F850

HYUNDAI WIA Vertical Machining Center

HYUNDAI WIA

F850

Table Size	mm(in)	1,800×850 (70.9″×33.5″)
Maximum Load Capacity	kg(lb)	1,000 (2,205)
Spindle Taper	–	BT40 [BBT 40]
Spindle RPM	r/min	12,000 [12,000]
Spindle Power Output	kW(HP)	25/10.5 (33.5/14.1) [11/7.5 (14.8/10)
No. of Tools	EA	24 [30]
Travel (X/Y/Z)	mm(in)	1,600/850/580 (63″/33.5″/22.8″)
Rapid Traverse Rate	m/min	36/36/36 (1,417/1,417/1,417)

Technical Leader

The Vertical Machining Center F850, designed by Hyundai WIA with years of expertise and the latest technology, maximizes productivity while maintaining rigidity and accuracy.

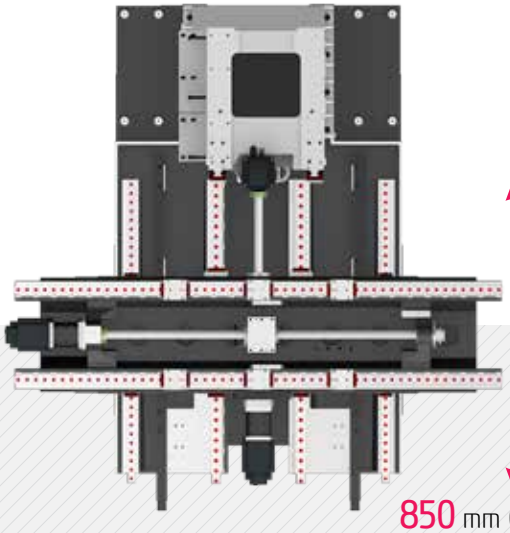
F850 Advanced Technology, Vertical Machining Center

- Designed specifically for processing large aluminum metal plates and sheets
- 850mm(33.5") Y-axis for spacious machining area
- 4 guideways for Y-axis to enhance feed
- Roller Type LM Guide
  (130% increase in maximum load capacity compared to Ball Type)
- 12,000rpm high speed spindle with direct couplings
- High speed, 24 Tool Twin Arm ATC (C-C : 4.7sec)

01 Basic Features

F850

High Speed & Productivity Vertical Machining Center



01 Extended Y-axis Structure

The travel on Y-axis is designed to be 850mm(33.5"), allowing various processing of large metal plates.

02 Slideway

4 Slideways on the Y-axis to minimize sagging of X-axis, enabling manufacture of high precision products.

Roller Type LM Guide

In order to implement fast feed rate and high rigidity, Roller Bearing LM Guideway was chosen over the conventional Ball Bearing LM Guideway, resulting in a super-fast 36m/min feed rate, at the same time reinforcing maximum load capacity.
(130% increase)

Double Anchored Ballscrew

In order to eliminate thermal growth and increase accuracy, all axes are driven by high precision double anchored ballscrews.

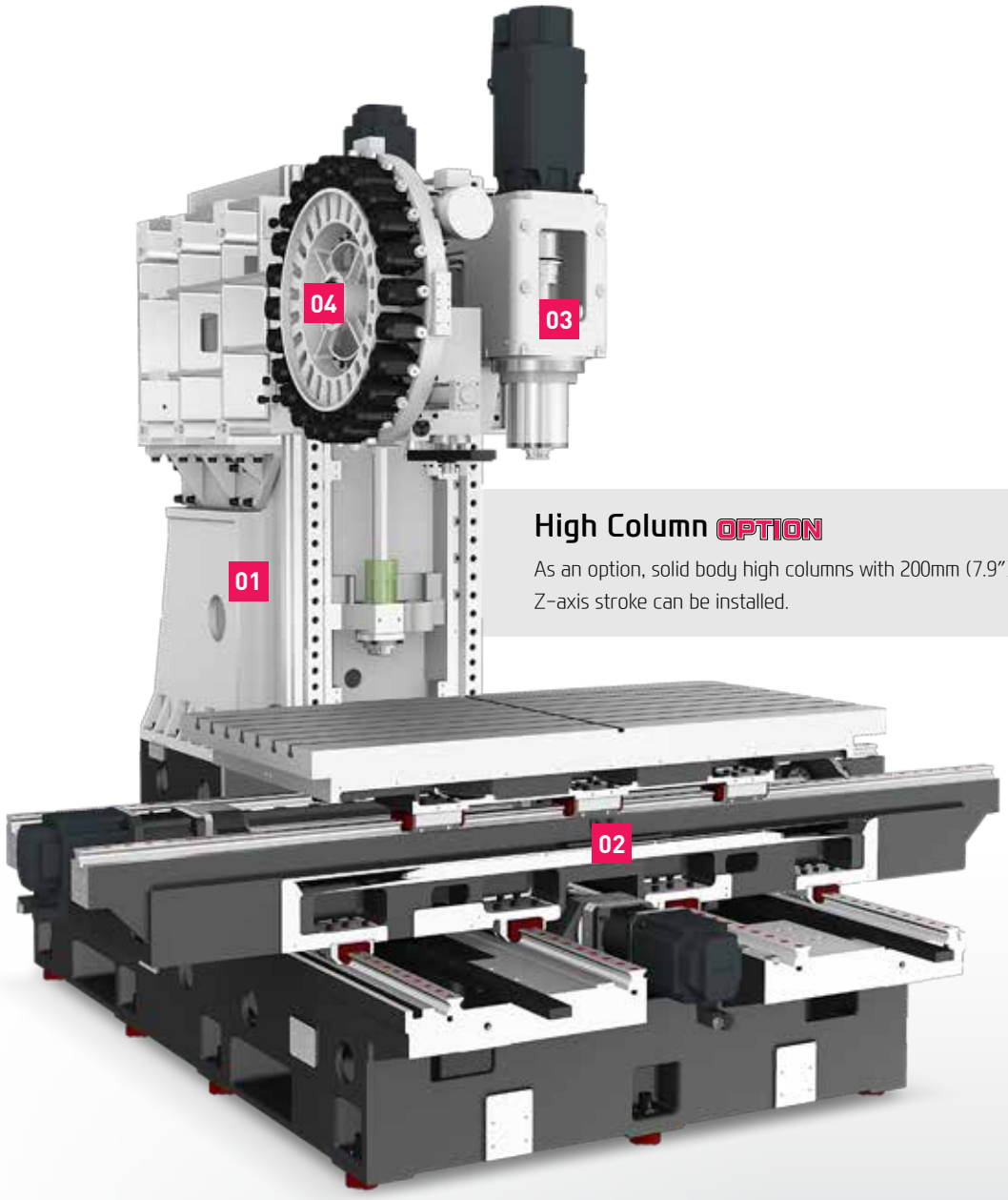
The double anchored and pretensioned design provides outstanding positioning and repeatability with virtually no thermal growth.

03 Spindle

The direct coupling headstock,with the maximum output of 12,000rpm, is highly effective when it comes to high speed operations, and the shaft diameter has increased as well as the spindle thickness to enhance rigidity.

