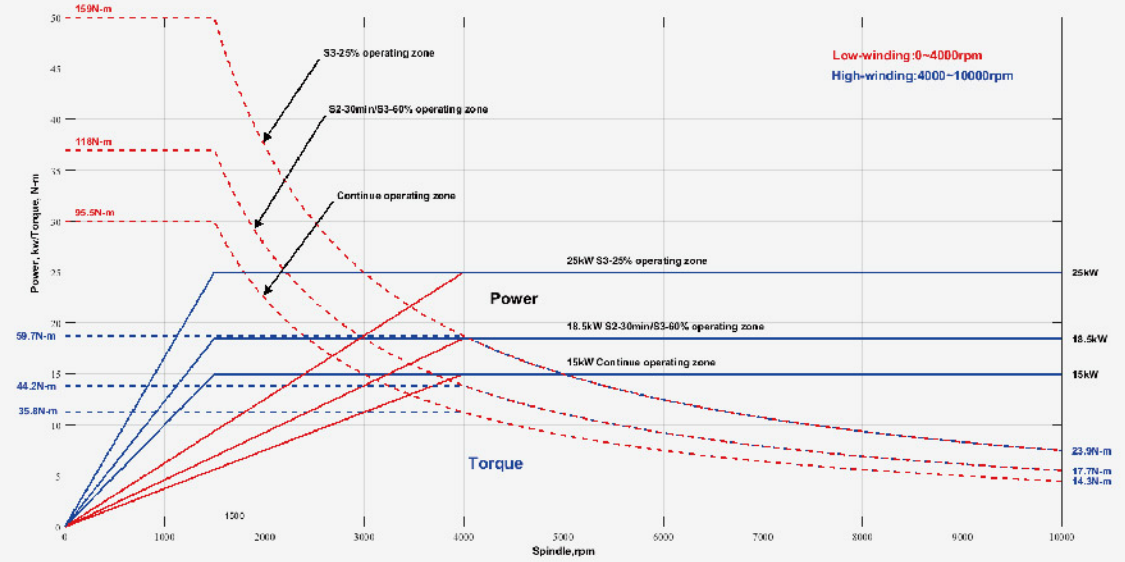
- 10,000 rpm spindle speed (Ceramic Bearing)
- 15/18.5 kW spindle power(Except VMP-23A/30A)
- 12 (24) m/min. rapid traverse on X/Y / Z-axis
- Data Server

### Precision Mold Machining Package (OPT)

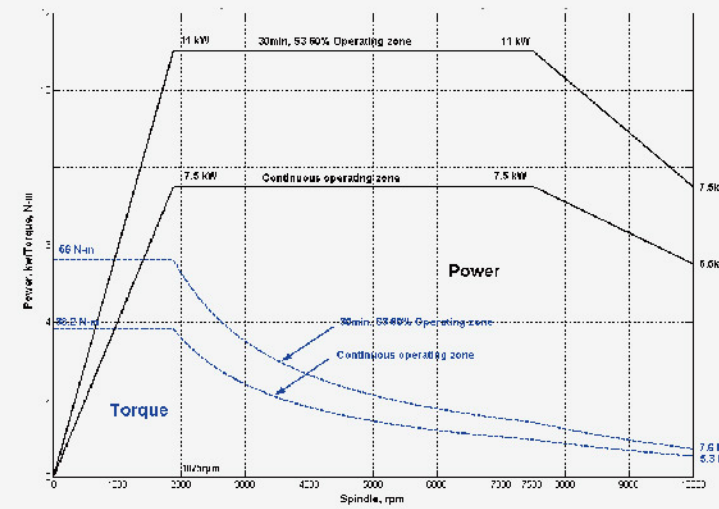
- 10,000 rpm spindle speed (Ceramic Bearing)
- 15/18.5 kW spindle power(Except VMP-23A/30A)
- 12 (24) m/min. rapid traverse on X/Y/Z-axis
- 12,000 / 15,000 rpm DDS. spindle (Except VMP-23A/30A)
- Z-axis roller type linear guide
- Data Servo + look- ahead blocks 400 (FANUC)
- Rear cover

