



VESTA-2000

Software Optimized Vertical Machining Center



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1 Gear / Robot Arm / Aluminum
2 Part / Air Flap Link / Aluminum
3 HECC Sample / KP4M

850 mm Y-axis Vertical Machining Center with Software Function for Enhanced Productivity and Precision

VESTA-2000 is recommended for powerful cutting based on its stable structure. It is equipped with Hwacheon's proprietary technologies such as productivity enhancement software (HECC, HTLD and OPTIMA) and precision enhancement software (HTDC and HAI) and provides differentiated quality different from existing machining center for parts.



Upgrades for Enhanced Machining Performance

- 1 High rigid roller LM guide for every axis
- 2 4 coil conveyors to enhance chip discharge performance
- 3 The table wide enough to mount multiple workpieces
- 4 Various direct-coupled main spindle specifications that meet machining purposes
- 5 Hwacheon's proprietary software

Enhanced User Convenience

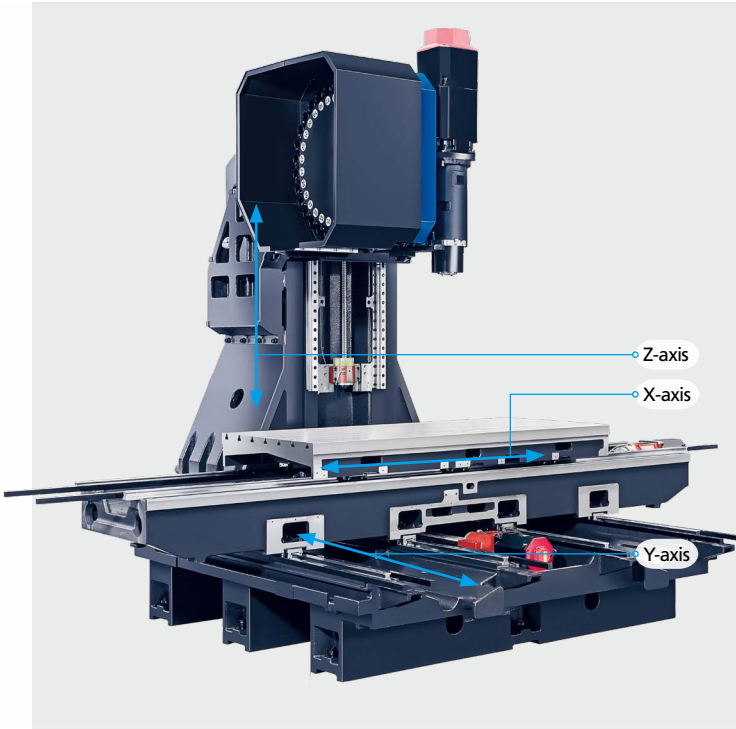
- 1 The tempered safety glass ensures machining visibility
- 2 The step integrated coolant tank ensures the front table accessibility
- 3 Eco-friendly oil water separation structure

Easy Maintenance

- 1 Peripherals requiring maintenance are gathered in one place
- 2 Easy lubrication points

Basic Information

Basic Structure



"Machining Stability Ensured"

- Stable machine structure
(Outstanding rigid base and column structure ensured)
- C type structure for work accessibility
- High rigid roller LM guide for every axis
(The Y-axis has 4 columns LM guide for saddle rigidity)



※ Y-axis, 4 columns LM Guide

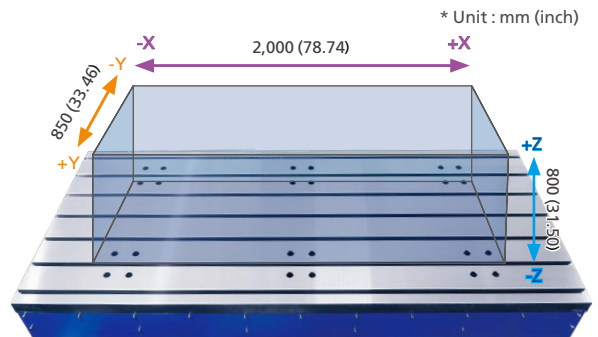
Stroke mm (inch)			Rapid Speed m/min (ipm)		
X-axis	Y-axis	Z-axis	X-axis	Y-axis	Z-axis
2,000 (78.74)	850 (33.46)	800 (31.5)	24 (945)	24 (945)	24 (945)

Table

"Wide Workpiece Mounting Area"

Possible to set workpieces and vices in various sizes

Table Size mm (inch)	T Slot W x P mm (inch)	Max Loading Capacity kg _r (lb _r)
2,000 x 850 (78.74 x 33.46)	18 x 125 (0.71 x 4.92) Number of T slot : 7 ea	1,800 (3,968)



* Unit : mm (inch)

Spindle

"Various Specifications for Direct-Coupled Spindles"

Meeting the customer's machining purposes

	Max Spindle Speed rpm	FANUC		SIEMENS		HEIDENHAIN		
		Spindle Motor kW	Max Torque Nm	Spindle Motor kW	Max Torque Nm	Spindle Motor kW	Max Torque Nm	
BT-40	10,000	Regular Type	18.5	117.7	20.9	178	32	203.7
		CTS (OPT)						
	12,000 (OPT)	Regular Type			20.9	120.5	-	-
		CTS (OPT)						
15,000 (OPT)	Regular Type	-	-	-	-			
	CTS (OPT)							
BT-50 (OPT)	8,000	Regular Type	15	287	-	-	46	286.5
		CTS (OPT)						



