HYUNDAI
MOTOR GROUP

FD Series

F410D | F500D | F500DM | F600D

HYUNDAI WIA Column Moving Type Vertical Machining Center

HYUNDAI WIA EXPERIENCE THE NEW TECHNOLOGY

Technical Leader

The Vertical Machining Center FD Series designed by Hyundai WIA with years of expertise and the latest technology, is a column moving type machining center equipped with Dual Table to maximize productivity.

●: Standard ○: Option

Model	Y-Axis Stroke				Spindle Speed (rpm)			Magazine	
	350mm	410mm	460mm	600mm	8,000	10,000	12,000	24 Tool	30 Tool
F410D		●				●		●	○
F500D			●		●	○	○	●	○
F500DM	●						●		●
F600D				●	●		○	●	○

FD Series

Dual Table & Column Moving Type Vertical Machining Center

- High precision main spindle designed with P4 Angular Contact Ball Bearings
- High power/torque main spindle for heavy duty cutting
- Dual Tables for enhanced productivity
- Latest Servo ATC for the fastest tool change time in the class
- Combination of Roller Type LM Guide and Box Guide for optimal feed (F500D)
- Roller Type LM Guide on all axes for high precision heavy cutting (F600D)
- Latest HYUNDAI-iTROL Controller with wide range of support software

01 BASIC STRUCTURE

High Speed & Productivity Vertical Machining Center

F500D

High Precision Spindle

- Belt Type Spindle
  8,000/10,000 rpm
- Direct Spindle (F500D/500DM/600D)
  12,000 rpm

ATC & Magazine

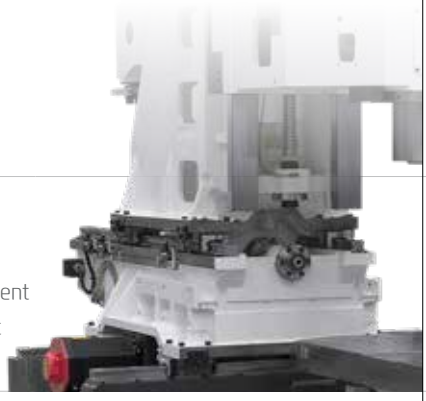
- No. of Tools : 24 [30] EA
  (F500DM : 30 EA)
- Tool Shank : BT40
- Tool Selection Method : Random

Dual Table

Model	Size (X/Y) / Load Capa.
F410D	2-650×400 mm / 2-250 kg (2-25.6"×16.1" / 2-551 lb)
F500D/DM	2-700×500 mm / 2-350 kg (2-27.6"×19.7" / 2-772 lb)
F600D	2-900×650 mm / 2-500 kg (2-35.4"×25.6" / 2-1,102 lb)

HIGH-PRECISION, SPEED & LARGE WORKING AREA

HIGH-PRECISION STRUCTURE



Moving Column

The FD Series is designed with a moving column in order to maximize productivity of the incorporated Dual Table. In addition, due to the enlargement of the column's width and symmetrical heat behavior column structure, heat displacement is minimized and machining accuracy is increased.

GUIDE WAY

Double Anchored Ballscrew

In order to eliminate thermal growth and increase accuracy, all axes are driven by high precision double anchored ballscrews. The double anchored and pretensioned design provides outstanding positioning and repeatability with virtually no thermal growth.

Model	LM Guide	Roller LM Guide	Box Guide
F410D	X/Y/Z Axis	-	-
F500D	-	X/Y Axis	Z Axis
F500DM/F600D	-	X/Y/Z Axis	-

The FD series is designed with an optimized slideway that considers the characteristics of the model to optimize the transfer performance.

Travel (X/Y/Z)

F410D	F500D	F500DM	F600D
570/410/580 mm (22.4"/16.1"/22.8")	600/460/570 mm (23.6"/18.1"/22.4")	600/350/570 mm (23.6"/13.8"/22.4")	800/600/600 mm (31.5"/23.6"/23.6")

Rapid Traverse Rate (X/Y/Z)

F410D	F500D	F500DM	F600D
36/36/30 m/min (1,417/1,417/1,417 ipm)	40/40/30 m/min (1,575/1,575/1,181 ipm)	40/40/36 m/min (1,575/1,575/1,417 ipm)	42/42/42 m/min (1,654/1,654/1,654 ipm)

02 SPINDLE & ATC

Excellent Machining Performance with High-precision Spindle & ATC

SPINDLE

Direct Type Spindle (F500D/500DM/600D)

The spindle motor is directly connected to the main spindle by a high speed and high precision coupling.
Rapid spindle acc/deceleration is performed without backlash. The coupling also minimizes vibration and heat transfer from the motor preventing thermal displacement.

Direct Type Spindle

Belt Type Spindle

The FD Series is equipped with a Belt Type Spindle to ease maintenance and minimize machining noise.
The main spindle is designed with P4 Angular Contact Ball Bearings to assure quality during high speed processing, also to stabilize high precision even over long periods of machining.

Belt Type Spindle

Spindle Cooling OPTION

The spindle cooling system minimizes thermal displacement which can happen during lengthy machining operations, and offers continued accuracy based on the thermal stability.

THROUGH SPINDLE COOLANT OPTION

Through Spindle Coolant is exceedingly useful when drilling deep holes.
It helps increase the lifetime of the tool, while decreasing cycle time.

20 bar / 30 bar / 70 bar

ATC & MAGAZINE

ATC

Position control through the Twin Arm ATC on Servo Motors has improved drastically.
The twin arm ATC makes it possible for faster tool change and increased productivity.

Magazine

The tool magazine holds 24 tools as standard and 30 tools as an option.
Random access allows faster tool change and increase in productivity.

(F500DM : 30EA Std.)

Tool Chang Time (C-C)

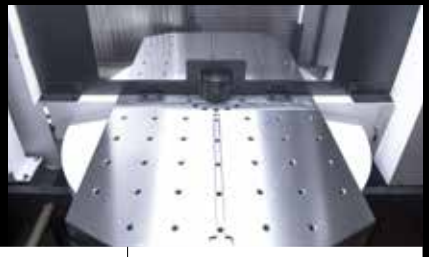
F410D : 3.5 sec F500D : 4.3 sec F500DM : 4.5 sec F600D : 4.2 sec

Tool Shank	Max. Tool Length	Max. Tool Weight	Max. Tool Dia. (W.T/W.O)
BT40	300 mm (11.8")	8 kg (17.6 lb)	Ø90/Ø150 mm (Ø3.5"/Ø5.9")

TABLE

Dual Table

High productivity is achieved by the dual table which enables workers to setup a new workpiece while the machine is processing. Especially, the rotary table is designed for the simpler positioning by the location pin due to the application of hydraulic methods.



Model	Table Size	Max. Load Capacity	Table Change Time
F410D	2-650×400 mm (2-25.6"×16.1")	2-250 kg (2-551 lb)	6.0 sec
F500D/DM	2-700×500 mm (2-27.6"×19.7")	2-350 kg (2-772 lb)	6.0/7.0 sec
F600D	2-900×650 mm (2-35.4"×25.6")	2-500 kg (2-1,102 lb)	8.5 sec

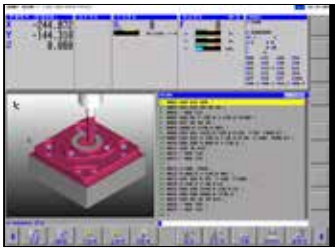
03 HYUNDAI WIA FANUC – SMART PLUS

The Compatible All-round Control

15″ Touch-type Monitor as a standard

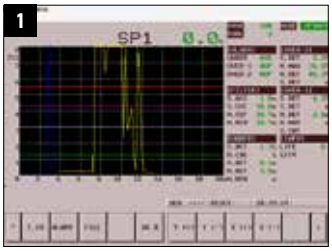
Smart Machine Control	Fast Cycle Time Technology
	Fine Surface Technology
Conversational Program	SmartGuide-i
i-HMI	Machining-aid Function
AI Contour Control	AICC-2 (200 blocks)
Smooth Tolerance Control	0.1μm command and specify tolerance
JERK Control	Diminished vibration by controlling acceleration speed
Machining Condition Selection	Designated machining level based on speed & quality
Machining Quality Control Function	Smooth Tolerance+ integrated support
Part Program Storage	5120M (2MB)
No. of Registerable Programs	1000 EA

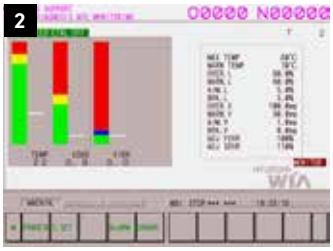
SMART SOFTWARE



DIALOGUE PROGRAM (Smart Guide-i)

This software offers maximum user convenience through a dialogue program from setup to machining. This includes writing machining programs and simulation checks.





