

KF

4/5/6 Series

KF4 | KF5 | KF5/50 | KF6 | KF6/50

WIA Machine Tools Vertical Machining Center

Technical Leader

State-of-the-art Vertical Machining Center with High-speed and large work space

The Vertical Machining Center **KF4/5/6 Series**, designed by WIA machine tools with years of expertise and the latest technology, maximizes productivity while maintaining rigidity and accuracy.

ITEM	Spindle						Tool Shank		ATC				
	Direct					Built-in 20,000	BBT40	BBT50	24 EA	30 EA	32 EA	40 EA	60 EA
	8,000	*8,000	10,000	12,000	15,000								
KF4	●	○	○	○	○		●			●		○	
KF5	●	○	○	○	○	○	●			●		○	○
KF5/50		●						●	●				
KF6	●	○	○	○	○	○	●			●		○	○
KF6/50		●						●	●		○		

* High-Torque Spindle

● : Standard ○ : Option

KF 4/5/6 Series

High Speed & Productivity Vertical Machining Center

- High-precision machining by improved spindle quality
- High-speed roller type LM guide in all axis
- Optional 20,000rpm built-in spindle for high quality machining (KF5, KF6)
- Enhanced chip processing capabilities by applying the upper-type conveyor
- Various motors and columns provided for customized machining
- Improved user convenience by applying the latest controller of FANUC



01 BASIC STRUCTURE

High Speed & Productivity Vertical Machining Center

Magazine

- BBT40

Max. Tool Length : 300 mm (11.8")

Max. Tool Dia. : Ø125 (Ø4.9")

Max. Tool Weight : 8kg (17.6 lb)

- BBT50

Max. Tool Length : 350 mm (13.8")

Max. Tool Dia. : Ø250 (Ø9.8")

Max. Tool Weight : 15kg (33 lb)

High Precision Spindle

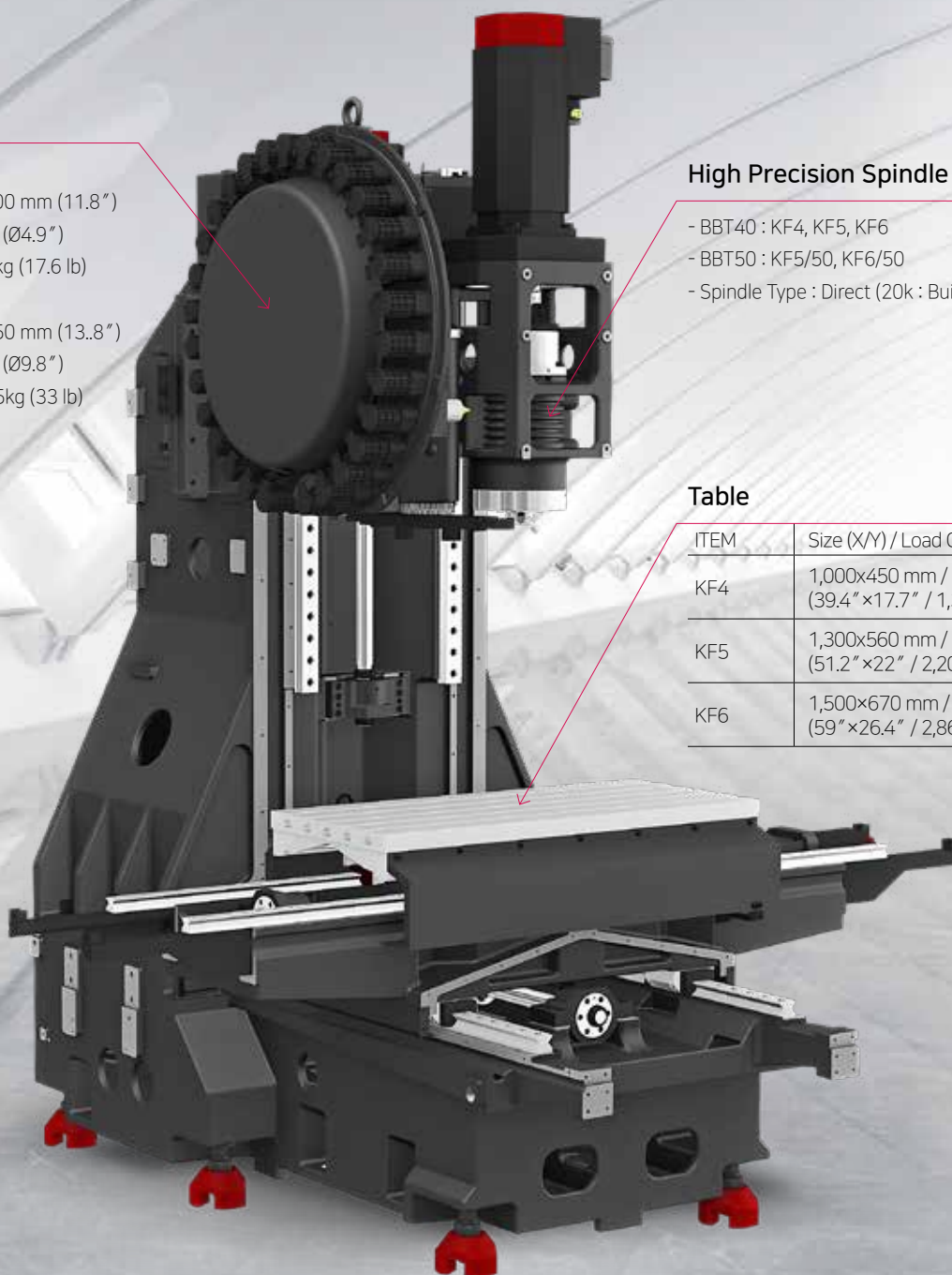
- BBT40 : KF4, KF5, KF6

- BBT50 : KF5/50, KF6/50

- Spindle Type : Direct (20k : Built-in Opt.)