Magazine



"Magazines in Various Specifications"

Various specifications are available based on users' tool types

Item	Tool Shank	BT-40	OPT) SK-40, CAT-40 HSK-A63	OPT) BT-50, CAT-50 SK-50, HSK-A100
		Drum Type		Chain Type
Tool Storage Capacity		30		24
Method of Tool Selection		Memory Random		
Tool Change Type		Swing Arm		

Cover Design



"Minimized Effects of External Temperature Variation"

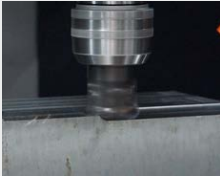
The cover designed to be tightly adhered to the bottom minimizes effects on the machine caused by various factors such as external temperature variation.

20 mm
(0.79 inch)

BT-40 Cutting Performance



Face mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
60 (2.36)	280	1,500	1,400 (55.12)	5 (0.2)	40 (1.57)

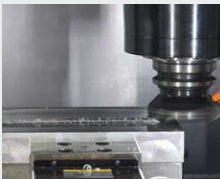


Face mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
50 (1.97) / R8	300	1,500	1,500 (59.1)	5 (0.2)	40 (1.57)

BT-50 Cutting Performance



Face mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
80 (3.15)	528	1,500	1,650 (65)	5 (0.2)	64 (2.52)



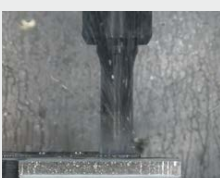
Face mill, Aluminum (AL6061)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
100 (3.94)	1,920	2,000	4,000 (157)	6 (0.24)	80 (3.15)



Face mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
63 (2.48) / R8	882	1,500	3,920 (154)	5 (0.2)	45 (1.77)



End mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
40 (1.57)	336	800	420 (16.5)	40 (1.57)	20 (0.79)



U-Drill, Carbon Steel (SM45C)			
Tool Dia mm (inch)	Material Removal Rate cm ³ /min	Spindle Speed rpm	Feed mm/min (ipm)
45 (1.77)	636	1,500	400 (15.7)



Tap, Carbon Steel (SM45C)			
Tap Size	Spindle Speed rpm	Feed mm/min (ipm)	Spindle Load %
M30 x P3.5	200 / 300	700 (27.6) / 1,050 (41.3)	60 / 60
M33 x P3.5	200 / 300	700 (27.6) / 1,050 (41.3)	76 / 78

* The machining results above are examples based on the factory test standards, and are subjected to the changes in conditions.

