XF Series

5-Axis Vertical Machining Center



THE WORLD BEST

When it comes to 5-axis machine tool technology, people tend to consider a product made in Japan, Germany and Switzerland to be the best.

In the past this may have been true, that is up until now.

Introducing the XF series. The Best 5-axis Vertical Machining Center in the World.



TECH CUBE, HYUNDAI WIA Europe Technical Center

In our determination to develop machine tools that deliver unrivalled satisfaction to our customers, and our unwavering commitment to grow into the world's best machine tool company, HYUNDAI WIA have established a technical support center in Germany.

Through its new European Technical Center, HYUNDAI WIA will not only enhance technical support for its European clients but also run a variety of marketing campaigns on the continent with the aim of growing into the leading machine tool brand in the entire European market.

Notably, the company will staff the R&D Center with world-class researchers who will take the lead in promoting the technological enhancement by developing new machine tools that far surpass the performance of existing machine tools in Europe.

HYUNDAI WIA is now set to become a global player.

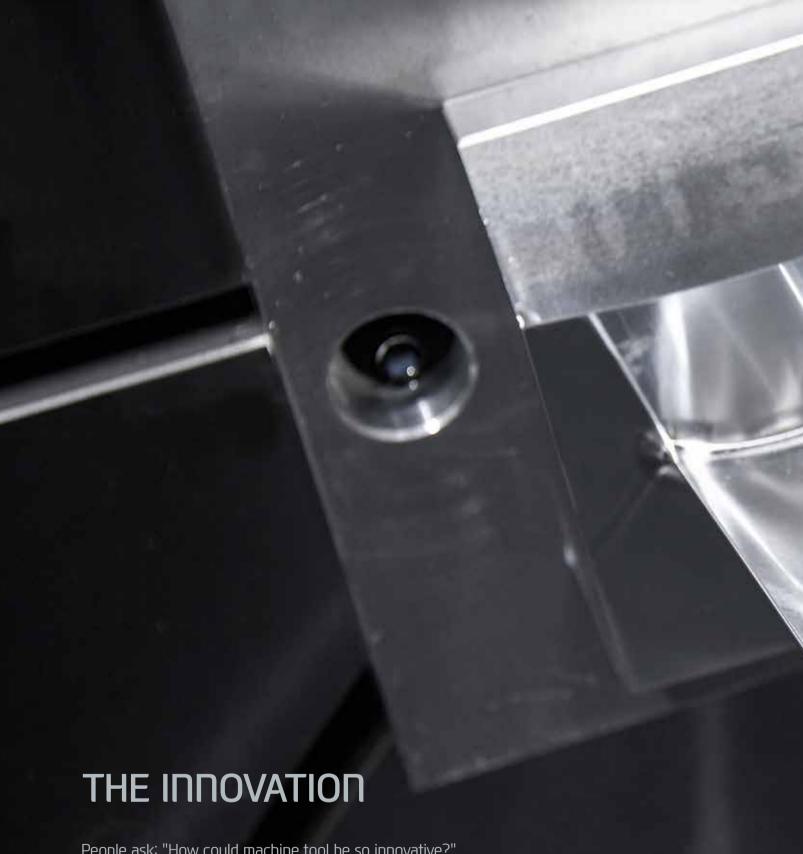
Cutting Edge Technology

The XF series 5-axis vertical machining center in the world-best level, developed by HYUNDAI WIA Europe R&D Center. XF series are a perfect blend of machine and technology to realize the ultimate performance in composite machining and mold machining with the highest quality possible resultant of its cutting-edge design features such as the monoblock type bed structure, X/Z axis box-in-box structure, etc.



ITEM		XF6300	XF8500	
Table size	mm(in)	Ø630 (Ø24.8")	Ø850 (Ø33.5")	
Max. load capacity	kg (lb)	600 (1,323)	1,000 (2,205)	
Spindle speed	rpm	15,000 [24,000/40,000]	9,000 [15,000/24,000/30,000]	
Spindle power (Max/Cont.)	kW (HP)	31/25 (41.6/33.5) [26/20 (35/27)] [26/18 (35/24)]	42/31 (56.3/41.6) 31/25 (41.6/33.5) [26/20 (35/27)] [26/18 (35/24)]	
No. of tools	еа	34 [68, 102]		
Travel (X/Y/Z)	mm(in)	650/600/500 (25.6"/23.6"/19.7")	850/920/600 (33.5"/36.2"/23.6")	
Rapid traverse rate (X/Y/Z)	m/min (ipm)	60/60/60 (2,362/2,362/2,362)	45/45/45 (1,772/1,772/1,772)	

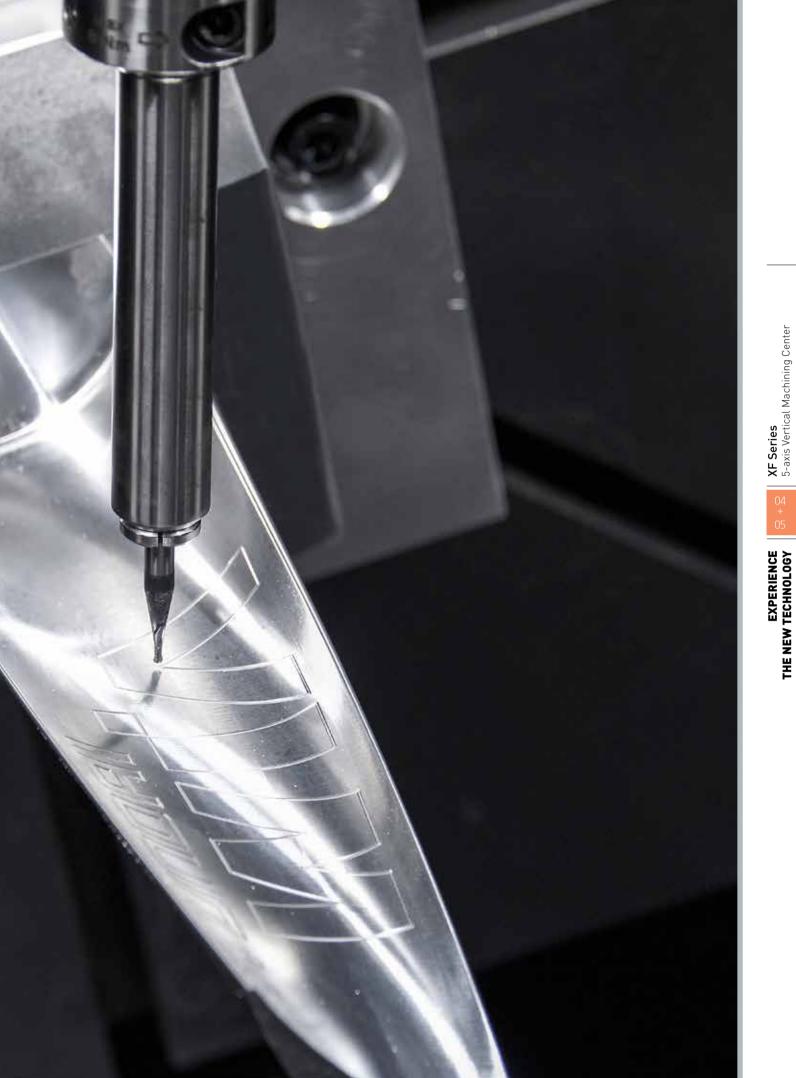




People ask: "How could machine tool be so innovative?"

The appearance of HYUNDAI WIA's XF series may look like an ordinary machine tool. However, XF series ares designed with a high-tech monoblock type bed structure, box-in box type structure and other advanced features to differentiate it from standard machine tools.

High accuracy and productivity are achieved through its innovative structure.





Applications & Parts

VACUUM PUMP ROTOR





IMPELLER

MOUNTING SHELL





HOUSING, GEAR BOX

HOUSING, ELECTRIC MOTOR





BLADE, COMPRESSOR

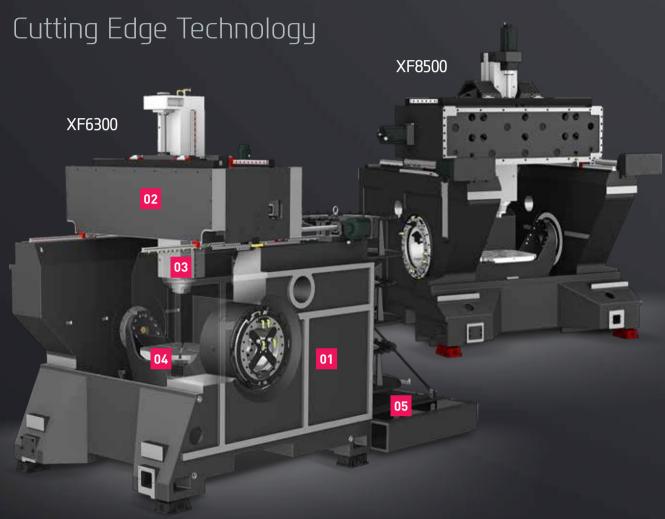
HOUSING, ENGINE





TIRE MOLD

XF SERIES



XF6300

♦ HEIDENHAIN TNC640 Rapid traverse rate (X/Y/Z): 50/50/50 m/min (1,967/1,967/1,967 ipm)

