VESTA-1300+

Software Optimized Vertical Machining Center

HWACHEON

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Product Overview

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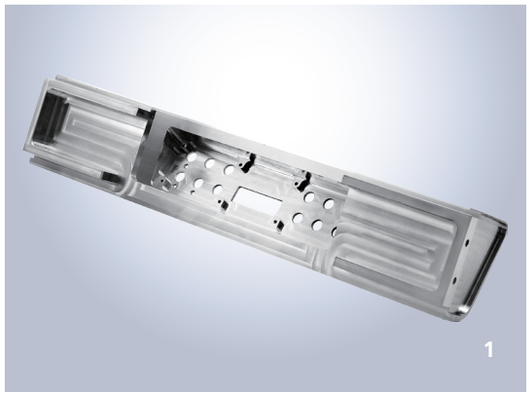
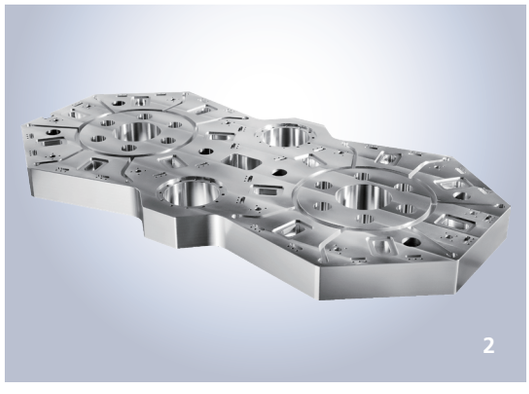
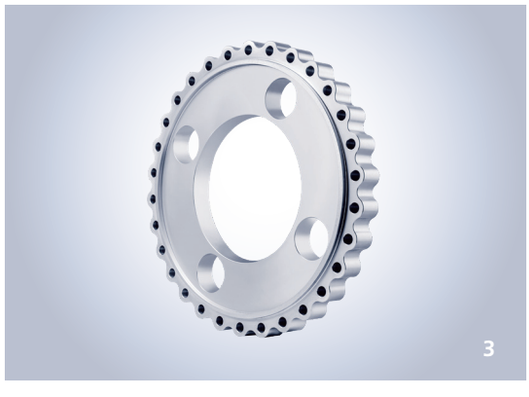






1 Semiconductor Equipment Part / Semiconductor / Aluminum
2 Aerospace Part / Aerospace / Al6061
3 Gear / Robot Arm / Aluminum

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

VESTA-1300+ 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. Improved table utilization (Max 5 ea 6" vice installation)
2. Hwacheon's proprietary software

Enhanced Work Convenience

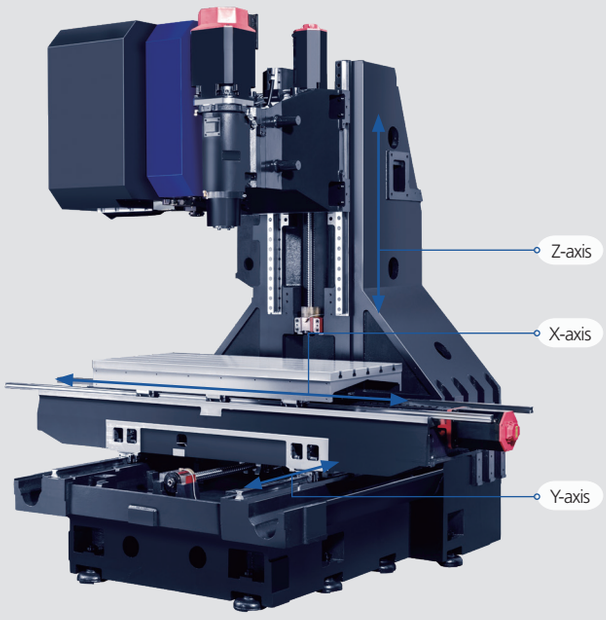
1. Reduction in work fatigue (Front Two-Door)
2. Pendant arm type operator panel
3. The tempered safety glass ensures machining visibility

Easy Maintenance

1. Eco-friendly oil water separation structure
2. Wide side door for user convenience

Basic Information

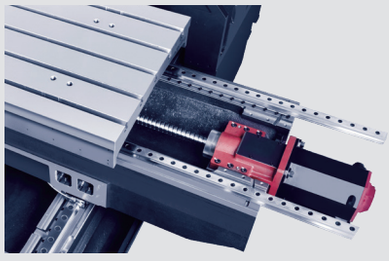
Basic Structure



"Machining Stability Ensured"