Standard / Optional Accessories Status

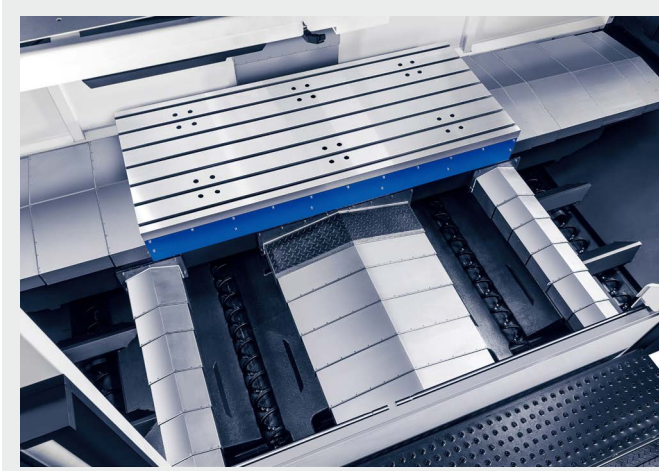
S : Standard O : Option

NO.	Item	Description	VESTA-2000
1	Spindle	10,000 rpm	S
2		FANUC 10,000 rpm (CTS)	O
3		12,000 rpm	O
4		15,000 rpm	O
5		SIEMENS 10,000 / 12,000 rpm	O
6		15,000 rpm	O
7		HEIDENHAIN 10,000 rpm	O
8		12,000 rpm	O
9		8,000 rpm	O
10		FANUC 8,000 rpm (CTS)	O
11		HEIDENHAIN 8,000 rpm	O
12	Magazine	#40 30 Tools Magazine	S
13		24, 30 Tools Magazine	O
14	Tool Shank	#40 BT-40	S
15		BBT-40 / CAT-40 / HSK-A63 / SK-40	O
16		BT-50	O
17		#50 BBT-50 / CAT-50 / HSK-A100 / SK-50	O
18	Coolant Function	Head Flushing (0.15 MPa, 0.6 kW)	S
19		CTS Coolant System (For 7 MPa, only water soluble coolants are available)	O
20		3 MPa 2.2 kW	O
21		7 MPa 2.2 kW	O
22	Chip Removal Function	Oil Mist (Semi dry cutting system)	O
23		Air Blower	S
24		Coil Conveyor (4ea)	S
25		Air Gun	O
26		Coolant Gun	O
27		Lift-up Chip Conveyor Hinge Type, Scraper Type	O
28	Precision Machining Function	Mist Collector	O
29		Linear Scale (X / Y / Z)	O
30		Hwacheon Efficient Contour Control System (HECC)	S
31		Hwacheon Thermal Displacement Control System (HTDC)	S
32		Hwacheon Artificial Intelligence Control System (HAI): 200 Block	S
33		Hwacheon Artificial Intelligence Control System (HAI): 400 Block	O
34		Lubrication System	S
35	Spindle Cooler (Jacket Cooling)	O	
36	Measuring & Automation Function	Fan Cooler Type	S
37		Oil Cooler Type (12,000rpm, 15,000rpm Spindle)	O
38		Tool Measuring System: Renishaw / Blum (Touch Type, Laser Type)	O
39		Workpiece Measuring System: Renishaw / Blum (Touch type)	O
40		Tool Life Management	O
41		Auto Door	O
42	Convenient Functions	Hwacheon Tool Load Detect System (HTLD)	S
43		Cutting Feed Optimization System (OPTIMA)	S
44		Ethernet Interface	S
45		MPG Handle (1ea)	S
46		MPG Handle (3ea)	O
47		Signal Lamp with 3 Color (R, G, Y)	S
48		Display Unit	O
49		15" Display	S
50		15" Touch Display (Fanuc i-HMI)	O
51		Tool Box	S
52		NC Cooler	O
53		Oil Skimmer	O
54		Air Dryer	O
55		10,000rpm, 8,000rpm	O
56		12,000rpm, 15,000rpm	S
57		Door Interlock	S
58		Workpiece Coordinate System	O
59		48 pairs	S
60		300 pairs	O
61		Lubrication Oil Separation Tank	S
62	Perfect Base Around Splash Guard	S	
63	Part Program Storage Length 5,120m (2MB)	S	
64	Data Server (256MB, 1GB, 2GB, 4GB, 16GB, 32GB)	O	
65	Data Server Interface	O	
66	Transformer	O	
67	Manual Guide I	S	
68	M-VISION Plus (Monitoring Solution of Real-time Operational Status)	O	
69	M-VISION Pro (Operation Managing and Monitoring Solution of Real-time Operational Status)	O	
70	4-axis Interface	O	

USER FRIENDLY DESIGN, A WIDE RANGE OF OPTIONAL FEATURES

User convenience and various additional function

VESTA-2000 system offers a user friendly design and a wide variety of upgrade options for a faster, more precise machining performance, so you can concentrate on what you do best : creating quality products.



"Excellent Chip Disposal"

Four coil conveyors in the wide and steeply slanted slide cover structure that are located under the table provide excellent chip disposal performance.

4 Coil Conveyors

Four coils conveyors as standard will rapidly remove a large amount of chips generated during machining.

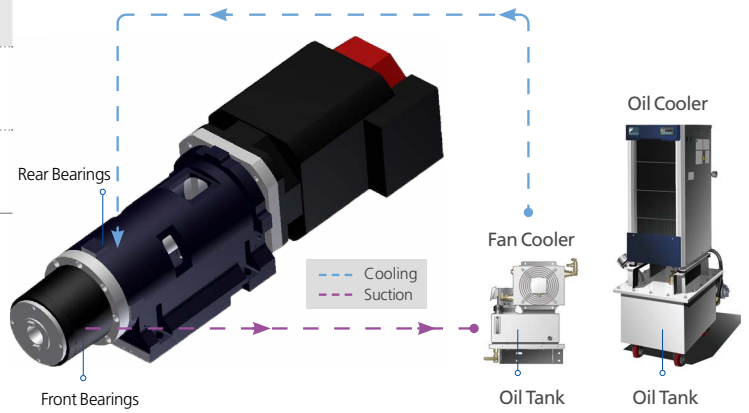


Convenient Accessibility

Coolant tank combined with step helps user accessibility during operation and enhance space utilization.

Cooling System

	Jacket Cooling	Bearing Lubrication
10,000 rpm (STD)	Fan Cooler	Grease Type
8,000 rpm (OPT)		
12,000 rpm (OPT)	Oil Cooler	Air-Oil Type
15,000 rpm (OPT)		



Convenient Maintenance

Improved the manageability of machine through the integration of peripheral devices for required maintenance.

LED Work Light

Long-life LED work lights at three places ensures comfortable working environment and minimizes heat generation.



Excellent Coolant Tank and Chip Removal

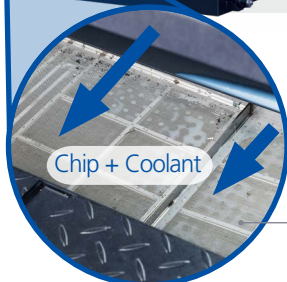
"Possible to Select Type of Chip Conveyor" according to machining purpose

- Hinge Type Chip Conveyor (Suitable for coarse chips discharge)
- Scraper Type Chip Conveyor (Suitable for fine chips discharge)



External Coolant Tank Tank Capacity : 740ℓ(195.49 gal)

- External coolant tank is installed at the front of machine.
- Easy to exchange coolant, clean the tank and maintain pump.
- Step integrated coolant tank for better table accessibility.



- **Micro Chip Separation**
Chip filter is used to remove micro chips and keep the coolant tank clean.