 $60/60/60\,{\text{m/min}}\,_{\text{Rapid traverse rate (X/Y/Z-axis)}}^{(2,362/2,362/2,362 \text{ ipm)}}\\ 650/765/500\,{\text{mm}}\,_{\text{(25.6''/30.1''/19.7'')}}^{(25.6''/30.1''/19.7'')}$

70/110 r/min
Rapid traverse rate (A/C-axis)
150/360 deg
Travel (A/C-axis)

XF8500

 $45/45/45 \, \underset{\text{Rapid traverse rate (X/Y/Z-axis)}}{\text{m/min (1,772/1,772/1,772 ipm)}} \\ 850/920/600 \, \underset{\text{Travel (X/Y/Z-axis)}}{\text{mm (33.4"/36.2"/23.6")}}$

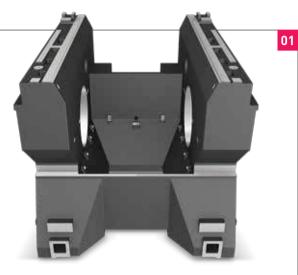
50/100 r/min
Rapid traverse rate (A/C-axis)

150/360 deg
Travel (A/C-axis)

03

04

Basic Features



Column/Bed All-in-One Structure

XF series are designed with an integrated one piece column-bed structure provides superior stability when compared with separate structures.

The All-in-One structure delivers high rigidity and excellent vibration absorption providing exceptional performance and superior surface finishes.

<Monoblock structure>



Box-in-Box Structure (X/Z Axis)

The pusher(head body) in the saddle of X-axis, which surrounds the spindle cartridge, is desinged with box-inbox type. This thermal equilibrium structure helps minimize thermal deformation.

Built-In Spindle

The built-in spindle minimizes spindle vibration, enabling outstanding performance in a high-precision cutting environment such as mold products.



DDM Tilting Rotary Table

The DDM rotary table is designed to embody highly accurate high speed simultaneous 5-axis motion which allows for the machining of complex prismatic parts with superior accuracy and surface finishes.



Ring Type Magazine

02

A single step ring type magazine of 34 tools is provided as a standard. 2 step 68 tools and 3 step 102 tools featured as an option.

XF8500: Pickup-type Magazine 05



Body Structure

High-Precision & Speed 5-Axis Vertical Machining Center

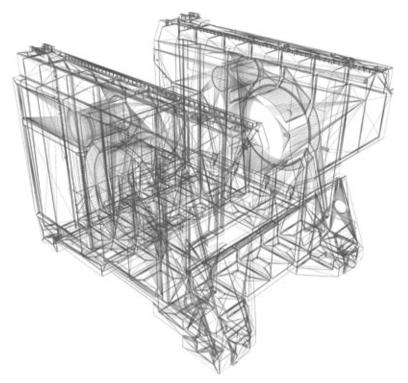


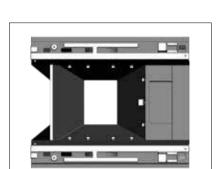
The strength and rigidity of the base body structure is a direct link to the precision of a machine tool.

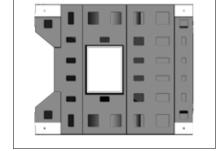
HYUNDAI WIA's advanced body design coupled with an integrated bed/column structure is the foundation of machining perfection.

The advantages of HYUNDAI WIA's body design is not limited only to extreme cutting speeds.

The integrated body remarkably reduces the minute vibration during machining ensuring high precision and superior surface finishes. The HYUNDAI WIA XF series will exceed all of your expectations.





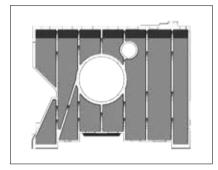


Optimal Structural Analysis (FEM)

The XF series are designed to be the optimum structure through HYUNDAI WIA's exclusive structural analysis.

Column / Bed All-in-One Structure (Rigidity has improved by 130%)

The XF series are designed with an integrated one piece column-bed structure providing superior stability when compared with separate structures. The All-in-One structure delivers high rigidity and excellent vibration absorption providing exceptional performance and superior surface finishes.



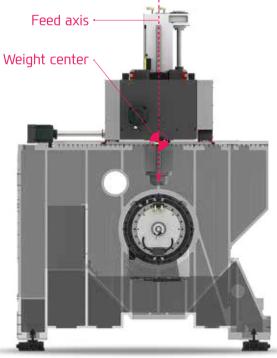
- > The monoblock design and integrated bed/column structure provides high rigidity ensuring outstanding dynamic characteristics
- > Highly rigid structure without holes on the side wall and a minimal number holes are required on the top and bottom top area
- > Casting rib structure optimized for high rigidity
- > The integrated rotary table A-axis/column structure ensures high rigidity and superior precision
- > The bed structure's agronomical design allows for easy access to the work area

XF Series XF

Slideway Features

High-Precision & Speed 5-Axis Vertical Machining Center





Symmetric Structure of Z-axis

Vibration and thermal displacement during travel can be minimized by symmetric structure of Z-axis where travel axis is aligned with the weight center of spindle.

Y-axis Double Ballscrew Structure

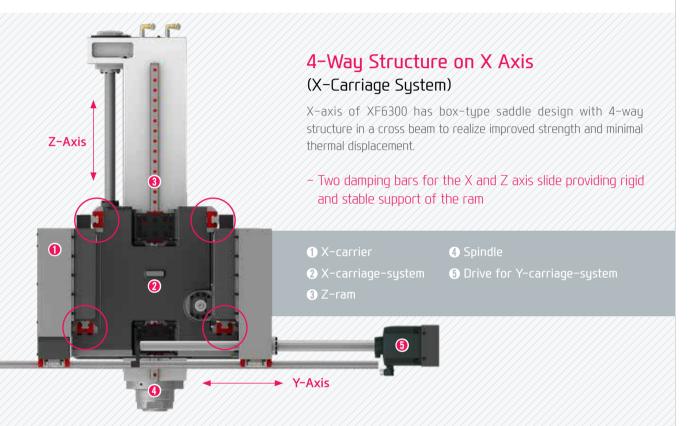
The Y-axis is driven by two ball screws and feed motors to provide unprecedented speed, accuracy, stability, and acceleration than general purpose machines.

XF6300

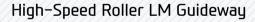
650/765/500 mm (25.6"/30.1"/19.7") Travel (X/Y/Z)

XF8500

 $850/920/600 \, \text{mm} \, \text{(33.4"/36.2"/23.6")} \ \text{Travel} \, \text{(X/Y/Z)}$







The XF series features **roller type LM guideway** to reduce non-cut time with faster acceleration while providing high rigidity.

Feed Axis Acceleration/Deceleration (X/Y/Z axis)
 XF6300 - 1.0G/0.8G/1.0G XF8500 - 0.75G/0.75G/0.75G

Acceleration/deceleration is slightly different when you choose HEIDENHAID DC.



High-Precision Linear Scale (Standard)

The XF series are equipped with linear scales on all axes providing high precision positioning accuracy and compensates for ball screw thermal displacement ensuring extremely precise machining.

In addition, the **absolute type linear scale** is installed in close proximity to the ball screw of each axis. During operation an added benefit is not being require to home the machine.

S XF Series

Built-in Spindle

Long Lasting High Accuracy & Excellent Performance 5–Axis Vertical Machining Center



Spindle Cooling

Spindle temperature is controlled by the use of a spindle oil chiller. This ensures consistent spindle temperature which minimizes thermal displacement.

Spindle Cooling

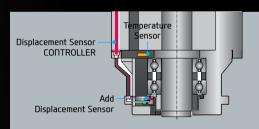
Spindle temperature is controlled by the use of a spindle oil chiller. This ensures consistent spindle temperature which minimizes thermal displacement.



HSK Tool Holder

HSK tool holder is untilized for precise positioning with less expansion in the spindle taper during high speed rotation. This ensures an excellent level of precision for die mold machining.

Through Spindle Coolant {20/30/70 bar (290/435/1,015 psi)} **OPTION**



Spindle Displacemnt Sensor

By attaching a hardware displacement sensor to the spindle cartridge, the amount of thermal displacement generated during machining is directly recognized and corrected by the displacement amount

8CH Temperature Sensor Calibration + Displacement Sensor Calibration

Spindle

ITEM	Speed r/min	Power (Max./Cont.) kW (HP)	Torque (Max./Cont.) N·m (lbf·ft)	Tool Holder
XF8500	9,000	42/31(56.3/41.6)	175/130 (129/95.9)	HSK-A63
XF6300 XF8500	15,000	31/25 (41.6/33.5)	153/123 (112.8/91)	HSK-A63
XF6300 XF8500	24,000	26/20 (35/27)	85.9/66.5 (63.4/49)	HSK-A63
XF8500	30,000	33.1/25.5 (44.4/34.2)	104/80 (76.7/59)	HSK-E40
XF6300	40,000	26/18 (35/24)	9.9/6.9 (7.3/5)	HSK-E40

Tilting Rotary Table Super Quality & Productivity

5 Axis Vertical Machining Center



XF6300

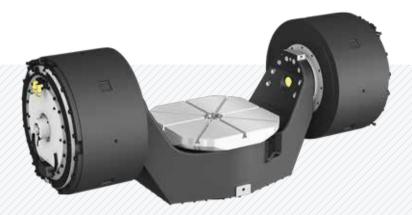
mm (Ø24.8") Ø630

Max. 600 kg (1,323 lb)
Max. load capacity

XF8500

mm (Ø33.4") Ø850

Max. 1,000 kg (2,205 lb)
Max. load capacity



DDM Tilting Rotary Table

The XF series has a **tilting rotary table** is designed to embody highly accurate high speed simultaneous 5-axis motion which allows for the machining of complex prismatic parts with superior accuracy and surface finishes.