## Spindle Torque/Motor Drawing

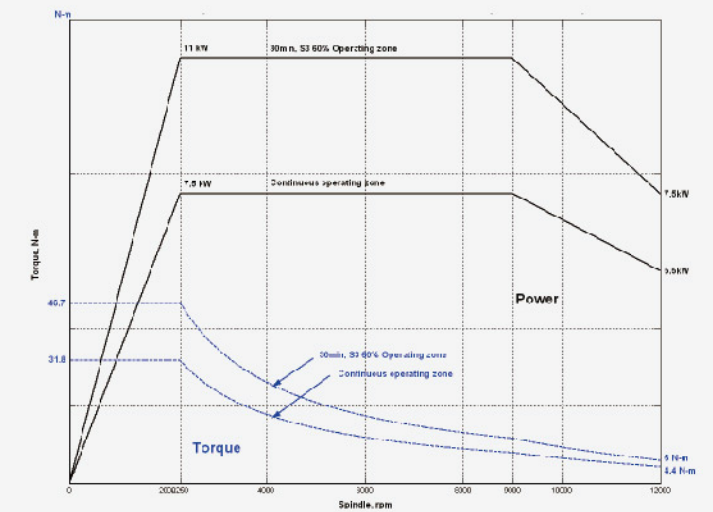
◆ FANUC α15/12000i for belt type spindle 10000 rpm



◆ FANUC α8/8000i for belt type spindle 10000 rpm(1:1.25)



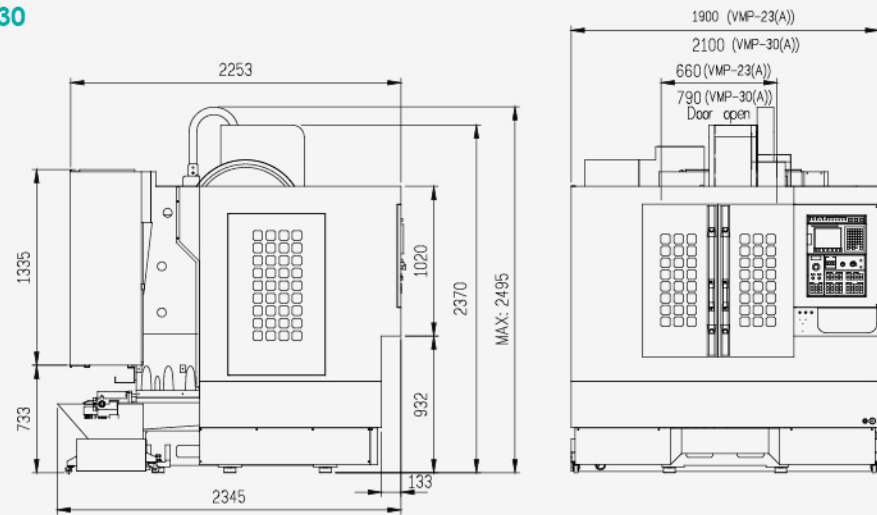
◆ FANUC α8/8000i for belt type spindle 12000 rpm(OPT)