04 ATC & Magazine

The tool magazine holds 24 tools as standard and 30 tools as an option. The twin arm ATC makes it possible for faster tool changing and increased productivity.



High Column OPTION

As an option, solid body high columns with 200mm (7.9″) Z-axis stroke can be installed.

Reduction of non-cutting time

- **Rapid Traverse Rate** (X/Y/Z axis) : 36/36/36 m/min (1,417/1,417/1,417 ipm)
- **Travel** (X/Y/Z axis) : 1,600/850/580 mm (63″/33.5″/22.8″)
- **Maximum Load Capacity** : 1,000 kg (2,205 lb)

n2
F850

High Precision Spindle

High Accuracy & High Performance
Vertical Machining Center

Direct Type Spindle

F850[12,000rpm] has a spindle that is directly connected to the motor so that spindle acc/deceleration time is reduced. Also, it is designed to make maintenance more convenient.

Spindle Cooling

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

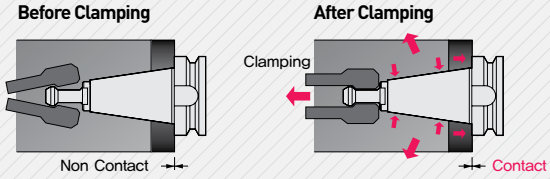
Through Spindle Coolant OPTION

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

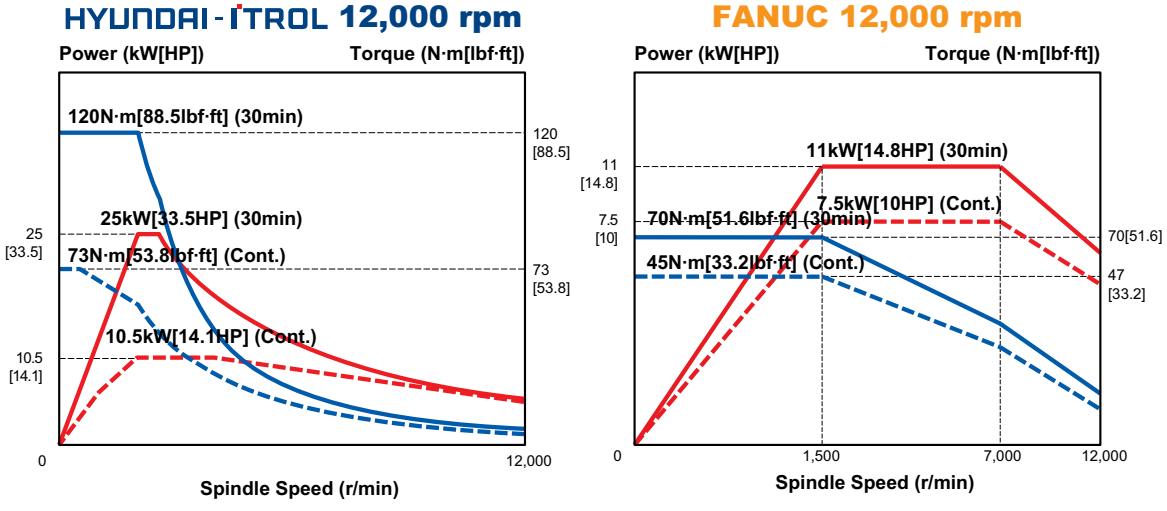
20 bar / 30 bar / 70 bar
(290 psi / 435 psi / 1,015 psi)

Dual Contact Spindle OPTION

The Big Plus spindle system (BBT40) provides dual contact between the spindle face and the flange face of the tool holder.This greatly increases tool rigidity, reduces run out and adds significant productivity to machining applications.



❖ The increase in standard diameter improves rigidity and ATC interactive precision, and Z-axis displacement revention further extends tool life.



03

F850

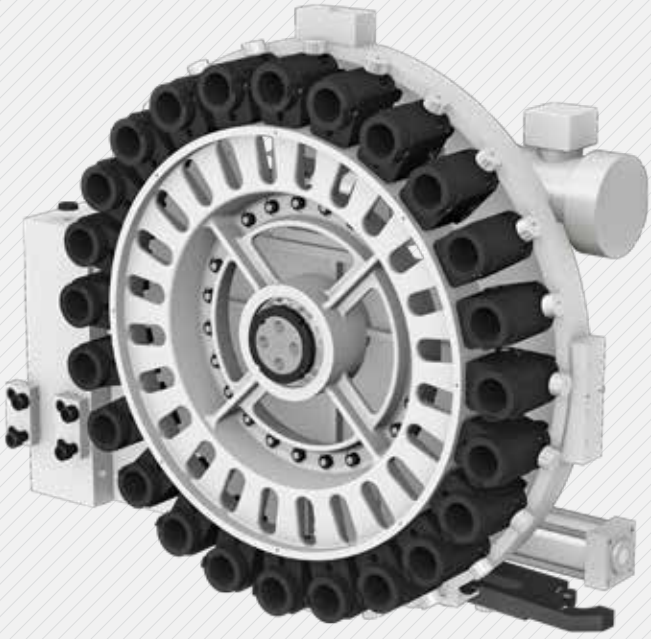
Peripheral Device

High Productivity Achieved with Rigidity
and High Accuracy Machining

- No. of Tool : 24 [30] EA
- Tool Shank : BT40 [BBT 40]
- Max. Tool Weight : 8 kg (18 lb)
- Tool Selection Method : Random
- Tool Change Time :
  T-T : 2.0 sec C-C : 4.7 sec

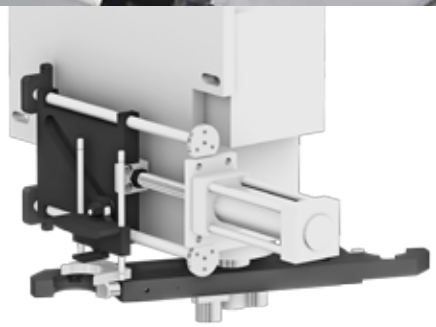
Magazine

The tool magazine holds 24 tools as standard and 30 tools as an option.



ATC

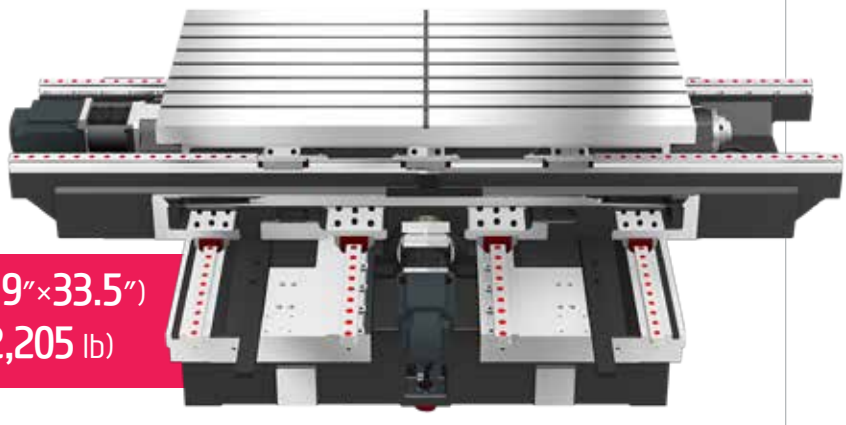
Position control through the **Twin Arm ATC** on Servo Motors has improved drastically.
The twin arm ATC makes it possible for faster tool change and increased productivity.