High-quality Machining S/W

1. Tool Monitoring (HW-TM) OPTION

This tool status monitoring software monitors and protects workpiece, tools, and equipment through real-time monitoring of the motor load from machining.

2. Adaptive Feed Control (HW-AFC)

This software improves the lifetime and productivity of tools by automatically controlling the feed to maintain an even machining load.

3. Thermal Displacement Compensation (HW-TDC) OPTION

This software improves machining precision by minimizing thermal deformation from changes in external environments and machining.

4. Machining Condition Selection (HW-MCS)

This software automatically optimizes rapid transfer parameters for cutting transfers and workpiece weights depending on the machining type (based on rate/precision /quality)

Machining Support S/W

1. Machine Guidance (HW-MCG)

This software offers various user convenience functions such as tool manipulation, maintenance, tool monitoring, and a pop-up/status window

2. Tool/Workpiece Measurement (Renishaw GUI) OPTION

This user convenience GUI software measures material coordinate systems, tool lengths/diameters/damage to tools (included in Renishaw H/W set)

3. LAUNCHER

This software offers shortcuts for quick access to specialized features and frequently used features.

4. Premium Tool Operation

This software offers premium graphic functions for more intuitive tool operation.

5. Manual Viewer

This software enables users to view electronic manuals right from the tool.

6. Scheduling

This software enables viewing/setting up directly from the tool. This allows such actions as managing customer's tool schedules and schedule notification.

❖ KF5600M, KF6700M : HYUNDAI WIA FANUC - SMART PLUS Non Applicable

SPECIFICATIONS

Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation – : Non Applicable

Spindle		F410D	F500D/DM	F600D
8,000rpm (15/11kW)	BELT	–	●	●
8,000rpm (27.8/18.5kW)	BELT (iTROL)	–	○	–
10,000rpm (18.5/15kW)	BELT	●	–	–
10,000rpm (18/12kW)	BELT (iTROL)	○	–	–
10,000rpm (15/11kW)	BELT	–	○	–
12,000rpm (11/7.5kW)	DIRECT	–	○	○
12,000rpm (22/15kW)	DIRECT	–	– (● DM)	–
Spindle Cooling System	8,000rpm	○	○	○
	10,000rpm	○	●	–
	12,000rpm	–	●	●
ATC				
ATC Extension	24	●	●	●
	30	○	○ (● DM)	○
Tool Shank Type	BT40	●	●	●
	CAT40	○	○	○
U-Center	D'andrea	☆	☆	☆
Pull Stud	45°	○	●	●
	60°	☆	☆	☆
	75°	●	☆	☆
	90°	☆	☆	☆
Table & Column				
APC	Rotary Turn	●	●	●
Tap Type Table		●	●	●
T-Slot Table		○	○	○
NC Rotary Table		☆	☆	☆
Coolant System				
Std. Coolant (Nozzle)		●	●	●
Bed Flushing Coolant		●	○	○
Through Spindle Coolant*	20bar	○	○	○
	30bar, 20ℓ	○	○	○
	70bar, 15ℓ	○	○	○
TOP COVER		○	○	○
Shower Coolant		☆	☆	☆
Gun Coolant		○	○	○
Side Oil Hole Coolant		☆	☆	☆
Air Gun		○	○	○
Cutting Air Blow		○	○	○
Tool Measuring Air Blow (Only for TLM)		○	○	○
Air Blow for Automation		☆	☆	☆
Thru MQL Device (Without MQL)		☆	☆	☆
Coolant Chiller		☆	☆	☆
Power Coolant System (For Automation)		☆	☆	☆
Chip Disposal				
Coolant Tank	300ℓ	●	●	–
	460ℓ	–	○	–
	400ℓ	–	–	●
Chip Conveyor (Hinge/Scraper)	Rear (Left)	○	–	–
	Rear (Rear)	○	○	○
	Rear (Right)	–	○	○
Special Chip Conveyor (Drum Filter)		☆	☆	☆
Chip Wagon	Standard (180ℓ)	○	○	○
	Swing (200ℓ)	○	○	○
	Large Swing (290ℓ)	○	○	○
	Large Size (330ℓ)	○	○	○
	Customized	☆	☆	☆
Electric Device				
Call Light	1 Color : ■	●	●	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○	○	○
Work Light		●	●	●
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
3 Axis MPG	FANUC	○	○	○
	HYUNDAI-iTROL	–	–	–
Work Counter	Digital	○	○	○
Total Counter	Digital	○	○	○
Tool Counter	Digital	○	○	○
Multi Tool Counter	6 EA	○	○	○
	9 EA	○	○	○
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆

Electric Device		F410D	F500D/DM	F600D
Transformer	25kVA	○	–	–
	35kVA	–	○	○
Auto Power Off		○	○	○
Back up Module for Black out		○	○	○
Measuring Device				
Air Zero	TACO	○	○	○
	SMC	○	○	○
Work Measuring Device		○	○	○
TLM (Marposs/Renishaw/Blum)	Touch	○	○	○
	Laser	☆	☆	☆
Tool Broken Detective Device		☆	☆	☆
Linear Scale	X/Y/Z Axis	–	○	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆	☆	☆
Enviornment				
Air Conditioner		○	○	○
Dehumidifier		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆
Fixture & Automation				
Auto Door	Std.	○	○	○
	High Speed	☆	☆	☆
Auto Shutter (Only for Automatic System)		–	–	–
Sub O/P		☆	☆	☆
NC Rotary Tablel/F	Single	○	○	○
	Channel	☆	☆	☆
Control of Additional Axis	1Axis/Pallet	☆	☆	☆
	2Axis/Pallet	–	–	–
External M Code 4EA		○	○	○
Automation Interface		☆	☆	☆
I/O Extension (In & Out)	16 Contact	○	○	○
	32 Contact	○	○	○
Hyd. Device				
Std. Hyd. Unit	65bar/35ℓ	●	–	–
	45bar/60ℓ	–	●	–
	45bar/13ℓ	–	–	●
Center Hyd. Supply Device	2x3 (6 Port)	○	○	○
	2x5 (10 Port)	○	○	○
Compact Center Hyd. Supply Device	2x3 (6 Port)	–	○	–
Fixture Hyd. Unit	70bar	○	○	○
	100bar	○	–	–
	Customized	☆	☆	☆
S/W				
DNC software (HW-eDNC)		○	○	○
Machine Monitoring System (HW-MMS Cloud/Edge/Remote)		○	○	○
Machine Monitoring System & Analysis (HW-MMS Edge Plus)		☆	☆	☆
Automation CAM program (HW-ACAM)		○	○	○
Conversational program (HW-DPRO)		○	○	○
SmartGuide-i		● (F32i : –)	● (F32i : –)	● (F32i : –)
Tool Monitoring (HW-TM)		○	○	○
Adaptive Feed Control (HW-AFC)		●	●	●
Thermal Displacement Compensation (HW-TDC)		○	○	○
Machining Condition Selection (HW-MCS)		●	●	●
Machine Guidance (HW-MCG)		●	●	●
RENISHAW GUI		○	○	○
Spindle Warm up Function (HW-WARMUP)		●	●	●
Energy Saving System (HW-ESS)		●	●	●
Premium Tool Operation		● (F32i : –)	● (F32i : –)	● (F32i : –)
Manual Viewer		● (F32i : –)	● (F32i : –)	● (F32i : –)
Scheduling		● (F32i : –)	● (F32i : –)	● (F32i : –)
Operation Memo		● (F32i : –)	● (F32i : –)	● (F32i : –)
ETC				
Tool Box		●	●	●
Customized Color	Need for Munsel No.	☆	☆	☆
CAD&CAM Software		☆	☆	☆

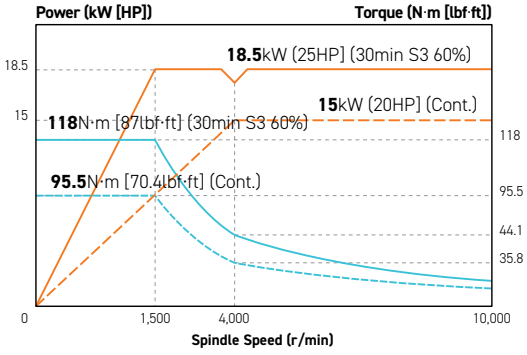
Through Spindle Coolant* : Please check the filter types with sales representative.

Specifications are subject to change without notice for improvement.