The direct drive system utilizes **direct drive motor (DDM)** delivering high precision and high speed for improved productivity. The integrated **A-axis housing/column** design ensures high rigidity.

The XF series may cause some interference in the machining area.
Please check the interference area chart on page 36 of the catalog.





DDM TABLE (Simultaneous 5-Axis)

- 1 A-axis built-in motor (tandem type)
- 2 C-axis built-in motor
- A/C indexing angle: +30°~-120°/360°
- XF6300 A/C indexing speed: 70/110 rpm
- XF8500 A/C indexing speed: 50/100 rpm



A/C-Axis Rotary Scales Standard

Scale integrated YRTM bearing is assembled directly to the C-axis rotary table providing high precision positioning accuracy and repeatability

• A-axis : Rotary Scales (5 sec. precision)

• **C-axis**: **YRTM Bearing** (Scale embedded bearing)

5 XF Series

ATC & Magazine

High-Precision & Speed 5-Axis Vertical Machining Center



ATC & Tool Magazine

Tool change time (chip-to-chip) of 4.5 seconds is the best in its class. The rack type tool change mechanism was developed to add unprecedented extra-large capacity tool for vastly complex 5 axis machining applications.

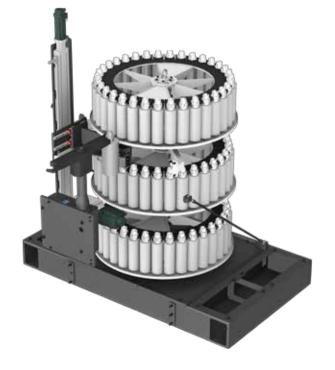
A single step rack magazine of 34 tools is provided standard. 68 and 102 tool capacity are optional.

<XF8500 : Multi Step Rack Type TWIN ARM ATC - Option>

Rack Type Magazine

34 [68, 102] ea no. of tools

4.5 sec Tool change time (C-C)





Magazine

The tool magazine and machining area are completely separated by a shutter door to prevent coolant and chip contamination out of the tool storage area maintaining high precision and cleanliness. Minimal tool change distance between the tool changer and work area permits for a rapid tool change.

In addition, collision is avoided regardless of A-axis position eliminating the need for homing of A-axis.



- Max. Tool Dia. (W/T Adjacent Tool): Ø90/Ø125 (Ø3.5"/Ø4.9")
- Max. Tool Length : 300 mm (11.8")
- Max. Tool Weight : 8 kg (17.6 lb) [40K : 1.5 kg (3.3 lb)]



FAST & DYNAMICS & CONVENIENCE

- · Highest level of acceleration and deceleration (FAST): Acc./Dec. time-1G
- · High performance built-in 15, 000 rpm spindle (DYNAMIC) supplying 153 N·m (113 lbf·ft) of torque : Breaking the mold regarding high speed spindle and high torque
- · The 19" monitor allows for easy viewing and accessibility through its ergonomic design (CONVENIENCE)

Those are just some of the values that the XF series pursues.



SIEMENS Controller The Powerful CNC Platform for Machine Tools



SIEMENS

DIFFERENTIATED CAPABILITIES, INTEGRATED ENGINEERING SEAMLESSLY INTERLINKED

SIEMENS 840D sI is the latest generation CNC controller with the capability of running up to 20 axes on a single machine.

The powerful 80-bit controller reduces processing time and increases productivity. It supports the preparation of a variety of programs and setup functions for ease of operation.





SIEMENS Technology

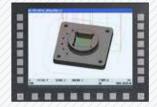
Shop Mill

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



Real Time 3D Simulation

- Real time 3D simulation is possible
- 2D simulation offered standard
- Possible to confirm NC program thrusimulation



Easy Screen

- Create an easy screen
- Insert text and pictures
- Max. 5-screen configuration
- NC variables and PLC interface with read/write support



SIEMENS MDynamics



SIEMENS MDynamics is required for a variety of CNC mold processing software solutions which is combined into one package achieving the highest processing rates



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



HYUNDAI-iTROL+

The Powerful CNC platform for Machine Tools





HYUNDAI-iTROL* & SIEMENS Motor & Drive provide the best solution!



- 01 19 inch Multi-touch Monitor
- 02 Convenience enhanced White Grip
- 03 Quick Function Bar
- Keyboard/MCP Integrated Panel that enables 30° folding (Keypad LED Lighting)



HYUNDAI-ITROL* Smart Function

Smart Factory



It is able to check machining list and its status using Regular Maintenance App. Also, you can improve the work by analyzing the problems occurred in the past.

- Check regular inspection and past work history
- Check Work Order/Machining Criteria/Shape of Object/Tool List before machining
- · Check machining load, change of transfer speed, status of other equipment during operation

Smart Programming



This cloud-based programming automation system enables programming by inputting a 3D model, one-touch shape analysis, and NC program creation.

- Model file input / 3D modeling function (NX, STEP, IGES, DWG, DXF, etc.)
- One-touch automatic creation of 5-face part machining programs
- 3D simulated machining / forecasting of machining time

Smart Operation



Collision simulation based on a virtual machine can prevent collision caused by worker negligence in the manual mode.

- 3D machining monitoring through the virtual machine and machining function
- Collision prevention function in the manual operation mode
- Enhanced tool and workpiece setting for user convenience

Smart Machining



Tool monitoring (TM), machining speed adaptive control (AFC) features are equipped as default to improve convenience, and machining accuracy is improved by balance measurement of workpiece.

- Equipped with Tool Monitoring (TM) and machining speed adaptive control (AFC) features as default.
- Shifted load compensation feature through balance measurement of workpiece

Smart Diagnosis



Automatic recovery is available through 1 time click of ATC recovery button. It is able to use it to analyze machine's defective status through data collection function for electronic manual and equipment diagnose.

- Reinforced ATC Recovery Function
- Electronic manual is equipped for convenient search and accessibility
- · Collect main data for equipment diagnose

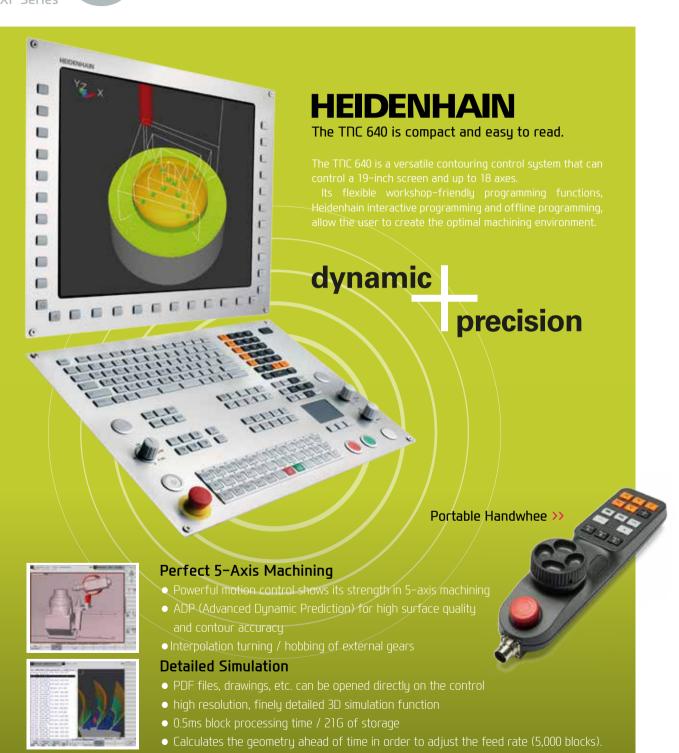
Smart Network Service



Smart Network Services, that can monitor the operating status of machining tools in the factory, can perform documentations and CAC /CA M through remote access to

- · Monitor the status of factory operation
- · Remote access to other equipment and office PCs

HEIDENHAIN THE Contouring Control with Drive System



HW-MCG (Machine Guidance)

NC S/W for various user conveniences such as machine control, maintenance, monitoring and etc.

Common Function

M-code List Operation Status Work Count Working ratio 1/O Monitor | Cycle Time Monitoring | Working Time Machine Option List Macro Guide



Operation Status

Program history managing function



Working Time

Particular program block analysis



Work Count

Managing work count & lifespan



Cycle Time Monitoring

Alarm function according to C/T





1/0 Monitor

Sensor & sol, valve status monitoring



Machine Option List

Machine option list searching & setting



- Thermal displacement compensation designed to minimize machining deviations caused by changes in the external.
- Overcooling control when the main spindle stops.
- Direct compensation by the displacement sensor.
- Same HMI structure as FANUC/SIEMENS for operational convenience.



