

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

3

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
- Various direct-coupled main spindle specifications that meet machining purposes
- 5 The servo type ATC (BT-40) to enhance the tool change time
- 6 Hwacheon's proprietary software

Easy Maintenance

1 Peripherals requiring maintenance are gathered in one place

Enhanced User Convenience

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

2 Easy lubrication points

Basic Information

Basic Structure



Table

"Wide Workpiece Mounting Area"

Possible to set workpieces and vices in various sizes

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



Spindle

"Various Specifications for Direct-Coupled Spindles"

Meeting the customer's machining purposes

	Max Spindle Speed rpm		Spindle Motor kW	Max Torque Nm	
40.000		Regular Type	10 F	1177	
DT 40	10,000	CTS (OPT)	10.5	11/./	
В1-40	B1-40 12.000	Regular Type	10 F	4477	
(OPT)	CTS (OPT)	10.5	117.7		
BT-50 8,000 (OPT) 8,000	Regular Type	15	286		
	8,000	CTS (OPT)	26	165	



ATC (Automatic tool changer)



"Optimized Tool Change Time"

Reduces non-cutting time for productivity

Tool to Tool Time				
1001 to 1				
BT-40	BT-50			
1.8 sec	3.5 sec			

Magazine



"Magazines in Various Specifications"

Various specifications are available based on users' tool types

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

Cover Design



BT-40 Cutting Performance



	Face mill, Carbon Steel (SM45C)				
Tool Dia mm (inch)	Material Removal Rate cm³/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 (SN/45C)				
	:				:
Tool Dia mm (inch)	Material Removal Rate cm³/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 (59.06)	5 (0.2)	40 (1.57)

BT-50 Cutting Performance













Face mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm²/min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
80 (3.15)	528	1,500	1,650 (64.96)	5 (0.2)	64 (2.52)

Face mill, Aluminum (AL6061)					
Tool Dia mm (inch)	Material Removal Rate cm²/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 (157.48)	6 (0.24)	80 (3.15)

Face mill, Carbon Steel (SM45C)						
Tool Dia mm (inch)	Material Removal Rate cm³/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 (154.33)	5 (0.2)	45 (1.77)	

End mill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm³/min	Spindle Speed rpm	Feed mm/min (ipm)	Axial Depth mm (inch)	Radial Depth mm (inch)
40 (1.57)	336	800	420 (16.54)	40 (1.57)	20 (0.79)

U-Drill, Carbon Steel (SM45C)					
Tool Dia mm (inch)	Material Removal Rate cm³/min	Spindle Speed rpm	Feed mm/min (ipm)		
45 (1.77)	636	1,500	400 (15.75)		

Tap, Carbon Steel (SM45C)					
Tap Size	Spindle Speed rpm	Feed mm/min (ipm)	Spindle Load %		
M30 x P3.5	200/300	700 (27.56) / 1,050 (41.33)	60/60		
M33 x P3.5	200/300	700 (27.56) / 1,050 (41.33)	76/78		