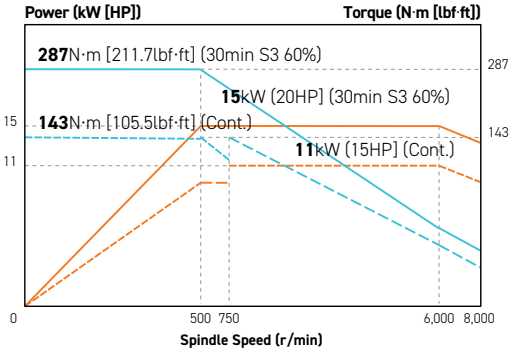
SPECIFICATIONS

Spindle Output/Torque Diagram

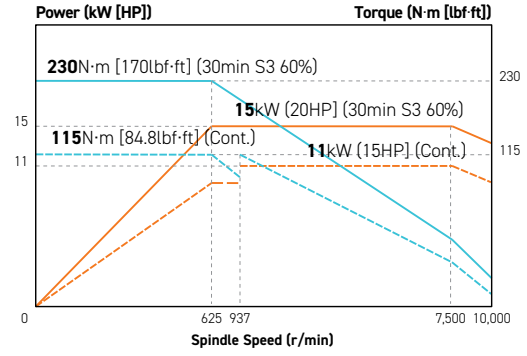
F410D (10,000r/min, Belt) FANUC



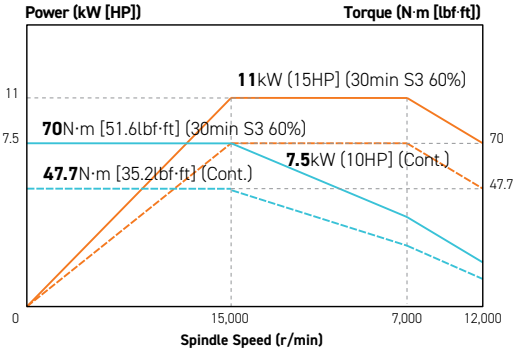
F500D/600D (8,000r/min, Belt) FANUC



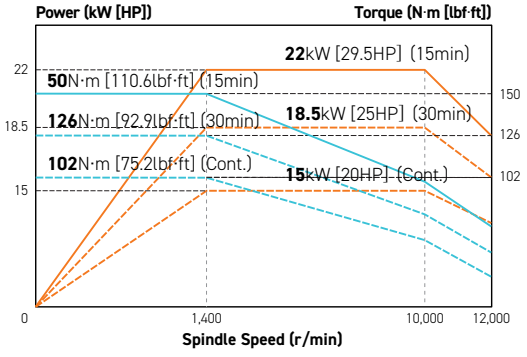
F500D (10,000r/min, Belt) FANUC



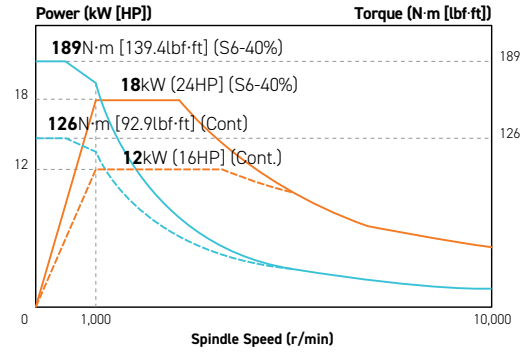
F500D/600D (12,000r/min, Direct) FANUC



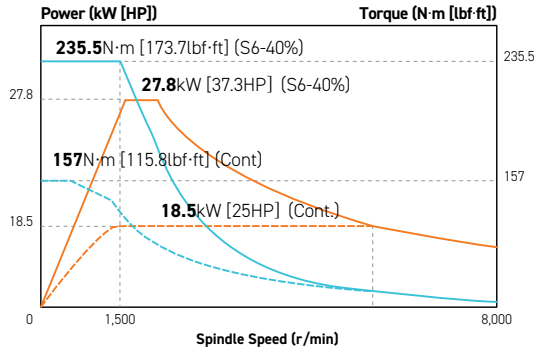
F500DM (12,000r/min, Direct) FANUC



F410D (10,000r/min, Belt) iTROL



F500D (8,000r/min, Belt) iTROL

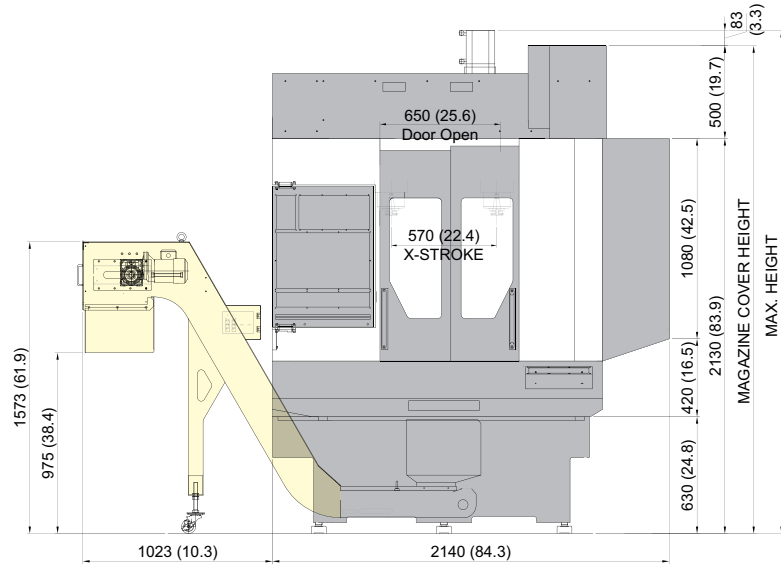


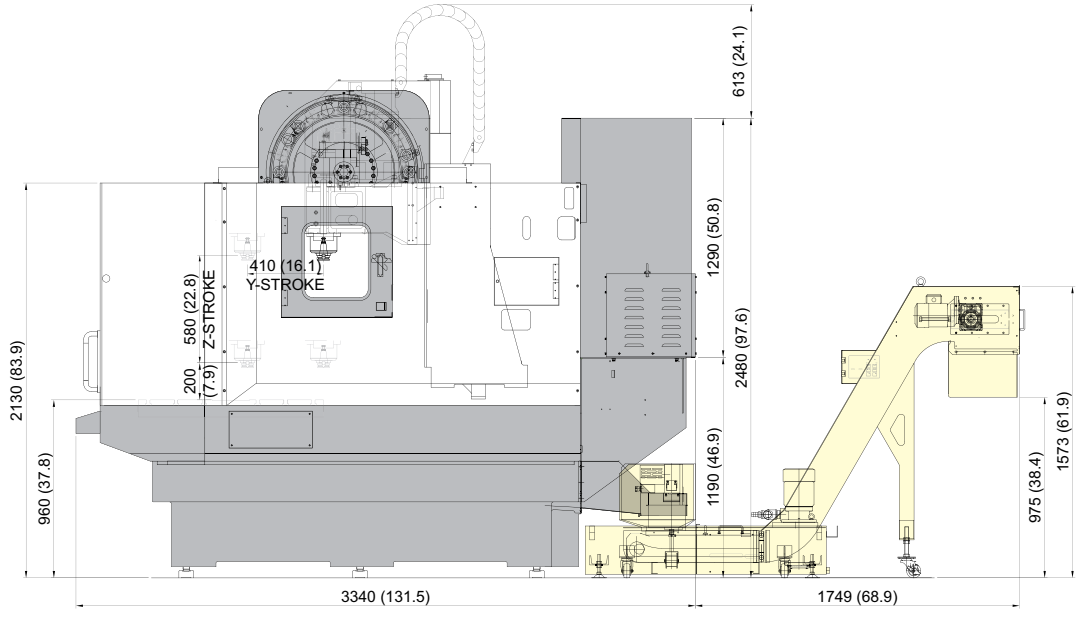
SPECIFICATIONS

External Dimensions

unit : mm(in)

F410D





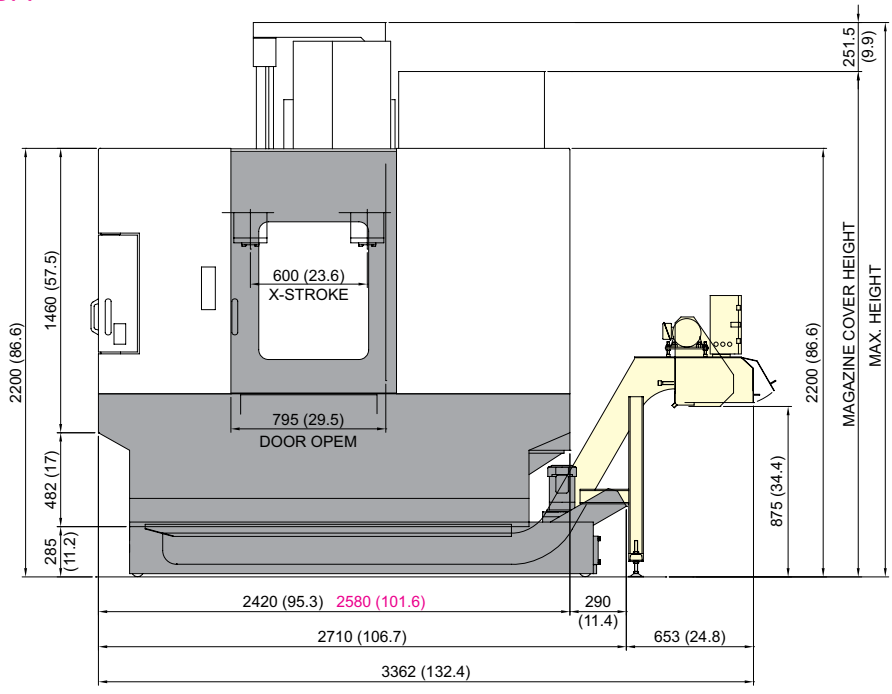
Model	Height Item	Max. Height to Z-axis	Height to Magazie Cover		Shipping Height
			24 Tool	30 Tool	
F410D	Std. Column	3,093 (121.8")	2,630 (103.5")	2,810 (110.6")	3,090 (121.7")