Table

ITEM	Size (X/Y) / Load Capa.
KF4	1,000x450 mm / 600kg (39.4" x 17.7" / 1,323 lb)
KF5	1,300x560 mm / 1,000kg (51.2" x 22" / 2,205 lb)
KF6	1,500x670 mm / 1,300 kg (59" x 26.4" / 2,866 lb)



HIGH-PRECISION, SPEED & LARGE WORKING AREA

HIGH-PRECISION STRUCTURE

Optimal Structural Analysis

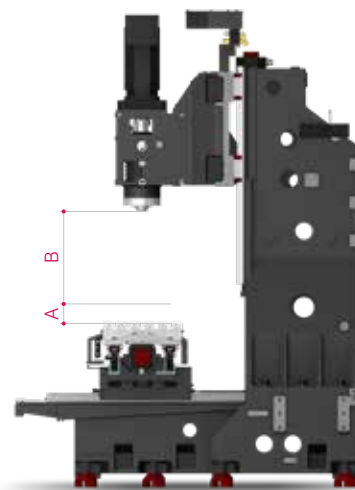
KF4/5/6 Series is designed to have optimal structure through WIA machine tools's unique structural analysis.

In particular, enhancement of bed and column's rigidity makes excellent performance even in heavy duty cutting.

One Piece High Column (Direct Sp.)

One piece high column is provided as an option up to z-axis height.

This option helps to process bigger products such as rack housing.



Incomparably Strong Rigidity Compared to Competitor's Block-type High Column

ITEM		Travel of Z-Axis	Height of High Column	A	B
KF4	Std. Column	510 mm (20.1")	-	150 mm (5.9")	150~660 mm (5.9"~26")
	High Column	510 mm (20.1")	200 mm (7.9")	350 mm (13.8")	150~860 mm (5.9"~33.8")
KF5	Std. Column	510 mm (20.1")	-	150 mm (5.9")	150~660 mm (5.9"~26")
	Opt. 635mm	635 mm (25")	-	150 mm (5.9")	150~785 mm (5.9"~30.9")
	High Column	635 mm (25")	300 mm (11.8")	450 mm (17.7")	450~1,085mm (17.7"~42.7")
KF5/50	Std. Column	510 mm (20.1")	-	200 mm (7.9")	200~710 mm (7.9"~28")
	Opt. 635mm	635 mm (25")	-	200 mm (7.9")	200~835 mm (7.9"~32.9")
	High Column	635 mm (25")	300 mm (11.8")	500 mm (19.7")	500~1,135mm (19.7"~44.7")
KF6	Std. Column	635 mm (25")	-	150 mm (5.9")	150~785 mm (5.9"~30.9")
	High Column	635 mm (25")	300 mm (11.8")	450 mm (17.7")	450~1,085mm (17.7"~42.7")
KF6/50	Std. Column	635 mm (25")	-	200 mm (7.9")	200~835 mm (7.9"~32.9")
	High Column	635 mm (25")	300 mm (11.8")	500 mm (17.7")	500~1,135mm (19.7"~44.7")

- High column can be applied to column with Z-axis traverse distance of 635mm(25") for KF5 (510mm(20.1") Standard column + 300mm(11.8") High column cannot be applied)

※ High Column : Option

02 HIGH-SPEED FEED

Highest Quality, High-speed Vertical Machining Center

[]: Option

Travel (X/Y/Z)

KF4

800/450/510 mm
(31.5" / 17.7" / 20.1")

KF5

1,050/560/510 [635] mm
(41.3" / 22" / 20.1" [25"])

KF6

1,300/670/635 mm
(51.2" / 26.4" / 25")

KF5/50

1,050/560/510 [635] mm
(41.3" / 22.0" / 20.1" [25"])

KF6/50

1,300/670/635 mm
(51.2" / 26.4" / 25")

Rapid Traverse Rate (X/Y/Z)

KF4

36/36/30 [42/42/36] m/min
(1,417/1,417/1,181 [1,654/1,654/1,417] ipm)

KF5

36/36/30 [42/42/36] m/min
(1,417/1,417/1,181 [1,654/1,654/1,417] ipm)

KF6

36/36/30 m/min
(1,417/1,417/1,181 ipm)

KF5/50

36/36/30 m/min
(1,417/1,417/1,181 ipm)

KF6/50

36/36/30 m/min
(1,417/1,417/1,181 ipm)

REDUCED NON-CUTTING TIME & IMPROVED FEED PRECISION

GUIDE WAY

High-Speed Roller LM Guideway

Linear roller guideways are applied to reduce non-cutting time and bring high rigidity. Each axis is directly connected to a highly reliable digital servo motor to provide high rigidity and minimal thermal displacement.

Improvement in Slide Cover

The increased slope of slide cover makes chip disposal easier and minimizes slide cover breakage.