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

Detailed Information •

Standard / Optional Accessories Status

S:Standard O:Option

1 Name 10000 rpm (Regular type) 18.0 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 /	NO.	Item		[Description		VESTA-2000
2 April 1000 pm (CT3) 10.000 p	1			10,000 rpm (Regular Type)		[S
3 Spindle 1 Name 0 0 5 800 cpm (CS) 15 /11 W 26 /22 W 165 Km 0 7 Magazine 30 70 /15 Markine 0 0 0 7 Magazine 30 70 /15 Markine 0 0 0 8 30 70 /15 Markine 30 70 /15 Markine 0 0 0 10 Tool Shank 40 87 /16 /15 Markine 0 0 0 11 Particle 87 /16 /15 Markine 30 /16 /16 /16 /16 /16 /16 /16 /16 /16 /16	2		#40	10,000 rpm (CTS)	18.5 / 11 kW	117.7 Nm	0
4 40 900 rpn flequin 'pop' 15 / 14 W 26 / 24 W 165 Hn 0 6 000 rpn flequin 'pop' 26 / 24 W 165 Hn 0 7 40 37 Tools Magazine 0 0 9 24 Tools Magazine 0 0 10 Tool Shank 870 883 0 0 11 700 Shank 870 870 0 0 12 870 870 870 0 0 13 870 870 870 0 0 14 970 870 310 2.2 kW 0 15 Coalart Function 150 Bits / Cotal / 540 / 550 / 5	3	Spindle		12,000 rpm (Regular Type / CTS)			0
S Particle Particle </td <td>4</td> <td></td> <td></td> <td>8,000 rpm (Regular Type)</td> <td>15 / 11 kW</td> <td>286 Nm</td> <td>0</td>	4			8,000 rpm (Regular Type)	15 / 11 kW	286 Nm	0
6 Magazine 400 90 Tools Magazine 00 8 Magazine 00 9 30 Tools Magazine 00 9 10 10 10 10 Tools Magazine 00 11 Tools Magazine 00 12 10 10 10 13 Tools Magazine 00 14 Tools Magazine 00 15 Coolant Function 10 Note, 6.6 kW) 00 16 01 Mist Geni que utility genini 3 MPa 2.1 kW 00 17 Afridiover Genini 3 MPa 2.1 kW 00 18 Afridiover Genini 3 MPa 2.1 kW 00 19 Gip Removel Function 13 MPa 2.1 kW 00 10 Mist Collicover Genini 13 MPa 2.1 kW 00 11 Unit function 13 MPa 2.1 kW 00 10 Mist Collicover Genini 13 MPa 2.1 kW 00 11 Unit function Mist Collicover Genini 13 MPa 2.1 kW 00 13 Mist Collicover Genini Mist Collicover Genini 10 00 14 Mist Collicover Genini System (Mist Colicover Genini Sys	5		#50	8,000 rpm (CTS)	26 / 22 kW	165 Nm	0
7 Magazine 0 9 34 Tools Magazine 0 9 760 3700 0 10 760 850 0 11 100 850 7500 0 12 850 850 0 0 13 850 550 0 0 14 9510 550 347a 2.2 kW 0 16 0 0 0 0 0 16 0 0 0 0 0 16 0 0 0 0 0 17 7 347a 2.2 kW 0 0 18 7 0 0 0 0 0 10 16 0 0 0 0 0 10 16 0 0 0 0 0 10 16 0 0 0 0 0 10 16 0 0 0 0 10 16 0 0 0 0 10 16 0 0 0 0 10 16 0 0 0 0	6		#40	30 Tools Magazine			S
8 0 9 30 100 Magazine 00 100 100 9540 9540 00 111 100 9540 155 00 112 115 115 110 110 110 00 113 110 110 110 110 110 00 114 Content Function 110 110 110 110 110 115 Content Function 110 110 110 110 110 115 Content Function 110 110 110 110 110 116 Content function 110 110 110 110 110 117 Arr Games 110 110 110 110 110 117 Arr Games 110 110 110 110 110 118 Arr Games 110 110 110 110 110 </td <td>7</td> <td>Magazine</td> <td>#50</td> <td>24 Tools Magazine</td> <td></td> <td>•••••••</td> <td>0</td>	7	Magazine	#50	24 Tools Magazine		•••••••	0
9 Precision Matching Ta0 Ta0 Second S	8		#50	30 Tools Magazine			0
10 Prod Shank BETAD (CATAD (SEA) HSLAGE) 0 12 0 BETAD (CATAD (SEA) HSLAGE) 0 13 0 BETAD (CATAD (SEA) HSLAGE) 0 14 Collant Function 1 Ma_ 2.1 My 0 15 Collant Function 1 Ma_ 2.1 My 0 16 Collant Function 1 Ma_ 2.1 My 0 17 Function 1 Ma_ 2.1 My 0 18 Function 0 Mit (Semi dy cutting system) 0 0 19 Coll Conveyor (Rea) Straper Type 0 0 20 Air Slover Mits (Semi dy cutting system) 0 0 21 Collector Mits Collector 0 0 22 Mats Collector Mits (Semi dy CUT (C) 0 0 23 Mats Collector Mits Collector 0 0 24 Mats Collector Mats Collector 0 0 25 Mats Collector Mits Mathemathemathemathemathemathemathemathem	9		#40	BT40			S
11 000 810 810 000 12 000 000 13 000 000 14 000 000 15 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 17 000 000 18 000 000 19 000 000 10 000 000 10 000 000 10 000 000 11 000 000 10 000 000 11 000 000 11 000 000 11 000 000 11 000 000 11 000 000 12 Percision Machining 1000 13 000 000 14 000 000 14 000 000 15 Machen Artificial Intelligence Control System (HEQ) 000 14 000 000 15 Spindle Cooling Ustem - Rein	10	Tool Shank	#40	#40 BBT40 / CAT40 / SK40 / HSK-A63			0