Coolant Pump Specifications

- CTS Coolant Pump (OPT) - Pressure : 3 MPa / 7 MPa
- Power : 2.2 kW
- * For 7 MPa, only water soluble coolants are available
- Head Coolant Pump - Power : 0.6 kW
- Coolant Gun Pump - Power : 1.1 kW

Convenient Operator Panel

Pendant Arm Type Operator Panel (STD)



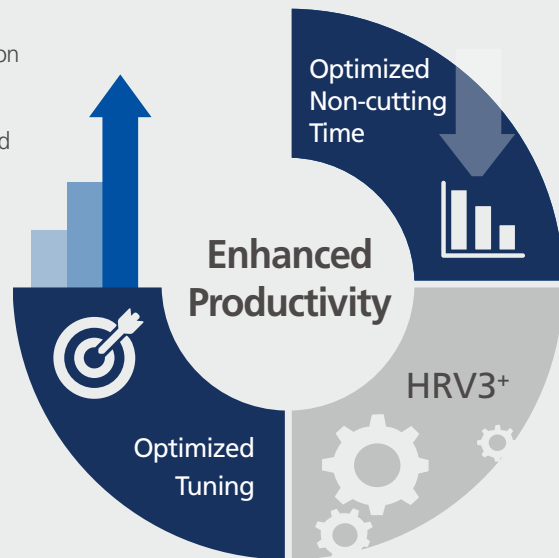
The operator panel is newly designed from the operator's viewpoint and thus enhances the operator's convenience.

"User Friendly Design"

- 15" display as standard (USB and PCMCIA cards as standard)
- Enhanced operability by optimizing the layout and improving the touch feeling of control buttons
- QWERTY Key MDI enhance user convenience.
- Separately mounting MPG for workpiece setting convenience.
- Long time continuous DNC operation with the CF card even without the data server.

Machine Optimization (STD)

- Smart rigid tap function applied for machining time reduction.
- The cycle machining as well as the operating time and the acceleration / deceleration speed of feeding system are optimized.
- High-level precision, speed and smoothness are realized by enhanced processing performance of tiny segments.
- Dramatically reduced non-cutting time during machining ensures optimal productivity.
- The latest machining technology adopted.
- Machining surface quality enhanced by HRV3+ control. (HRV3+: effectively prevents machine oscillation by controlling the servo current to enhance the machining surface quality.)



"Enhanced Productivity"

Operating Convenience Function

< M-CODE LIST >



- M-CODE LIST
- The screen provides easy and quick search and utilization.

(However, it is necessary to discuss with factory in advance to add and / or change M-codes.)

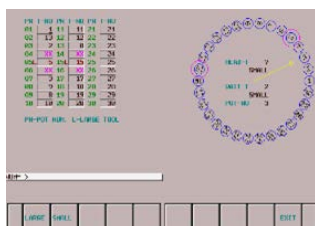
< GUI (Graphical User Interface) >



- Graphic interface for tool / workpiece measurement
- Automatic offset update function
- Tool setting and damaged tool detection, Workpiece setup and measuring while machining
- Optimized time and failure rate High competitiveness

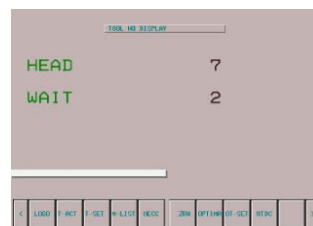
< Tool Management >

Large / Small Diameter Tool Management System



- Magazine tool management system
- Magazine tool check in real time
- Large / small diameter tools setting

< Tool View >



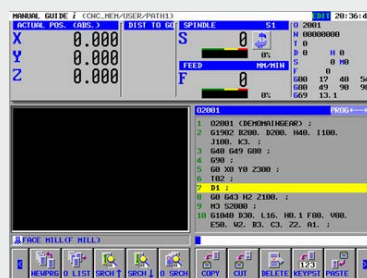
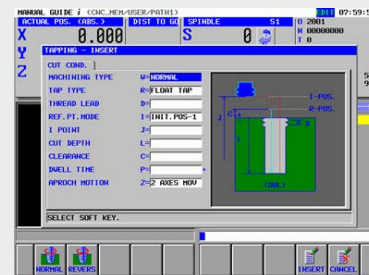
- Head mounted tool check in real time
- Waiting pot mounted tool check in real time

Manual Guide i

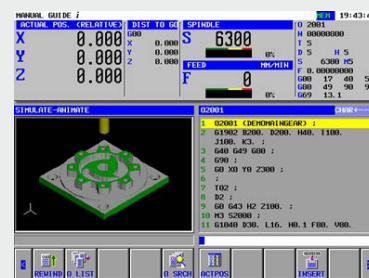
With the Manual Guide i, the operator is able to create a machining program for the desired geometry including the pattern simply if he / she enters numeric values for the basic machining geometry.



- Programming in convenient functions and rich machining cycles



- It displays the machine status and the tools in use while machining.



- The realistic machining simulation checks the program.

Hwacheon Software



Hwacheon Tool Load Detect System (HTLD)

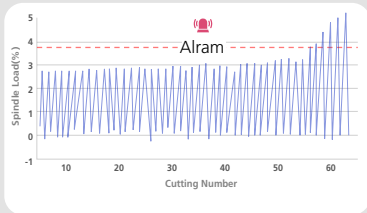
HTLD constantly monitors the tool wear to prevent accidents and collisions that may result from worn or broken tools. It also helps to prevent the work piece from being damaged or scrapped.