Table

A large, **1,800×850**mm (**70.9″×33.5″**) table is suitable for large product machining.

The table has a maximum load capacity of up to **1,000**kg (**2,205**lb), which demonstrates its ability to handle heavy-duty tasks.



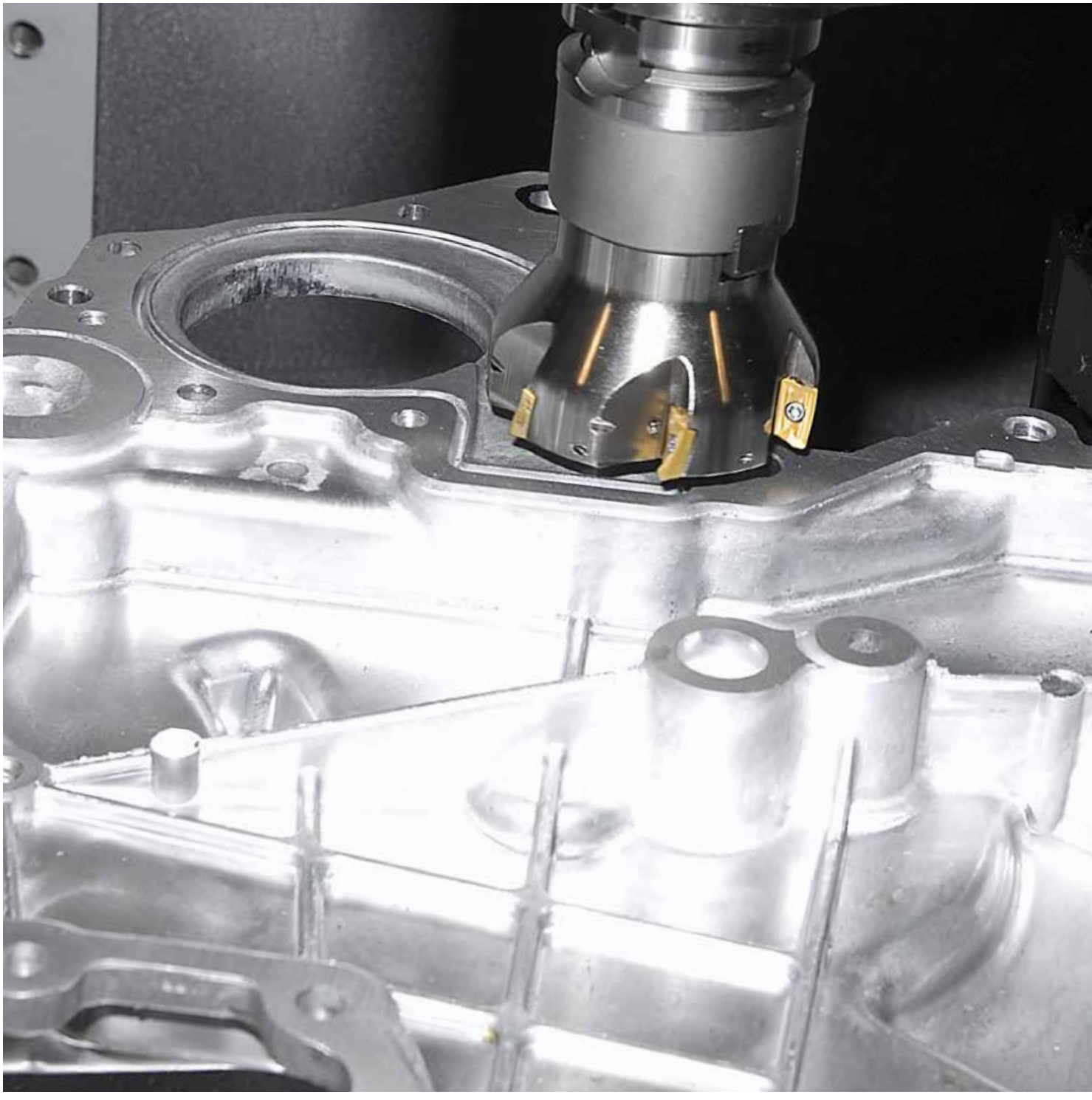
- Table Size : **1,800×850** mm (**70.9″×33.5″**)
- Max. Load Capacity : **1,000** kg (**2,205** lb)

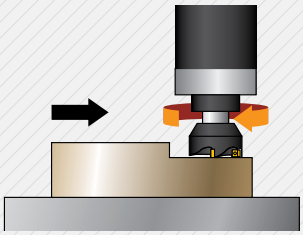
04

F850

Machining Capability

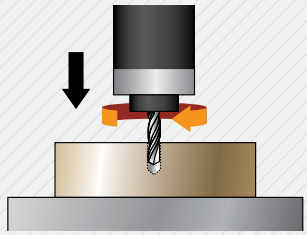
High Performance, High Accuracy Cutting
Vertical Machining Center





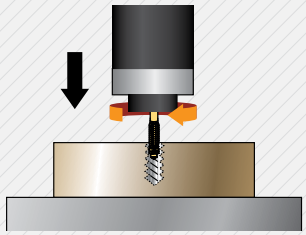
FACE MILL ‹Material(JIS):S45C(Carbon steel)›

Tool diameter	Ø80 (Ø3.14″) x 6F
Cutting depth	3 mm (0.118″)
Cutting width	70 mm (2.755″)
Cutting speed	286 mm/min (11.25 ipm)
Spindle rpm	1,137 r/min
Feed rate	0.9 mm/rev (0.035″/rev)
Chip quantity	210 cc/min



DRILL ‹Material(JIS):S45C(Carbon steel)›

Tool diameter	Ø32 (Ø1.25″)
Cutting depth	40 mm (1.57″)
Cutting speed	24 mm/min (0.94 ipm)
Spindle rpm	268 r/min
Feed rate	0.2 mm/rev (0.007″/rev)
Chip quantity	43 cc/min



TAP ‹Material(JIS):S45C(Carbon steel)›

Tap spec./Pitch	M24 x P3.0
Cutting depth	40 mm (1.57″)
Cutting speed	8 mm/min (0.31 ipm)
Spindle rpm	106 r/min
Feed rate	3 mm/rev (0.118″/rev)

❖ The above results might be different based on your processing circumstances.