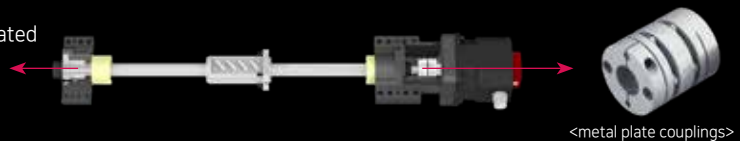


Double Anchored Ball Screw

The pretensioned ball screw minimizes the expansion and contraction according to the heat and further reinforces the rigidity by the double anchor support method. In addition, the coupling of the ballscrews and the highly reliable digital servo motors are connected by **metal plate couplings**, to reduce coupling breakage and backlash.

4 Row bearing + Grease Lubricated

Rigidity 30% Increase
compared to previous model



<metal plate couplings>



Automatic Grease Supply Unit

Automatic grease lubrication system, which does not require frequent refill, is applied as standard to improve user convenience and cost efficiency.

03 HIGH PRECISION SPINDLE

Excellent machining performance with high-precision spindle

KF4/5/6 Spindle Specifications

NC	Speed r/min	Motor (Max./Cont.)	Torque (Max./Cont.)	Type
FANUC	8,000/10,000 rpm	18.5/11 kW (25/15 HP)	118/52.5 N·m (87/38.7 lbf-ft)	Direct
	8,000 rpm (KF6)	18.5/15 kW (25/20 HP)	118/71.6 N·m (87/52.8 lbf-ft)	
	8,000 rpm (High-torque)	15/11 kW (20/15 HP)	286/143 N·m (210.9/105.5 lbf-ft)	
	12,000 rpm	18.5/11 kW (25/15 HP)	118/52.5 N·m (87/38.7 lbf-ft)	
	15,000 rpm	18.5/11 kW (25/15 HP)	118/52.5 N·m (87/38.7 lbf-ft)	
	20,000 rpm	22/18.5 kW (29.5/24.8 HP)	98/80 N·m (72.3/59 lbf-ft)	Built-in
SIEMENS	12,000 rpm	16.2/8.5 kW (21.7/11.4 HP)	119.7/63 N·m (88.3/46.5 lbf-ft)	Direct
HEIDENHAIN	12,000 rpm	17/10 kW (22.8/13.4 HP)	108.6/63.7 N·m (80/47 lbf-ft)	

KF5/50 | KF6/50 Spindle Specifications

NC	Speed r/min	Motor (Max./Cont.)	Torque (Max./Cont.)	Type
FANUC	8,000 rpm	22/11 kW (29.5/15 HP)	353.2/143.2 N·m (260.5/105.6 lbf-ft)	Direct

HIGH-PERFORMANCE, HIGH-PRECISION SPINDLE

SPINDLE

Direct Driven Spindle

The directly coupled spindle at a maximum revolution of 15,000rpm, allows high-speed processing. Additionally, the large diameter and the thickness of the spindle add to the stability of the machine. (KF5/50, KF6/50 : 8,000rpm)

Built-in Spindle (BBT40) **OPTION**

The 20,000rpm built-in spindle can minimize vibration transmitted to the spindle. It allows excellent machining performance in mold and high-precision products.

Spindle Cooling (Over 10,000 rpm / BT50 : Std.)

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

<Improved cooling capability with chilling through head frame>

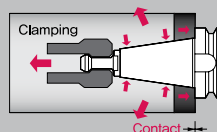
Through Spindle Coolant (20/30/70 bar) **OPTION**

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

The improved quality of rotary joint prevents oil leakage.

Dual Contact Spindle

The Big Plus spindle system (BBT40) provides dual contact between the spindle face and the flange face of the tool holder.



Direct Driven Spindle



Built-in Spindle



Spindle Automatic Grease Lubrication

Newly developed 20,000rpm built-in spindle with automatic grease lubrication applied as standard. Minimal amount of grease is injected automatically. Creating minimal amount of oil vapor which enhances factory environment, reduces noise pollution and saves energy.

Item	Sp. Lubrication Method	Advantages	Disadvantages
(Prior) 20k Built-In Spindle	Oil & Air	Superior Lubrication In High Speed	Oil Vapor Produced
(Now) 20k Built-In Spindle	Automatic Grease	Superior Lubrication In High Speed Minimal Oil Vapor Produced	-

(EASY EXCHANGE CARTRIDGE GREASE PUMP APPLIED)

04 ATC & MAGAZINE

High Productivity Achieved with High Rigidity, Accuracy Machining

ATC & Magazine

[] : Option

Model	No. of Tools	Max. Tool Length	Max. Tool Dia. (W.T/W.O)	Max. Tool Weight	Tool Shank
KF4	30 [40] EA	300 mm (11.8")	30T : Ø80/125 mm (Ø3.1"/Ø4.9") [40, 60T : Ø76/125 mm (Ø3"/Ø4.9")]	8 kg (18 lb)	BBT40 [HSK-A63]
KF5	30 [40, 60] EA				
KF6					
KF5/50	24 EA	350 mm (13.8")	Ø125/Ø250 mm (Ø4.9"/Ø9.8")	15 kg (33 lb)	BBT50 [HSK-A100]
KF6/50	24 [32] EA				

HIGH RIGIDITY, TOOL CHANGE SYSTEM

ATC & MAGAZINE

High Speed ATC

Position control through twin arm ATC on servo motors has been improved drastically. In addition, tool exchanging has become easier, reducing specific cutting time tremendously.

Position control on the Twin Arm ATC has improved drastically. The twin arm ATC enables faster tool change and increased productivity.