Working ratio

Spindle/Alarm Time

Macro Guide

Macro manual for

Hyundai WIA S/W

Power/Running/Machining/

HW-WARMUP

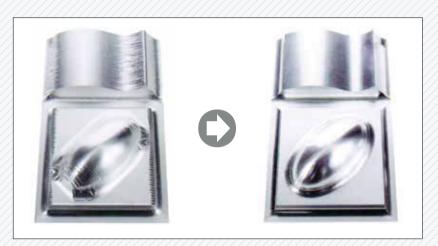
HYUNDAI WIA Tool Monitoring

- Main spindle stop time check → automatic setting of warm-up time.
- Interlock disables the machining cycle if warm-up is not performed.
- Customer machining program in the warm-up auto mode.
- Automatic warm-up logic when the cycle start begins.
- Same HMI structure as FANUC/SIEMENS for operational convenience.

XF Series

Mold Package

Powerful Mold Package, HYUNDAI-WIA Die Mold All in One



HYUNDAI-WIA Mold Package

The XF series are equipped with the HW mold package for efficient mold machining.

The die mold package includes MDynamics, the most advanced mold software prepared by SIEMENS. Spindle thermal displacement compensation, and automatic tool measuring system ensure high quality mold machining.

SIEMENS 840D sl



- MDynamics (High speed/High accuracy function)
- Automatic Power Off Device
- PCU50.5 (Hard Disk Included)



Main Spindle Cooling Device (8-channel)

Spindle temperature monitored with embedded thermal sensors



6 Cutting Air Blow

Mold machining without coolant



6 Auto Tool Measuring Device Renishaw (NC4) BLUM (Laser Control Micro Compact)

Sets tool length and detects wear

SIEMENS

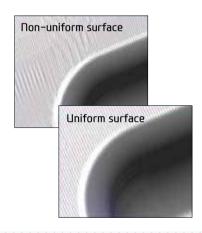
MDynamics 5-Axis Package

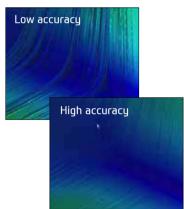
- Shop mill
- Remaining material sensing
- Real-time 3D simulation
- Spline interpolation
- 5-axis processing package
- 3D tool radius compensation

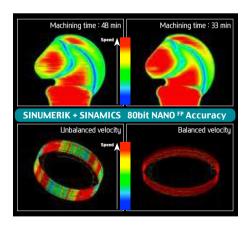
- 1.000 block look ahead
- Advanced surface
- · Transmitting and circumferential shift
- Measurement cycles
- Compact Flash Card ready
- Coordinate measurement system



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

User Convenience Various Devices for User Friendly XF Series



Large 19" Monitor

The XF series adopts a 19"monitor for improved visibility of SIEMENS's main NC functions including shop mill and 3D simulation.

19 inch Monitor size 120 deg Indexing angle

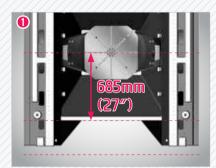
1,450 mm (57")
Height From the screen center

Ergonomic Operation Panel

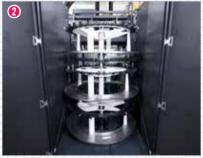
The XF series are designed to be 1,450mm (57") high for ease of operation while setting up and running a workpiece.

In addition, the PC keyboard ensures user convenience.

120° (±60°)



3









Improved Accessibility to Table

The short distance (**XF6300**: 685mm [27"], **XF8500**: 676mm [26.6"]) between the front of bed and the center of table facilitates easy workpiece and fixture setup.

Convenient Tool Change

The magazine cabinet located at the rear of the machine simplifies tool change.

3 Separate Coolant Tank

A coolant tank holding up to 1,200 & [317 gal] (optimal capacity: 800 & [211 gal]) is provided. The coolant tank is a separated from the heat source not allowing heat to be transferred to the machine, resulting in precision improvement.

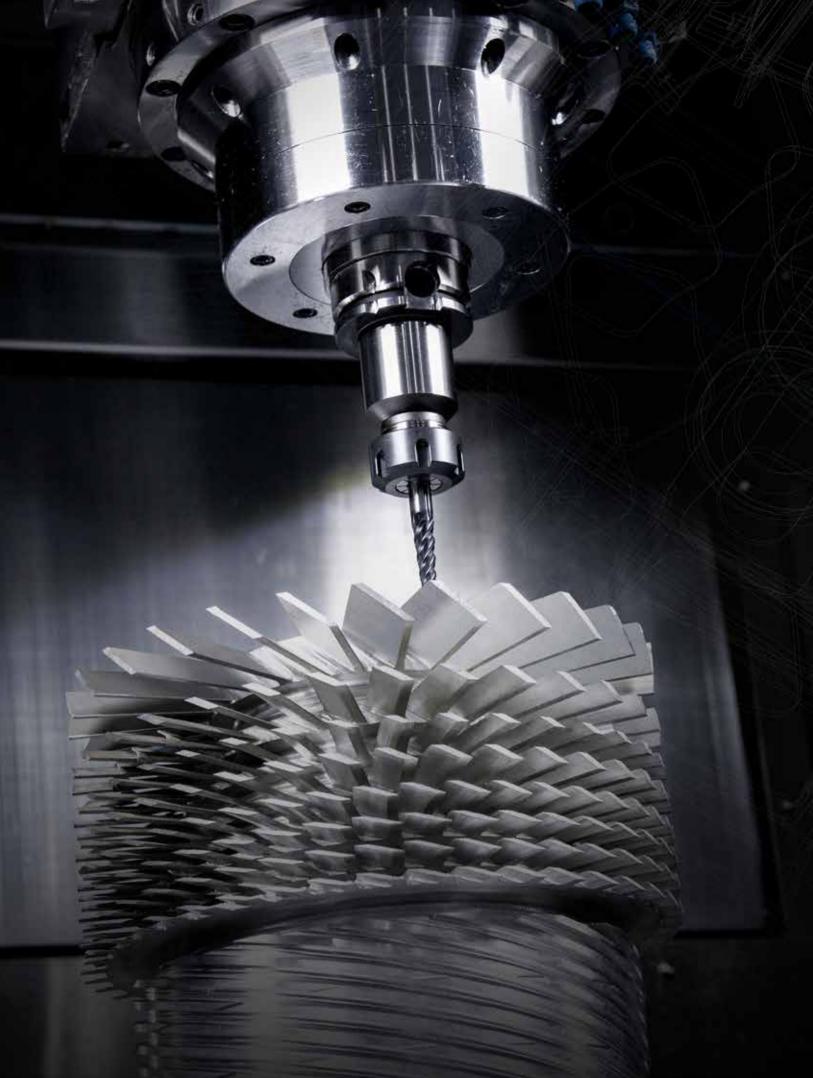
4) Wedge Wire Chip Conveyor (Integrated Scraper and Hinge Type)

A combined structure of a scraper type chip conveyor and hinge type rail allows general chips and fine chips to be disposed of at all times.

Auto Pivot Compensation

It can be easily self-calibrate the A-axis and C-axis displacement due to processing conditions and surroundings are always able to maintain a high accuracy.

<Pivot Compensation software (HW-TPC) : Std. Probe & Datumball : Opt.>





COLLISION AVOIDANCE

Machine tools cannot completely avoid the risk of collision due to programing errors, operator mistakes and other minor mishaps.

A collision can have a serious impact on the performance of a machine tool's feed axis and spindle, causing considerable losses in terms of lost production, repair costs, etc.

Obviously, the 5-axis machining center is more vulnerable to the risk of collision than the 3-axis machining center, and also tends to sustain far greater damage in the event of a collision.

That is why many buyers of 5-axis machining centers decide to pay a significant amount of money to buy a collision avoidance system generally offered by the manufacturers as an optional feature.

HYUNDAI WIA, however, is committed to ensuring that our customers can operate our machine tools in the safest environment.

As part of our efforts to fulfill such a commitment, HYUNDAI WIA's XF series is equipped with a collision avoidance system as a standard feature.