12 13 14 14 14 15 0 15 Colant Function C1S Colant System 3 MFa 2.2 kW 0 15 01 Mit (5mi dry cutting system) 3 MFa 2.2 kW 0 16 01 Mit (5mi dry cutting system) 3 MFa 2.2 kW 0 17 7 7 3 0 0 17 7 3 0	11	Tool shark	#50	BT50			0
13 Coolant Function Cfs Coolant System 3 MFa 2.2 kW 0 15 Coolant Function Cfs Coolant System 7 MFa 2.2 kW 0 16 Off Scolant System 7 MFa 2.2 kW 0 16 Off Scolant System 7 MFa 2.2 kW 0 17 Air Silover Sraper Type 5 5 18 Air Gin Coolant Gin 9 0 0 18 Air Gin Coolant Gin 9 0 0 19 Off Conveyor (Ma) Sraper Type 0 0 0 20 Iftra Colector 1 0 0 0 0 21 Iftra Colector 1 1 0 0 0 0 22 Iftra Colector Coolant Corta Corta System (MIC) 0 0 0 0 0 23 Iftra Colector Staper Type 0 0 0 0 0 0 0 0	12			BBT50 / CAT50 / SK50 / HSK-A100			0
14 Coolant Function CTS Coolant System 3 MPs 2 2 W/V 00 16 01 Mist Speed op cutting system) 2 W/V 0 17 Mist Coll Convegor (4ea) S S 18 Coil Convegor (4ea) S S 21 Coil Convegor (4ea) S S 22 Mist Collector State (V / 1/2) S 23 Mist Collector S S 24 Mist Collector S S 25 Mist Collector S S 26 Mist Collector S S 27 Marchann Misthing Hinge trype S O 28 Function Hinde to finit Control System (HA) - 40 Block S S 29 Function Hinde to finit Control System (HC) S S S 30 To finit Amagement Control System (HC) S S S 31 To finit Amagement S S S S S	13		Head Fl	ushing (0.15 MPa, 0.6 kW)	·····		S
15 MFa 2.2.W 0 16 00 IM 45 (Sen if y criting system) 0 17 Air Slover S 18 Air Slover S 20 Crip Removal Function Colard Gan 0 21 Crip Removal Function Colard Gan 0 23 Iff-up Chap Conveyor (ka) Sraper Type 0 24 Uff-up Chap Conveyor Hinge Type 0 25 Mits Collector 0 26 Nack Collector 0 27 Neacheon Artificial Intelligence Control System (HAD) - 40 Block 0 28 Neacheon Artificial Intelligence Control System (HAD) - 40 Block 0 29 Nackaton Striptical Intelligence Control System (HAD) - 200 Block 0 30 Spindle Coler (Jacket Cooling) S 31 Nackaton Striptical Intelligence Control System (HAD) - 200 Block 0 33 Spindle Coler (Jacket Cooling) O 0 34 Nackaton Striptical Intelligence Control System (HAD) - 200 Block 0 35 Measuring System - Renishaw / Blum (Touch Type 1) 0 36 Auto Door Tool Measuring System - Renishaw / Blum (Touch Type 1) 0 37 Tool Measuring System - Renishaw / Blum (Touch Type 1)	14	Coolant Function	CTS Cod	ant System	3 MPa	2.2 kW	0
16 Oil Mitt Gemi dry criting system) 0 17 Air Blover S 18 Air Blover S 19 Air Gun 0 10 Air Gun 0 11 Colant Gun 0 12 Oil Mitt Gemi dry criting system) 0 13 Colant Gun 0 14 Unray Size (Ka) 0 15 Mitt Collector 0 16 Unray Size (K/ 1/2) 0 17 Hwacheon Artificial Intelligence Control System (HCC) S 18 New Chon Artificial Intelligence Control System (HCC) S 18 New Chon Artificial Intelligence Control System (HCC) S 18 New Chon Artificial Intelligence Control System (HCC) 0 18 New Chon Artificial Intelligence Control System (HCC) S 19 New Chon Artificial Intelligence Control System (HCC) S 19 New Chon Artificial Intelligence Control System (HCC) S 19 New Chon Artificial Intelligence Control System (HCC) S 10 New Chon Artificial Intelligence Control System (HCC) S 11 New Chon Artificial Intelligence Control System (HCL) S 13 Not Door Not Door S <	15				7 MPa	2.2 kW	0
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18 Ari Gan 0 20 Chip Removal Function Collant Gun 0 21 Chip Removal Function Collant Gun 0 23 Ufr up Chip Conveyor Minge Type 0 24 Lifr up Chip Conveyor Minge Type 0 25 Lifra Sel K(Y / Z) Minge Type 0 26 Lifra Sel K(Y / Z) Hwacheon Artificial Intelligence Control System (HAD) +40 Block S 26 Hwacheon Efficient Control Control System (HDD) Hwacheon Efficient Control Control System (HDD) S 27 Precision Maching Hwacheon Efficient Control Control System (HDD) Notechern State (HDD) Notechern State (HDD) 28 Function System (HEG) Macheon Artificial Intelligence Control System (HDD) 0 O 31 Cool Measuring System - Renishaw / Blum (Touch Type (12,000 pm Spindle) O O 32 Spindle Cooler Jacket Cooling) Function System (HDD) O O 33 Cooler Hadeen Function S S S 34 Auto Dor Cooler Cooler	17		Air Blov	ver			S
