



HiT Series

High Rigid Tapping Center

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1. Auto Pallet Changer (HiT-360D)
2. Servo Motor ATC (Std.)
3. Auto Mobile Transmission Cover

PRODUCTIVE RIGID TAPPING CENTER

Tapping Center that Delivers High Productivity and Efficiency

HiT series use direct high speed spindle which enable stable rigid tapping and drilling during prolonged machining. Its quick tool change and fast feed minimize non-cutting time to yield high productivity.



◀ HiT-400

High Dignity/High Performance

- ① Applied Full Splash Guard
- ② Easy to Access To Machine And Repair
- ③ Powerful Roller LM Guide On Every Axis

Variety Function/Stable Structure

- ① Coolant Through Spindle(Opt.)
: 20bar, 30bar

High Speed

- ① Rapid Traverse (X/Y/Z)
: 60/60/60 m/min (HiT-400, 400L),
50/50/60 m/min (HiT-360D)
- ② Max. Spindle rpm
S : 15,000 rpm (opt.24,000)
F : 12,000 rpm (opt.24,000)

- ② OptimizedStroke (X/Y/Z)
: 520/400/300 mm (HiT-400),
700/400/300 mm (HiT-400L),
440/280/300 m/min (HiT-360D)

Basic Information

HIGH PERFORMANCE & HIGH PRODUCTIVITY TAPPING CENTER

HiT-400 / HiT-400L / HiT-360D

Optimum Base Speed for Aluminum Machining

The direct spindle structure and BT-30 Tool shank are adopted as the standard and the ceramic bearing is implemented to minimize the thermal deformation.

High-quality products are produced with stability even during prolonged machining. Enhanced user convenience and machining optimization through various add-on functions further boost the product quality.

- SIEMEN 828D : Max. 15,000rpm(Std.) / 24,000rpm(Opt.)
- FANUC 0i-MF : Max. 12,000rpm(Std.) / 24,000rpm(Opt.)

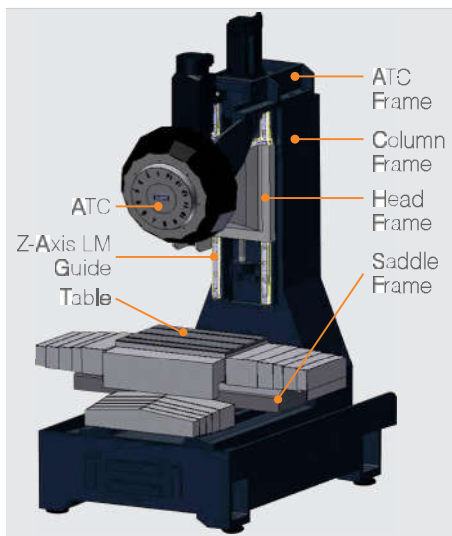


▲HiT-360D



▲HiT-400L

HiT-400



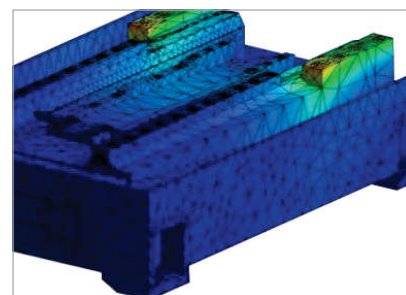
Axis Travel (X/Y/Z) : 520 / 400 / 300 mm
 Max. Spindle Speed
 - S : Max. 15,000 (Opt. 24,000) rpm
 - F : Max. 12,000 (Opt. 24,000) rpm
 Rapid Traverse (X/Y/Z) : 60 / 60 / 60 mm
 Rigid Tapping Max. rpm : 5,000 rpm
 No. of Tools : 14 (opt.21) ea
 Type of Tool Shank : BT30 (opt.BBT30)