Sample Workpieces

05 F850

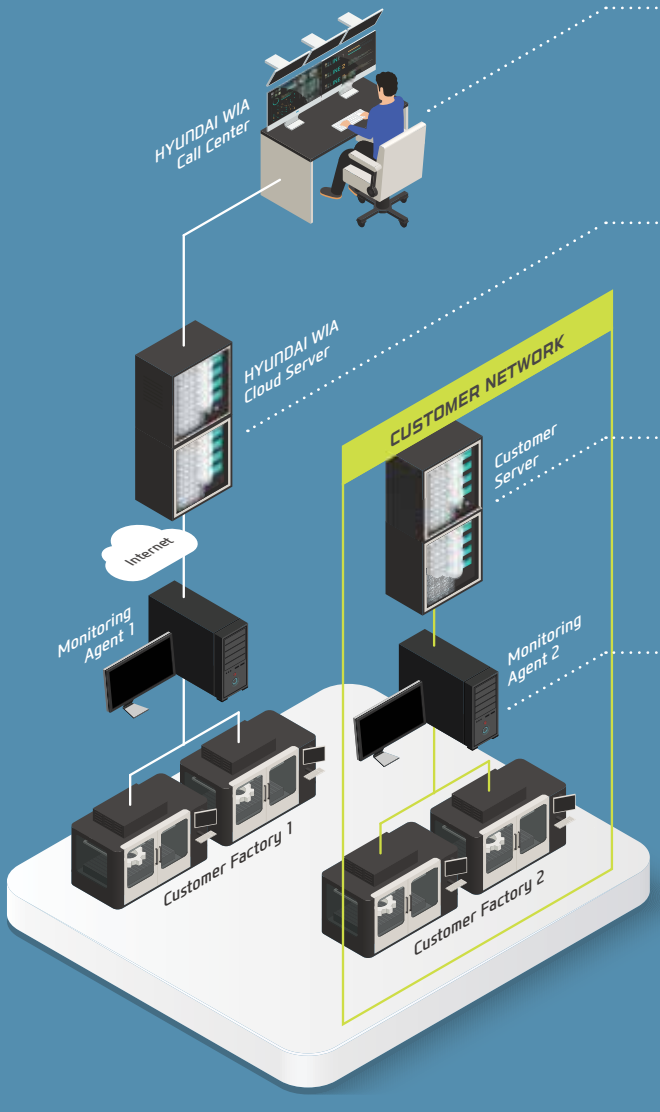
iRiS HYUNDAI WIA Smart Factory Solution

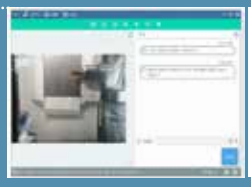
integrated Revolution of industrial Solution

iRiS is HYUNDAI WIA's Smart Factory Solution.

iRiS, HYUNDAI WIA's revolutionary smart factory solution, consists of **Smart Monitoring System** for integrated management of HYUNDAI WIA machines around the world, and the **Smart Machining System** with ease, quality control, productivity and safety of the operator in mind.

SMART MONITORING





HW-MMS Remote
(Remote service based)

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

HW-MMS Cloud
(Cloud server based)

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

HW-MMS Edge
(Customer Server Based)

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

HW-MMS Collector
(Machine data collector)

A dedicated program for collecting CNC data for MES/ERP.

A brand new manufacturing machine 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.

SMART MACHINING

HW-MCG

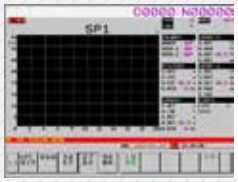
HYUNDAI WIA
Machine Guidance

Software that offers operation, maintenance, management monitoring and various user friendly features.

HW-TDC

HYUNDAI WIA Thermal
Displacement Compensation

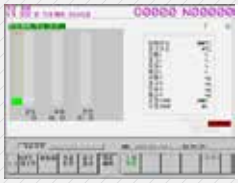
Software that measures the changes in the external environment as well as heat emission during processing to help reduce thermal displacement.



HW-TM

HYUNDAI WIA
Tool Monitoring

A tool monitoring software which analyzes the load of the spindle motor to determine and monitor possible damage of tools.



HW-AFC

HYUNDAI WIA
Adaptive Feed Control

Software that controls the feed automatically to maintain a certain working load to extend tool life as well as productivity.

HW-MCS

HYUNDAI WIA Machining
Condition Selection

Software that automatically sets cutting and feeding parameters according to the machining types (speed, degree, quality)

HW-ESS

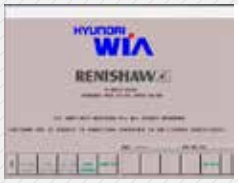
HYUNDAI WIA
Energy Saving System

An environmental friendly software that reduces the unnecessarily wasted standby power waiting for an operation.

HW-WARMUP

HYUNDAI WIA
WARMing Up

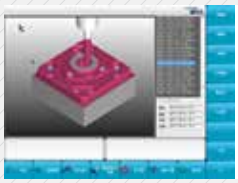
Warm-up software that measures main spindle halt and offers system warm-up time automatically.



RENISHAW GUI

WorK / Tool Offset
Measurement

User-friendly GUI software for material coordinate system, tool length /diameter/breakage measurement (included in RENISHAW H/W set)



HW-DPRO

HYUNDAI WIA
Dialogue PROgram

Software to create machining program easily and quickly through interactive operation

HW-eDNC

HYUNDAI WIA ethernet
Direct Numerical Control

This software allows transmition of NC data between PC and a machine's CNC. The processing programs can be managed on the PC through the ethernet or serial communication.

06 HYUNDAI - iTROL

The Powerful CNC platform for Machine Tools

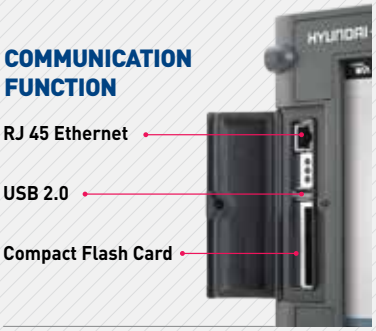
F850

HYUNDAI Intelligent Control

Convenient and Easy-to-Use Machine Tool...

Hyundai WIA take operator convenience to a higher level with the new controller, HYUNDAI-iTROL. Experience the new operating environment with HYUNDAI-iTROL.

COMMUNICATION FUNCTION

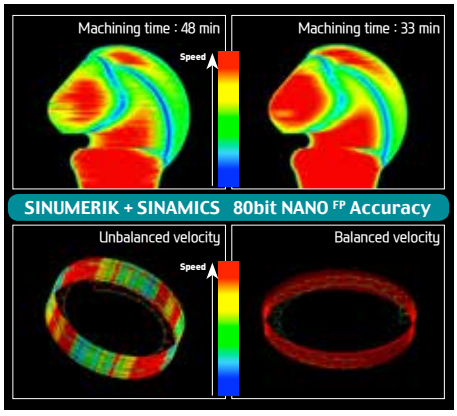


Easy input/output of programs is possible with the use of USB memory card, CF memory card and LAN.

Energy Saving & ECO System

Energy Saving System

You can use energy saving function (ECO) and machining optimization function (SMART) with the MCP button.