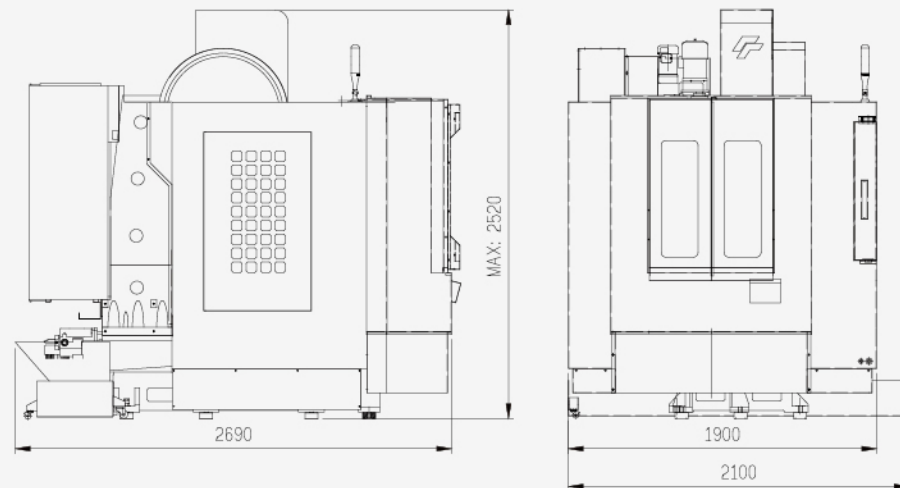


# Machine Layout

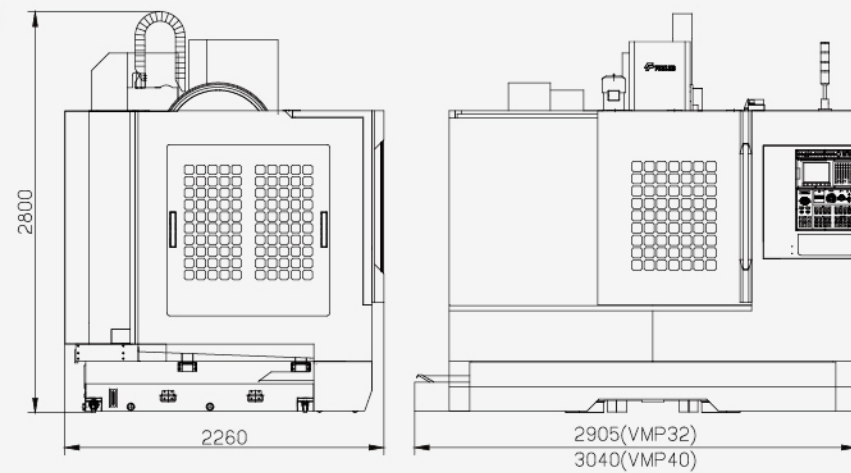
◆ VMP-23/30



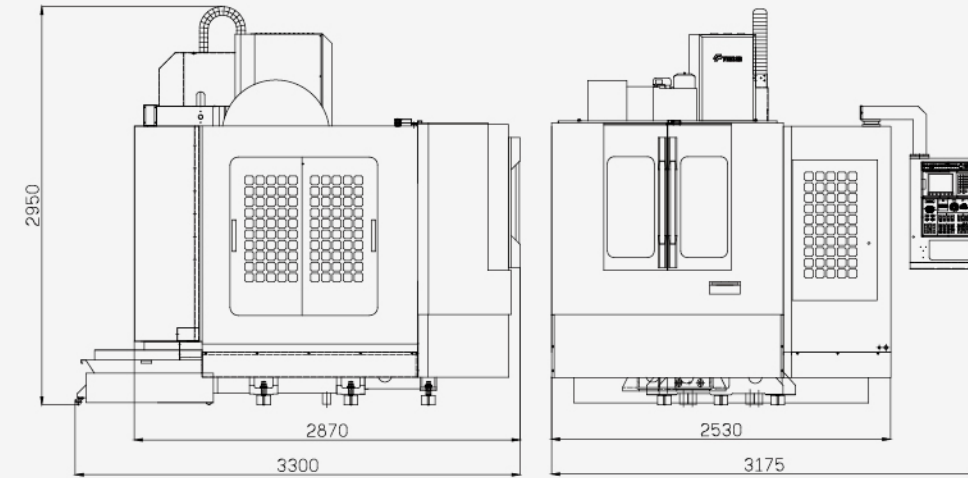
◆ VMP-23 APC



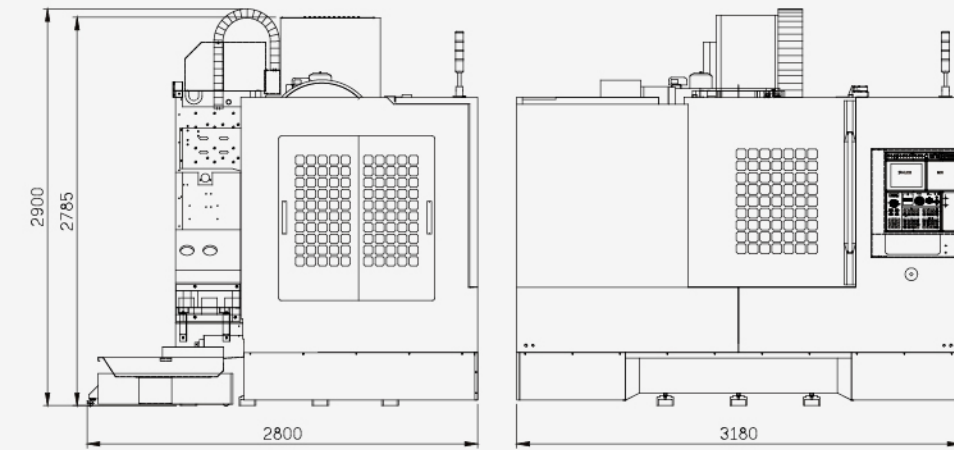
◆ VMP-32/40



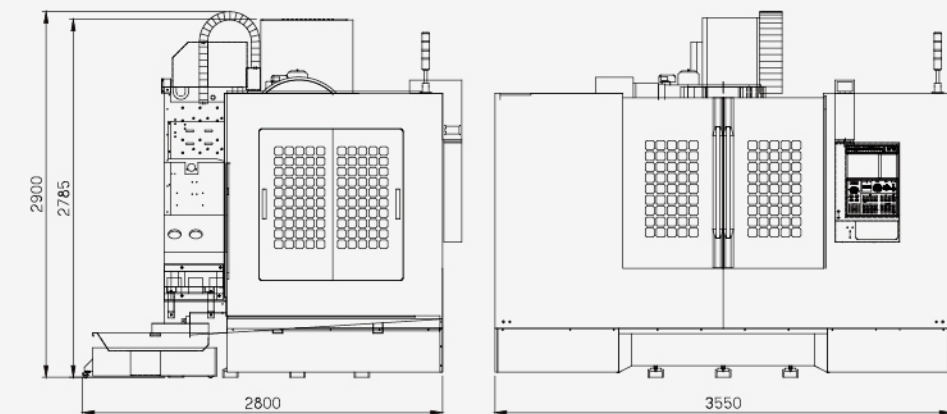
◆ VMP-32 APC



◆ VMP-45



◆ VMP-50

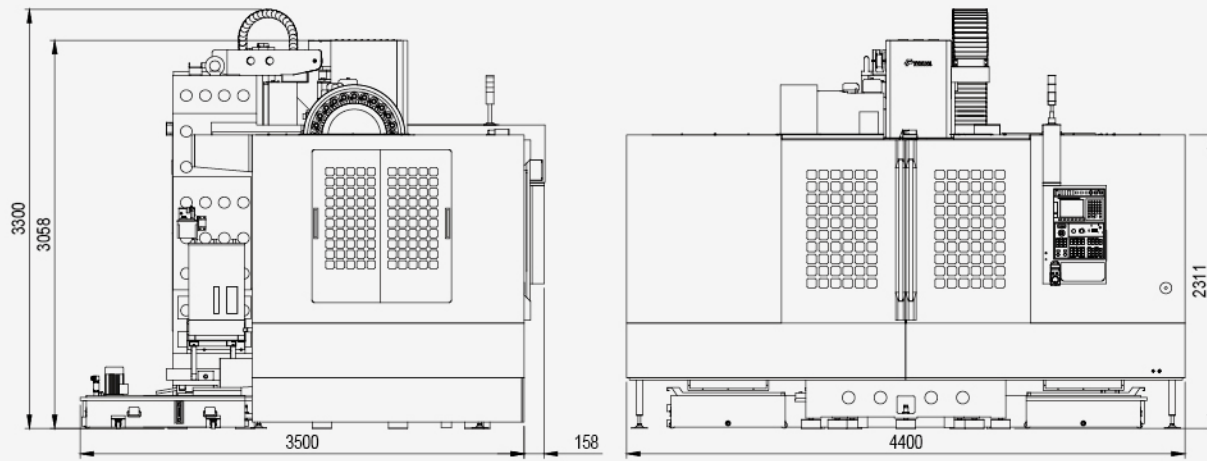




VMP SERIES

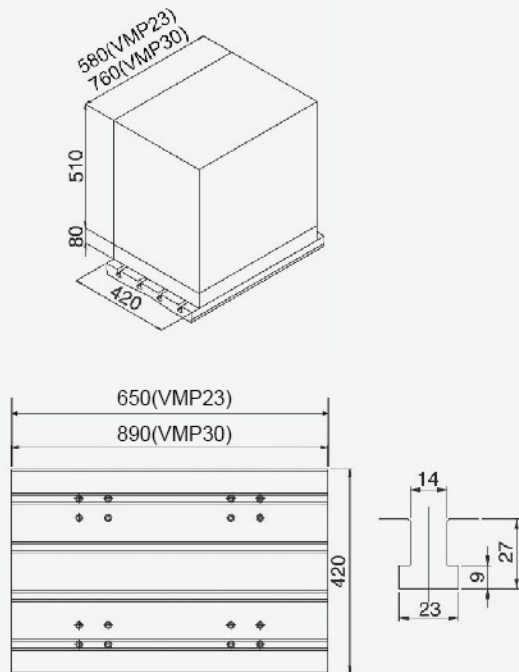
Machine Layout

◆ VMP-65

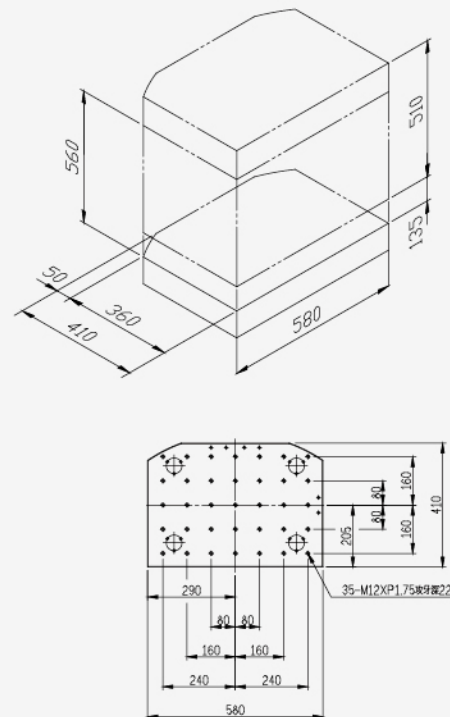


Working Table Dimensions

◆ VMP-23/30

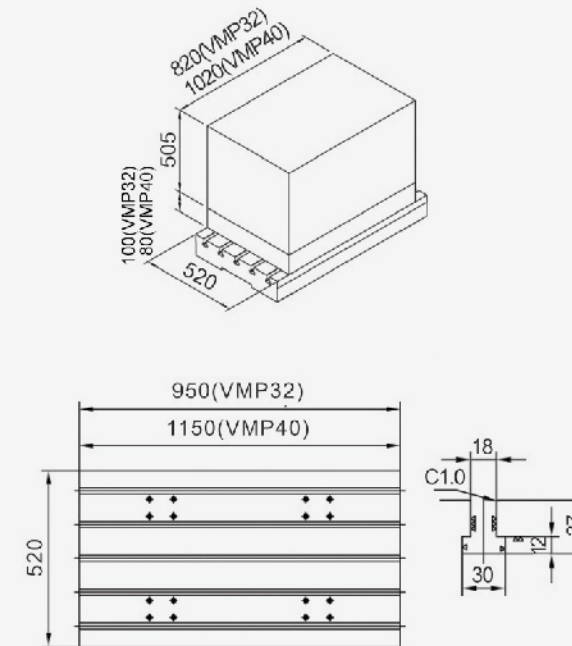