·Stable machine structure
(Outstanding rigid base and column structure ensured)

·C type structure for work accessibility



※ X-axis LM Guide

Stroke mm (inch)			Rapid Speed m/min (ipm)		
X-axis	Y-axis	Z-axis	X-axis	Y-axis	Z-axis
1,330 (52.36)	670 (26.38)	650 (25.59)	36 (1,417)	36 (1,417)	30 (1,181)

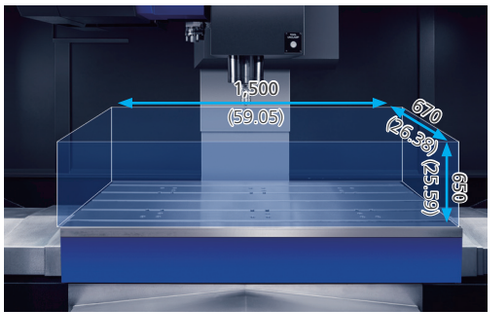
Table

* Unit : mm (inch)

"Wide Workpiece Mounting"

Possible to set workpieces and vices in various sizes
※ Max 5 ea 6" Vice Installation

Table Size mm(inch)	T Slot W x P mm (inch)	Max Loading Capacity kg_f (lb_f)
1,500 x 670 (59.05 x 26.38)	18 x 125 (0.71 x 4.92) Number of T Slot : 5 ea	1,300 (2,866)

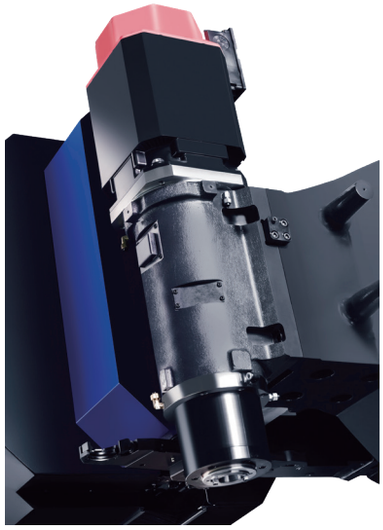


Spindle

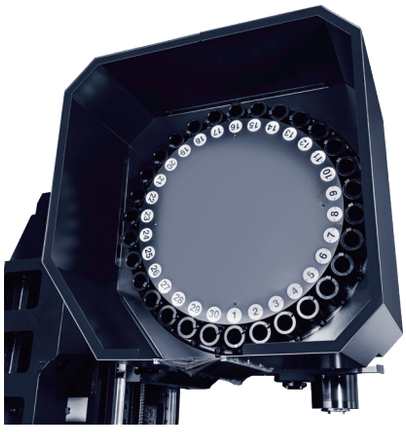
Meeting the customer's machining purposes

"Various Specifications for Direct-Coupled Spindles"

	Max Spindle Speed rpm		FANUC Spindle Motor kW	FANUC Max Torque Nm
BT-40	10,000	Regular Type	18.5	117.7
		CTS (OPT)		
	12,000 (OPT)	Regular Type		
		CTS (OPT)		
	15,000 (OPT)	Regular Type		
		CTS (OPT)		
BT-50 (OPT)	8,000	Regular Type	15	287
		CTS (OPT)		



Magazine



※ BT-40 Magazine

"Magazines in Various Specifications"

Various specifications are available based on users' tool types

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

Increase Working area

"The feed area expanded compared to the existing products provides a wider machining area."

1 Reduced the installation area and increased the machining area

VESTA-1300

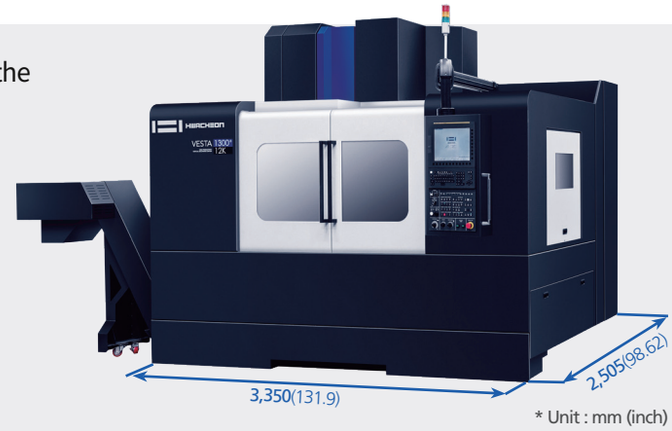
3,605(142) X 2,645(104.1) X 2,950(116.1)