Tool Change Time (C-C)

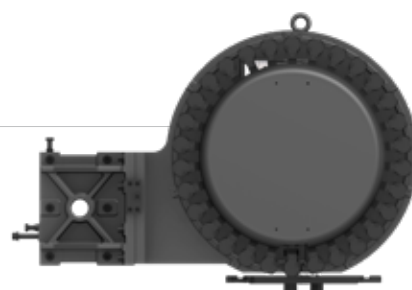
KF4 : 3.0 sec KF5 : 3.0 sec KF6 : 3.2 sec

(KF5/50 | KF6/50 : 5.5 sec)

Magazine(BBT40)

The tool magazine holds **30 tools** as standard and **40, 60 tools** as an option. Due to the wider selection of tools and the random tool selection method, tool change time has improved.

[Fixed Address tool selection method : Option]



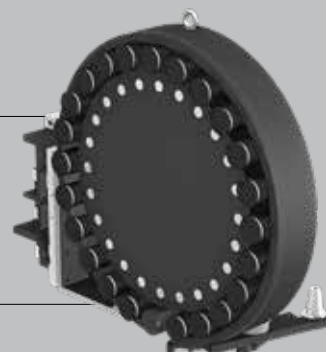
BBT50 ATC & MAGAZINE

BBT50 (KF5/50 | KF6/50)

KF5/50, KF6/50 provides a tool magazine of 24 tools as standard.

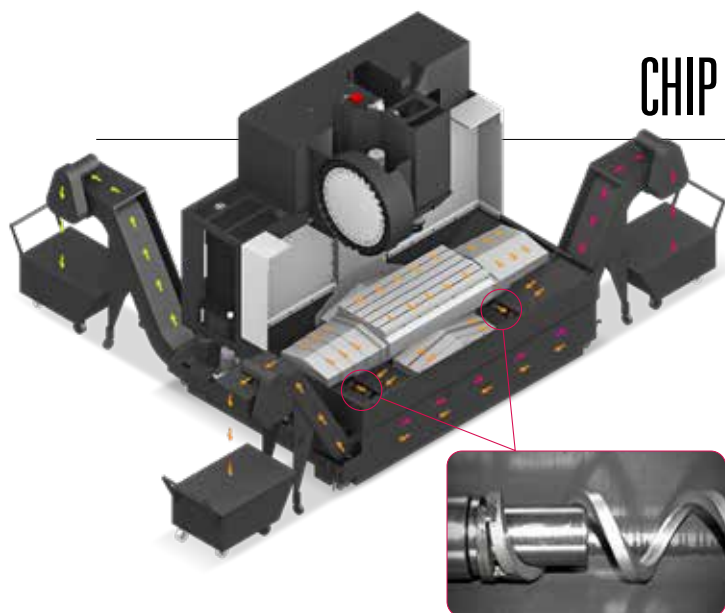
Also, ATC with high precision CAM provides fast and accurate tool change, reducing non-cutting time.

(KF6/50 : Opt. 32 EA)



05 USER CONVENIENCE

Various Devices for User Friendly



CHIP DISPOSAL SOLUTION & COOLANT UNIT



Cutting Air Blow (Opt.)



Bed Flushing Coolant (Opt.)



Gun Coolant (Opt.)



Air Gun (Opt.)

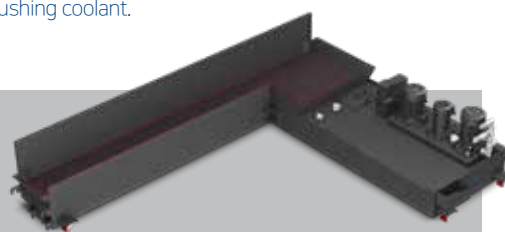
Interior Screw Chip Conveyor (Forward / Backward Rotation Function)

Dual screw type chip conveyors are located at each side of the bed which makes it convenient to remove chips. The interior screw and the chip conveyor operate at the same time and can be controlled separately at the time of prior consultation.

Furthermore, chip disposal capability significantly has been improved due to optional bed-flushing coolant.

Upper-type Conveyor (Std.)

The upper type chip conveyor is applied as a standard to efficiently remove chips generated during machining. In addition, the 340 liter (KF5) of large coolant tank provides a seamless machining environment even with large amounts of coolant.



Hinge	Chip Type : Roughing Chip, Long Chip, Chip complex	Material : SS41, 45C, Cast Steel	Side/Rear Direction
	Highly efficient when disposing a lot of chips. Capable of handling stringy chips..		
Scraper	Chip Type : Finely broken chip blown out	Material : cast Iron, Nonferrous	
	Convenient for shortly cut chips.		
※ Screw	Chip Type : The lower portion of micro-chips	Material : Steel, Casting	
	Compresses and ejects chips to reduce chip Trouble.		
※ Drum Filter	Chip Type : Powder, Micro Chip	Material : AL	
	Advantageous in precision, as the chips do not flow in to the coolant nozzle.		

※ When ordering a screw or drum filter chip conveyor, prior consult with hyudai wia's sales person.

Optional

PRECISION SYSTEM



Linear Scale

Linear scales increase positioning accuracy and reduce distortion caused by thermal growth, thus ensuring a more accurate finished part



Touch Sensor

Workpiece coordinate values can be set automatically using the optional spindle probe.



TLM (Laser & Touch)

Tool lengths and diameters can be set automatically using the optional tool setter. This can also be used to monitor attrition and detect broken tools.