Prevent processing defects

Prevention of the defective tool breakage

Able to quickly respond to wear and tear of tools

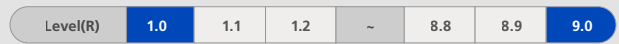
When tool breakage alarm



Hwacheon Efficient Contour Control System (HECC)

Workpiece and the desired mode selected depending on the need to shorten processing time / improve contour accuracy / enhanced tool life.

“Roughing quickly, finishing is precisely”



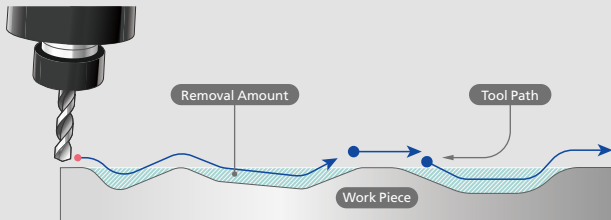
- Cutting time: Fast (1.5~3.0 Times) / Slow (1.0 Times)
- Surface: No Good / Good
- Process: Rough / Finish
- Tool life: Good / No Good



Cutting Feed Optimization System (OPTIMA)

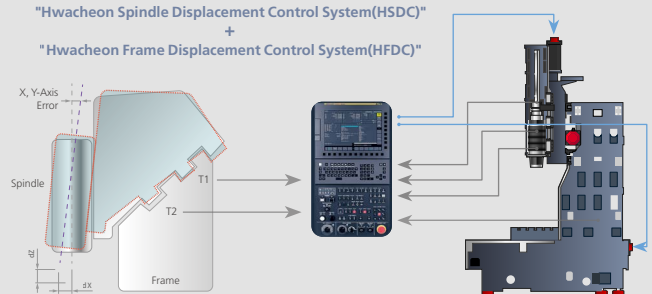
Prevent damage to the tool in real time by automatically controlling the feed rate to maintain a constant cutting force during the machining process which typically results in reduced cycle times.

“Maximize your productivity with intelligent system”



Hwacheon Thermal Displacement Control System (HTDC)

The high sensitivity temperature sensors are installed at integral elements to capture and display real-time data while processing.



Monitoring Solution of Real-time Operational Status (M-VISION Plus / Pro)

Real-time operational status monitoring system for the User's factory machine management.

M-VISION Plus

- Monitoring of real-time operational status
- Mobile app supported
- Machining history saving, retrieving and statistics
- Statistics on operational efficiency and history by equipment



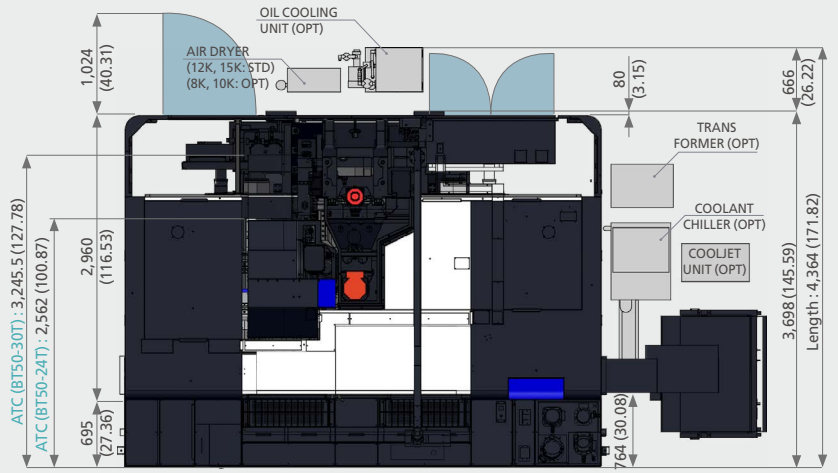
M-VISION Pro

- Real-time machine operation status monitoring
- Mobile app supported
- Saving machining/alarm history, retrieving and statistics
- Statistics on operational efficiency and history by equipment/by equipment in total, operator, and arbitrary set period
- Machining Management