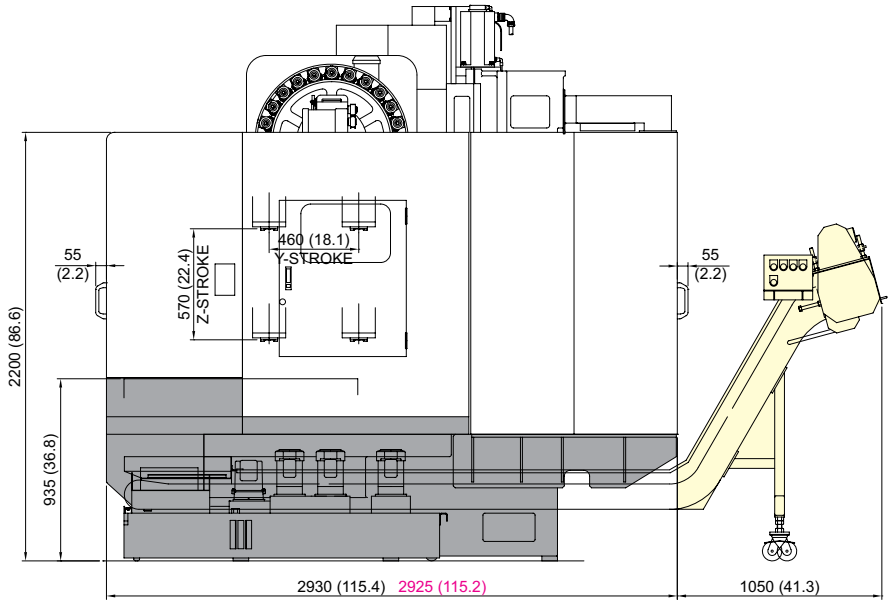
SPECIFICATIONS

External Dimensions

unit : mm(in)

F500D/500DM





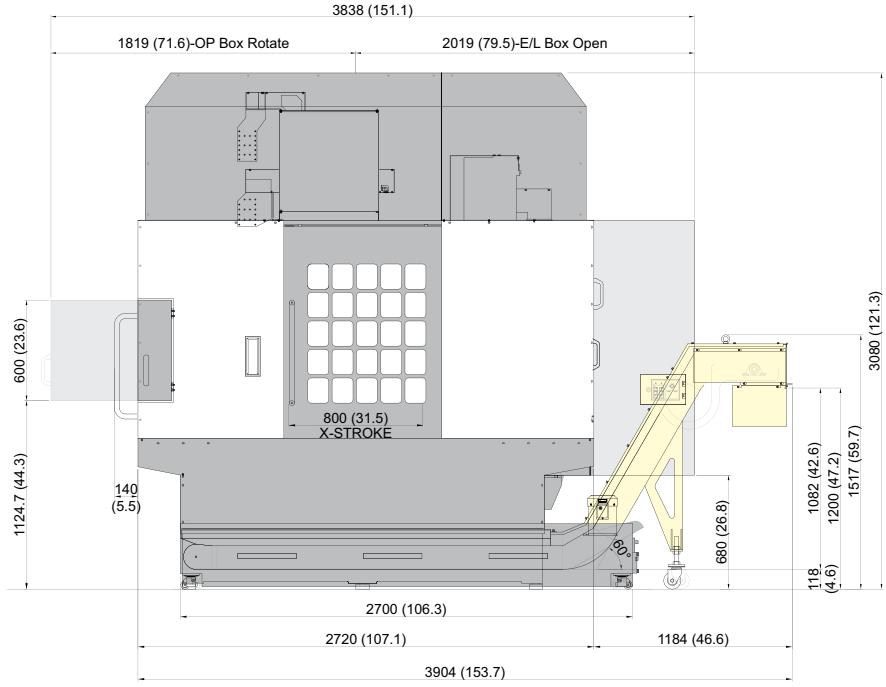
Model	Height Item	Max. Height to Z-axis	Height to Magazie Cover		Shipping Height
			24 Tool	30 Tool	
F500D	Std. Column	2,852 (112.3")	2,594.5 (102.1")	2,823.9 (111.2")	2,852 (112.3")
F500DM	Std. Column	3,112 (122.5")	-	2,823.9 (111.2")	3,112 (122.5")

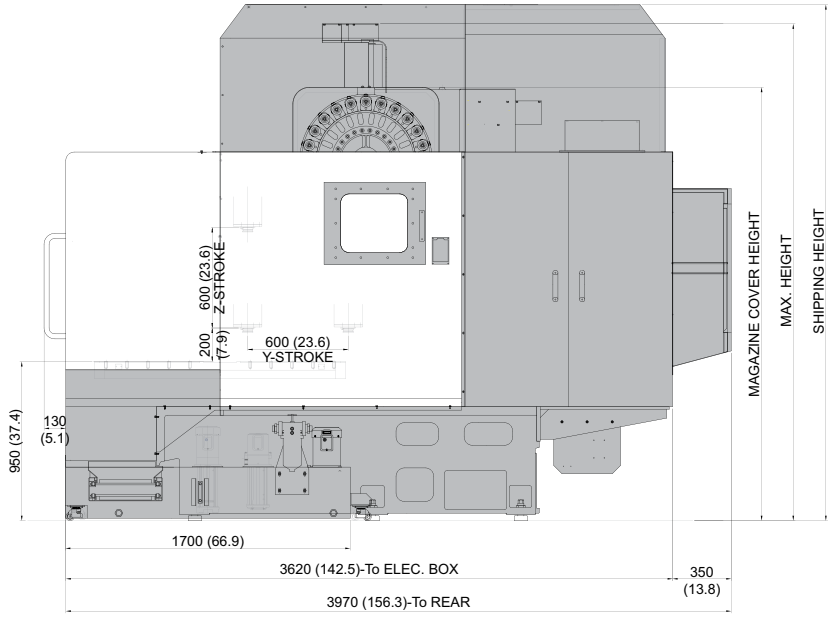
SPECIFICATIONS

External Dimensions

unit : mm(in)

F600D



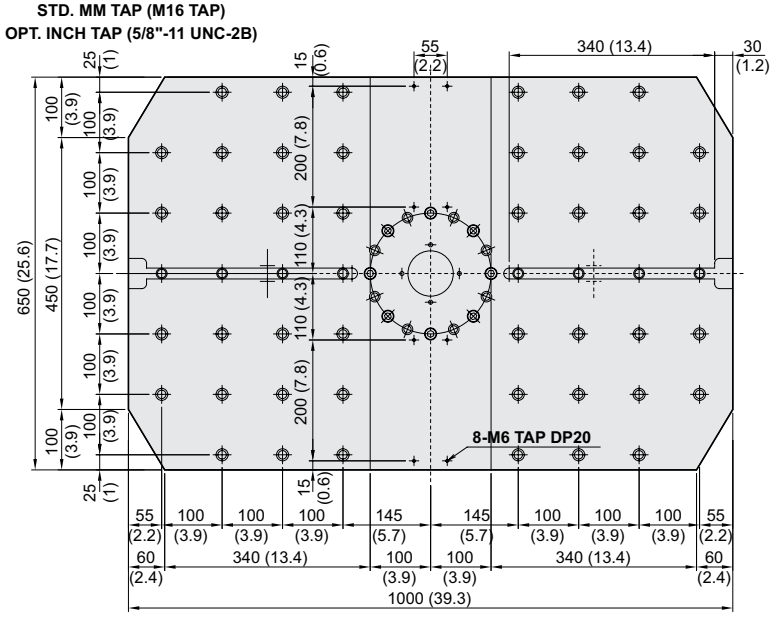


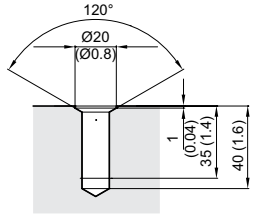
Model	Height Item	Max. Height to Z-axis	Height to Magazie Cover		Shipping Height
			24 Tool	30 Tool	
F600D	Std. Column	2,965 (116.7")	2,587 (101.9")	2,767 (108.9")	3,080 (121.3")