PERIPHERAL DEVICE



Oil-skimmer

Separated oil-skimmer and coolant tank to keep coolant free of tramp oils.



Oil lubrication supply system

The KF4/5/6 series offers an optional oil lubrication supply system. It is recommended for applications requiring long hours of operation, such as mass production lines.



MQL (Minimal Quantity Lubrication)

The goal of this system is to spray only the amount of lubricant required to prevent heat and chip build up at the cutting tool or work piece face.



NC ROTARY TABLE & HYDRAULIC SUPPLY UNIT

Various shapes of products can be processed when using NC Rotary Table. In addition, 100 bar of high pressure hydraulic unit for the fixture increases the tightening power of the teeth.

06 FANUC - SMART PLUS

The Compatible All-round Control



15" Touch-type Monitor as a standard

Smart Machine Control

Fast Cycle Time Technology

Conversational Program

Fine Surface Technology

i-HMI

Smart Guide-i

AI Contour Control

Machining-aid Function

Smooth Tolerance Control

AICC-2 (200 blocks)

JERK Control

0.1 μ m command and specify tolerance

Machining Condition Selection

Diminished vibration by controlling acceleration speed

Machining Quality Control Function

Designated machining level based on speed & quality

Part Program Storage

Smooth Tolerance+ integrated support

No. of Registerable Programs

5120M (2MB)

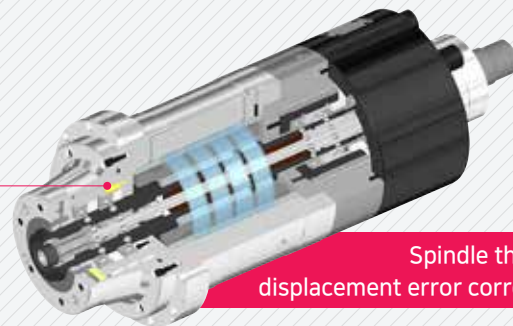
1000 EA

8Ch. Thermal displacement compensation **OPTION**



Control Software

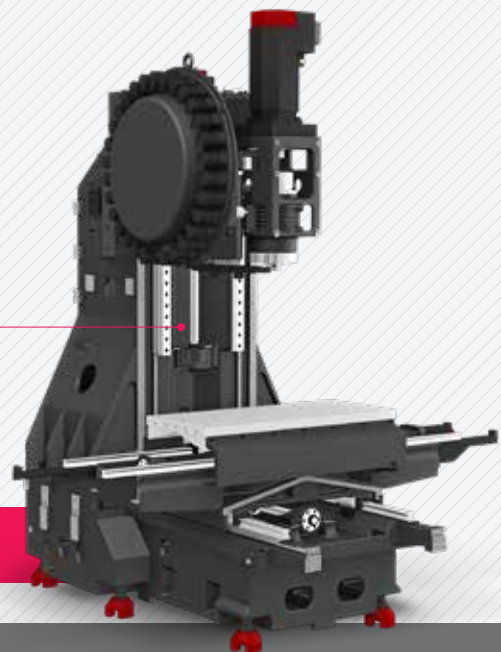
Thermal Sensor



Spindle thermal displacement error correction

Thermal Sensor

Structure thermal displacement error correction



Machine tools generate thermal displacement due to heat during machining.

WIA machine tools detect thermal changes through thermal sensors installed on the main thermal sources of the machine.

In addition, a thermal displacement compensation device that predicts the amount of thermal displacement according to the amount of thermal change and provides a command to the motor with a compensated value to maintain consistent precision is provided as an option.

SMART CNC (FANUC Smart Plus)



1. Dialogue Program (Smart Guide-i)

This software offers the maximum user convenience through dialogue manipulation from setup to processing. This includes writing processing programs and simulation checks.

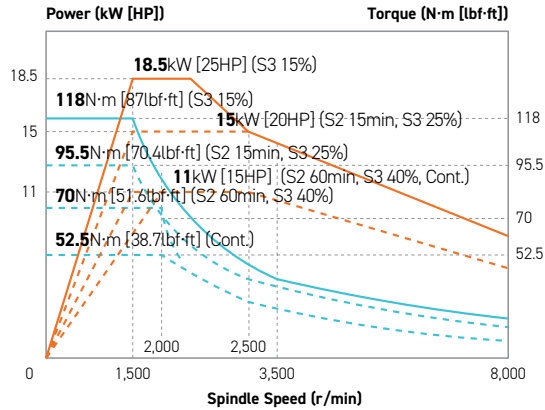
2. LAUNCHER

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

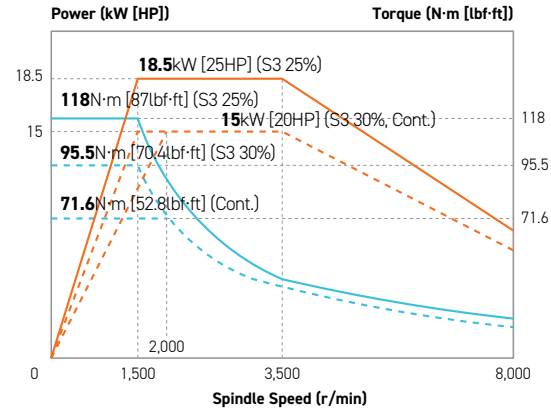
SPECIFICATIONS

Spindle Output/Torque Diagram

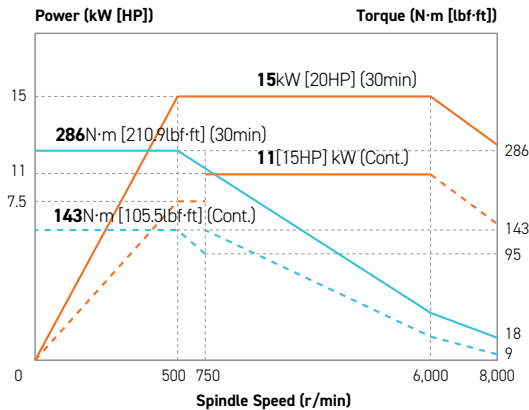
Direct 8,000rpm (KF4/5)