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27 Precision Machining Number of Thermal Displacement Control System (HTDC) S 28 Function Hwacheon Artificial Intelligence Control System (H3D.2 No Block O 29 Hwacheon Artificial Intelligence Control System (HAD.2 No Block O 30 Lubrication System S 32 Fan Color Type S 33 Signal E Noglesce Control System (HAD.2 No Block O 34 Neaderon Artificial Intelligence Control System (HAD.2 No Block O 35 Neasuring System - Renishaw / Blum (Touch Type, Laser Type) O 36 Automation Function Auto Door O 37 Tool Measuring System - Renishaw / Blum (Touch Type, Laser Type) O 38 Cutting Feed Optimization System (HTLD) S 39 Cutting Feed Optimization System (OTIMA) S 39 Ethernet Interface S 41 Signal Lamp with 2 Color (R, G) S S 42 Signal Lamp with 2 Color (R, G, Y) O O 44 NPG Handle (sea) S S 45 Signal Lamp with 2 Color (R, G) S S 46 NPG Handle (sea) S S 47 Oo Interflock S 48 Door Interflock <td>25</td> <td></td> <td>Hwache</td> <td>on Efficient Contour Control System (H</td> <td></td> <td>ے د</td>	25		Hwache	on Efficient Contour Control System (H		ے د	
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30 Lubrication 3ystem Fan Cooler Type S 31 Spindle Cooler (Jacket Cooling) ICooler Type (12,000 rpm Spindle) O 33 Measuring % O O O 34 Measuring % Tool Measuring System – Renishaw / Blum (Touch Type, Laser Type) O O 36 Automation Function Auto Door O O 37 Cutting Feed Optimization System (PTIMA) S O 38 Cutting Feed Optimization System (PTIMA) S S 40 Measuring System Interface S S 41 MPG Handle (1ea) S S 42 Signal Lamp with 2 Color (R, G, Y) O O 44 Signal Lamp with 2 Color (R, G, Y) O S 45 Signal Lamp with 2 Color (R, G, Y) O S 46 NC Cooler S S 47 Air Dryer O S 48 Convenient Functions S S 50 Door Interiock S	29		Hwache	ion Artificial Intelligence Control System	U		
32 Spindle Cooler (Jacket Cooling) Interface 3 32 Tool Measuring System - Renishaw / Blum (Touch Type, Laser Type) 0 34 Measuring 8 Tool Measuring System - Renishaw / Blum (Touch Type, Laser Type) 0 35 Measuring 8 Automation Function 0 0 37 Yool Life Management 0 0 38 Cutting Feed Optimization System (HTLD) S S 39 Cutting Feed Optimization System (OPTIMA) S S 41 MPG Handle (tea) S S 42 MPG Handle (tea) S S 43 MPG Handle (tea) S S 44 Signal Lamp with 2 Color (R, G) Y 0 O 104 'Color LCD S S S 45 Signal Lamp with 2 Color (R, G) Y 0 O 46 Air Dryer O S 47 Door Interlock S S 48 Convenient Functions S S 50 Door In	21		Lubrica	lion system	Ean Coolar Tuna		s
33 Tool Measuring System - Renishaw / Blum (Touch type) 0 34 Measuring System - Renishaw / Blum (Touch type) 0 35 Measuring System - Renishaw / Blum (Touch type) 0 36 Automation Function 0 37 Automation Function 0 38 Cutting Feed Optimization System (OPTIMA) 5 39 Ethernet Interface 5 40 Measuring System - Renishaw / Blum (Touch type) 0 41 Cutting Feed Optimization System (OPTIMA) 5 42 MPG Handle (1ea) 5 43 Signal Lamp with 2 Color (R, G) 5 44 Signal Lamp with 3 Color (R, G, Y) 0 44 Signal Lamp with 3 Color (R, G, Y) 0 45 Signal Lamp with 3 Color (R, G, Y) 0 46 NC Cooler 0 47 Oor Interlock 5 48 Norepiece Coordinate System 48 pairs 5 51 Ubrication Oil Separation Tank 5 52 Part Program Storage Length 1,280m (512k8) 5	37		Spindle	Cooler (Jacket Cooling)	Oil Cooler Type (12.0	100 rom Spindle)	3