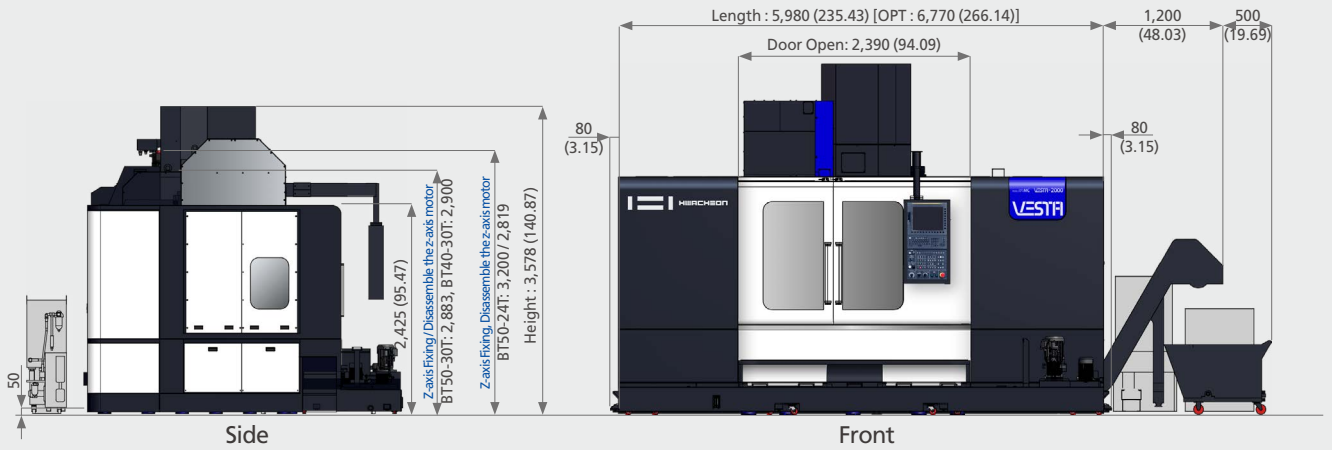


Machine Size

* Unit : mm (inch)



Top



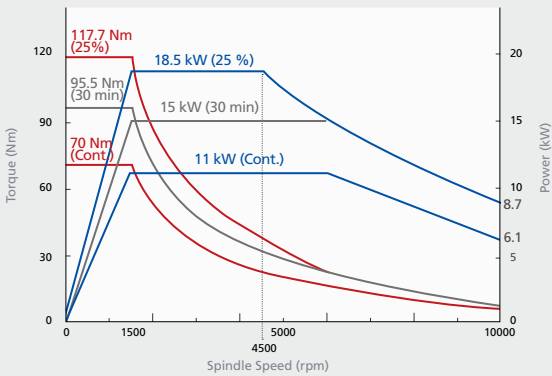
Side

Front

Spindle Power – Torque Diagram

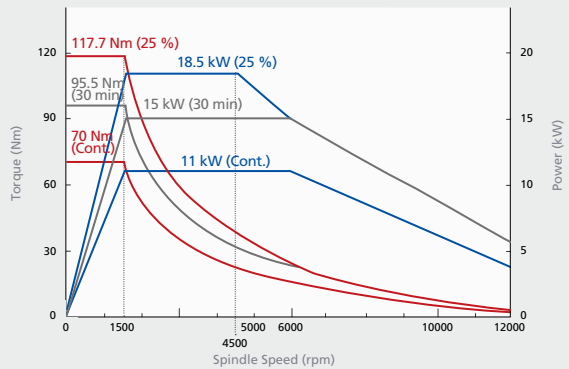
10,000 rpm

Max Power : 18.5 kW (25 HP) / Max Torque : 117.7 Nm



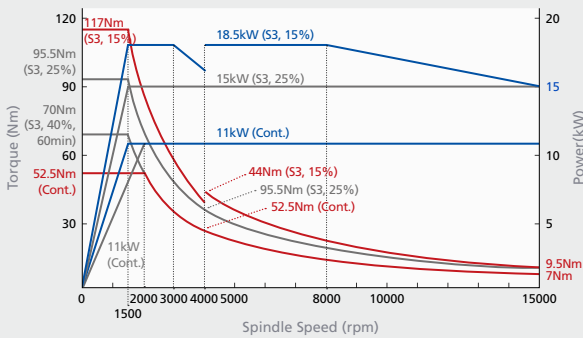
12,000 rpm (OPT)

Max Power : 18.5 kW (25 HP) / Max Torque : 117.7 Nm



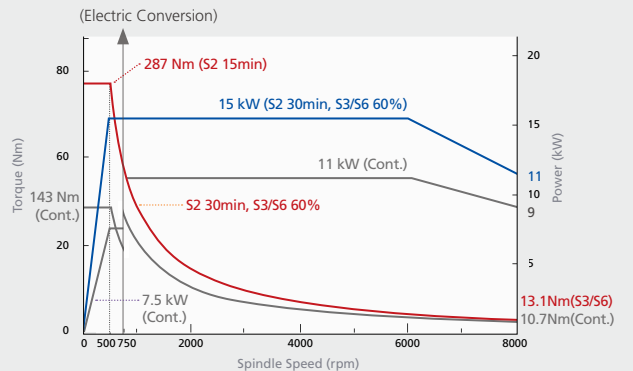
15,000 rpm (OPT)