Chip to Chip **1.6 sec**

* Total Mass 15kg / 21ATC

Spindle Power **S : 6.2 / 5.2 kW**
F : 7.5 / 5.5 kW

▼ High Rigidity Compact Structure



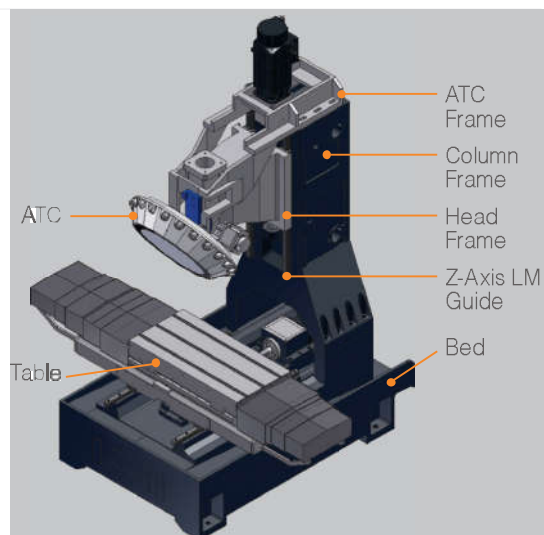
HiT-400L

Axis Travel (X/Y/Z) : 700 / 400 / 300 mm
 Max. Spindle Speed : Max. 12,000 (Opt. 24,000) rpm
 - S : Max. 15,000 (Opt. 24,000) rpm
 - F : Max. 12,000 (Opt. 24,000) rpm
 Rapid Traverse (X/Y/Z) : 60 / 60 / 60 mm
 Rigid Tapping Max. rpm : 5,000 rpm
 No. of Tools : 14 (opt.21) ea
 Type of Tool Shank : BT30 (Opt.BBT30)

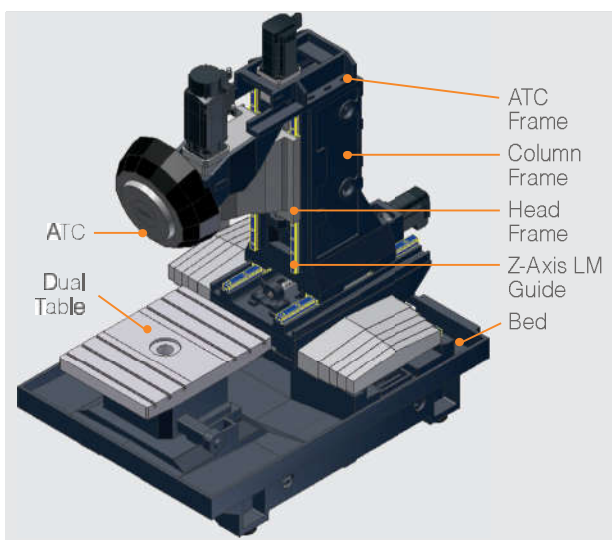
Chip to Chip **1.6 sec**

* Total Mass 15kg / 21ATC

Spindle Power **S : 6.2 / 5.2 kW**
F : 7.5 / 5.5 kW



HiT-360D



Axis Travel (X/Y/Z) : 400 / 280 / 300 mm
 Max. Spindle Speed
 - S : Max. 15,000 (Opt. 24,000) rpm
 - F : Max. 12,000 (Opt. 24,000) rpm
 Rapid Traverse (X/Y/Z) : 50 / 50 / 60 mm
 Rigid Tapping Max. rpm : 5,000 rpm
 Table Change Time : 5 sec
 No. of Tools : 14 (opt.21) ea
 Type of Tool Shank : BT30 (Opt.BBT30)

Chip to Chip **1.6 sec**

* Total Mass 15kg / 21ATC

Spindle Power **S : 6.2 / 5.2 kW**
F : 7.5 / 5.5 kW

Machining Software

RELIABILITY

HTDC (HSDC + HFDC) Hwacheon Thermal Displacement Control System (HSDC + HFDC)

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



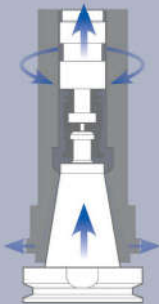
HFDC Hwacheon Frame Displacement Control System

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



HSDC Hwacheon Spindle Displacement Control System

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 effectively minimizing thermal displacement.