34 Werkpiece Measuring System - Renishaw / Blum (Touch type) 0 35 Measuring & Tool Life Management 0 36 Automation Function Nutomation Function 0 37 Automation Function 0 0 38 Cutting Feed Optimization System (OPTIMA) S 0 39 Ethernet Interface S S 40 MPG Handle (1ea) 0 0 41 MPG Handle (2ea) 0 0 42 Signal Lamp with 2 Color (R, G) S S 43 Signal Lamp with 2 Color (R, G) S S 44 Norkpiece Coordinate System 48 pairs 0 S 45 Convenient Functions S S 46 Nor typer 0 0 47 Door Interlock S S 50 Door Interlock S S 51 Lubrication Oil Separation Tank S S 52 Signal Lamp with 1,220m (S12kB) S S	33		Tool Me	easuring System – Renishaw / Blum (Tou	ch Type, Laser Type)		0
Measuring & Automation Function Tool Life Management Auto Door O 36 Automation Function Auto Door O 37 Automation Function Auto Door O 38 Cutting Feed Optimization System (OPTIMA) S S 39 Cutting Feed Optimization System (OPTIMA) S S 40 MPG Handle (1ea) S S 41 MPG Handle (2ea) O S 42 Signal Lamp with 2 Color (R, G) S S 43 Signal Lamp with 3 Color (R, G, Y) O O 44 Signal Lamp with 3 Color (R, G, Y) O O 45 Signal Lamp with 3 Color (R, G, Y) O O 46 NC Cooler O O 47 Door Interlock S S 50 Ocol Interlock S S 51 Lubrication Oil Separation Tank S S 52 Part Program Storage Length 1,280m (S12kB) S S 53 Data Server (1024MB)	34		Workpi	ece Measuring System – Renishaw / Blu	m (Touch type)		0
36Automation FunctionAuto DoorO37Automation FunctionHwacheon Tool Load Detect System (HTLD)S38Cutting Feed Optimization System (OPTIMA)S39Ethernet InterfaceS40MPG Handle (1ea)S41MPG Handle (1ea)O42Signal Lamp with 2 Color (R, G)S43Signal Lamp with 3 Color (R, G, Y)O44I.4." Color LCDS45Signal Lamp with 3 Color (R, G, Y)O46OS47OS48NC Color LCDS49Convenient FunctionsDoor Interlock50Door InterlockS51Door InterlockS52Perfect Base Around Splash GuardS53Data Server (1,024MB)O54Data Server (1,024MB)O55Data Server (1,024MB)O594-Axis InterfaceO	35	Measuring	Tool Life	e Management			0
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38 Cutting Feed Optimization System (OPTIMA) S 39 Ethernet Interface S 40 MPG Handle (1ea) S 41 MPG Handle (2ea) O 42 Signal Lamp with 2 Color (R, G) S 43 Signal Lamp with 2 Color (R, G, Y) O 44 10.4" Color LCD S 45 Tool Box S 46 NC Cooler O 47 Oil Skimmer O 48 Door Interlock S 50 Door Interlock S 51 Lubrication Oil Separation Tank S 52 Perfect Base Around Splash Guard S 53 Data Server (1,024MB) O 54 Data Server (1,024MB) O 55 Data Server Interface O 56 Manual Guide i O 57 Manual Guide i O 59 Atxis Interface O	37		Hwache	on Tool Load Detect System (HTLD)			S
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49 Convenient runctions Door interlock S 50 Workpiece Coordinate System 48 pairs S 51 Lubrication Oil Separation Tank S 52 Perfect Base Around Splash Guard S 53 Part Program Storage Length 1,280m (512kB) S 54 Data Server (256MB / 1,024MB) O 55 Data Server (1,024MB) O 56 Data Server Interface O 57 Manual Guide i O 58 4-Axis Interface O	48		Air Dryer			0	
50 Workprece Coordinate System 40 pairs S 51 Lubrication Oil Separation Tank S 52 Perfect Base Around Splash Guard S 53 Part Program Storage Length 1,280m (512kB) S 54 Data Server (256MB / 1,024MB) O 55 Data Server (1,024MB) O 56 Data Server (1,024MB) O 57 Data Server Interface O 58 Monitoring Solution of Real-time Operational Status (M-Vision Plus) O 59 4-Axis Interface O	49 E0	Convenient Functions	Door Interlock			<u> </u>	
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56 Data Server Interface 0 57 Manual Guide i 0 58 Monitoring Solution of Real-time Operational Status (M-Vision Plus) 0 59 4-Axis Interface 0	55		Data Server (1,024MB)			0	
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58 Monitoring Solution of Real-time Operational Status (M-Vision Plus) 0 59 4-Axis Interface 0	57		Manual	Guide i			0
59 4-Axis Interface O	58		Monito	ring Solution of Real-time Operational	Status (M-Vision Plus)		0
	59		4-Axis Ir	nterface			0