◆ VMP-23 APC

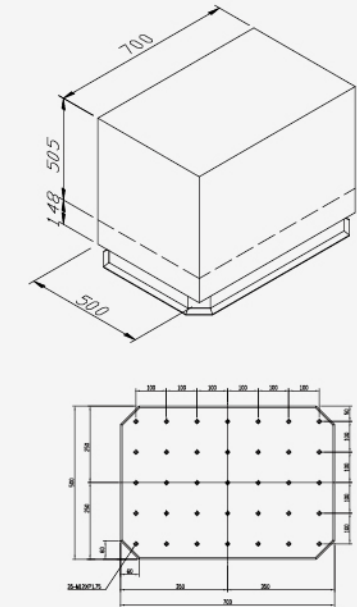


Working Table Dimensions

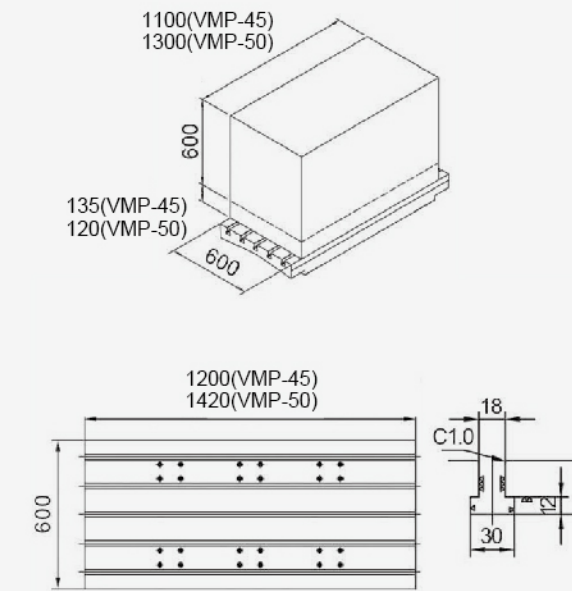
◆ VMP-32/40



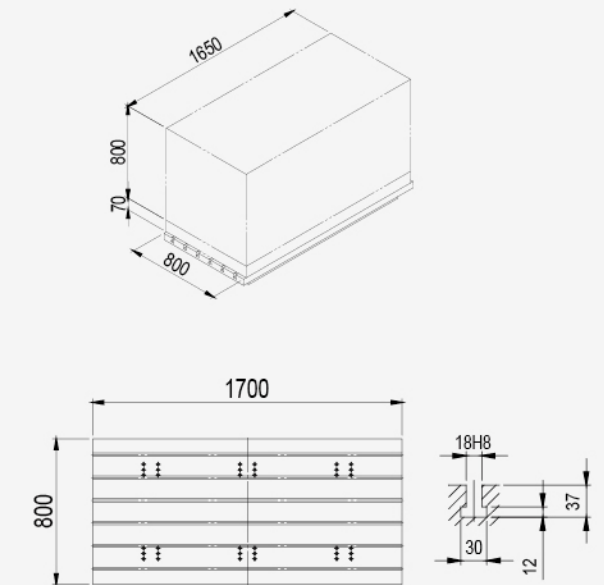
◆ VMP-32 APC



◆ VMP-45/50



◆ VMP-65





# Machine Specifications

Model	Unit	VMP-23(A)	VMP-23A-APC	VMP-30(A)	VMP-32(A)	
<b>Travel</b>						
X-Axis Travel	mm	580	580	760	820	
Y-Axis Travel	mm	420	420	420	520	
Z-Axis Travel	mm	510	510	510	505(OPT:635)	
Spindle Nose to Table Surface	mm	80 ~ 590	135 ~ 645	80 ~ 590	100~605(OPT:100~735)	
Spindle Center to Column Surface	mm	455	455	455	560	