Static displacement compensation

The HSDC system corrects the Z-axis error occurring from the taper expansion during the spindle's high speed rotation.



PRECISION +

HTLD

Hwacheon Tool Load Detect 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)

HTLD™
Hwacheon
Tool Load Detect

HECC

Hwacheon High-Efficiency Contour Control System

HECC offers an easy-to-use programming interface for different work -pieces 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.

- Program offers different options for different cutting speed and accuracy for roughness and shapes.
- The customizable display provides real-time monitoring and quick, easy access.
- The program is executable on an existing NC DATA system and works with the G Code system.

HECC
Hwacheon Efficien
Contour Control

OPTIMA

Cutting Feed Optimization System

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 reduced.

OPTIMA™
Cutting Feed
Optimization

SPEED +

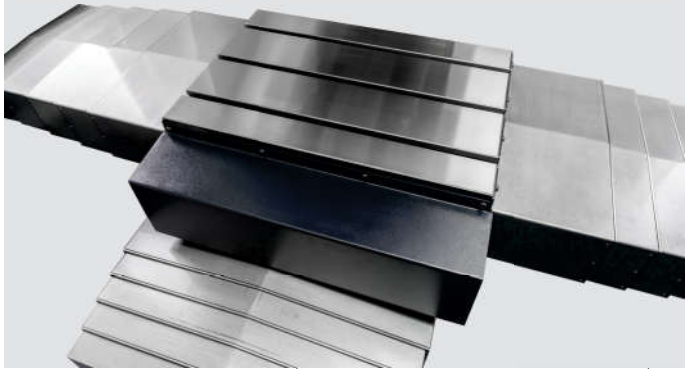
The Hwacheon Machining Software Components

The Hwacheon's developed machining software monitors different variables related to the work environment and machining conditions and makes adjustments for best quality results and optimum work efficiency.

Machine Details

Variety of Functions

"User Friendly Design With a Variety of Functions."

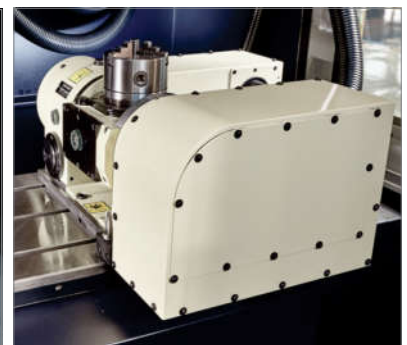


- 1 Vibrate prevention design; High rigidity compact structure
- 2 Optimized height from floor to table to prevent vibration occurring while machining and traveling.
- 3 Designed main structure including Bed & Column as high rigidity compact structure by applying FEM(FEM : finite element method) design.
- 4 The machine offers a variety of options such as CTS, to improve reliability.

Item	HiT-400	HiT-400L	HiT-360D
Table Size (WxL) (mm)	600 x 400	800 x 400	2- 600 x 300
Max. Loading Capacity (mm, kg,)			
Table Change Time (sec)	-	-	5
Table Change Type	-	-	Non Lift Turning

Servo Motor ATC (Std.)

Applied servo motor ATC as a standard for high precision and high productivity.