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





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



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"

- 10.4" display as standard (USB and PCMCIA cards as standard)
- Enhanced operability by optimizing the layout and improving the touch feeling of control buttons
- Horizontal keys 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 HRV+ control. (HRV+: effectively prevents machine oscillation by controlling the servo current to enhance the machining surface quality.)



"Enhanced Productivity"

Operating Convenience Function



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

"Detect and diagnose the most minute of toolend point movement"



Hwacheon High Efficiency Contour Control System

"Roughing quickly, finishing is precisely"



Cutting Feed Optimization System

"Maximize your productivity with intelligent system"

HTLD constantly monitors the tool wear to prevent accidents, which may occur from a damaged tool and help to stop tool wear from deteriorating the workpiece.

(The load is measured every 8 msec to ensure accuracy.)

HECC offers an easy to use programming interface for different workpieces and different processing modes. The system provides a precise, custom contour control for the selected workpiece, while prolonging the life of the machine and decreasing process time. The customizable display provides real-time monitoring and quick access.

OPTIMA utilizes an adaptive control method to regulate the feed rate in real time, to sustain the cutting load during a machining process. As a result the tools are less prone to damage and the machining time is optimized.



Hwacheon Spindle Displacement Control System

"Real-time correction for the displacement in the spindle"



Hwacheon Frame Displacement Control System

"System for maintaining processing accuracy for a long period of machining" When the spindle rotates at high speed, the centrifugal force drives the taper to expand, causing errors in Z axis. HSDC constantly monitors the temperature at each spindle region and makes optimal prediction for thermal displacement. The system then makes necessary adjustments and eff ectively minimizing thermal displacement.

HFDC is equipped with highly sensitive thermal sensors in the casting region where thermal activity is suspected; monitoring and correcting displacement.



Hwacheon Thermal Displacement Control System

"Hwacheon Spindle Displacement Control System + Hwacheon Frame Displacement Control System"



Monitoring Solution of Real-time Operational Status

"See everything everywhere"

HTDC integrates the Hwacheon Spindle Displacement Control system and the Frame Displacement Control System.