Table Surface to Floor	mm	820	915	820	920	
Table Center to Column Surface	mm	245 ~ 665	245 ~ 665	245 ~ 665	300 ~ 820	
<b>Table</b>						
Table Dimensions	mm	650 x 420	580 x 410	890 x 420	950 x 520	
Maximum Load	kg	300	120	300	800	
T-slots	mm	14 x 4 x 100	35-M12xP1.75	14mm x 4 x 100	18 x 5 x 100	
<b>Spindle</b>						
Spindle Speed	rpm	10,000	10,000	10,000	10,000	
Spindle Taper	type	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	
Spindle Power	Kw	7.5/11	7.5/11	7.5/11	7.5/11	
<b>Feed Rate</b>						
X-Axis Rapid Traverse	m/min	36	36	36	40	
Y-Axis Rapid Traverse	m/min	36	36	36	40	
Z-Axis Rapid Traverse	m/min	36	36	36	30	
<b>ATC</b>						
Tool Changing Time (Tool-to-Tool)	Carousel Type	-	7 sec /60 Hz, 7.1 sec/50 Hz	NO	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz
	Arm Type	-	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz
Tool Changer	-	Carousel (Arm)	Arm	Carousel (Arm)	Carousel (Arm)	Carousel (Arm)
No. of Tools	type	18 (20)	20	18 (20)	22 (24)	22 (24)
Pull Stud	-	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T (45°)
Max. Tool Weight	kg	7	7	7	8	8
Max. Tool Length	mm	250	250	250	200	300
Max. Tool Diameter	mm	Ø80	Ø80	Ø80	Ø80	Ø80
Max. Tool Diameter (No Adjacent Tool)	mm	Ø130	Ø130	Ø130	Ø150	Ø150
<b>Other</b>						
Floor Space	mm	1,900 x 2,345	1,900 x 2,690	2,100 x 2,345	2,905 x 2,260	3,300 x 3,175
Machine Weight	Kg	3,000	3,900	3,300	5,800	7,500
Max. Machine Height	mm	2,495	2,520	2,495	2,800	2,950
Power Capacity	KVA	30	30	30	35	35
Air Source	kg/cm <sup>2</sup>	6-8	6-8	6-8	6-8	6-8
<b>APC</b>						
Change Time	sec	-	6	-	-	10
APC Type	-	-	Rotary	-	-	Rotary

\* Specifications are subject to change without prior notice.