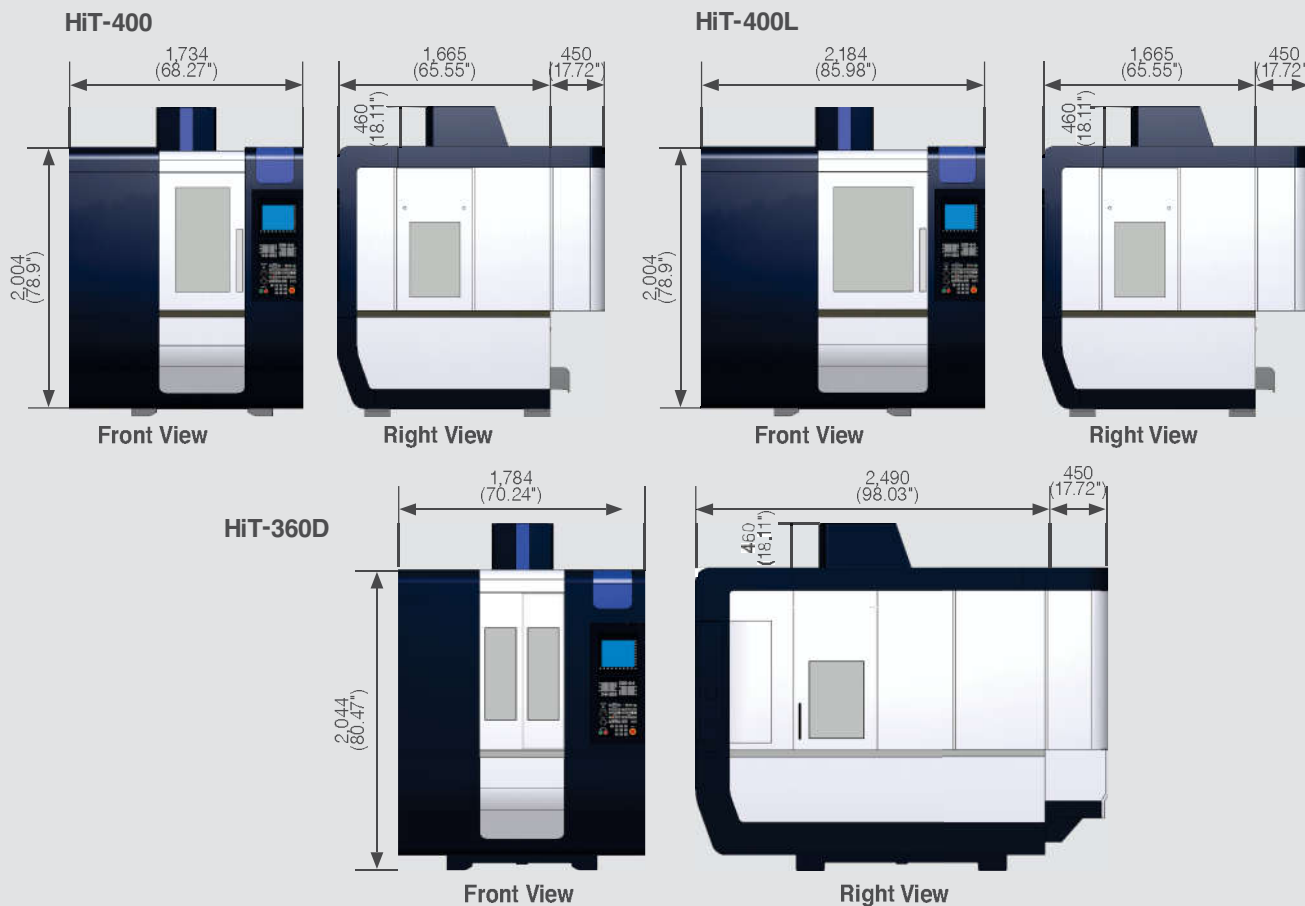


▲ (2)Additional Axis