SIEMENS Advanced Surface

- Advanced surface software for high speed, high accuracy mold processing
- 80-bit floating-point calculation accuracy is superior to nano-interpolation
- A brand new filter for speed and acceleration control - Minimizes errors generated from irregular CAM data
- Standard jerk-restriction function to ease deceleration impact - Minimized vibration and high-speed deceleration
- Standard feed-forward function for speed control - Improves contouring accuracy by correcting the following error before setting point output

Tool Monitoring, AFC

- The same tool monitoring function as the Fanuc HW-TM + new AFC
- Automatic transfer speed control
  - Expected benefits : Tool monitoring possible even when machining molds and prototype products, etc. Shortens the cycle time and protects the machine through an active control function

Measuring System

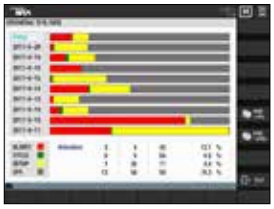
- Simplified UI by removing unnecessary screens
- Compatible with the standard Renishaw/Marposs as well as third-party TLM (the measuring program needs to be converted into TLM.SPF)
- Continuous measuring function to measure 10 tools at a time
- Tool data comparison (before and after measuring) and enhanced animation function

Coordinate System Setting

- Quicker setting of coordinate system enabled by an improved UI (using the top-left coordinate system value)
- Parameter change process has been changed to "enter all and apply later" type to prevent the worker's erroneous entry
- Pre-defined coordinate value displayed in the bottom bed image for easier identification
- A 'Spindle rotation' button added for easier spindle rotation

Engraving Setting

- Ability to engrave model name/serial number in mass production
- Available in the program edit window
- Text, quantity of work, working date, working time can be engraved and ordered
- Easily and quickly apply the engraved functions of Siemens CYCLE



Monitoring of Operating Ratio

- Intuitive display uses distinctive colors to indicate the 4 stages of alarm, cycle, setup, and inactivity.
- Displays current activated status as "Activated".
- Options to export 10-day operation history as an NC file or to CF card (MS Excel compatible format)

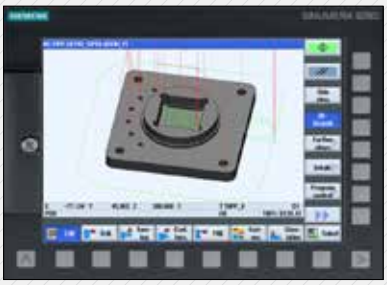
Warming-up

- The mode selection path simplified with an improved UI
- Except Tool, Spindle RPM, Time, Program, the parameters not used frequently have been moved to 'Settings' screen.
- Messages for the current progress (%) and remaining time displayed at the top of the screen

Shop Turn OPTION

- Dialogue-type programming, simple and convenient
- Effective specifications for small quantitybatch production
- Step-by-step operation possible without knowledge of the DIN/ISO code

3D Simulation OPTION



- 3D confirmation of the completed processing configuration of the NC program is possible.
- Offers standards for 2D simulation.
- Possible to confirm the simulation of the NC grogram during processing.

ISO Code Programming

If the ISO Dialect (G291) is ordered, JIS-based G-code programs can be used. (Standard)

SPECIFICATIONS

Standard & Optional

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

Spindle		F850
12,000rpm (25/10.5kW [33.5/14HP])	HYUNDAI-iTROL	●
12,000rpm [11/7.5kW (14.8/10 HP)]	FANUC	○
Spindle Cooling System		●
ATC		
ATC Extension	24	●
	30	○
Tool Shank Type	BT40	●
	BBT40 (FANUC)	○
U-Center	D'andrea	–
Pull Stud	45°	●
	60°	○
	90°	○
Table & Column		
APC	Shuttle	–
Tap Type Pallet		–
T-Slot Pallet		●
NC Rotary Table		☆
High Column	200mm(7.9")	○
Coolant System		
Std. Coolant (Nozzle)		●
Bed Flushing Coolant		●
Through Spindle Coolant*	20bar (290 psi)	○
	30bar (435 psi), 20 ℓ (5.3 gal)	○
	70bar (1,015 psi), 15 ℓ (4 gal)	○
	70bar (1,015 psi), 30 ℓ (7.9 gal)	○
Top Cover		●
Shower Coolant		○
Gun Coolant		○
Side Oil Hole Coolant		☆
Air Gun		○
Spindle 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	650 ℓ (171.7 gal)	●
Cabin Screw Chip Conveyor		–
Chip Conveyor (Hinge/Scraper)	Left (Left)	○
	Left (Rear)	–
Special Chip Conveyor (Drum Filter)		☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○
	Swing (200 ℓ [52.8 gal])	○
	Large Swing (290 ℓ [76.6 gal])	○
	Large Size (330 ℓ [87.2 gal])	○
	Customized	☆
S/W		
Machine guidance (HW-MCG)		●
Tool Monitoring (HW-TM) : FANUC/HYUNDAI-iTROL		○ / ●
DNC Software (HW-eDNC)		○
Spindle Heat Distortion Compensation (HW-TDC)		○
Spindle Warm up Function (HW-WARMUP)		●
Energy Saving System (HW-ESS)		●
Machine Monitoring System (HW-MMS)		○
RENISHAW GUI		○
Machining Condition Selection (HW-MCS)		●
Adaptive Feed Control (HW-AFC)		●
Conversational Program (HW-DPRO)		○

Electric Device		F850
Call Light	1 Color : ■	●
Call Light	2 Color : ■ ■	○
Call Light	3 Color : ■ ■ ■	○
Call Light & Buzzer	3 Color : ■ ■ ■ B	○
Work Light		●
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Multi Tool Counter	6 EA	○
	9 EA	○
Electric Circuit Breaker		○
AVR (Auto Voltage Regulator)		☆
Transformer	45kVA	○
	55kVA	–
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)		☆
Environment		
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 Table/F	Single	○
	Channel	☆
Control of Additional Axis	1Axis	○
	2Axis	☆
External M Code 4ea		○
Automation Interface		☆
I/O Extension (In & Out)	16 Contact	○
	32 Contact	○
Hyd. Device		
Std. Hyd. Unit	45bar (652.7 psi) / 20 ℓ (5.3 gal)	●
	70bar (1,015 psi) / 65 ℓ (17 gal)	–
Hyd. Unit for Fixture	45bar (652.7 psi)	○
	70bar (1,015 psi)	○
	100bar (1,450 psi)	☆
	Customized	☆
ETC		
Tool Box		●
Customized Color	Need for Munsel No.	☆
CAD&CAM Software		☆