Table Dimensions

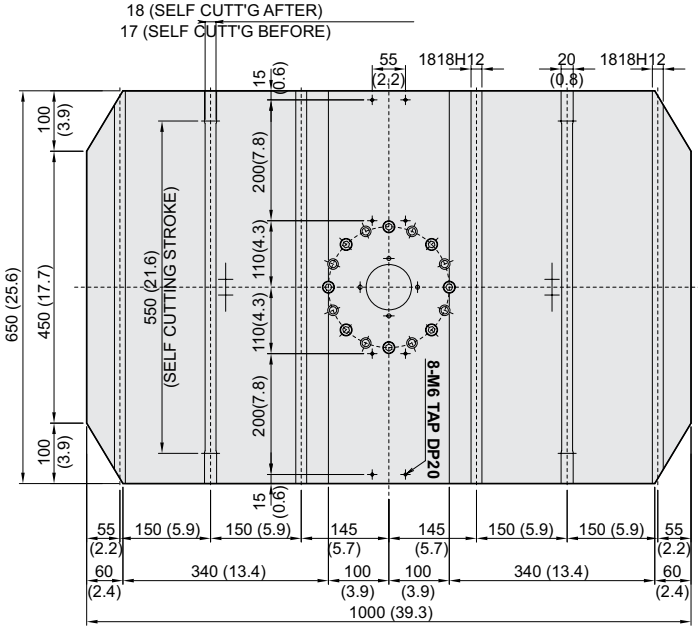
unit : mm(in)

F410D

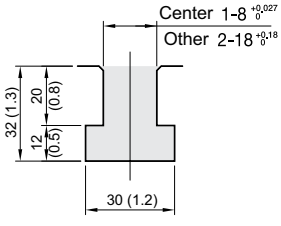




Tap Detail (M16 Tap)



OPTION



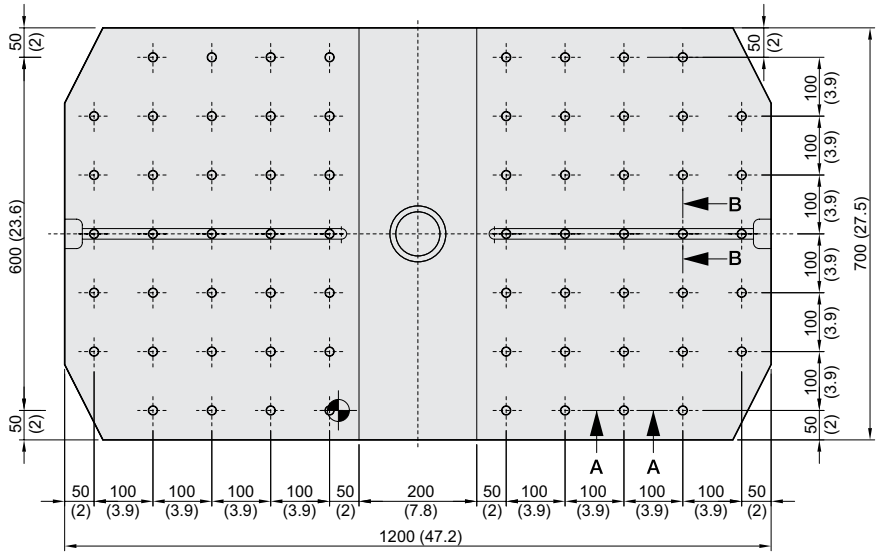
T-Slot Detail

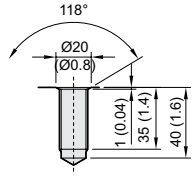
SPECIFICATIONS

Table Dimensions

unit : mm(in)

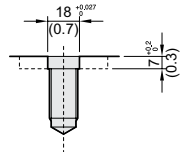
F500D





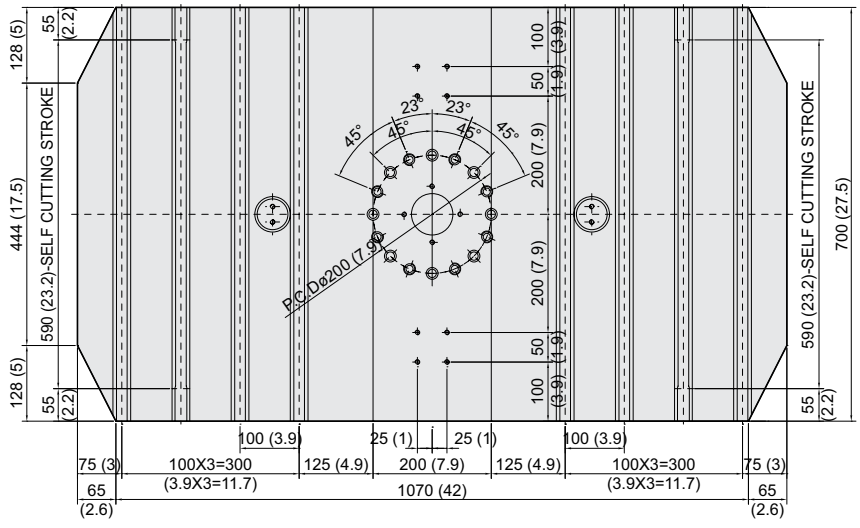
SECTION A-A

Tap Detail (M16 Tap)

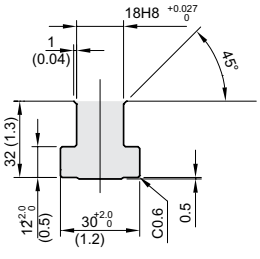


SECTION B-B

Tap Detail (M16 Tap)



OPTION



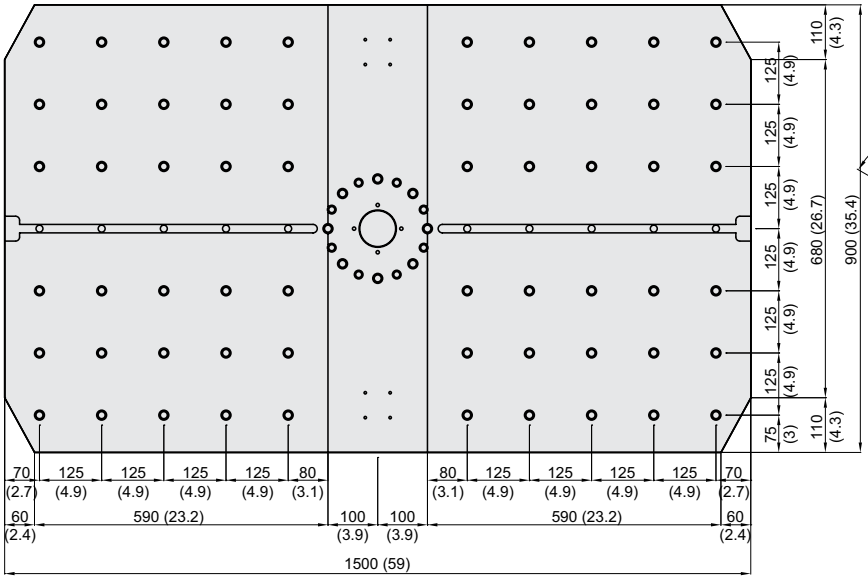
T-Slot Detail

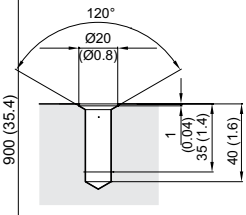
SPECIFICATIONS

Table Dimensions

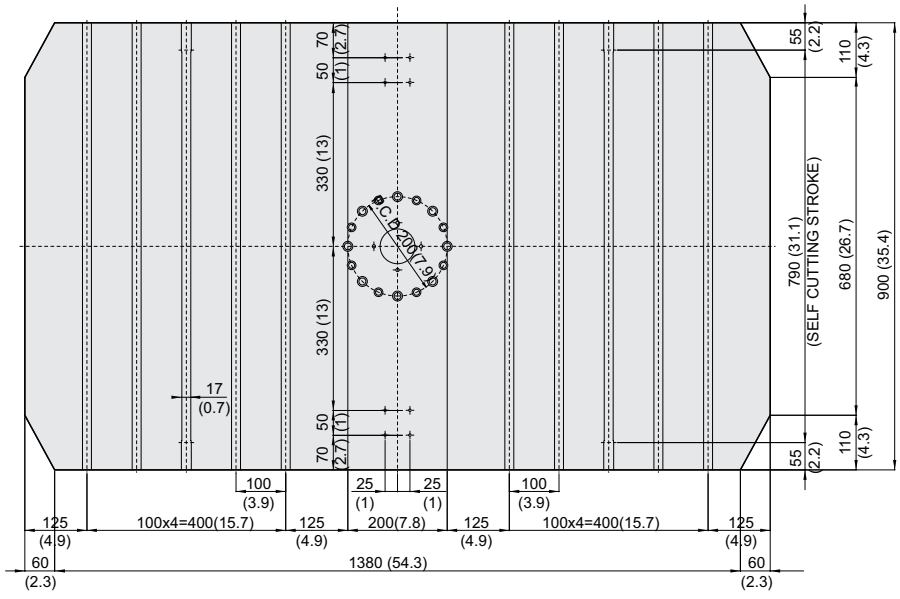
unit : mm(in)