SPECIFICATIONS

Standard & Optional

 Standard ○ : Option ☆ : Prior Consultation - : Non Ap

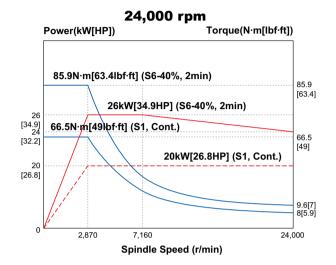
Spindle	5	XF6300	XF8500	Safety Device		XF6300	XF85
9,000 rpm	Bulit-in	0	•	Collision Aviodance		•	•
5,000 rpm	Bulit-in	•	0	Total Splash Guard		•	•
24,000 rpm	Bulit-in	0	0	Door Interlock		•	•
30,000 rpm	Bulit-in	-	0	Controller			
40,000 rpm	Bulit-in	0	-	SIEMENS 840D sl		•	0
Spindle cooling system	Don't III	•	•	HYUNDAI-iTROL+		0	•
ATC		· ·		HEIDENHAIN TNC640		0	0
RIC	24		_			0	0
34		•	•	S/W - SIEMENS, HYUNDAI-ITROL*			
ATC extension	68	0	0	Machine guidance (HW-MCG)		•	•
	102	0	0	Tool Monitoring (HW-TM) SIEMENS/iTROL+		☆/●	☆/●
Tool shank type	HSK A63	•	•	DNC Software (HW-eDNC)		0	0
Tool Stalik type	HSK E40 (30K, 40K)	•	•	Spindle Heat Distortion Compensati	on (HW-TDC)	•	•
U-center	D'andrea	☆	\$	Spindle Warm up Function (HW–WA	RMUP)	•	•
Table & Column				Energy Saving System (HW–ESS)		-	_
Tap type table		☆	\$	Machine Monitoring System (HW-N	MMS)	0	0
T-slot table		•	•	Tool Offset Measurement (HW-TO)		_	_
	- · · ·						
DDM NC rotary table (simultan		•	•	Machining Condition Selection (HW–MCS)		•	•
Gear NC rotary table((3+2 axi	s machining suggest)	0	-	Adaptive Feed Control (HW–AFC)		☆/●	☆/●
Turning table (800 rpm)		-	0	Conversational Program (HW-DPR)	O)	-	-
Coolant System				S/W - HEIDENHAIN			
Std. coolant (flood coolant)		•	•	Advanced function set 1		•	•
Bed flushing coolant		•	•	Advanced function set 2		•	
	20bar (290 psi)	0	0	DCM collision		•	
Through spindle coolant	30bar (435 psi)	0	0	KinematicOpt		-	
{25 l (6.6 gal)}	70bar (1,015 psi)					-	
51	700ai (1,015 pSI)	0	0	Display step		0	0
Shower coolant		☆	0	DXF converter		0	0
Gun coolant		0	0	AFC : Adaptive Feed Control		0	0
Air gun		0	0	KinematicComp		0	0
Cutting air blow		•	•	CTC : Cross Talk Compensation		0	0
Tool measuring air blow		•	•	PAC : Position Adaptive Control		0	0
Air blow for automation		☆	\$	LAC : Load Adaptive Control		0	0
Thru MQL device (without MQL)		☆	☆	ACC : Active Chatter Control		0	0
Coolant chiller (Sub tank)				AVD : Active Vibration Damping		0	0
		☆	☆ .			U	U
Power coolant system (for aut	OMALION)	☆	☆	Measuring Device			
Chip Disposal				Auto work measuring device		0	0
	Cabin (470 ℓ)	-	 Tool monitoring (OMARTIVE/MARPOSS) 		OSS)	0	0
Coolant tank	Separate Type		0	Auto tool mossuring dovice (Lases)	Renishaw	•	•
	{1,200 \((317 gal) \)	0	O	Auto tool measuring device (Laser:	BLUM	(Choose one)	0
	Left	0	0	Linear scale	X/Y/Z axis	•	•
Chip conveyor	Right	☆	☆	Rotary scale	A/C axis	•	•
(Hinge/Scraper)	Rear			Coolant level sensor (only for chip			•
		*	☆		convegor)		
Special chip conveyor (drum fi		☆	☆	Environment			
	Standard	0	0	Control air conditioner (SAMIK/AIR		•	•
	(180 l [47.5 gal])			ECO energy (hydraulic device/chip cor	oveyor shaving mode)	•	•
	Swing		_	Dehumidifier (SAMIK)		0	0
	(200 £ [52.8 gal])	0	0	Oil mist collector (MORE/YHB/YOL	INGPOONG)	☆	0
Chip wagon	Large Swing			MQL (minimal quantity lubrication)		*	☆
9	(290 £ [76.6 gal])	0	0	Fixture & Automation		,	
	Large Size			Auto door		0	0
	_	0	0		uctom)		
	(330 £ [87.2 gal])			Auto shutter (only for automatic system)		0	0
	Customized	0	0	Sub operation pannel		*	☆
Electric Device				External M code 4ea		0	0
Call light	1color : -	0	0	Automation interface		☆	☆
Call light	2color : • •	0	0	1/0 t (', 0, 1)	16 contact	0	0
Call light	3color : • • •	0	•	I/O extension (In & out)	8 contact	0	0
Call light & buzzer	3color : • • • B	•	0	Hyd. Device	1		
Work light	Jeonor . = = = D	-	•	ga. bevice	70bas (1.035:)/		
		-		Std. hyd. unit	70bar (1,015 psi)/ 40 (1 gal)	•	•
Electric cabinet light		0	0		-		
Remote MPG		•	•	Center type hyd. supply unit	2×2(4 port)	0	0
3 axis MPG		0	0	Hud. unit for fixture	50bar (725 psi)	*	☆
Electric circuit breaker		0	0	rigo, dilicitor fixture	Customized	☆	☆
AVR (Auto voltage regulator)		☆	*				
Transformer	65kVA	0	0				
Auto power off	05.111	•	•				
ETC							
Tool box		•	•				
Customized color	Need for Munsel No.	☆	☆				
Castonnizea color							

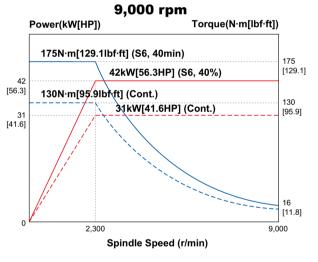
SPECIFICATIONS

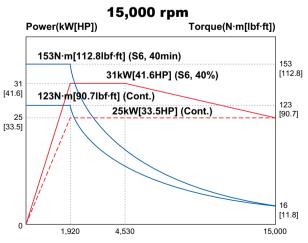
Spindle Output/Torque Diagram

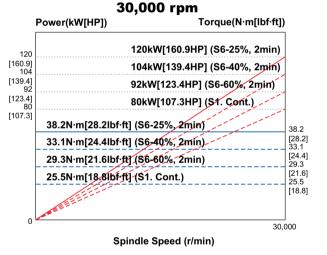
XF6300 Spindle				
Std.	15,000 rpm	HSK-A63		
Opt.	24,000 rpm	HSK-A63		
	40,000 rpm	HSK-E40		

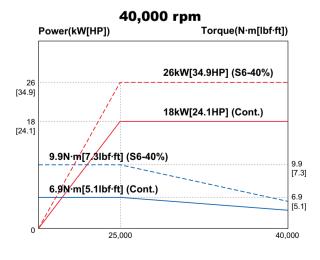
XF8500 Spindle				
Std.	9,000 rpm	HSK-A63		
Opt.	15,000 rpm 24,000 rpm	HSK-A63		
	30,000 rpm	HSK-E40		











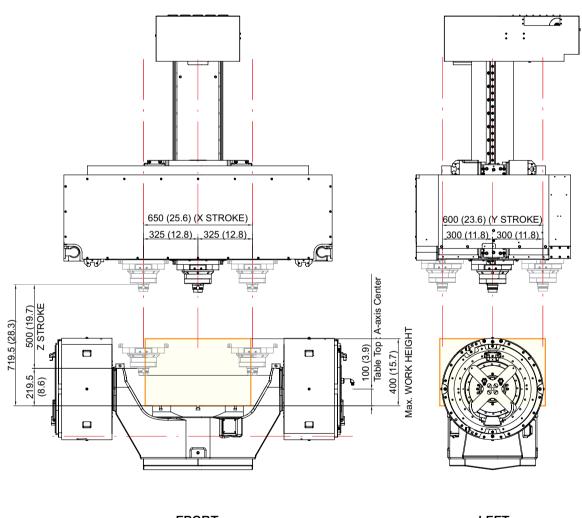
SPECIFICATIONS

Spindle & Table Travel Range

unit : mm (in)

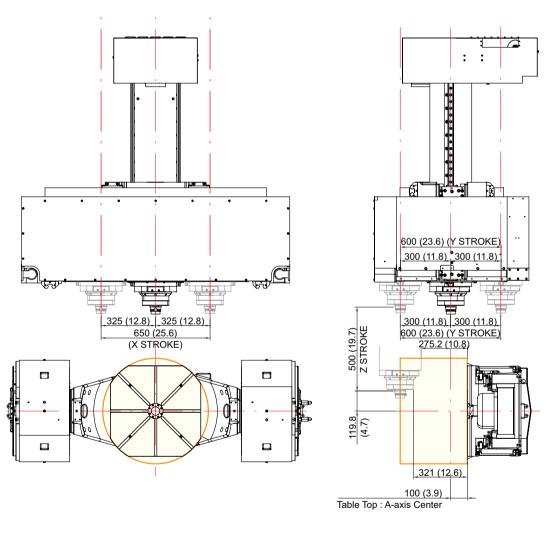
XF6300

Tilting: A-axis 0°



FRONT LEFT

XF6300



Tilting: A-axis -90°

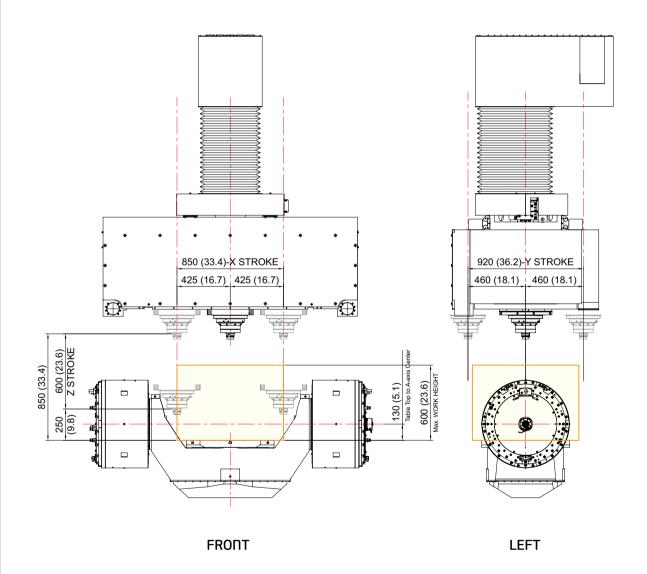
FRONT LEFT

Spindle & Table Travel Range

unit : mm (in)