(Z origin recovery)

VESTA-1300⁺

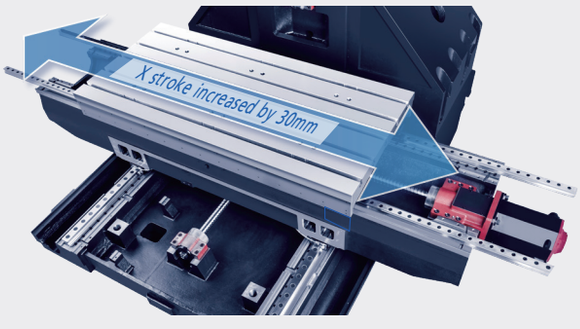
3,350(131.9) **X 2,505**(98.62) **X 3,080**(121.3)

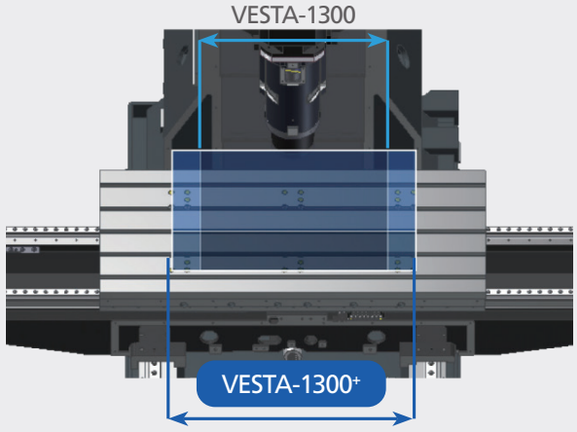
(Z origin recovery)



* Unit : mm (inch)