 Monitoring system for the User's factory machine management

• User can always check the status of the machine utilizes a smartphone



Spindle Power – Torque Diagram

10,000 rpm



8,000 rpm (OPT)





12,000 rpm (OPT)



8,000 rpm (CTS)

Max Power : 25 kW (35 HP) / Max Torque : 165 Nm



Product Line-up



Machine Specifications

Item		VESTA-2000 VESTA-2000 / BT-40 10,000 rpm / BT-40 12,000 rpm		VESTA-2000 / BT-50 8,000 rpm
Travel	· · · · ·	Ц		1
X-axis Stroke	mm (inch)		2,000 (78.74)	
Y-axis Stroke	mm (inch)		850 (33.46)	
Z-axis Stroke	mm (inch)	800 (31 50)		
Distance from Table Surface to Spindle Gauge Plane	mm (inch)		150 ~ 950 (5.91 ~ 37.41)	
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	kq₊(lb₊)		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	8,000
Spindle Motor	kW (HP)	18.5 / 1	1 (25 / 15)	15 / 11 (20 / 15) CTS : 26 / 22 (35 / 30)
Type of Spindle Taper Hole	-	ISO#40, 7/24	4 Taper (BT-40)	ISO#50, 7/24 Taper (BT-50)
Spindle Bearing Inner Diameter	mm (inch)	Ø70 (2.76)		Ø90 (3.54)
Feedrate				
Rapid Speed (X / Y / Z)	m/min (ipm)		24 / 24 / 24 (945 / 945 / 94	5)
Feed (X / Y / Z)	mm/min (ipm)	1 ~ 10.000 (0.04 ~ 393.7)		
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 (0.24)	2.8 / 3.2 (3.8 / 4.3)	0.18 (0.24)
ATC				
Type of Tool Shank	-	BT-40 (OPT :	BBT-40 ,CAT-40)	BT-50 (OPT : BBT-50 ,CAT-50)
Type of Pull Stud	-	MAS P	40T-1 (45°)	BT-50 (90°)
Tool Storage Capacity	ea	30		24 (OPT : 30)
Max Tool Dia (with / without Adjacent Tools)	mm (inch)	Ø75 (Ø3.15) / Ø150 (Ø5.91)		Ø125 (Ø4.92) / Ø245 (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	· · · · · · · · · · · · · · · · · · ·
Method of Operation	-	Serve	o Motor	Geared Motor
Power Source				·
Electric Power Supply	kVA		45	45 / CTS : 55
Compressed Air Supply (Pressure X Consumption)	-		0.5 ~ 0.7 MPa x 690 Nℓ/m	in
Tank Capacity				
Spindle Cooling / Lubrication	ℓ (gal)	20 / 6 (5.28 / 1.59)		
Coolant	ℓ (gal)	740 (195.49)		
Machine Size				
Height	mm (inch)	3,446	(135.67)	3,566 (140.39)
Floor Space (Length x Width)	mm (inch)		4,970 x 3,753 (195.67 x 147	.76)
Weight	kg _f (lb _f)	14,000 (30,865)	14,200 (31,306)	15,000 (33,069)
NC Controller			Fanuc-0i MF	

NC Specifications [Fanuc 0i-MF]