XF8500

Tilting : A-axis 0°



XF8500

Tilting: A-axis -90°

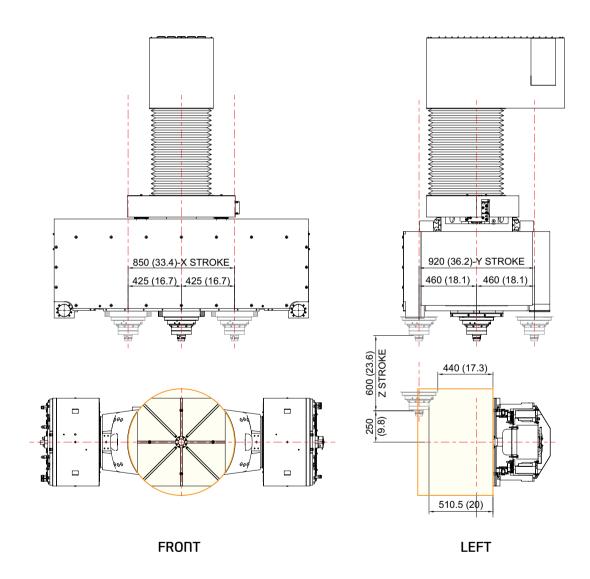
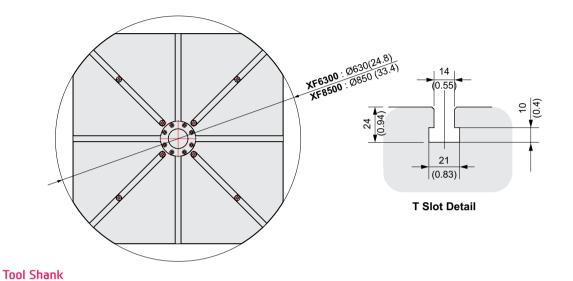
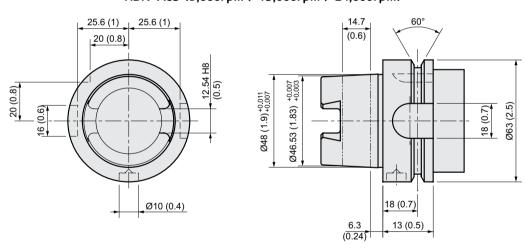


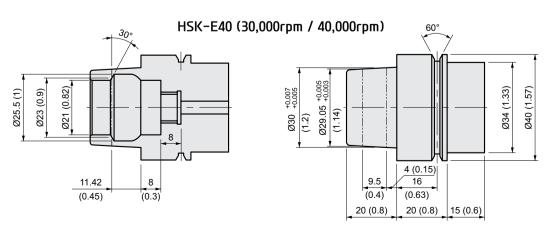
Table Dimensions unit: mm (in)



HSK-A63 (9,000rpm / 15,000rpm / 24,000rpm)

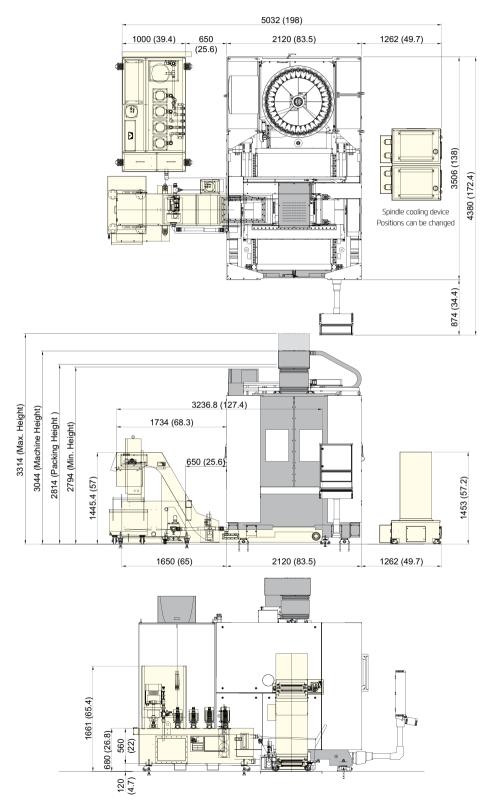
unit:mm (in)



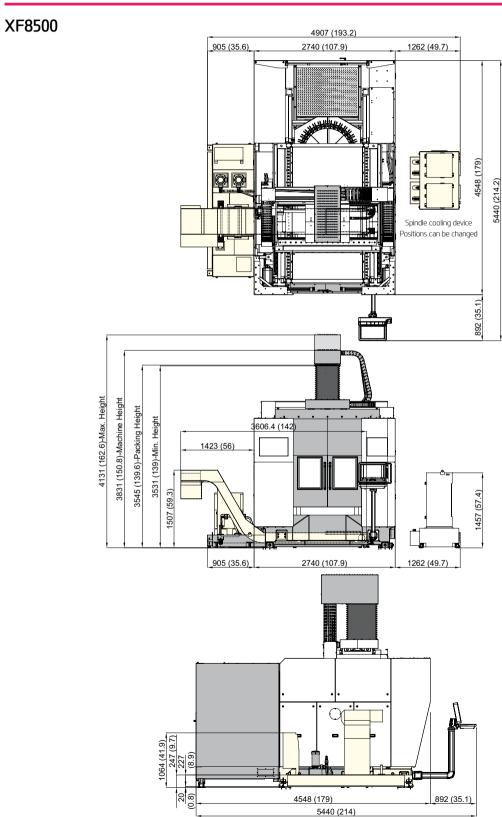


External Dimensions unit: mm (in)

XF6300



External Dimensions unit: mm (in)



Specifications []: Option

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					f 1 Obiioi
	MODEL			XF6300	
	Table Size		mm(in)	Ø630 (Ø24.8")	
TABLE	Maximum Load Capaci	ity	kg(lb)	Max. 600 (1,323)	
	*Max. Macining Heigl	ht(lxH)	mm(in)	Ø800×500 (Ø31.5″x19.7″)	
	Table Driving Method mm(in)			DDM [GEAR]	
	Spindle Taper -			HSK-A63 [40K: HSK-E40]	
	Spindle RPM r/min			15,000 [24,000] [40,000]	
SPINDLE	Spindle Power Output	(Max./Cont.)	kW(HP)	31/25 (41.6/33.5) [26/20 (35/27)] [26/18 (35/24)]	
	Spindle Torque (Max./	(Cont.)	N·m(lbf·ft)	153/123 (112.8/91) [85.9/66.5 (63.4/49)] [9.9/6.9 (7.3/5)]	
	Spindle Driving Metho	d	-	BUILT-IN	
	TI	X/Y/Z Axis	mm(in)	650/600/500 (25.6″/23.6″/19.7″)	
	Travel	A/C Axis	deg	150° (-30°~+120°)/360°	
	Distance from Table To	p to SP. Nose	mm(in)	220 (8.7") ~ 720 (28.3")	
FEED	Rapid Traverse Rate	X/Y/Z Axis	m/min(ipm)	SIEMENS 840D sl : 60/60/60 (2,362/2,362/2,362) [HEIDENHAIN TNC640 : 50/50/50 (1,967/1,967/1,967)]	
		A/C Axis	r/min	DDM : 70/110 [Gear : 25/50]	
	Slide Type		-	ROLLER GUIDE	
	Number of Tools ea			34 [68, 102]	
	Tool Shank -			HSK-A63 [40K: HSK-E40]	
	Max. Tool Dia. (W/T Adjacent Tool) mm(in)			Ø90/Ø125 (Ø3.5″/Ø4.9″)	
ATC	Max. Tool Length		mm(in)	300 (11.8)	
	Max. Tool Weight	Max. Tool Weight kg(lb)		8 (17.6) [40K : 1.5 (3.3)]	
	Tool Change Time	C-C	sec	4.5	
	Tool Selection Method -			FIXED / RANDOM	
	Coolant Tank ℓ (gal)			1,200 (317) {Propriety Capacity : 800 (211.3)}	
TANK CAPACITY	Lubricating Tank £ (gal)			2 (0.5)	
	Hydraulic Tank £ (gal)			4 (1)	
	Electric Power Supply KVA			73	
POWER SUPPLY	Thickness of Power Cable Sq			OVER 50	
	Voltage V/Hz			380/60	
	Floor Space (L×W) mm(in)			5,032×4,380 (198″×172.4″)	
MACHINE	Machine Size (L×W) mm(in)			2,120×4,380 (83.5″×172.4″)	
MACFIIIE	Height mm(in)			3,045 (120″)	
	Weight kg(lb)			11,000 (24,251)	
CNC	Controller		_	SIEMENS 840D sI [HEIDENHAIN TNC640] [HYUNDAI-iTROL ⁺]	