2 Expansion of feed area





Detailed Information

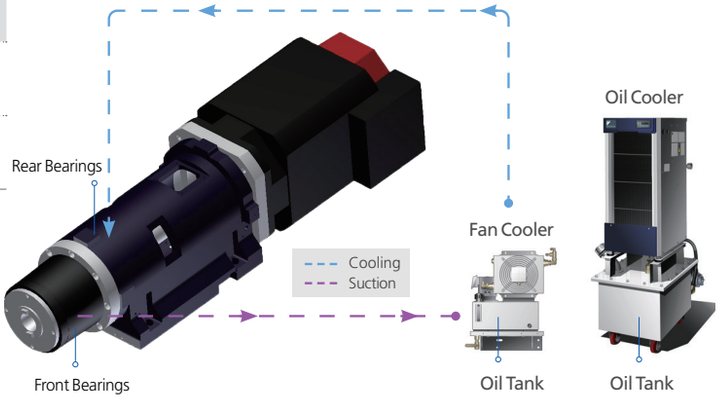
Standard / Optional Accessories Status

S : Standard O : Option

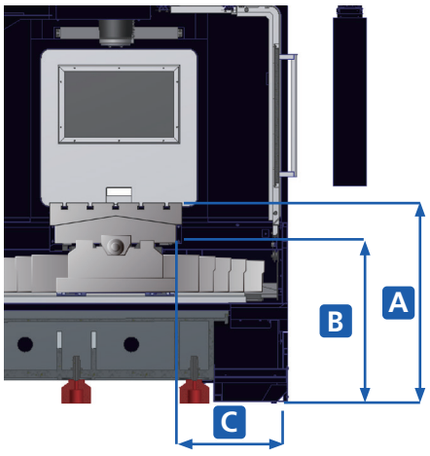
NO.	Item	Description					VESTA-1300+
1	Spindle	#40	FANUC	10,000 rpm	18.5 / 11 kW	117.7 Nm	S
2				10,000 rpm (CTS)			O
3				12,000 rpm			O
4				12,000 rpm (CTS)			O
5				15,000 rpm			O
6				15,000 rpm (CTS)			O
7		#50	FANUC	8,000 rpm	15 / 11 kW	287 Nm	O
8				8,000 rpm (CTS)			O
9	Magazine	#40	30 Tools Magazine				S
10		#50	24, 30 Tools Magazine				O
11	Tool Shank	#40	BT-40				S
12			BBT-40 / CAT-40 / SK-40				O
13		#50	BT-50				O
14			BBT-50 / CAT-50 / SK-50				O
15	Coolant Function	Head Coolant Pump (0.15 MPa, 0.6 kW)					S
16		CTS Coolant Device (For 7 MPa, only water soluble coolants are available)			3 MPa	2.2 kW	O
17					7 MPa	2.2 kW	O
18		Oil Mist (Semi dry cutting system)					O
19	Chip Removal Function	Air Blower					S
20		Coil Conveyor (2ea)					S
21		Air Gun					O
22		Coolant Gun					O
23		Lift-up Chip Conveyor			Hinge Type, Scraper Type		O
24		Mist Collector					O
25	Precision Machining Function	Linear Scare (X / Y / Z)					O
26		Hwacheon Efficient Contour Control System (HECC)					S
27		Hwacheon Thermal Displacement Control System (HTDC)					S
28		Hwacheon Artificial Intelligence Control System (HAI): 200 Block					S
29		Hwacheon Artificial Intelligence Control System (HAI): 400 Block					O
30		Lubrication System					S
31		Spindle Cooler (Jacket Cooling)			Fan Cooler Type		S
32					Oil Cooler Type (12,000rpm, 15,000rpm)		O
33	Measuring & Automation Function	Tool Measuring System: Renishaw / Blum (Touch Type, Laser Type)					O
34		Workpiece Measuring System: Renishaw / Blum (Touch Type)					O
35		Tool Life Management					O
36		Auto Door					O
37		Hwacheon Tool Load Detect System (HTLD)					S
38		Cutting Feed Optimization System (OPTIMA)					S
39	Convenient Functions	Ethernet Interface					S
40		MPG Handle (1ea)					S
41		MPG Handle (3ea)					O
42		Signal Lamp with 3 Color (R, G, Y)					S
43		Display Unit			15” Display		S
44					15” Touch Display (Fanuc i-HMI)		O
45		Tool Box					S
46		NC Cooler					O
47		Oil Skimmer					O
48		Air Dryer			10,000rpm, 8,000rpm		O
49					12,000rpm, 15,000rpm		S
50		Door Interlock					S
51		Workpiece Coordinate System			48 Pairs		S
52					300 Pairs		O
53		Lubrication Oil Separation Tank					S
54		Perfect Base Around Splash Guard					S
55		Part Program Storage Length 5,120m (2MB)					S
56		Data Server (256MB, 1GB, 2GB, 4GB, 16GB, 32GB)					O
57		Data Server Interface					O
58		Manual Guide i					S
59		M-VISION Plus (Monitoring Solution of Real-time Operational Status)					O
60		M-VISION Pro (Operation Managing and Monitoring Solution of Real-time Operational Status)					O
61		Transformer					O
62		4-Axis Interface					O

Cooling System

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



Cover Design



"Compact design that user accessibility is enhanced"

* Unit : mm (inch)

A Ground - Table Height

VESTA-1300 : **1,035**(40.75) VESTA-1300+ : **1,020**(40.16)

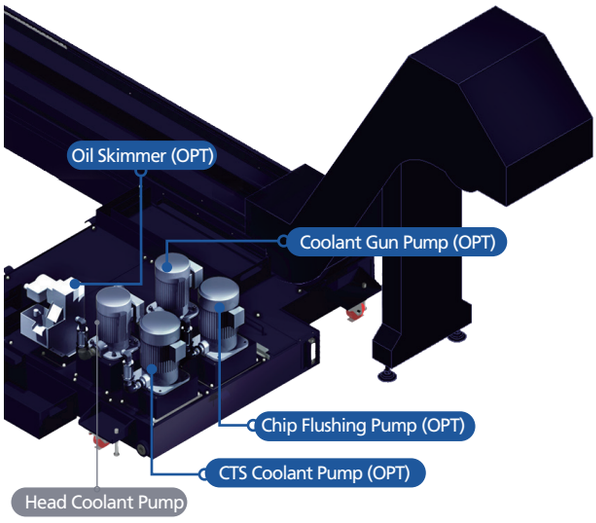
B Ground - Front cover

VESTA-1300 : **985**(38.78) VESTA-1300+ : **920**(36.22)

C Front cover - Table

VESTA-1300 : **260**(10.24) VESTA-1300+ : **205**(8.07)

Excellent Coolant Tank and Chip Removal



※ External Coolant Tank

"Possible to Select Type of Chip Conveyor"

· Hinge Type Chip Conveyor · Scraper Type Chip Conveyor

External Coolant Tank Tank Capacity : 340ℓ(89.82 gal)

- High capacity tank is positioned on the left side of machine for easier coolant change, tank cleaning and pump maintenance and etc.