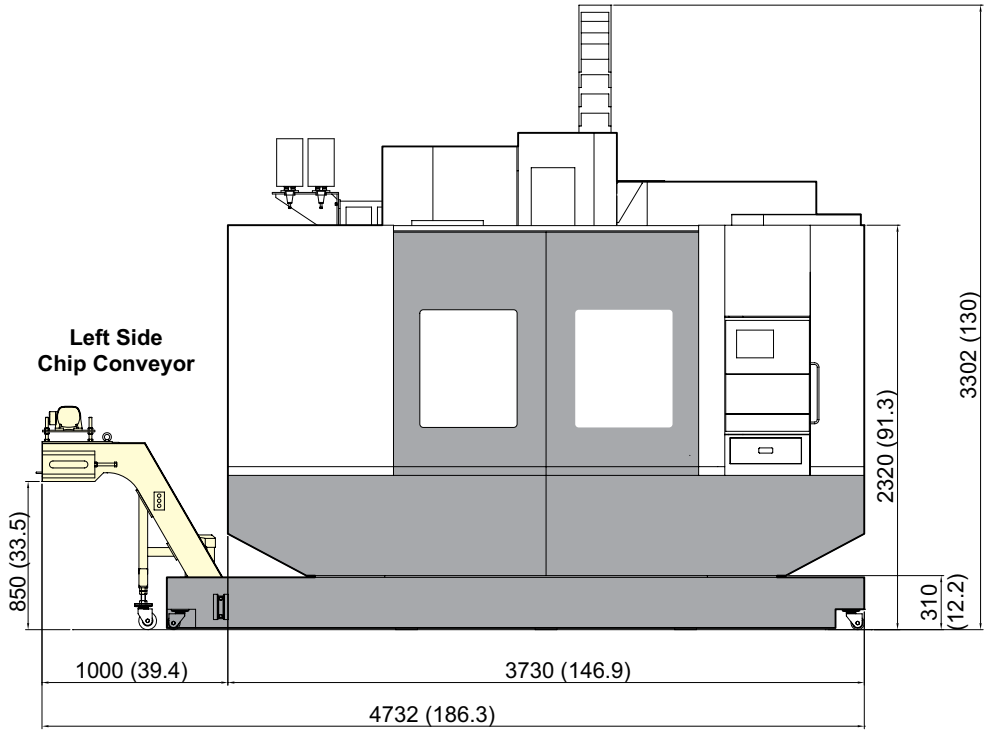
Through Spindle Coolant* : Please check the filter types with sales representative.

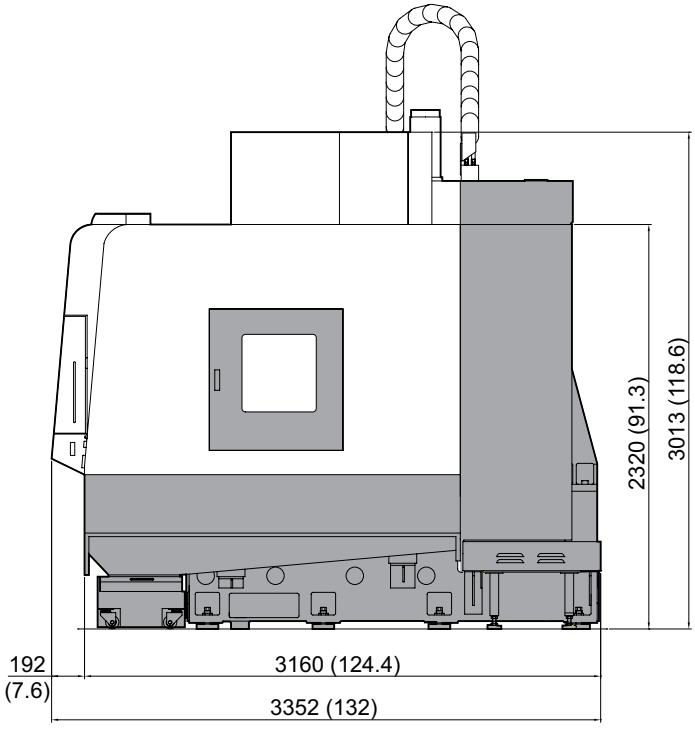
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

External Dimensions

unit : mm(in)

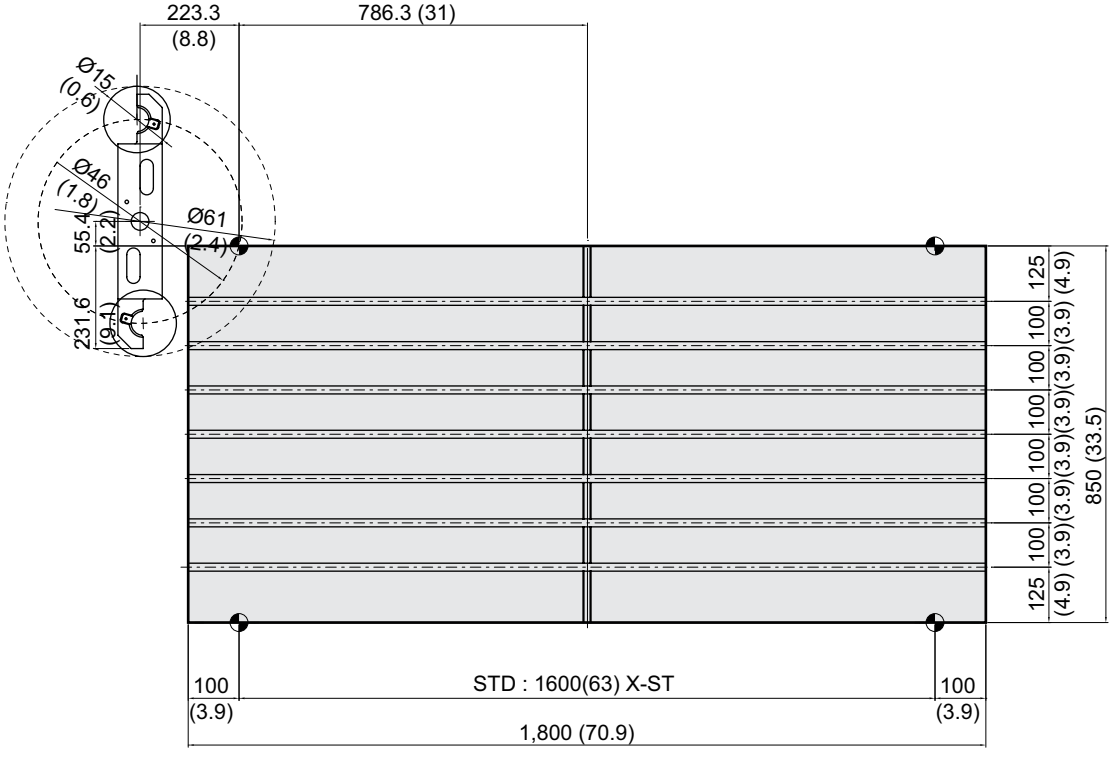


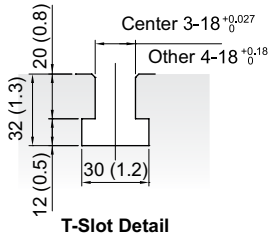


SPECIFICATIONS

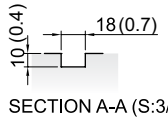
Table Dimensions

unit : mm(in)