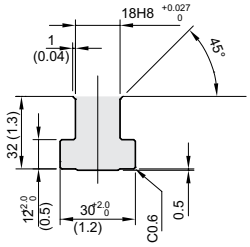
F600D





Tap Detail (M16 Tap)





T-Slot Detail

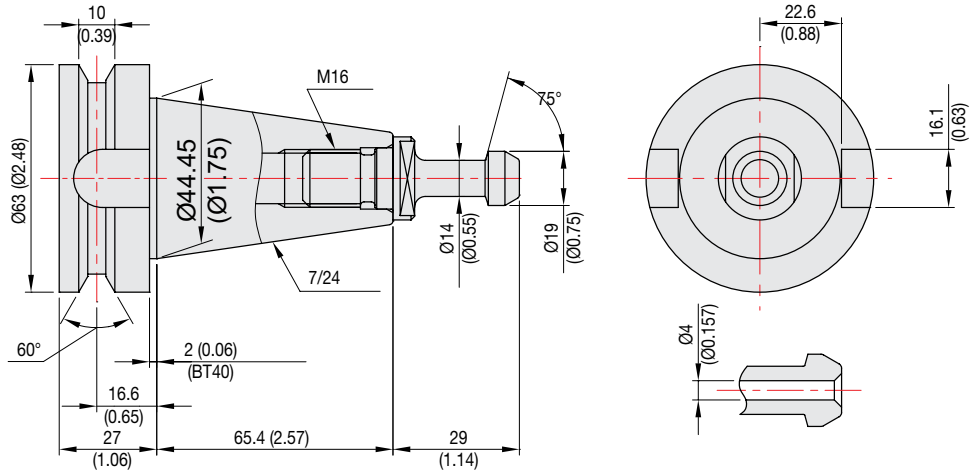
SPECIFICATIONS

Tool Shank

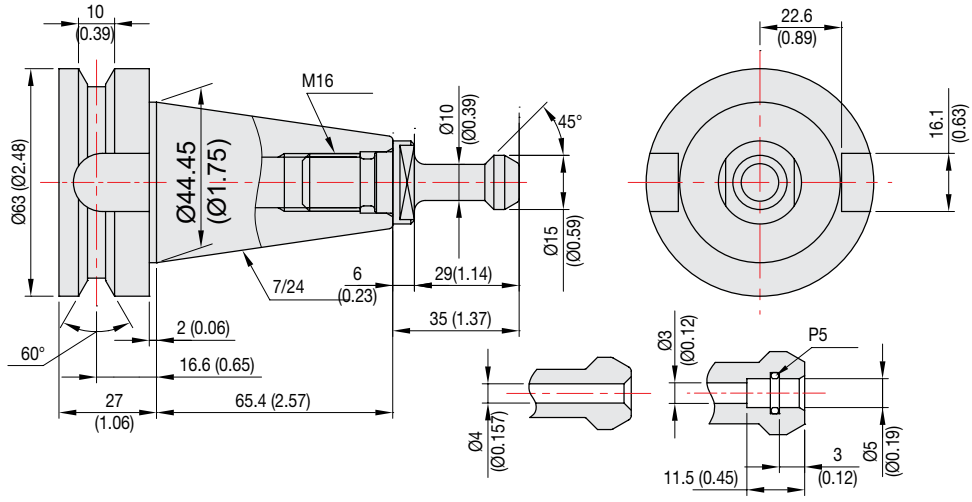
unit : mm(in)

BT40

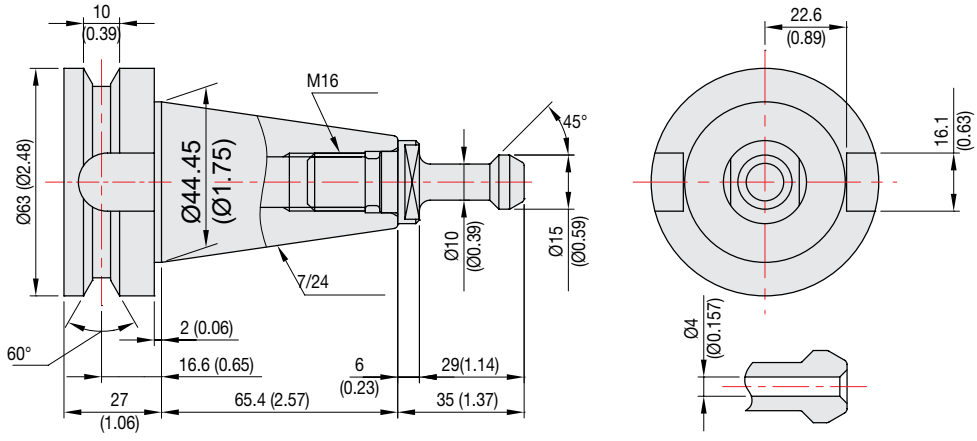
F410D



F500D



F600D
F410D (Opt.)



SPECIFICATIONS

Specifications

[ ] : Option ■ : HYUNDAI-iTROL

ITEM			F410D
TABLE	Table Size	mm(in)	2-650×410 (2-25.6"×16.1")
	Maximum Load Capacity	kg(lb)	2-250 (2-551)
	Table Change Time	sec	6
	Change Method	-	ROTARY TURN
	Table Driving Method	-	Rotating Cylinder
SPINDLE	Spindle Taper	-	BT40
	Spindle RPM	r/min	10,000 [10,000]
	Spindle Power Output (Max./Cont.)	kW(HP)	18.5/15 (25/20) [18/12 (24/16)]
	Spindle Torque (Max./Cont.)	N·m(lbf·ft)	118/95.5 (87/70.4) [189/126 (139.4/92.9)]
	Spindle Driving Method	-	BELT
FEED	Travel (X/Y/Z)	mm(in)	570/410/580 (22.4"/16.1"/22.8")
	Distance from Table Surface to SP	mm(in)	197~777 (7.8"~30.6")
	Distance from Column to SP. center	mm(in)	495 (19.5")
	Rapid Traverse Rate (X/Y/Z)	m/min	36/36/30
	Slide Type	-	LM GUIDE
ATC	Number of Tools	EA	24 [30]
	Tool Shank	-	BT40
	Max. Tool Dia. (W.T / W.O)	mm(in)	Ø90/Ø150 (3.5"/5.9")
	Max. Tool Length	mm(in)	300 (11.8")
	Max. Tool Weight	kg(lb)	8 (17.6)
	Tool Selection Method	-	RANDOM
	Tool Change Time T-T	sec	1.3
	Tool Change Time C-C	sec	3.5
TANK CAPACITY	Coolant Tank	ℓ (gal)	300 (79.3)
	Lubricating Tank	ℓ (gal)	1.32 (0.3)
	Hydraulic Tank	ℓ (gal)	35 (9.2)
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal)	400
	Electric Power Supply	KVA	30
	Thickness of Power Cable	Sq	Over 22
	Voltage	V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)	mm(in)	2,200×3,160 (86.6"×124.4")
	Height	mm(in)	3,015 (118.7")
	Weight	kg(lb)	6,400 (14,110)
NC	Controller	-	HYUNDAI WIA FANUC i Series - Smart Plus [FANUC 32i-B] [HYUNDAI-iTROL]