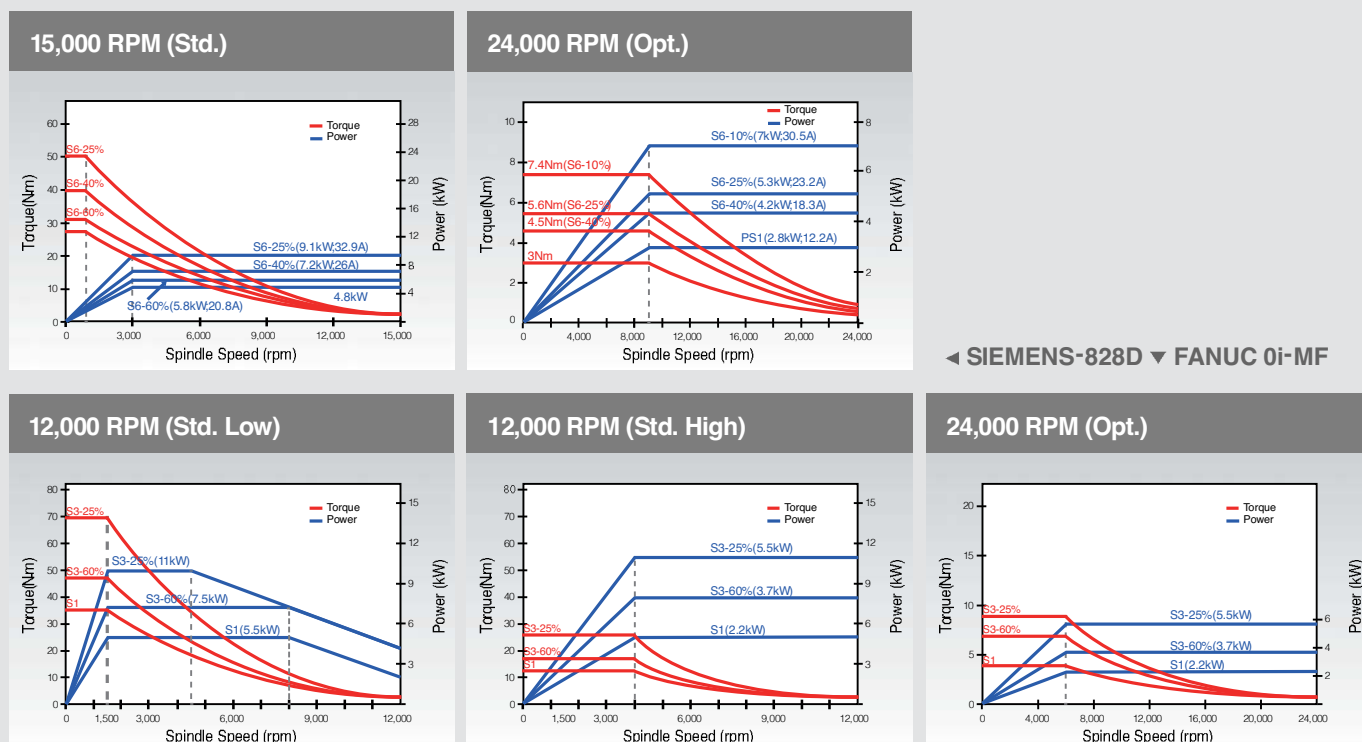
◀ (1)Additional Axis

Machine Size

* Unit: mm(inch)