Model	Unit	VMP-23(A)	VMP-23A-APC	VMP-30(A)	VMP-32(A)	VMP-32A-APC	VMP-40(A)	VMP-45(A)		VMP-50(A)		VMP-65(A)
								BT40	BT50	BT40	BT50	BT40
X-Axis Travel	mm	580	580	760	820	800	1020	1,100		1,300		1,650
Y-Axis Travel	mm	420	420	420	520	520	520	610		610		800
Z-Axis Travel	mm	510	510	510	505(OPT:635)	505	505 (OPT:635)	600		600		800
Spindle Nose to Table Surface	mm	80 ~ 590	135 ~ 645	80 ~ 590	100~605(OPT:100~735)	148~653	80 ~ 585 (OPT:80~715)	135 ~ 735		120 ~ 720		70 ~ 870
Spindle Center to Column Surface	mm	455	455	455	560	560	560	660		660		850
Table Surface to Floor	mm	820	915	820	920	1025	940	960		975		1,080
Table Center to Column Surface	mm	245 ~ 665	245 ~ 665	245 ~ 665	300 ~ 820	300 ~ 820	300 ~ 820	355 ~ 965		355 ~ 965		450 ~ 1,250
<b>Table</b>												
Table Dimensions	mm	650 x 420	580 x 410	890 x 420	950 x 520	700 x 500	1,150 x 520	1,200 x 600		1,420 x 600		1,700 x 800
Maximum Load	kg	300	120	300	800	200	800	1,500		1,500		1,500
T-slots	mm	14 x 4 x 100	35-M12xP1.75	14mm x 4 x 100	18 x 5 x 100	35-M12 x P1.75	18 x 5 x 100	18 x 5 x 100		18 x 5 x 100		18 x 6 x 125
<b>Spindle</b>												
Spindle Speed	rpm	10,000	10,000	10,000	10,000	10,000	10,000	10,000	4,000	10,000	4,000	10,000
Spindle Taper	type	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.40	7/24 taper No.50	7/24 taper No.40	7/24 taper No.50	7/24 taper No.40
Spindle Power	Kw	7.5/11	7.5/11	7.5/11	7.5/11	7.5/11	7.5/11	15/18.5		15/18.5		15/18.5
<b>Feed Rate</b>												
X-Axis Rapid Traverse	m/min	36	36	36	40	40	40	36		36		36
Y-Axis Rapid Traverse	m/min	36	36	36	40	40	40	36		36		36
Z-Axis Rapid Traverse	m/min	36	36	36	30	30	30	24		24		24
<b>ATC</b>												
Tool Changing Time (Tool-to-Tool)	Carousel Type	-	7 sec /60 Hz, 7.1 sec/50 Hz	NO	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz	7 sec /60 Hz, 7.1 sec/50 Hz
	Arm Type	-	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz	1.7 sec/60 Hz, 2.0 sec/50 Hz
Tool Changer	-	Carousel (Arm)	Arm	Carousel (Arm)	Carousel (Arm)	Carousel (Arm)	Carousel (Arm)	Carousel (Arm)		Carousel (Arm)		Carousel (Arm)
No. of Tools	type	18 (20)	20	18 (20)	22 (24)	22 (24)	22 (24)	22 (24)	24	22 (24)	24	22 (24)
Pull Stud	-	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T (45°)	P-40T(45°)	P-50T(45°)	P-40T(45°)	P-50T(45°)	P-40T (45°)
Max. Tool Weight	kg	7	7	7	8	8	8	8	15	8	15	8
Max. Tool Length	mm	250	250	250	200	300	300	300	350	300	350	300
Max. Tool Diameter	mm	Ø80	Ø80	Ø80	Ø80	Ø80	Ø80	Ø80	Ø100	Ø80	Ø100	Ø80
Max. Tool Diameter (No Adjacent Tool)	mm	Ø130	Ø130	Ø130	Ø150	Ø150	Ø150	Ø150	Ø200	Ø150	Ø200	Ø150
<b>Other</b>												
Floor Space	mm	1,900 x 2,345	1,900 x 2,690	2,100 x 2,345	2,905 x 2,260	3,300 x 3,175	3,040 x 2,260	3,180 x 2,800		3,550 x 2,800		4,400 x 3,500
Machine Weight	Kg	3,000	3,900	3,300	5,800	7,500	6,300	6,800		7,300		12,300
Max. Machine Height	mm	2,495	2,520	2,495	2,800	2,950	2,800	2,900		2,900		3,300
Power Capacity	KVA	30	30	30	35	35	35	30(35)		30(35)		30(35)
Air Source	kg/cm <sup>2</sup>	6-8	6-8	6-8	6-8	6-8	6-8	6-8		6-8		6-8
<b>APC</b>												
Change Time	sec	-	6	-	-	10	-	-		-		-
APC Type	-	-	Rotary	-	-	Rotary	-	-		-		-