Max Power : 18.5 kW (25 HP) / Max Torque : 117.7 Nm

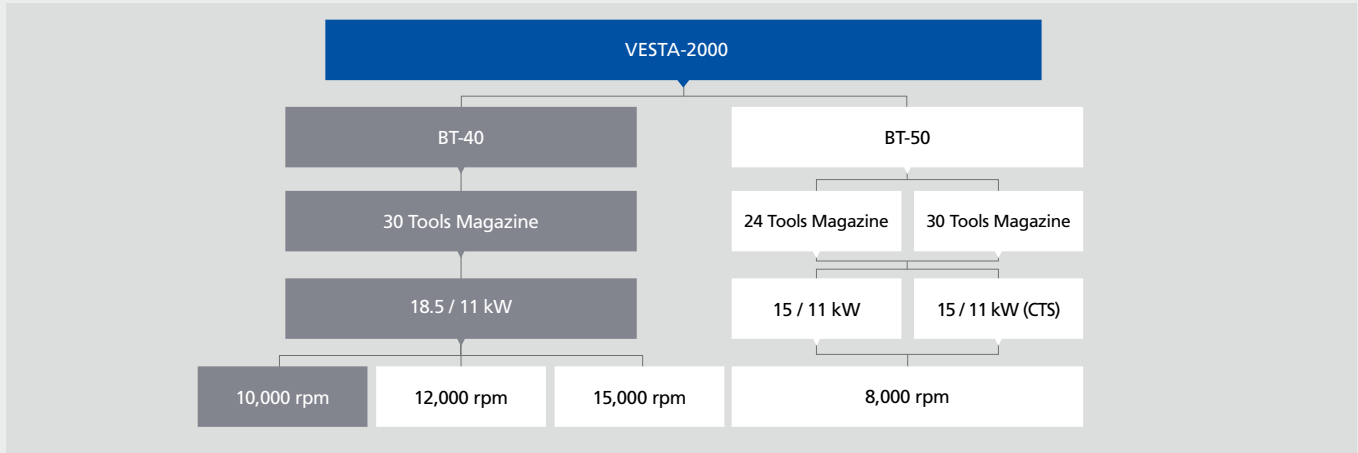


8,000 rpm (OPT)

Max Power : 15 kW (20 HP) / Max Torque : 287 Nm



Product Line-up



Machine Specifications

Item		VESTA-2000			
Travel					
Stroke (X / Y / Z)	mm (inch)	2,000 / 850 / 800 (78.74 / 33.46 / 31.5)			
Distance from Table Surface to Spindle Gauge Plane	mm (inch)	150 ~ 950 (5.91 ~ 37.4)			
Distance between Columns to Spindle Center	mm (inch)	905 (35.63)			
Table					
Table Size	mm (inch)	2,000 x 850 (78.74 x 33.46)			
Table Loading Capacity	kg, (lb _r)	1,800 (3,968)			
T Slot (WxP / No. of slots)	mm (inch)	18 x 125 (0.71 x 4.92) / 7 ea			
Spindle					
Max Spindle Speed	rpm	10,000	12,000	15,000	8,000
Spindle Motor	kW (HP)	18.5 / 11 (25 / 15) SIEMENS: 20.9 / 10.2 (28 / 13.6) HEIDENHAIN: 32 / 15 (43 / 20)		18.5 / 11 (25 / 15) SIEMENS: 20.9 / 11 (28 / 15)	15 / 11 (20 / 15) SIEMENS: 33 / 22 (44 / 30), HEIDENHAIN: 46 / 22 (62 / 30)
Type of Spindle Taper Hole	-	ISO#40, 7/24 Taper (BT-40)		ISO#50, 7/24 Taper (BT-50)	
Spindle Bearing Inner Diameter	mm (inch)	Ø70 (2.76)		Ø90 (3.54)	
Feedrate					
Rapid Traverse (X / Y / Z)	m/min (ipm)	24 / 24 / 24 (945 / 945 / 945)			
Cutting Feedrate (X / Y / Z)	mm/min (ipm)	1 ~ 10,000 (0.04 ~ 394)			
Motor					
Feed Motor (X / Y / Z)	kW (HP)	4 / 4 / 7 (5.4 / 5.4 / 9.4)			
Coolant Motor (Spindle)	kW (HP)	0.6 (0.8)			
Spindle Cooler Motor	kW (HP)	0.18 (0.2)	2.8 / 3.2 (3.8 / 4.3)		0.18 (0.2)
ATC					
Type of Tool Shank	-	BT-40 (OPT: BBT-40, CAT-40, HSK-A63, SK-40)		BT-50 (OPT: BBT-50, CAT-50, HSK-A100, SK-50)	
Type of Pull Stud	-	MAS P40T-1 (45°)		BT-50 (90°)	
Tool Storage Capacity	ea	30		24 (OPT: 30)	
Max Tool Dia (with / without Adjacent Tools)	mm (inch)	Ø75 / Ø150 (Ø2.95 / Ø5.91)		Ø125 / Ø245 (Ø4.92 / Ø9.65)	
Max Tool Length	mm (inch)	300 (11.81)		350 (13.78)	
Max Tool Weight	kg, (lb _r)	8 (17.64)		20 (44.09)	
Method of Tool Selection	-	Memory Random			
Power Source					
Electric Power Supply	kVA	45		45 / CTS:55	
Compressed Air Supply (Pressure x Consumption)	-	0.5 ~ 0.7 MPa x 690 N _l /min			
Tank Capacity					
Spindle Cooling / Lubrication	ℓ (gal)	20 / 6 (5.28 / 1.59)			
Coolant	ℓ (gal)	740 (195.49)			
Machine Size					
Height (Z-axis Fixing / Disassemble the z-axis servo motor)	mm (inch)	3,578 (140.87) [2,900 (114.17) / 2,900 (114.17)]		24Tools : 3,578 (140.87) [3,200 (125.98) / 2,819 (111.02)] / 30Tools : 3,578 (140.87) [2,883 (113.54) / 2,883 (113.54)]	
Floor Space (Length x Width)	mm (inch)	5980 x 4,364 (235.43 x 171.82) [OPT: 6,770 x 4,364 (266.14 x 171.82)]			
Weight	kg, (lb _r)	12,700 (27,999)		13,900 (30,644)	
NC Controller		Fanuc 0i-MF Plus			