S: Standard O: Option

Item	Specification		ltem	Specification	
Controlled Axis			Program Input	₽	
Controlled Axis	3 - Axes	s	Feedrate Control With Acceleration in Circular		s
Controlled Axis	5 - Axes (Max)	0	Interpolation		c
Simultaneously Controlled Axes	3 - Axes	S	Coordinate Surtem Potation		с С
Simultaneously Controlled Axes	4 - Axes (Max)	0	Polar Coordinate System Rotation		s c
Least Input Increment	0.001mm, 0.001deg, 0.0001inch	S	Programmable Mirror Image		ے د
Least Input Increment 1 / 10	0.0001mm, 0.0001deg, 0.00001inch	0	Tape Format For FANILC Sories 10 / 11		л с
inch / metric Conversion	G20, G21	S	Manual Guide i		۰ ۲
Store Stroke Check 1	-	S	Spindle Speed Function	<u>i</u> i	0
Store Stroke Check 2		S	Spindle Serial Output		c
Mirror Image		S	Spindle Override	50 - 120 %	s
Stored Pitch Error Compensation		S	Spindle Orientation	50 120 //	s
Backlash Compensation		S	Bigid Tapping		ر د
Operation	·		Tool Function / Compensation	<u>i</u> i	5
Automatic & MDI Operation		s	Tool Function	T4 - digits	5
DNC Operation by Memory Card	PCMCIA Card is Required	S	Tool Offset Pairs	+6 - digits / 400 ea	s
Program Number Search		S	Tool Offset Memory C		s
Sequence Number Search		S	Cutter Compensation C		s
Dry Run, Single Block		S	Tool Length Measurement		s
Manual Handle Feed	1Unit	S	Tool Life Management		0
Manual Handle Feed Rate	x1, x10, x100	S	Tool Length Compensation		s
Handle Interruption		S	Editing Operation	<u> </u>	
Interpolation Function	·		Part program Storage length	1 280 m (512 kB)	5
Positioning	G00	s	Number of Register Able Programs	1,200 m (512 kB)	s
Linear Interpolation	G01	S	Background Editing	-00 ea	ر د
Circular Interpolation	G02, G03	S	Extended Part Program Editing		s
Dwell (Per Deconds)	G04	S	Play Back		5
Cylindrical Interpolation	4-Axis Interface Option is Required	S	Setting and Display	<u>i</u> i	
Helical Interpolation	Circular interpolation plus	S	Clock Eurotion		5
Reference Position Return Check	G27	s	Self-Diagnosis Function		s s
Reference Position Return Return	628 629	s	Alarm History Display		ر د
2nd Reference Position Return	630	s	Help Function		s s
Skin Function	631	s	Graphic Function		s
Feed Function			Run Hour and Parts Count Display		s s
Rapid Traverse Override	F0 F25 F50 F100	s	Dynamic Garnhic Display		ر م
Feedrate (mm/min)		s			
Feedrate Override	0~200%	s		English, German, French, Italian, Chinese, Spanish, Korean, Portuguese, Polish, Hungarian, Swedish, Russian	S
log Feed Override	0 ~ 6.000 mm/min	s	Multi-language Display		
Override Cancel	M48 M49	s			
Program Input	1				
Tape Code	FIA / ISO	s	Data Input/Output		
Optional Block Skip	9 ea	S	Reader / Puncher Interface Ch1	R5232C	S
Program Number	04 - Diaits	S	Data Server	256 MB / 1,024 MB	0
Sequence Number	N8 - Diaits	S	Data Server Interface	-	0
Decimal Point Programming		S	Ethernet Interface		S
Coordinate Dystem Detting	G92	S	Memory Card Interface	-	S
Workpiece Coordinate System	654 - 659	S	USB Interface		S
Workpiece Coordinate System Preset		S	Others		
Addition of Workpiece Coordinate Pair	48 ea	s	Display Unit	10.4" Color LCD	S
Extend Program Edit Function	Copy / Move / Etc.	S	HWACHEON Artificial Intelligence		
Manual Absolute ON and OFF	F.7	S	Hwacheon Artificial Intelligence Control System (HAI) - 40 Block		S
Chamfering / Corner R		S	Hwacheon Artificial Intelligence Control System (HAI) - 200 / 400 Block		0
Programmable Data Input	G10	s	Hwacheon Efficient Contour Control System (HECC)		S
Sub Program Call	10 Folds Nested	s	Hwacheon Tool Load Detect System (HTLD)		S
Custom Macro B		s	Cutting Feed Optimization System (OF	PTIMA)	S
Addition of Custom Macro Common Variables	#100 - #199, #500 - #999	s	Hwacheon Thermal Displacement Control System (HTDC)		
Canned Cycles for Drilling		Š	Hwacheon Spindle Displacement Control System (HEDC)		S
Automatic Corner Override		s	+ Hwacheon Frame Displacement Control System (HSDC)		

Hwacheon Global Network

🖸 Hwacheon Headquarters 🔯 Hwacheon Europe 🔯 Hwacheon Asia 🔯 Hwacheon America





HWACHEON

Please call 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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