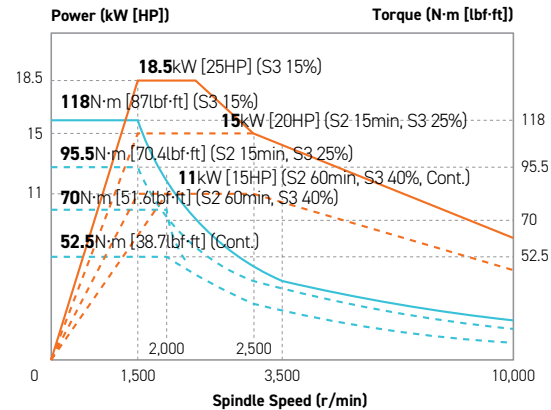
Direct 8,000rpm (KF6)



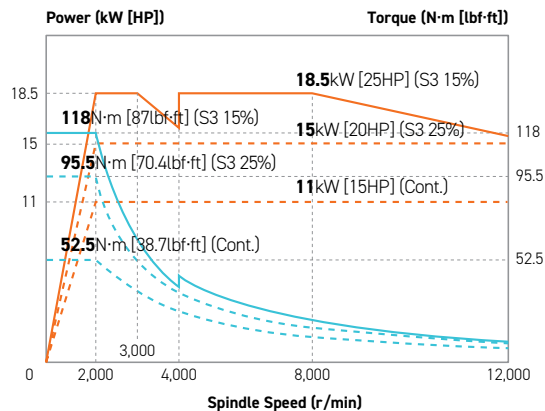
Direct 8,000rpm (High-Torque)