Specifications []: Option

	MODEL			XF8500
	Table Size		mm(in)	Ø850 (Ø33.4″)
TABLE	Maximum Load Capacity kg(1,000 (2,205)
	*Max. Macining Height(IxH) mm(in)			Ø1,000×600 (Ø39.4″x23.6″)
	Table Driving Method mm(in)			DDM
	Spindle Taper -			HSK-A63 [30K : HSK-E40]
	Spindle RPM r/min			9,000 [15,000] [24,000] [30,000]
SPINDLE	Spindle Power Output (Max./Cont.) kW(HP)			42/31(56.3/41.6) [31/25 (41.6/33.5)] [26/20 (35/27)] [33.1/25.5 (44.4/34.2)]
	Spindle Torque (Max./	Cont.)	N·m(lbf·ft)	175/130 (129/95.9) [153/123 (112.8/91)] [85.9/66.5 (63.4/49)] [104/80 (76.7/59)]
	Spindle Driving Method	d	-	BUILT-IN
		X/Y/Z Axis	mm(in)	850/920/600 (33.4"/36.2"/23.6")
	Travel	A/C Axis	deg	150° (+30°~-120°)/360°
	Distance from Table Top	to SP. Nose	mm(in)	250~850 (9.8″~33.4″)
FEED	D. IIT. D.	X/Y/Z Axis	m/min(ipm)	45/45/45 (1,772/1,772/1,772)
	Rapid Traverse Rate	A/C Axis	r/min	50/100 (DDM)
	Slide Type		-	ROLLER GUIDE
	Number of Tools		ea	PICK UP : 34 [TWIN ARM : 68, 102]
	Tool Shank -			HSK-A63 [30K: HSK-E40]
	Max. Tool Dia. (W/T Adjacent Tool) mm(in)			Ø90/Ø125 (Ø3.5"/Ø4.9")
ATC	Max. Tool Length mm(in)			300 (11.8)
	Max. Tool Weight kg			8 (17.6) [30K : 1.5 (3.3)]
	Tool Change Time	C-C	sec	4.98
	Tool Selection Method -		-	FIXED / RANDOM
	Coolant Tank £ (gal)			810 (214)
TANK CAPACITY	Lubricating Tank (gal)			2 (0.5)
C/ II / ICIT I	Hydraulic Tank (gal)			4 (1)
	Electric Power Supply KVA			73
POWER SUPPLY	Thickness of Power Cable Sq			OVER 50
	Voltage V/Hz			380/60
	Floor Space (L×W)			4,907x5,440 (193.2″x214.2″)
MACHINE	Machine Size (L×W) mm(in			2,740x5,440 (107.9″x214.2″)
MACHINE	Height		mm(in)	3,831 (150.8)
	Weight		kg(lb)	21,000 (46,297)
CNC	Controller		-	HYUNDAI-iTROL [†] [HEIDENHAIN TNC640]

CONTROLLER

HYUNDAI-iTROL+ | SIEMENS 840D sI

Control Function	
Controlled axis	10 axis
Simultaneous controllable axis	5 axis (max 20 axis)
Least Command/input	0.0001mm / 0.0001inch
Feed Function	0.0001111117 0.0001111011
	0 1209/
Feedrate / Rapid traverse override	0 - 120%
Tool Function	
Tool radius comp.	
Zero offset	6ea (Max:100ea)
(G54, G55, G56, G57, G58, G59)	
Programmable zero offset	
3D tool radius compensation	
Display	
Language	Chinese simplified, English, French
Language	German, Italian, Spanish
CRT/MDI	TFT 19" color
Screen saver	
Spindle Function	
Spindle override	50% - 120%
Spindle orientation	
Spindle speed limitation	
Rigid tapping	
Manual Operation	
Manual handle/jog feed	
Reposition	
Reference approach	Ref 1, 2 approach
Spindle control	Start, stop, rev, jog, ort.
Auto Operation	
Single block	
Feed hold	
Optional block skip	
Machine lock	
Dry run	
Simulation	
Diagnosis Function	
Alarm display / Monitor	
Programming Function	
Part program storage length	10MB
Program name	23 Digits
Subroutine call	7 Level
Absolute/incremental command	G90 - G91
Appointe/Incremental command	090 091

Programming Input & Interpolation Fu	Inction
Scaling / Rotation	
Inch / Metric conversion	
Conversational cycle program	22 ea
Block search	
Macro	
Read/Write system variable	
Background editing	
Miscellaneous functions	M - code
Skip	
Program stop	M00, M01, M02, M30
Lookahead, jerk limitation feed	
& forward control	
Helical interpolation	
COMPCAD, COMPCURB	
Cylinderical interpolation	
Work coordiante interpolation	
Interactive program	
Fanuc program exe.	
Machining package milling	
Protection Function	
Emergency stop	
Soft limit	
Contour monitoring	
Program protection	
Automation Support Function	
Actual speed display	
Tool life management	Time, parts
Work count	Internal
Language	
	Chinese traditional, Czech, Danish
	Dutch, Finnish, Hungarian, Japanese
Two language switchable	Korean, Polish, Russian, Swedish
	Portuguese, Turkish
DATA Transfer	
RS 232C I/F	
Ethernet	
Option	
Display	With harddisk
Data transfer	Only PCU50

HYUNDAI-iTROL+ Native Smart Software

Standard Specification	
Home screen	A launcher function similar to the smart device's home screen
Remote viewer	Remote access to other devices, office PCs, etc., and management of access lists
Manual viewer	PDF manuals for machines, NC, and iTROL+
Calculator	2-points or 3-points center calculation, machining condition calculation
Machine monitoring	Visualized machining status
Job document viewer	Viewer function designed to check work documents such as work instruction and work schedule
Factory monitoring	Real-time monitoring of the machining status of other in-factory machines connected via OPC_UA
Regular check	Inspection list by period, and informs about impending inspections
Energy saving	Energy saving functions (such as Machine Ready power save and work light automatic off), and graphic expression of energy consumption
Machining history	Real-time storage of important machine information (spindle load, tool number, etc.)
Touch MCP	Physical MCP implemented in HMI to resolve the physical limitations
Side screen	All-time display of the frequently used coordinate system, frequently-used expressions, etc. on the left to improve work convenience
ATC recovery	Help screen designed to solve the tool change problems
Tool monitoring & AFC	Real-time monitoring of tool status, and control of machining speed adjustment according to load
Alarm Guidance	Provide corrective measure for the alarm with PLC I/O status and save 4-month history of the alarm
Collision avoidance for manual operation mode	Function designed to prevent machine/workpiece collision during the manual operation mode (optional)