· Coolant Pump Specifications

CTS Coolant Pump (OPT)
- Pressure : 3 MPa / 7 MPa
- Power : 2.2 kW

Head Coolant Pump - Power : 0. 6 kW
Coolant Gun Pump - Power : 1.1 kW

* For 7 MPa, only water soluble coolants are available

· Micro Chip Separation

Chip filter is used to remove micro chips and keep the coolant tank clean.

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)

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

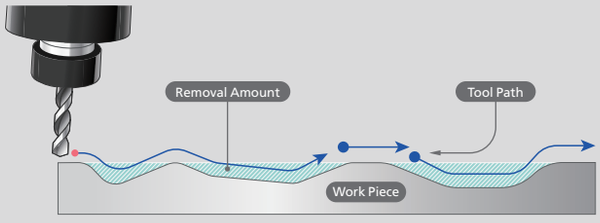
"Roughing quickly, finishing is precisely"

Level(R)	1.0	1.1	1.2	~	8.8	8.9	9.0
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.

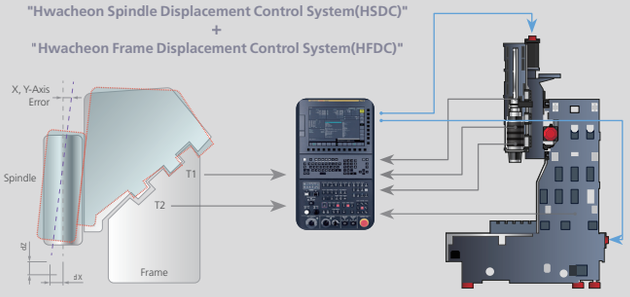
"Maximize your productivity with intelligent system"



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.

"Hwacheon Spindle Displacement Control System(HSDC)"
+
"Hwacheon Frame Displacement Control System(HFDC)"



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

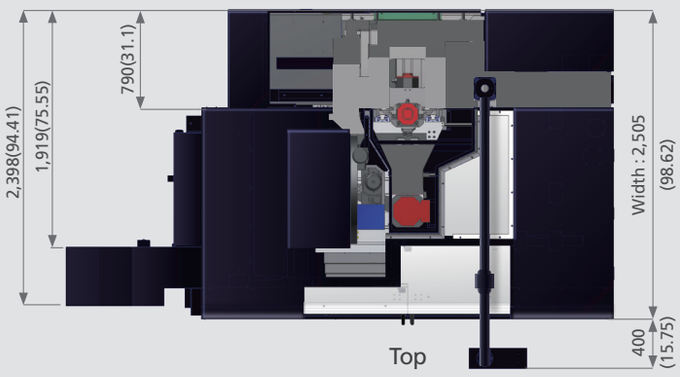
- Monitoring of real-time operational status
- Mobile app supported
- Machining history saving, retrieving and statistics
- Statistics on operational efficiency and history by equipment