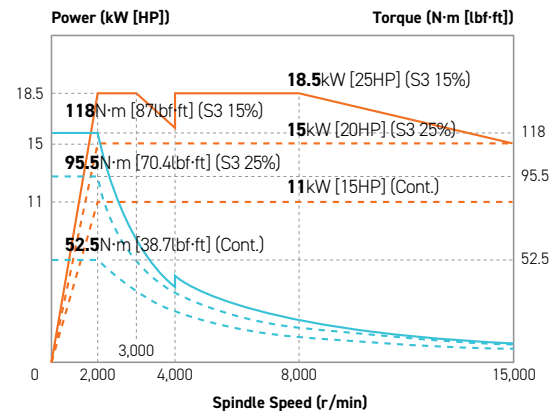
Direct 10,000rpm



Direct 12,000rpm



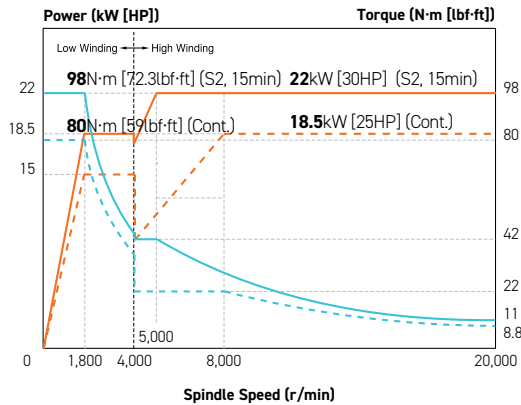
Direct 15,000rpm



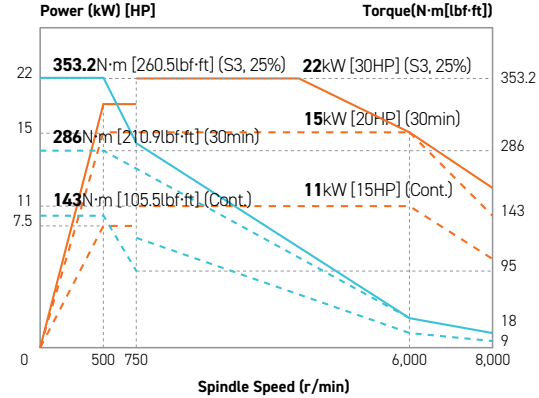
SPECIFICATIONS

Spindle Output/Torque Diagram

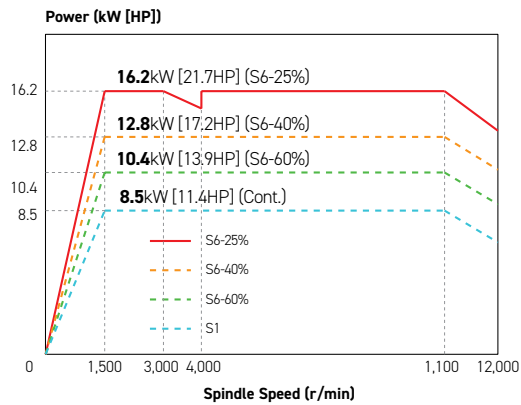
Built-in 20,000rpm



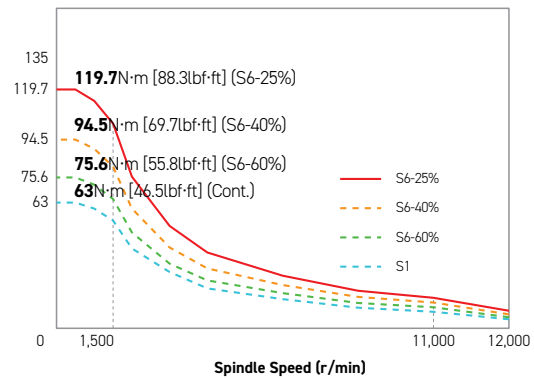
KF5/50 | KF6/50 Direct 8,000rpm



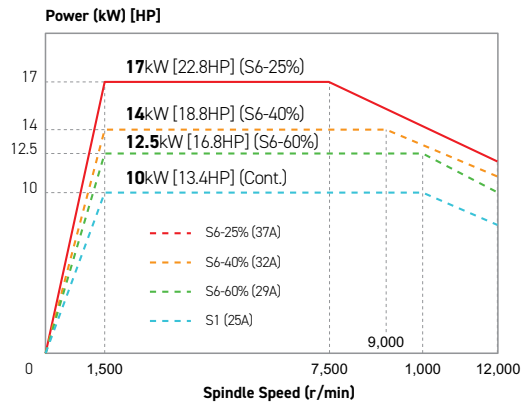
SIEMENS Direct 12,000rpm



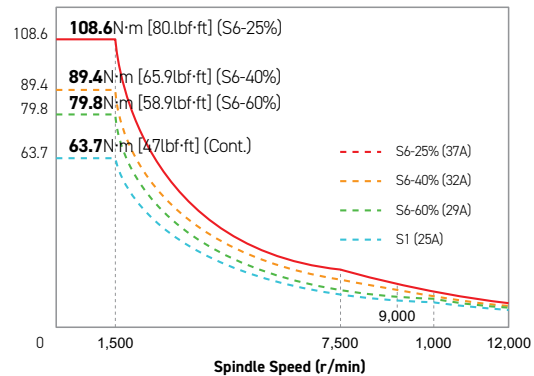
Torque (N·m [lbf·ft])



HEIDENHAIN Direct 12,000rpm



Torque (N·m)



SPECIFICATIONS

Standard & Optional (KF4)

Spindle		KF4
8,000rpm	FANUC	●
8,000rpm (High-torque)	FANUC	○
10,000rpm	FANUC	○
12,000rpm	FANUC	○
15,000rpm	FANUC	○
12,000rpm	SIEMENS	○
12,000rpm	HEIDENHAIN	○
Spindle Cooling System	8,000rpm	○
	Over 10,000rpm	●
ATC		
ATC Extension	30	●
	40	○
	BBT40	●
Tool Shank Type	HSK-A63 (12K, 15K)	○
	CAT40/BCV40	○
U-Center	D'andrea	○
Pull Stud	45"	●
Table & Column		
T-Slot Table		●
3-row T-slot		●
4-row T-slot		-
5-row T-slot		○
NCRotary Table		☆
High Column	200mm (7.9")	○
	300mm (11.8")	-
Coolant System		
Std. Coolant (Main Spindle Nozzle)		●
	20bar (290psi)	○
Through Spindle Coolant	30bar, 20 ℓ (435psi, 5.3gal)	○
	70bar, 15 ℓ (1,015psi, 4gal)	○
	70bar, 30 ℓ (1,015psi, 7.9gal)	○
Top Cover		●
Shower Coolant		○
Gun Coolant		○
Bed Flushing Coolant		○
Air Gun		○
Cutting Air Blow		○
Tool Measuring Air Blow (Only for TLM)		○
Air Blow for Automation		☆
Thru MQL Device (Without MQL)		☆
Coolant Chiller (Sub Tank)		☆
Power Coolant System (For Automation)		☆
Chip Disposal		
Coolant Tank	300 ℓ (79.3 gal)	●
Interior Screw Chip Conveyor		●
Upper Chip Conveyor (Hinge)	Left	○
	Right	○
Flood Chip Conveyor (Hinge/Scraper)	Left	○
	Right	○
	Rear	○
Screw Type Chip Conveyor	Left	☆
	Right	☆
Drum Filter Type Chip Conveyor	Left	☆
	Right	☆
	Rear	☆
	Standard / 180 ℓ (47.6 gal)	○
	Swing / 200 ℓ (52.8 gal)	○
Chip Wagon	Large Swing / 290 ℓ (77.6 gal)	○
	Large Size / 330 ℓ (87.2 gal)	○
	Customized	☆
*Special Option		
ATC Auto Shutter	30T/40T	○
ATC Full Cover	30T/40T	○
*Fine Dust Protecting Package		
Table Around Cover	Wet Machining	○
Bellows Cover (X/Y)		○
Multi Cover (Z)		○
Guide Way Double Wiper	Dry Machining	○