T-Slot Detail



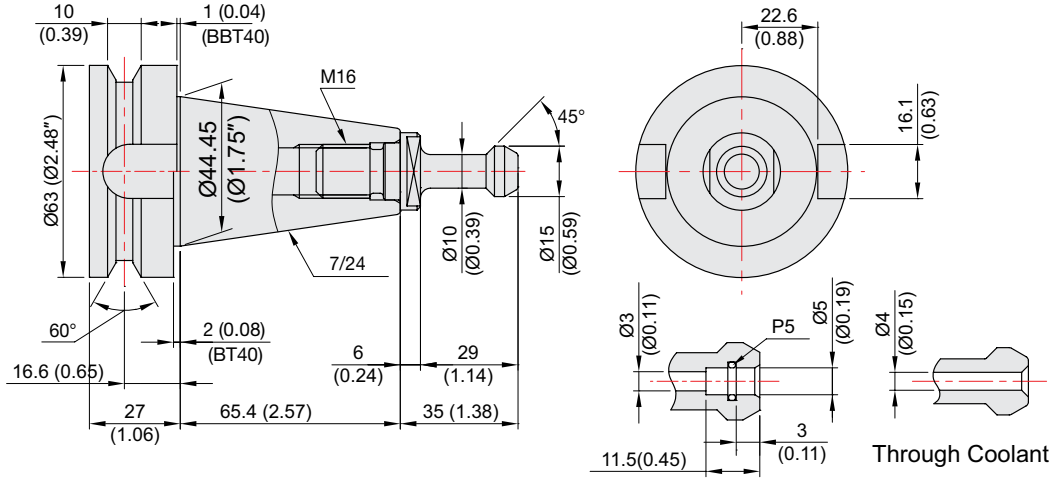
SECTION A-A (S:3/1)

SPECIFICATIONS

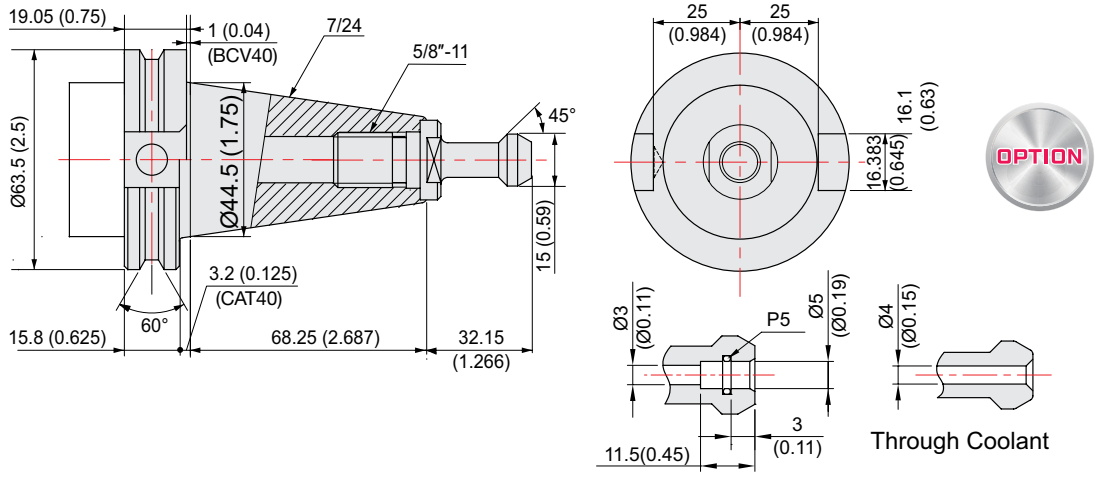
Tool Shank

unit : mm(in)

BT40/BBT40, BIG PLUS



CAT40/BCV40



SPECIFICATIONS

Specifications

[ ] : Option

ITEM				F850
TABLE	Table Size		mm(in)	1,800×850 (70.9″×33.5″)
	Maximum Load Capacity		kg(lb)	1,000 (2,205)
	Table Change Time		sec	–
	Change Method		–	–
	Table Driving Method		–	–
SPINDLE	Spindle Taper		–	NT #40 [BIG PLUS #40]
	Spindle RPM		r/min	12,000 [12,000]
	Spindle Power Output (Max./Cont.)		kW(HP)	25/10.5 (33.5/14.1) [11/7.5 (14.8/10)]
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	120/73 (88.5/53.8) [70/45 (51.6/33.2)]
	Spindle Driving Method		–	DIRECT
FEED	Travel (X/Y/Z)		mm(in)	1,600/850/580 (63″/33.5″/22.8″)
	Distance from Table Top to SP. Nose		mm(in)	150~730 (5.9″~28.7″)
	Distance from Column to SP. center		mm(in)	932 (36.7″)
	Rapid Traverse Rate (X/Y/Z)		m/min(ipm)	36/36/36 (1,417/1,417/1,417)
	Slide Type		–	ROLLER GUIDE
ATC	Number of Tools		EA	24 [30]
	Tool Shank		–	BT #40 [BBT #40]
	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 (18)
	Tool Selection Method		–	RANDOM
	Tool Change Time	T-T	sec	2
		C-C	sec	4.7
TANK CAPACITY	Coolant Tank		ℓ (gal)	650 (171.7)
	Lubricating Tank		ℓ (gal)	3.1 (0.8)
	Hydraulic Tank		ℓ (gal)	13 (3.4)
POWER SUPPLY	Air Consumption (0.5MPa)		ℓ /min(gal)	500 (132.1)
	Electric Power Supply		KVA	65
	Thickness of Power Cable		Sq	OVER 25
	Voltage		V/Hz	380V, 50*/60Hz
MACHINE	Floor Space (L×W)		mm(in)	3,730×3,352 (146.9″×132″)
	Height		mm(in)	3,302 (130″)
	Weight		kg(lb)	15,000 (3,307)
NC	Controller		–	HYUNDAI-iTROL [HW FANUC i Series]

*) 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-iTROL

Control & Composition	
Number of axis/Spindles	3 axis (X, Y, Z)
Number of axis/Spindles, max.	6 axis (Axis + Spindle)
Color display	TFT 10.4" Color (800 x 600)
Keyboard	QWERTY Full Keyboard
Part program	1MB, 3MB, 5MB
Addition of part program on CF card	
Transfer Function	
Feedrate override	0% ~ 200%
Transfer value input range	± 999999999
Unlimited rotation of rotation axis	
Acc./Dec. with jerk limitation	
Measuring systems 1 and 2, selectable	
Travel to fixed stop	
Auto servo drive tuning	
Spindle Function	
Spindle override	0% ~ 150%
Spindle speed, max. programmable value ange	1000000 ~ 0.0001
Automatic gear stage selection	
Spindle orientation	
Spindle speed limitation	
Rigid tapping	
Interpolation	
Linear interpolation axis, max.	4 axis
Circle via center point and end point	
Circle via interpolation point	
Helical interpolation	
Non-uniform rational B splines	
Compressor for 3-axis machining	
Advanced surface	
Program Function	
Subroutine levels, max.	11
Interrupt routines, max.	4
Number of levels for skip blocks	2
Polar Coordinates	
Dimensions inch/metric,	
changeover manually or via program	
Dynamic preprocessing memory FIFO	
Look ahead	50, 100, 150
Absolute/Incremental command	G90 / G91
Scaling/Rotation	
Read/Write system variables	
Block search	
Edit background	
Processing program number, max.	750
Using of CF Card, USB	
Basic coordinate number, max.	1
Work coordinate number, max.	100
Basic/Work coordinate programming change	
Scratching function	
Global and Local user data (GUD/LUD)	
Global program user data	
Interactive cycle program	
Tool Function	
Tool radius compensations	
Tool offset selection via T/D numbers	
Tools / Cutting edges in tool list	80/160, 128/256, 256/512
Monitoring Function	
Working area limit	
Software and Hardware limit	
Zero-speed/Clamping monitoring	
2D/3D protection zones	
Contour monitoring	