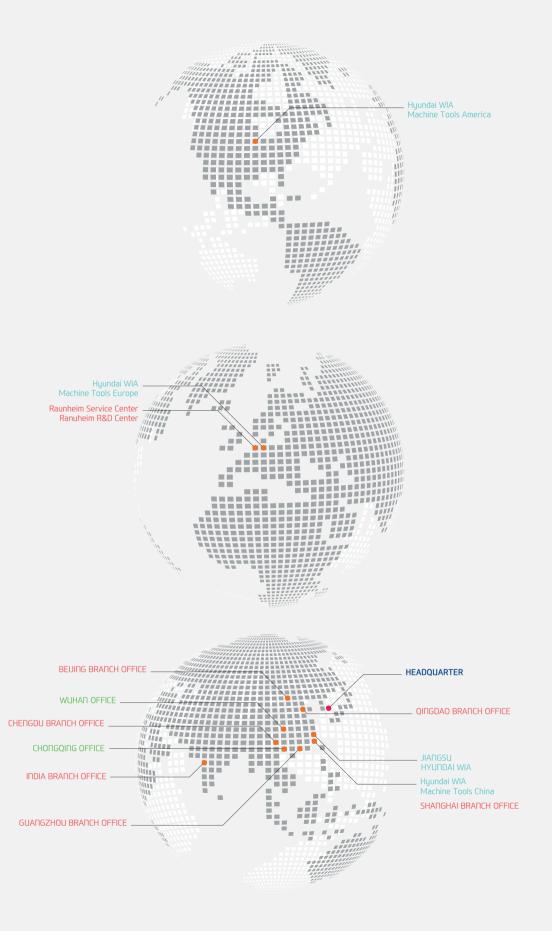
HEIDENHAIN TNC640 Standard

Axes			
Controlled axes	10 Axes (Max. 18 Axes)		
Simultaneously controllable axes	5 Axes.		
Rotary Controlled axes	3 Axes (Max. 3 Axes)		
	0.0001 mm / 0.0001 ° (Option : 0.00001 mm / 0.00001 °)]		
Least command increment			
Display unit	19-inch color TFT (Option : 15-inch color TFT)] 21GB (SSDR solid state disk)		
Program memory			
Block processing time	0.5 ms		
Path interpolation time	3 ms		
Fine interpolation time	0.2 ms		
Position controller time	02 ms		
Speed controller time	0.2 ms		
Current controller time	100 us (5000 hz)		
Encoder	Absolute EnDat 2.2		
Commissioning and diagnostics			
	Ethernet 2x1000 BASE-T		
Data interface	4xUSB 3.0		
	RS-232-C (max. 115200 baud)		
Machine Function			
Look ahead	5,000 Block		
HSC filters			
Switching the traverse ranges			
User Function			
Program input	HEIDENHAIN conversational		
Trogram input	DIN/ISO		
	Nominal position for lines and arcs in Cartesian / Polar coordinates		
Position entry	Incremental / absolute dimensions		
	Display / entry in mm or inch		
	Tool radius in th working plane and tool length		
Tool compensation	Radius-compensated contour for up o 99 blocks (M120)		
	3-diemensional tool-radius compensation for changing tool data without having to recalculate an existing program		
Tool tables	Multiple tool tables with any number tools		
Cutting data	Automatic calculation of spindle speed, cutting speed, feed per tooth / revolution		
5 1 1 1 1	Relative to the path of the tool center		
Constant contour speed	Relative to the tool's cutting edge		
Parallel operation	Creating program with graphical support while another program is being run		
	Motion control with smoothed jerk		
	3D tool compensation through surface normal vectors		
	Tool Center Point Management (TCPM)		
3D machining	Keeping the tool normal to the contour		
	Tool radius compensation normal to the tool direction		
	Manual traverse in the active tool-axis		
	Programming of cylindrical contours as if in two axes		
Rotary table maching	Feed rate in distance per minute		
	Straight line		
	Chamfer		
	Circular path		
Contour elements	Circle center		
Contour elements	Circle radius		
	Tangentially connecting circular arc		
EV from contour programming	Corner rounding		
FK free contour programming	in HEIDENHAIN conversational format with graphic support for workpiece drawings not dimensioned for NC		
December 1	Subprograms Decrease and the control of the contro		
Program jumps	Program section repeats		
	Calling any program as a subprogram		
Coordinate transformation	Datum shift, rotation, mirror image, scaling factor (axis-specific)		
Q parameters programming with variables	Mathematical functions		
.,	Logical operations		
O parameters programming with variables	Calculating with parentheses		
	Absolute value of a number, constant π , negation, truncation of digits		
O parameters programming with variables			
Q parameters programming with variables	Functions for calculation of circles		

HEIDENHAIN TNC640 Standard

Hear Supetion			
User Function	Drilling tapping rigid tapping		
	Drilling, tapping, rigid tapping		
	Peak drilling, reaming, boring, centering		
	Milling internal and external threads		
	Clearing level and oblique surfaces		
Fixed cycle	Multioperation machining of straight and circular slots		
	Multioperation machining of rectangular and circular pockets		
	Cartesian and polar point patterns		
	Contour train, contour pocket		
	Contour slot with trochoidal milling		
	Engraving cycle		
	Calculator		
	Complete list of all current error messages Context—constitue help function for error		
Programming aids	Context-sensitive help function for error		
	TNCguide: The integrated help system		
640.4	Graphic support for programming cycles		
CAD viewer	Display of CAD data formats on th TNC		
Teach-In	Actual positions can be transferred directly into the NC program		
	Graphic simulation		
Test grphics Display modes	Plan view /projection in 3planes /3D view		
20 1	Magnification of details		
3D line graphics	For verification of programs created offline		
2D pencil–trace graphics	2D pencil-trace graphics		
Program–run graphics display moded	Graphic simulation during real-time maching		
	Plan view /projection in 3planes /3D view		
Machining time	Calculation of machining time in the Test Run operating mode		
Machining time	Display of the current maching time in the Program Run operating modes		
Returning to the contour			
Datum management	One table for storing reference point		
Datum tables	Multiple datum tables for storing workpiece–specific datums		
Language	English / German / Korean / French / Italian / Spanish / Portuguese / Swedish / Danish / Finnish / Dutch /		
	Polish / Hungarian / Russian / Chinese / Chinese _Trad /Slovenian / Norwegian / Czech / Romanian / Slovak / Turkish		
Interpolation			
Linear	5 Axes		
Circular	3 Axes		
Spline	(Max. 5 Axes)		
Helical			
Cylinder surface			
Rigid tapping			
HEIDENHAIN S/W OPTION (As a standard)			
Advanced function set 1	Rotary table machining / 2. Coordinate transformations / 3. Interpolation		
Advanced function set 2	1. 3-D machining / 2. Interpolation		
DCM : Dynamic Collision Monitoring	Collision monitoring for safety machining operation		
Kinematic Opt	Easy calibration of rotary axes		
HEIDEDHAID S WA ODTIOT (S.).			
HEIDENHAIN S/W OPTION (Customer Option)			
Display step (micron control)	Linear axis : 0.1 μ m (std) \rightarrow 0.01 μ m (with option #23) / Angular axis : 0.0001° (std) \rightarrow 0.00001° (with option #23)		
DXF converter	Importing contours and machining options from DXF files		
AFC : Adaptive Feed Control	Controls the feed rate depending on the machine situations		
Kinematic comp (3–D spatial compensation)	Improves machine accuracy by compensation of geometry errors		
CTC : Cross Talk Compensation	Compensation of position errors through axis coupling to improve quality and accuracy		
PAC: Position Adaptive Control	Position-dependent adaptation of control parameters		
LAC : Load Adaptive Control	Adjust the parameters of the feedforward control to the current mass of the workpiece		
ACC : Active Chatter Control	Reduces chattering during heavy cutting to decrease tool mark and machine load		
AVD : Active Vibration Damping	Vibration damping by adjusting of the jerk for better surfaces		

GLOBAL NETWORK



GLOBAL NETWORK



HEADOUARTER

Changwon Technical Center / R&D Center / Factory

153, Jeongdong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea (Zip Code : 51533) TEL : +82 55 280 9114 FAX : +82 55 282 9680

Uiwang Technical Center / R&D Center

37, Cheoldobangmulgwan-ro, Uiwang-si, Gyeonggi-do,

Korea (Zip Code : 16082)

TEL: +82 31 596 8209 Fax: +82 55 210 9804

OVERSEAS OFFICES

HYUNDAI WIA Machine Tools America

265, Spring Lake Drive, Itasca, IL, 60143

TEL: +1 630 625 5600 FAX: +1 630 625 4733

Jiangsu HYUNDAI WIA

Company No.6 Fenghuang Road, Fenghuang Town, Zhangjjagang City, Jiangsu province, China

TEL: +86 512 5672 6808 FAX: +86 512 5671 6960

Hyundai WIA Machine Tools China Shanghai Branch Office

1–3F, Bldg6, No.1535 Hongmei Road, Xuhui District, Shanghai, China

TEL: +86 021 6427 9885 FAX: +86 021 6427 9890

Qingdao Branch Office

China

Room 1207, Cai Fu Building, 182–6 Haier Middle Road, Qinqdao, China

TEL: +86 532 8667 9334 FAX: +86 532 8667 9338

Chengdu Branch Office

TEL: +86 028 8665 2985

FAX: +86 028 8665 2985

ΠΟ.508 Room, B Block, AFC Plaza, ΠΟ.88

Jiaozi Road, High-tech Zone, Chengdu,

HYUNDAI WIA Machine Tools Europe

Kaiserleipromenade 5, 63067 Offenbach, Germany

TEL: +49 69271 472 701 FAX: +49 69271 472 719

Raunheim Service Center Raunheim R&D Center

Frankfurter. 63, 65479 Raunheim, Germany

TEL: +49 6142 9256 111 FAX: +49 6142 9256 100

Beijing Branch Office

Floor 14, Zhonghangji Plaza B, No.15 Ronghua South Road, BDA Dist., Daxing Dist., Beijing, China 100176

TEL: +86 010 8453 9850 FAX: +86 010 8453 9853

Wuhan Office

306–2, A Tower, Jiayu Gpmggian, No12 Chuangye Road, Economic Development Zone, Wuhan, Hubei, China

TEL: +86 027 5952 3256 FAX: +86 027 5952 3256

India Branch Office

#4/169, Rajiv Gandhi Salai, (OMR), Kandanchavadi, Chennai-600 096, Tamilnadu, India

TEL: +91-44-3290-1719

Guangzhou Branch Office

Room 311, Unit 1–3, POLY TAL TU WUN, Hanxi Avenue, Panyu District, Guangzhou, China

TEL: +86 020 8550 6595 FAX: +86 020 8550 6597

Chongging Office

Room 951, #3, Jinrongcheng T3, Jiangbei, Chongging, China

TEL: +86 23 6701 2970





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India Branch Office

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