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option ■ : HYUNDAI-iTROL

ITEM				F500D	F500DM
TABLE	Table Size		mm(in)	2-700×500 (2-27.6″×19.7″)	
	Maximum Load Capacity		kg(lb)	2-350 (2-772)	
	Table Change Time		sec	6	7
	Change Method		-	Rotary Turn	
	Table Driving Method		-	Rotating Cylinder	
SPINDLE	Spindle Taper		-	NT #40	
	Spindle RPM		r/min	8,000 [8,000] [10,000] [12,000]	12,000
	Spindle Power Output (Max./Cont.)		kW(HP)	15/11(20/15)[27.8/18.5(37.3/25)] [15/11(20/15)] [11/7.5(15/10)]	22/15 (29.5/20)
	Spindle Torque (Max./Cont.)		N-m(lbf-ft)	287/143(211.7/105.5) [235.5/157(173.7/115.8)] [230/115(170/84.8)] [70/47.7(51.6/35.2)]	150/102 (110.6/75.2)
	Spindle Driving Method		-	BELT [BELT] [BELT] [DIRECT]	DIRECT
FEED	Travel (X/Y/Z)		mm(in)	600/460/570 (23.6″/18.1″/22.4″)	600/350/570 (23.6″/13.8″/22.4″)
	Distance from Table Surface to SP		mm(in)	200~770 (7.9″~30.3″)	
	Distance from Column to SP. center		mm(in)	500 (19.7″)	
	Rapid Traverse Rate (X/Y/Z)		m/min(ipm)	40/40/30 (1,575/1,575/1,181)	40/40/36 (1,575/1,575/1,417)
	Slide Type		-	X/Y : ROLLER GUIDE, Z : BOX GUIDE	ROLLER GUIDE
ATC	Number of Tools		EA	24 [30]	30
	Tool Shank		-	BT40	
	Max. Tool Dia. (W.T / W.O)		mm(in)	Ø90/Ø150 (3.5″/5.9″)	
	Max. Tool Length		mm(in)	300 (11.8″)	
	Max. Tool Weight		kg(lb)	8 (17.6)	
	Tool Selection Method		-	RANDOM	
	Tool Change Time	T-T	sec	2.1	2
		C-C	sec	4.3	4.5
TANK CAPACITY	Coolant Tank		ℓ(gal)	300 (79.3) [460 (121.5)]	
	Lubricating Tank		ℓ(gal)	3.1 (0.8)	
	Hydraulic Tank		ℓ(gal)	60 (15.9)	
POWER SUPPLY	Air Consumption (0.5MPa)		ℓ/min(gal)	400	
	Electric Power Supply		KVA	28	
	Thickness of Power Cable		Sq	Over 25	
	Voltage		V/Hz	220/60 (200/50*)	
MACHINE	Floor Space (L×W)		mm(in)	2,710×2,930 (106.7″×115.4″)	2,580×2,925 (101.6″×115.2″)
	Height		mm(in)	2,852 (112.3″)	3,112 (122.5″)
	Weight		kg(lb)	9,500 (20,944)	
NC	Controller		-	HYUNDAI WIA FANUC i Series - Smart Plus [FANUC 32i-B] [iTROL]	HYUNDAI WIA FANUC i Series - Smart Plus

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option

ITEM				F600D
TABLE	Table Size		mm(in)	2-900×650 (2-35.4″×25.6″)
	Maximum Load Capacity		kg(lb)	2 - 500 (1,102)
	Table Change Time		sec	8.5
	Change Method		-	ROTARY TURN
	Table Driving Method		-	Rotating Cylinder
SPINDLE	Spindle Taper		-	BT40
	Spindle RPM		r/min	8,000 [12,000]
	Spindle Power Output (Max./Cont.)		kW(HP)	15/11 (20/15) [11/7.5 (15/10)]
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	287/143 (211.7/105.5) [70/47.7 (51.6/35.2)]
	Spindle Driving Method		-	BELT [DIRECT]
FEED	Travel (X/Y/Z)		mm(in)	800/600/600 (31.5″/23.6″/23.6″)
	Distance from Table Surface to SP		mm(in)	200~800 (7.9″~31.5″)
	Distance from Column to SP. center		mm(in)	690 (27.2″)
	Rapid Traverse Rate (X/Y/Z)		m/min	42/42/42
	Slide Type		-	ROLLER GUIDE
ATC	Number of Tools		EA	24 [30]
	Tool Shank		-	BT40
	Max. Tool Dia. (W.T / W.O)		mm(in)	Ø90/Ø150 (3.5″/5.9″)
	Max. Tool Length		mm(in)	300 (11.8″)
	Max. Tool Weight		kg(lb)	8 (17.6)
	Tool Selection Method		-	RANDOM
	Tool Change Time	T-T	sec	2.0
		C-C	sec	4.2
TANK CAPACITY	Coolant Tank		ℓ (gal)	400 (119)
	Lubricating Tank		ℓ (gal)	3.1 (0.8)
	Hydraulic Tank		ℓ (gal)	23 (6.1)
POWER SUPPLY	Air Consumption (0.5MPa)		ℓ /min(gal)	400
	Electric Power Supply		KVA	30
	Thickness of Power Cable		Sq	Over 25
	Voltage		V/Hz	220/60 (200/50*)
MACHINE	Floor Space (L×W)		mm(in)	2,720×3,620 (107.1″×142.5″)
	Height		mm(in)	2,965 (116.7″)
	Weight		kg(lb)	10,000 (22,046)
NC	Controller		-	HYUNDAI WIA FANUC i Series - Smart Plus [FANUC 32i-B]

*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

CONTROLLER

HYUNDAI WIA FANUC i Series – SMART PLUS

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	3 axes (X, Y, Z)
	4 axes (X, Y, Z, B)
Simultaneously controlled axes	3 axes [Max. 4 axes]
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Inch / Metric conversion	
High response vector control	
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	15 inch LCD unit (with Touch Panel)
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored stroke check 2, 3	
Stored pitch error compensation	
Operation	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run, Program check, Z axis Machine lock
	Stored limit check before move
Single block	
Search function	Program Number / Sequence Number
Handle interruption	
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Circular interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference, G28 / 2nd reference, G30
	Ref. position check, G27
Single direction positioning	G60
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear 2 axes (Max.)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog : 0~2,000mm/min (79 ipm)
	Manual handle : x1, x10, x100 pulses
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	1%, 25%, 50%, 100%
Override cancel	
Feed per minute	G94
Feed per revolution	G95
Cylindrical interpolation	G07.1
Inverse time feed	G93
Look-ahead block	200 blocks (AI APC)
Program input	
Tape Code	EIA / ISO
Optional block skip	9 ea
Absolute / Incremental program	G90 / G91
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y, G17 / Z-X, G18 / Y-Z, G19
Workpiece coordinate system	G52, G53, 48 pairs (G54.1 P1 ~ 48)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #199, #500 ~ #999
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Optional chamfering corner R	

Program input	
Polar coordinate command	G15, G16
Canned cycle	G73, G74, G76, G80 ~ G89
Scaling	G50, G51
Coordinate system rotation	G68, G69
Conversational Program	SmartGuide-i
Auxiliary function / Spindle speed function	
Level-up M Code	Multi / Bypass M code
Spindle speed function	S & 5 digit , Binary output
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	M19
Retraction for rigid tapping	
FSSB high speed rigid tapping	
Tool function / Tool compensation	
Tool function	Max. T8 digit
Tool life management	
Tool offset pairs	400 pairs
Tool nose / radius compensation	G40, G41, G42
Tool length offset	G43, G44, G49
Tool offset memory C	Tool geometry and wear
	(Cutter and tool length)
Tool length measurement	Z axis Input C
Editing function	
Part program storage size	5,120m (2MB)
No. of registerable programs	1,000 ea
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	CF card, USB memory
	Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 24 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver

Option	
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Additional Axis	
Manual handle feed	2/3 units
Addition of custom macro	#100 ~ #199,
	#500 ~ #999, #98000 ~ #98499
Add. Workpiece	Max. 300 pairs (G54.1 P1 ~ P300)
AICC II	400 blocks ☆

Figures in inch are converted from metric values.
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

CONTROLLER

FANUC 32i-B

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	3 axes (X, Y, Z) 4 axes (X, Y, Z, B)
Simultaneously controlled axes	3 axes [Max. 4 axes]
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch)
	B axis : 1 deg [0.001] deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	10.4 inch color LCD
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored pitch error compensation	
Operation	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run, Program check
	Z axis Machine lock, Stroek check before move
Single block	
Search function	Program Number / Sequence Number
Interpolation functions	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Cylinderical interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference : G28
	2nd reference : G27
	Ref. position check : G30
Thread synchronous cutting	G33
Helical interpolation	Circular + Linear interpolation 2 axes(max.)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog : 0~5,000mm/min (197 ipm)
	Manual handle : x1, x10, x100 pulses
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	F0% (F1%), F25%, F50%, F100%
Override cancel	
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	40 Block
	200 Block (Mold)
Program input	
Tape Code	EIA / ISO
Optional block skip	1 ea
Absolute / Incremental program	G90 / G91
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y : G17 / Z-X : G18 / Y-Z : G19
Workpiece coordinate system	G52, G53, 6 pairs (G54 ~ G59)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #149, #500 ~ #549
G code system	A
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G4.1
Including Chamfering / Corner R	
Canned cycle	G73, G74, G76, G80 ~ G89
Coordinate rotation	G68, G69