NC Specifications [Fanuc Oi-MF Plus]

※ S : Standard O : Option

ITEM	SPECIFICATION		ITEM	SPECIFICATION	
Controlled Axis			Program Input		
Controlled Axis	4-axes	S	Automatic Corner Override		S
	5-axes (Max.)	O	Feed Rate Clamp Based on Arc Radius		S
Simultaneously Controlled Axes	3-axes	S	Scaling		S
	4-axes (Max.)	O	Coordinate System Rotation		S
Least Input Increment	0.001 mm, 0.001 deg, 0.000 1inch	S	Polar Coordinate System		S
Least Input Increment 1/10	0.0001 mm, 0.0001 deg, 0.0000 1inch	O	Programmable Mirror Image		S
inch / metric Conversion	G20, G21	S	Tape Format for Fanuc Series 10/11		S
Stored Stroke Check 1		S	Manual Guide i		S
Stored Stroke Check 2		S	Spindle Speed Function		
Mirror Image		S	Spindle Serial Output		S
Stored Pitch Error Compensation		S	Spindle Override	50 - 150%	S
Backlash Compensation		S	Spindle Orientation		S
Operation			Rigid Tapping		S
Automatic & MDI Operation		S	Tool Function / Compensation		
DNC Operation by Memory Card	PCMCIA Card is Required	S	Tool Function	T4 Digits	S
Program Number Search		S	Tool Offset Pairs	400ea	S
Sequence Number Search		S	Tool Offset Memory C		S
Dry Run, Single Block		S	Tool Length Compensation		S
Manual Handle Feed	1Unit	S	Cutter Compensation C		S
Manual Handle Feed Rate	x1, x10, x100	S	Tool Life Management		O
Handle Interruption		S	Tool Length Measurement		S
Interpolation Function			Editing Operation		
Positioning	G00	S	Part Program Storage Length	5,120m (2MB)	S
Linear Interpolation	G01	S	Number of Register Able Programs	Max. 1,000ea	S
Circular Interpolation	G02, G03	S	Background Editing		S
Dwell (Per Seconds)	G04	S	Extended Part Program Editing		S
Cylindrical Interpolation	4-axis Interface Option is Required	S	Play Back		S
Helical Interpolation	Circular interpolation plus max 2 axes linear interpolation	S	Setting and Display		
Reference Position Return Check	G27	S	Clock Function		S
Reference Position Return	G28,G29	S	Self-Diagnosis Function		S
2nd Reference Position Return	G30	S	Alarm History Display		S
Skip Function	G31	S	Help Function		S
Feed Function			Run Hour and Parts Count Display		S
Rapid Traverse Override	F0, F25, F50, F100	S	Graphic Function		S
Feed Rate (mm/min)		S	Multi-language Display	Chinese, English, French, German, Hungarian, Italian, Korean, Polish, Portuguese, Spanish, Swedish, Russian	S
Feed Rate Override	0 - 200 %	S			
Jog Feed Override	0 - 6,000 mm/min	S	Data Input / Output		
Override Cancel	M48, M49	S	Data Server	256MB, 1GB, 2GB, 4GB, 16GB, 32GB	O
Program Input			Data Server Interface		O
Tape Code	EIA / ISO	S	Ethernet Interface		S
Optional Block Skip	9ea	S	Memory Card Interface		S
Program Number	O4 Digits (1 - 9999)	S	USB Card Interface		S
Sequence Number	N8 Digits	S	Others		
Decimal Point Programming		S	Display Unit	15" Non-Touch Display	S
Coordinate System Setting	G92	S	Fanuc i-HMI	15" Touch Display	S
Workpiece Coordinate System	G54 - G59	S	HWACHEON Software		
Workpiece Coordinate System Preset		S	High Speed HRV3 [®] Function		S
Additional Workpiece Coordinate Pairs	48ea	S	Hwacheon Artificial Intelligence Control System (HAI): 200 Block		S
	300ea	O	Hwacheon Artificial Intelligence Control System (HAI): 400 Block		O
Extend Program Edit Function	Copy / Move / Etc.	S	Hwacheon Efficient Contour Control System (HECC)		S
Manual Absolute ON and OFF		S	Hwacheon Tool Load Detect System (HTLD)		S
Chamfering / Corner R		S	Cutting Feed Optimization System (OPTIMA)		S
Programmable Data Input	G10	S	Hwacheon Thermal Displacement Control System (HTDC)		S
Sub Program Call	10 Folds Nested	S	M-VISION Plus (Monitoring of Real-time Operational Status)		O
Custom Macro B		S	M-VISION Pro (Operation Managing and Monitoring of Real-time Operational Status)		O
Addition of Custom Macro Common Variables	#100 - #199, #500 - #999	S			
Canned Cycles for Drilling		S			

Hwacheon Global Network

 Hwacheon Headquarters  Hwacheon Europe  Hwacheon Asia  Hwacheon America



Please contact us for product inquiries.

www.hwacheon.com

The product design and specifications may change without prior notice.
Read the operation manual carefully and thoroughly before operating the product,
and always follow the safety instructions and warnings labels attached on the surfaces of the machines.

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