Compensation	
Backlash compensation	
Leadscrew error compensation	
Measuring system error compensation	
Feedforward control (Speed control)	
Safety Function	
Safe torque off (STO)	
Safe brake control (SBC)	
Safe stop 1 (SS1)	
Diagnostic Function	
Alarm/Message , Alarm log	
PLC status/LAD online display	
PLC remote connection (Ethernet)	
Automation Support Function	
Actual velocity display	
Tool life management	As time / As amount
Work counter/Cycle time	Embedded
2D simulation	
Manual Operation	
Manual handle/Jog transfer	
Manual measurement of workpiece / tool offset	
Automatic tool/Workpiece measurement	
Automatic/Program reference approach	
Automatic Operation	
Program run as using CF card/USB	
Program control/modification	
Block search	
Reposition	
Preset (Set actual value)	
Data Transmission	
Ethernet network	
USB memory stick & CF card	
Convenience Function	
Processing setting	Coordinate setting, Auto tool length measurement
Processing support	Tool Monitoring, Spindle overload monitoring
Maintenance	Turret Guidance, I/O monitoring, Manual
Maintenance / Management	Soft MCP, Spindle warming-up M/G code list
SMART machining	
Energy saving function (ECO)	
Machine Monitoring System (MMS Lite)	
Language	
Standard support language	Chinese Simplified, English, Korean

Option	
Maximum skip block number	10
DRF offset	
MDI program save/load	
Teach-In mode	
3D simulation	Except for working area/Collision check
Real time simulation	
Shop Mill	Conversational Program
Spline interpolation	
Program remote control in network	
Language	Chinese Traditional, French, German, Italian, Portuguese, Spanish

Figures in inch are converted from metric values.
Specifications are subject to change without notice for improvement.

CONTROLLER

HYUNDAI WIA FANUC i Series

Controlled axis / Display / Accuracy Compensation	
Controlled axis	3 axis (X, Y, Z)
Simultaneous controllable axis	3 axis (G00 & G01 : 3 axis, G02 & G03 : 2 axis)
Least input increment	X, Y, Z축: 0.001 mm (0.0001")
Least command increment	X, Y, Z축: 0.001 mm (0.0001")
Inch/Metric conversion	G20 / G21
Interlock	Each axis / All axis
Machine lock	All axis
Emergency stop	
Stored stroke check 1	Over Trable
Stored stroke check 2	
Stored stroke check 3	
Follow-up	
Servo off	
Backlash compensation	+/- 0~9999 pulse (rapid traverse & cutting feed)
Position switch	
Stored pitch error compensation	
LCD/MDI	8.4" color LCD
Operation	
Automatic operation (memory)	
MDI operation	
DNC operation	Need DNC Program
Search function	Sequence, Program
Program restart	
Wrong operation prevention	
Buffer register	
Program check function	Dry run, program check
Single block	
Handle interrupt	
Feed functions	
Manual jog feed	Rapid, Jog, handle
Manual handle feed-rate	x1, x10, x100
Feed command	F code feedrate direct command
Feedrate override	0~200% (10% Unit)
Jog feed	0~5,000 mm/min (197 ipm)
Rapid traverse override	F1, F25%, F50%, F100%
Override cancel	
Rapid traverse bell-shaped acceleration/ deceleration	
Auto corner override	G62
Program input & Interpolation functions	
Label Skip	
Control in/out	
Nano Interpolation	Positioning/Linear/Circular (G00/G01/G02/G03)
Exact stop mode/Exact stop	G61 / G09
Dwell	G04, 0~9999.9999sec
Helical interpolation	
Threading/synchronous feed	G33
Manual reference point return	
Reference point return	G28
Reference point return check	G27
2nd, 3rd, 4th Reference point return	G30
Program stop/end	M00, M01 / M02, M30
Tape code	EIA RS-244/ISO 840 (Automatic recognition)
Optional block skip	1 EA
Max. programmable dimensions	+/- 9999.9999 (+/- 8 digits)
Program number	O4 /N8
Absolute/incremental command	G90 / G91
Decimal point input	
Plane selection	G17, G18, G19
Work coordinate system setting	G52~G59
Work coordinate preset	G50.3
Additional work coordinate system	G54.1 P1 ~P48 (48 pairs)
Manual absolute	"On" fixed
Programmable data input	G10

Program input & Interpolation functions	
Sub program call	10 folds nested
Custom macro	
Addition to custom macro common variables	#100 ~ #199 , #500 ~ #999
Cylinderical interpolation	G02, G03
Canned cycle	G73, G74, G76, G80 ~ G89
Optional chamfering/corner R	
Skip function	G31
High speed Skip function	
Automatic coordinate system setting	
Coordinate system rotation	G68, G69
Programmable mirror image	G50.1, G51.1
Single direction positioning	G60
External data input	Tool offset, message, machine zero point shift
Cylindrical interpolation	
AI advanced preview control	G5.1 (20 Block look ahead)
Polar coordinate command	G15, G16
Sub / Spindle functions	
Miscellaneous function	M 3 digits
Miscellaneous function lock	
Spindle speed command	S 5 digits, binary output
Spindle speed override	50%~120% (10% unit)
Spindle orientation	
Rigid tapping	
Tool functions / Tool compensation	
Tool function	Max. T8 digits
Cutter compensation C	G40~G42
Tool length measurement	Z Axis INPUT C
Tool length compensation	G43, G44, G49
Tool offset amount	G45~G48 (+/- 6 digits)
Tool offset pairs	400 pairs
Tool life management	
Data input / Output & Editing functions	
Reader/Puncher interface	RS232C
Memory card input/output	
USB input/output	
Embeded Ethernet	100Mbps
Part program storage length	1280m (512 Kbyte)
Registered programs	400 ea
Memory lock	
Back ground editing	
Extended part program editing	Copy, move, change of NC program
Setting, display, diagnosis	
Self-diagnosis function	
History display	Alarm & operator message
Help function	
Run hour/Parts count display	
Actual cutting feedrate display	
Spindle/Servo setting screen	
Multi-language display	Selection of 5 optional language
Dynamic switching display language	
LCD Screen Save	Screen saver

Option	
Sub Axis Control	4, 5 Axis
wo way pitch error compensation	
Manual Guide 0i	8.4" color LCD
Manual Guide i	10.4" color LCD (Conversational Program)
Dynamic graphic display	
Optional block skip add	9 ea (Application can be limited)
AI contour control(AICC)	40 Block look ahead
AI contour control(AICC) II	200, 400 Block look ahead
Nano Smoothing	
Tool Management Function	
Protection of data at 8 levels	
Data server	1GB
FASTethernet	100 Mbps (Option board is required)
Part program storage length Expand	5120m (2 Mbyte)

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

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2018-12 001.009 ENG