Auxiliary function / Spindle speed function	
Auxiliary function	M 4 digit
Level-up M Code	Multi / Bypass M code
Spindle speed command	S 5 digit , Binary output
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	M19
FSSB high speed rigid tapping	
Tool function / Tool compensation	
Tool function	Max. T 8 digit
Tool life management	256 pairs ☆
Tool offset pairs	64 pairs
Tool nose radius compensation	G40, G41, G42
Tool nose length compensation	G43, G44, G49
Tool offset memory C	Tool length, diameter, abrasion(length, diameter)
Tool length measurement	Z axis Input C
Editing function	
Part program storage size	640m (256KB)
No. of registerable programs	500 ea
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	RS 232C serial port, CF card, USB memory
	Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
Setting, display and diagnosis	
Self-diagnosis function	
History display	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 20 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Processing select	Speed/ridigity setting

Option	
Additional optional block skip	9 ea ☆
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Sub Spindle control	
Polar coordinate command	G15, G16
Polar coordinate interpolation	G12.1, G13.1
Cylinderical interpolation	G07.1
One-way positioning	G60
Stored stroke check 2, 3	
Inverse-time feed	G93
Scaling	G50, G51
Manual guide i	Conversational auto program
Handle interrupt	
Manual handle feed	2/3 units
Additional custom macro variables	#100~#199, #500~#999
	#100~#199, #500~#999, #98000~#98499
Retraction for rigid tapping	
Tool management function	
Tool offset number	Max. 400 pair
Program storage capacity	512KB ~ 2MB
Program registration number	Max. 1000 ea
Additional work coordinate	48 pair (G54.1 P1 ~ P48)
AICC II	200 block
	400 block ☆

Figures in inch are converted from metric values.
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

CONTROLLER

HYUNDAI-iTROL (SIEMENS 828D)

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axes	3 axes (X, Y, Z)
	[4 axes (X, Y, Z, A)]
	[5 axes (X, Y, Z, A, C)]
Simultaneously controlled axes	Max. 4 axes
Least setting Unit	X, Y, Z axes : 0.001 mm (0.0001 inch)
	[A, C (B) axes : 1 deg [0.001] deg]
Least input increment	X, Y, Z axes : 0.001 mm (0.0001 inch)
	[A, C (B) axes : 1 deg [0.001] deg]
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axes / Each axis
Pitch error compensation	
Feedforward control	
LCD / MDI	10.4 inch color LCD
	[15 inch color LCD (With Touch panel)]
Keyboard	QWERTY full keyboard
Stored stroke check	Over travel
Operation	
Automatic operation	
MDI operation	
Program restart	
Program check function	Dry run / Program check / Machine lock
Single block	
Block search	Block search
Reposition	
Working area limit	Working area limitations
Interpolation functions	
Positioning	G00
Linear interpolation	G01
Circular interpolation	Circular Interpolation CW (G02)
	Circular Interpolation CCW (G03)
Exact position stop	Single block exact stop (G09)
	Exact stop G60 (G601, G602, G603)
Dwell	Dwell (G04)
Reference position return	Return to reference point
	Return to 2nd reference point
Helical interpolation	
Spline interpolation	Non-uniform rational B splines
Compressor for 3-axis machining (Improving machining quality)	Compcad /Compcurv (Cycle 832)
Feed function / Acc. & Dec. control	
Manual feed	Rapid traverse
	Jog
	Manual handle
	Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	1%, 25%, 50%, 100%
Feed per minute	G94
Feed per revolution	G95
Look-ahead block	300 block
	450 block : (SW28X Mold)
	[600 block]
Program input	
ISO correspondence	G291(ISO)/G290 (SIEMENS)
	(ISO G Code system-A)
Optional block skip	2
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm, ± 99,999.9999 inch
Plane selection	X-Y : G17, X-Z : G18, Y-Z : G19
Workpiece coordinate system	G54 ~ G57, G505~G549
	G500 (Basic frame - setable zero offset)
	G53 (Work offset non modal)
	G153 (basic frame non modal)
Sub program call	11 folds nested
G code preventing buffering	STOPRE
Drilling/Milling cycle	Programing (Cycle 82, 83, 84, 840)
User cycle	

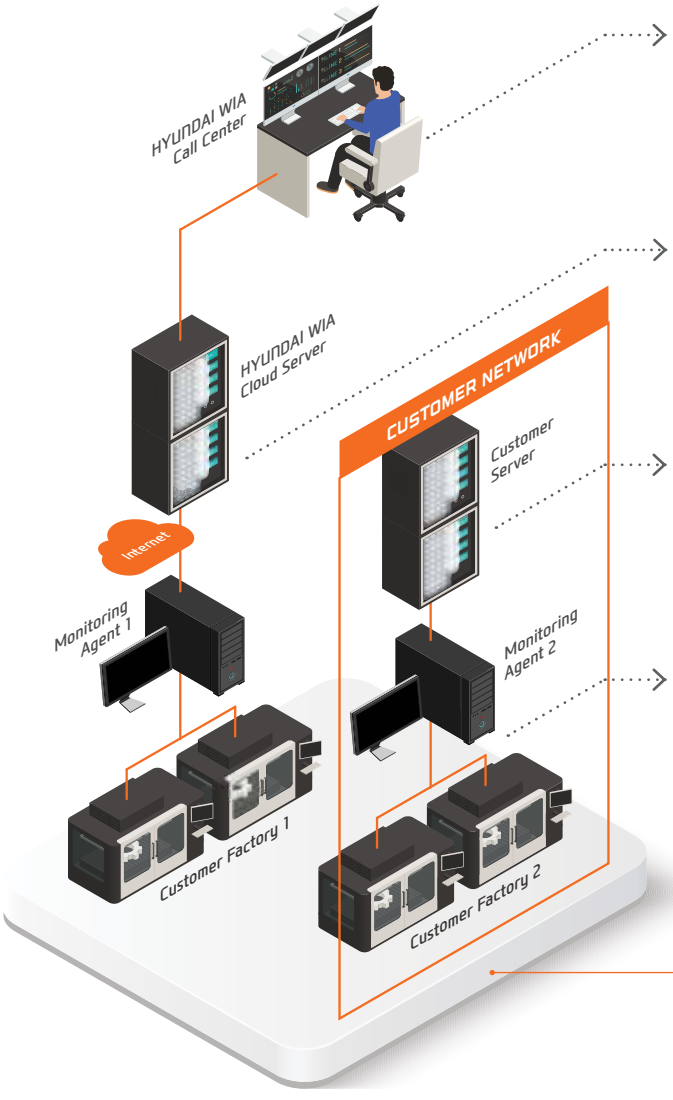
Auxiliary function / Spindle speed function	
Auxiliary function	M Code 4 digit
Spindle speed function	S Code 5 digit
Spindle override	0% ~ 150% (10% Unit)
Spindle orientation	SPOS
Rigid tapping	
Autometic mode Interchange	Spindle / Axis mode
Constant surface speed control	G96, G97
Spindle speed limitation	LIMS
Tool function / Tool compensation	
Tool function	Tool number & Tool name
	Tool : T + Offset : D
Tool life management	
Tools in tool list	256 ea
	768 ea : (SW28X Mold)
Cutting Edges in tool list	512 ea
	1,536 ea : (SW28X Mold)
Tool radius compensation	ISO (G40, G41, G42)
Tool length offset	
Geometry / Wear compensation	
Measurement of tool length	
Tool management function	
Editing function	
Part program storage size	5MB
	10MB : (SW28X Mold)
No. of registerable programs	750 ea
External Strorage devices	Local network, Server, USB, Flash drive
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
Data input / output & Interface	
I/O interface	CF card interface (ONLY 10.4 inch)
	USB memory interface
	Embedded Ethernet memory interface
Screenshot	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Multi language display	Support 9 languages
	Chinese (Simplified/Traditional), English, French, German, Italian, Korean, Portuguese, Spanish
	[☆ 22 Support languages : Inquiry need]
LCD Screen Saver	Screen saver & Motion sensing

Option	
Additional optional block skip	10 ea
Additional axis control	
Contour handwheel	
3D simulation	
Real time simulation	
ShopMill	Machining step programming for milling

HW-MMS

HYUNDAI WIA Machine Monitoring System

A manufacturing machine self-developed by Hyundai Wia, HW-MMS is a unique software capable of monitoring the operation status of manufacturing machines in factories, a smart solution to improve manufacturing conditions of customers



HW-MMS Remote

Hyundai Wia Call Center's remote diagnosis service provides a HMI/video diagnostic function.

HW-MMS Cloud

A cloud server-based equipment monitoring system for collecting and analyzing facility operation data.

HW-MMS Edge

A client server-based tool monitoring system for collection/analysis of facility operation data. (Compatible with client MES / ERP interface)

HW-MMS Edge Plus

This is a facility big data-based smart factory solution that collects and analyzes spindle/feed data, tool lifespan, NC processing files, etc. in real time

HYUNDAI WIA
Smart Factory Solution

F410D
Movie

F500D
Movie

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