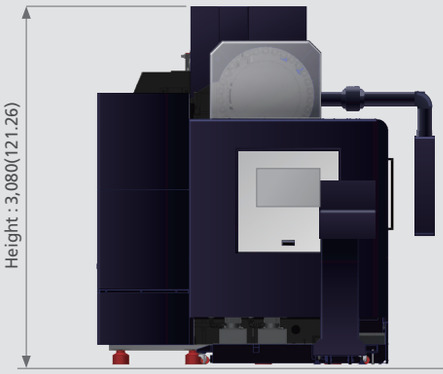
M-VISION Pro

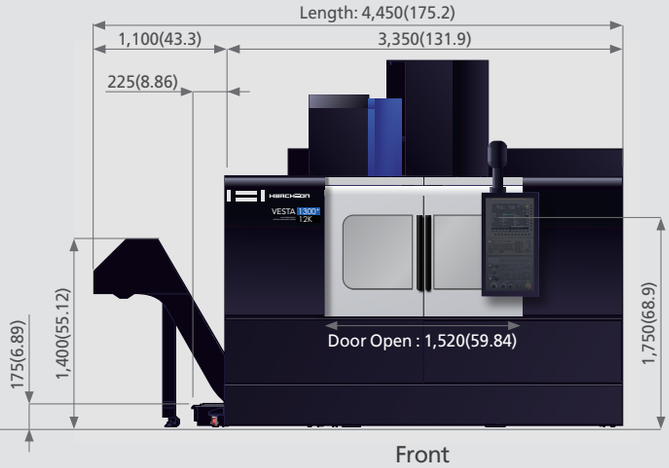
- Real-time machine operation status monitoring
- Mobile app supported
- Saving machining/alarm history, retrieving and statistics
- Statistics on operational efficiency and history by equipment/by equipment in total , operator, and arbitrary set period
- Machining Management

Machine Size

* Unit : mm (inch)



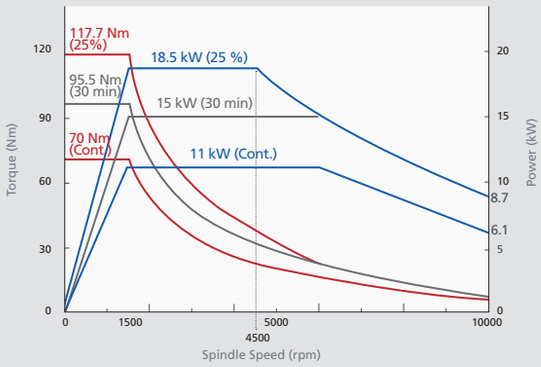




Spindle Power – Torque Diagram

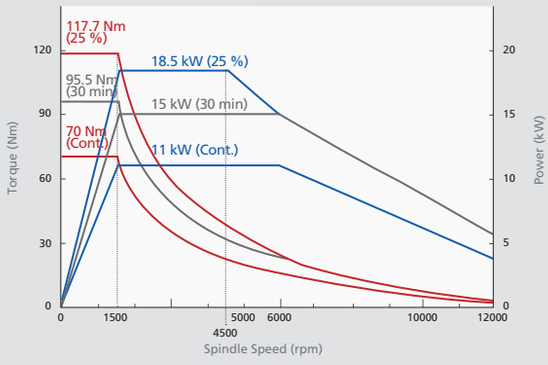
(BT-40) 10,000 rpm

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



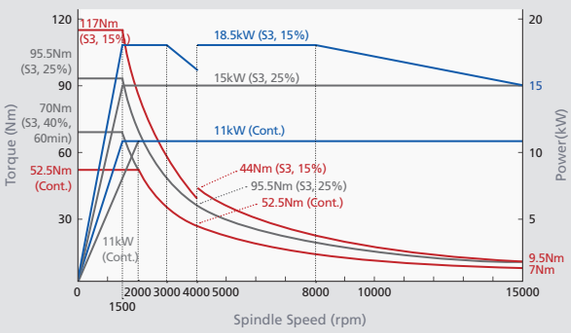
(BT-40) 12,000 rpm (OPT)

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



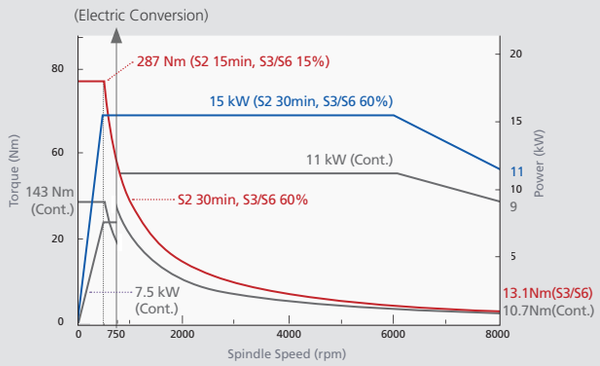
(BT-40) 15,000 rpm (OPT)