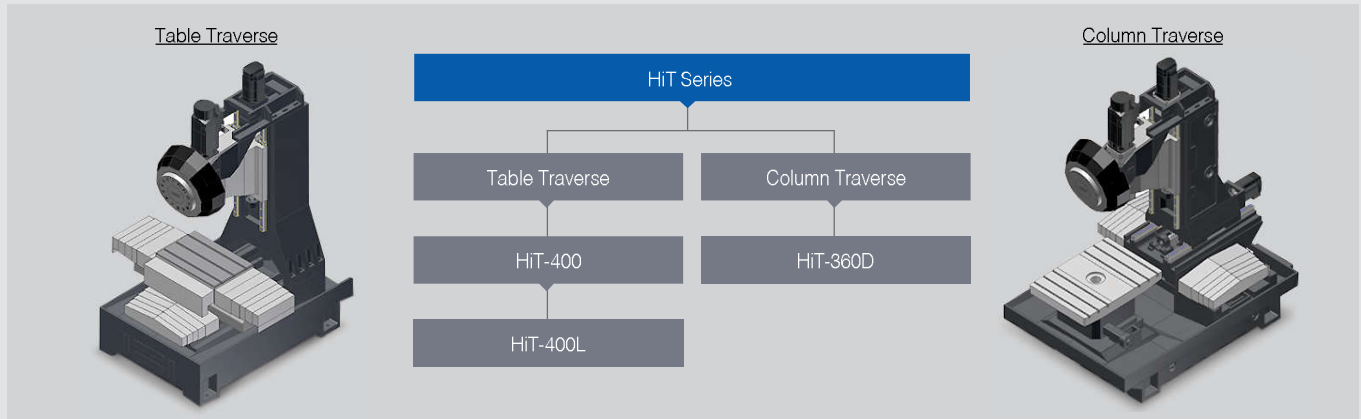
Spindle Power Torque Diagram



Machine Details

Product Configuration

*Each product can be configured to fit your application



Machine Specifications

ITEM		HiT-400	HiT-400L	HiT-360D
Travel				
Travel (X / Y / Z)	mm (inch)	520 / 400 / 300 (20.47" / 15.75" / 11.81")	700 / 400 / 300 (27.56" / 15.75" / 11.81")	440 / 280 / 300 (17.32" / 11.02" / 11.81")
Distance from table surface to spindle nose	mm (inch)	150 ~ 450 (5.91" ~ 17.72")		190 ~ 490 (7.48" ~ 19.29")
Distance from column to spindle center	mm (inch)	454 (17.87")		
Table				
Size (LxW)	mm (inch)	600 x 400 (23.62" x 15.75")	800 x 400 (31.5 x 15.75)	2 - 600 x 300 (23.62" x 11.81")
Max. Loading Capacity	kg, (lb.)	200 (441)		2 - 150 (4.4 - 331)
T-Slot (Size x Space - ea)	ea	24 x 125 (0.94 x 4.92) - 3ea	24 x 125 (0.94 x 4.92) - 3ea	24 x 100 (0.94 x 3.94) - 2 x 3ea
Table Change Time (HiT-360D)	sec	-		5
Table Change Type (HiT-360D)	type	-		Non Lift Turning
Spindle				
Max. Spindle Speed	rpm	S : Max. 15,000 (Opt. 24,000), F : Max. 12,000 (Opt. 24,000)		
Spindle Power	kW (HP)	S : 6.2 / 5.2 (8.3 / 7), F : 7.5 / 5.5 (10 / 7.5)		
Feedrate				
Rapid Traverse (X/Y/Z)	m/min (ipm)	60 / 60 / 60 (2362.2 / 2362.2 / 2635.2)		50 / 50 / 60 (1968.5 / 1968.5 / 2362.2)
ATC				
Tool Type	-	BT 30 (opt. BBT 30)		
No. of Tools	ea	14 (21)		
Max. Tool Diameter	mm (inch)	Φ80 (3.15")		Φ60 (2.36")
Max. Tool Size	mm (inch)	200 (7.87")		150 (5.91")
Max. Tool Weight	kg (lb)	2.5 (6)		
Chip To chip	sec	1.6 (Total Mass 15kg / 21ATC)		
Servo Motor				
Servo Motor (X/Y/Z)	kW (HP)	S : 2.6 / 2.6 / 2.6 (3.5 / 3.5 / 3.5), F : 1.8 / 1.8 / 3.0 (2.4 / 2.4 / 4)		S : 3.3 / 3.3 / 3.3 (4.4 / 4.4 / 4.4), F : 3.0 / 3.0 / 3.0 (4 / 4 / 4)
Power Source				
Power Capacity	kVA	25		
Power Specification	-	S : 380V (50, 60Hz), F : 220V (50, 60Hz)		
Compressed Air	kgf/cm ²	20		
Machine size				
Height	mm (inch)	2,530 (99.61")	2,442 (96.14")	2,530 (99.61")
Floor Space (LxW)	mm (inch)	1,734 x 2,115 (68.27" x 83.27")	2,184 x 2,093 (85.98" x 82.4")	1,784 x 2,940 (70.24" x 115.75")
Weight	kg (lb)	2,500 (5,512)	2,600 (5,732)	3,500 (7716)
CNC System				
Model	-	SIEMENS-828D / FANUC 0i-MF		
Display	-	10.4" LCD		
Memory	-	S : 5MB, F : 512kB		

Accessories

Standard Accessories		Optional Accessories	
• Absolute Servo Motor	• Operation Manual & Part List	• Air Blow	• Index Interface
• ATC : 14ea	• Pneumatic System	• Air Gun	• Manual Guide i (For FANUC System)
• Automatic Lubrication Unit	• Signal Lamp (R/Y/G, 3-color)	• ATC : 21ea	• Oil Cooler
• Bed Shower Coolant	• Spindle Air Blast	• Automatic Door	• Oil Mist (Minimal Quantity Lubrication)
• CNC System : FANUC 0i-MF	• Tool Box & Kits	• Auto Power Off	• Oil Skimmer
• Coolant Tank and Chip Tray	• USB Port	• Buzzer Signal Lamp (R/Y/G, 3-Colors)	• Semi Dry Unit
• Full Cover	• Water Insoluble Coolant	• CF Memory Card (4GB)	• Sub Top Cover
• Front Door Interlock	(HIT-400, HIT-400L)	• Chip Conveyor (hinge / scraper)	• Tool Taper Washing Unit
• Leveling Bolt & Block	• Work Light	• Chip Conveyor Interface	• Top Cover
• MPG Handle (Portable)		• Coolant Gun	• Touch / Work Probe Interface
		• Coolant Through Spindle (20, 30bar)	• Transformer (25kVA)
		• Counter	• Rotary Table Interface
		• High Column (150mm / HIT-400, HIT-400L)	• Rotary Table (4-Axis)
		• Jet(Niagara) Coolant	• Work Light (Addition)
		• Jig & Fixture Interface	• Work Probe
		• Hwacheon Software System	
		– Hwacheon Efficient Contour Control System (HECC)	
		– Hwacheon Tool Load Detect System (HTLD)	
		– Hwacheon Thermal Displacement Control System (HTDC)	
		– Hwacheon Spindle Displacement Control System (HSDC)	
		– Hwacheon Frame Displacement Control System (HFDC)	
		– Cutting Feed Optimization System (OPTIMA)	

NC Specifications [SIEMENS-828D & FANUC 0i-MF]

CNC system		
NC Controller	SIEMENS-828D	FANUC-0i-MF
Display	10.4" Color LCD	10.4" Color LCD
Controlled axis		
Linear Interpolation Axis	4-Axis	4-Axis
Simultaneously Controlled Axis	3-Axis	3-Axis
Least Input Increment	0.001mm, 0.001deg, 0.0001inch	0.001mm, 0.001deg, 0.0001inch
Operation		
Automatic & MDI Operation	Basic	Basic
Number Of Channels	1 Channel	1 Channel
Inch / Metric Conversion	G70, G71	G20, 21
Manual Handle Feed Rate	1UNIT (X1, X10, X100)	1UNIT (X1, X10, X100)
Language	Multi-Language	Multi-Language
Interpolation Functions		
Positioning	G00	G00
Linear Interpolation	G01	G01
Circular Interpolation	G02, G03	G02, G03
Dwell (Per Seconds)	G04	G04
Reference Position Approach	G74	G28
Tool Function		
Tool Function	T-number	T2-digits
Tool Offset Pairs	256/512ea	400pairs
Program Input		
NC Memory	5MB	512Kbyte
Sub Program Call	11 Levels	10 Folds Nested
User Parameter	R-Parameter(300ea)	#100~#199, #500~#999
Work Piece Coordinate System	G54~G59	G54~G59
Work Offset Pairs	100ea	48ea
Look Ahead, Block	150 Block	40 Block
Data Input / Output		
Interface Device	USB, CF CARD, LAN	USB, CF CARD, LAN

Hwacheon Global Network

 Hwacheon Headquarters  Hwacheon USA  Hwacheon Europe  Hwacheon Asia



HWACHEON

Please contact us for product inquiries.

www.hwacheon.com

The product design and specifications may change without prior notice.

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