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

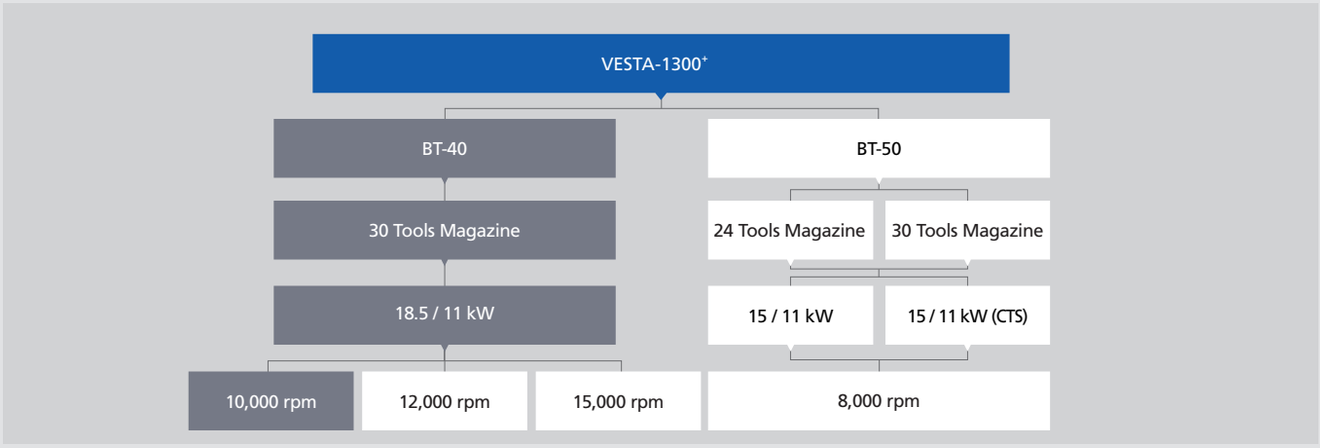


(BT-50) 8,000 rpm (OPT)

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



Product Line-up



Machine Specifications

Item		VESTA-1300+			
Travel					
Stroke (X / Y / Z)	mm (inch)	1,330 / 670 / 650 (52.36 / 26.38 / 25.59)			
Distance from Table Surface to Spindle Gauge Plane	mm (inch)	150 ~ 800 (5.91 ~ 31.5)			
Distance between Columns to Spindle Center	mm (inch)	768 (30.24)			
Table					
Table Size	mm (inch)	1,500 x 670 (59.05 x 26.38)			
Table Loading Capacity	kg_f (lb_f)	1,300 (51.18)			
T Slot (WxP / No. of slots)	mm (inch)	18 x 125 (0.71 x 4.92) / 5 ea			
Spindle					
Max Spindle Speed	rpm	10,000	12,000	15,000	8,000
Spindle Motor	kW (HP)	18.5 / 11 (25 / 15)		18.5 / 11 (25 / 15)	15 / 11 (20 / 15)
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 (Ø2.76)			Ø90 (Ø3.54)
Feedrate					
Rapid Traverse (X / Y / Z)	m/min (ipm)	36 / 36 / 30 (1,417 / 1,417 / 1,181)			
Motor					
Feed Motor (X / Y / Z)	kW (HP)	3 / 4 / 7 (1.7 / 5.4 / 9.4)			
Coolant Motor	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, SK40)			BT-50 (OPT: BBT-50, CAT-50, SK50)
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_f (lb_f)	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	-	0.5 ~ 0.7 MPa x 690 Nℓ/min			
Tank Capacity					
Spindle Cooling / Lubrication	ℓ (gal)	20 / 6 (5.28 / 1.59)			
Coolant	ℓ (gal)	340 (89.82)			
Machine Size					
Height	mm (inch)	3,080 (121.26)			
Floor Space (Length x Width)	mm (inch)	4,450 x 2,905 (175.2 x 114.4)			
Weight	kg_f (lb_f)	10,000 (22,046)			24 Tools: 10,500 (23,148) 30 Tools: 11,500 (25,353)
NC Controller		Fanuc 0i-MF Plus			

NC Specifications [Fanuc 0i-MF Plus]

※ S : Standard O : Option

ITEM	SPECIFICATION	
Controlled Axis		
Controlled Axis	4-axes	S
	5-axes (Max.)	O
Simultaneously Controlled Axes	3-axes	S
	4-axes (Max.)	O
Least Input Increment	0.001 mm, 0.001 deg, 0.000 1inch	S
Least Input Increment 1/10	0.0001 mm, 0.0001 deg, 0.0000 1inch	O
inch / metric Conversion	G20, G21	S
Stored Stroke Check 1		S
Stored Stroke Check 2		S
Mirror Image		S
Stored Pitch Error Compensation		S
Backlash Compensation		S
Operation		
Automatic & MDI Operation		S
DNC Operation by Memory Card	PCMCIA Card is Required	S
Program Number Search		S
Sequence Number Search		S
Dry Run, Single Block		S
Manual Handle Feed	1Unit	S
Manual Handle Feed Rate	x1, x10, x100	S
Handle Interruption		S
Interpolation Function		
Positioning	G00	S
Linear Interpolation	G01	S
Circular Interpolation	G02, G03	S
Dwell (Per Seconds)	G04	S
Cylindrical Interpolation	4-axis Interface Option is Required	S
Helical Interpolation	Circular interpolation plus max 2 axes linear interpolation	S
Reference Position Return Check	G27	S
Reference Position Return	G28,G29	S
2nd Reference Position Return	G30	S
Skip Function	G31	S
Feed Function		
Rapid Traverse Override	F0, F25, F50, F100	S
Feed Rate (mm/min)		S
Feed Rate Override	0 - 200 %	S
Jog Feed Override	0 - 6,000 mm/min	S
Override Cancel	M48, M49	S
Program Input		
Tape Code	EIA / ISO	S
Optional Block Skip	9ea	S
Program Number	O4 Digits (1 - 9999)	S
Sequence Number	N8 Digits	S
Decimal Point Programming		S
CCoordinate System Setting	G92	S
Workpiece Coordinate System	G54 - G59	S
Workpiece Coordinate System Preset		S
Additional Workpiece Coordinate Pairs	48ea	S
	300ea	O
Extend Program Edit Function	Copy / Move / Etc.	S
Manual Absolute ON and OFF		S
Chamfering / Corner R		S
Programmable Data Input	G10	S
Sub Program Call	10 Folds Nested	S
Custom Macro B		S
Addition of Custom Macro Common Variables	#100 - #199, #500 - #999	S
Canned Cycles for Drilling		S

ITEM	SPECIFICATION	
Program Input		
Automatic Corner Override		S
Feed Rate Clamp Based on Arc Radius		S
Scaling		S
Coordinate System Rotation		S
Polar Coordinate System		S
Programmable Mirror Image		S
Tape Format for Fanuc Series 10/11		S
Manual Guide i		S
Spindle Speed Function		
Spindle Serial Output		S
Spindle Override	50 - 150%	S
Spindle Orientation		S
Rigid Tapping		S
Tool Function / Compensation		
Tool Function	T4 Digits	S
Tool Offset Pairs	400ea	S
Tool Offset Memory C		S
Tool Length Compensation		S
Cutter Compensation C		S
Tool Life Management		O
Tool Length Measurement		S
Editing Operation		
Part Program Storage Length	5,120m (2MB)	S
Number of Register Able Programs	Max. 1,000ea	S
Background Editing		S
Extended Part Program Editing		S
Play Back		S
Setting and Display		
Clock Function		S
Self-Diagnosis Function		S
Alarm History Display		S
Help Function		S
Run Hour and Parts Count Display		S
Graphic Function		S
Multi-language Display	Chinese, English, French, German, Hungarian, Italian, Korean, Polish, Portuguese, Spanish, Swedish, Russian	S
Data Input / Output		
Data Server	256MB, 1GB, 2GB, 4GB, 16GB, 32GB	O
Data Server Interface		O
Ethernet Interface		S
Memory Card Interface		S
USB Card Interface		S
Others		
Display Unit	15" Non-Touch Display	S
Fanuc i-HMI	15" Touch Display	
HWACHEON Software		
High Speed HRV3^{+} Function		S
Hwacheon Artificial Intelligence Control System (HAI): 200 Block		S
Hwacheon Artificial Intelligence Control System (HAI): 400 Block		O
Hwacheon Efficient Contour Control System (HECC)		S
Hwacheon Tool Load Detect System (HTLD)		S
Cutting Feed Optimization System (OPTIMA)		S
Hwacheon Thermal Displacement Control System (HTDC)		S
M-VISION Plus (Monitoring of Real-time Operational Status)		O
M-VISION Pro (Operation Managing and Monitoring of Real-time Operational Status)		O

Hwacheon Global Network

Hwacheon Headquarters Hwacheon Europe Hwacheon Asia Hwacheon America

HWACHEON

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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