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

Electric Device		KF4
Call Light	1 Color : ■	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Multi Tool Counter	Digital	☆
Electric Circuit Breaker	FANUC	○
	SIEMENS, HEIDENHAIN	○
AVR (Auto Voltage Regulator)		☆
Transformer	30kVA	○
	35kVA	-
Auto Power Off		○
Back up Module for Black out		○
Measuring Device		
Air Zero	TACO	○
	SMC	○
Work Measuring Device		○
TLM	Touch	○
(Marposs/Renishaw/Blum)	Laser	○
Tool Broken Detecting Device		☆
Linear Scale	X/Y/Z Axis	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆
Environment		
Air Conditioner		○
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		
	45bar (653psi)	-
Hyd. Unit for Fixture	70bar (1,015psi)	○
	100bar (1,450psi)	○
	Customized	☆
S/W		
Dialogue Program (HW-DPRO)		○
DNC software (HW-eDNC)		○
Smart Guide-I : FANUC		●
Smart S/W		☆
Feed Axis		
High performance servo motor		○
Automatic Grease Supply Unit		●
Oil lubrication supply system		○
ETC		
Tool Box		●
Customized Color	Need for Munsell No.	☆
CAD&CAM Software		☆
Thermal displacement compensation		○

* Detailed options require consultation with WIA machine tools.
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (KF5)

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

Spindle		KF5
8,000rpm	FANUC	●
8,000rpm (High-torque)	FANUC	○
10,000rpm	FANUC	○
12,000rpm	FANUC	○
15,000rpm	FANUC	○
20,000rpm	FANUC	○
12,000rpm	SIEMENS	○
12,000rpm	HEIDENHAIN	○
8,000rpm		○
Spindle Cooling System	Over 10,000rpm	●
ATC		
ATC Extension	30	●
	40	○
	60	○
Tool Shank Type	BBT40	●
	HSK-A63 (12/15K)	○
	CAT40/BCV40	○
U-Center	D'andrea	○
Pull Stud	45°	●
Table & Column		
T-Slot Table		●
3-row T-slot		-
4-row T-slot		●
5-row T-slot		○
NCRotary Table		☆
High Column	Z-Axis 635mm (25")	○
	Z-Axis 635mm + 300mm (25"+11.8)	○ (60T : -)
Coolant System		
Std. Coolant (Main Spindle Nozzle)		●
Through Spindle Coolant	20bar (290psi)	○
	30bar, 20 ℓ (435psi, 5.3gal)	○
	70bar, 15 ℓ (1,015psi, 4gal)	○
	70bar, 30 ℓ (1,015psi, 7.9gal)	○
Top Cover		●
Shower Coolant		○
Gun Coolant		○
Bed Flushing Coolant		○
Air Gun		○
Cutting Air Blow		○
Tool Measuring Air Blow (Only for TLM)		○
Air Blow for Automation		☆
Thru MQL Device (Without MQL)		☆
Coolant Chiller (Sub Tank)		☆
Power Coolant System (For Automation)		☆
Chip Disposal		
Coolant Tank	340 ℓ	●
Interior Screw Chip Conveyor		●
Upper Chip Conveyor (Hinge)	Left	○
	Right	○
Flood Chip Conveyor (Hinge/Scraper)	Left	○
	Right	○
	Rear	○
Screw Type Chip Conveyor	Left	☆
	Right	☆
Drum Filter Type Chip Conveyor	Left	☆
	Right	☆
	Rear	☆
Chip Wagon	Standard / 180 ℓ (47.6 gal)	○
	Swing / 200 ℓ (52.8 gal)	○
	Large Swing / 290 ℓ (77.6 gal)	○
	Large Size / 330 ℓ (87.2 gal)	○
	Customized	☆
*Special Option		
ATC Auto Shutter	30T/40T/60T	○
ATC Full Cover	30T/40T/60T	○
*Fine Dust Protecting Package		
Table Around Cover	Wet Machining	○
Bellows Cover (X/Y)		○
Multi Cover (Z)	Dry Machining	○
Guide Way Double Wiper		○

Electric Device		KF5
Call Light	1 Color : ■	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Multi Tool Counter	Digital	☆
Electric Circuit Breaker	FANUC	○
	SIEMENS, HEIDENHAIN	○
AVR (Auto Voltage Regulator)		☆
Transformer	30kVA	○
	35kVA	-
Auto Power Off		○
Back up Module for Black out		○
Measuring Device		
Air Zero	TACO	○
	SMC	○
Work Measuring Device		○
TLM	Touch	○
	(Marposs/Renishaw/Blum)	○
Tool Broken Detective Device	Laser	☆
Linear Scale	X/Y/Z Axis	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆
Environment		
Air Conditioner		○
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		
Hyd. Unit for Fixture	45bar	-
	70bar	○
	100bar	○
	Customized	☆
S/W		
Dialogue Program (HW-DPRO)		○
DNC software (HW-eDNC)		○
Smart Guide-i : FANUC		●
Smart S/W		☆
Feed Axis		
High performance servo motor		○
Automatic Grease Supply Unit		●
Oil lubrication supply system		○
ETC		
Tool Box		●
Customized Color	Need for Munsel No.	☆
CAD&CAM Software		☆
Thermal displacement compensation		○

* Detailed options require consultation with WIA machine tools.
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (KF6)

Spindle		KF6
8,000rpm	FANUC	●
8,000rpm (High-torque)	FANUC	○
10,000rpm	FANUC	○
12,000rpm	FANUC	○
15,000rpm	FANUC	○
20,000rpm	FANUC	○
12,000rpm	SIEMENS	○
12,000rpm	HEIDENHAIN	○
8,000rpm		○
Spindle Cooling System	Over 10,000rpm	●
ATC		
ATC Extension	30	●
	40	○
	60	○
Tool Shank Type	BBT40	●
	HSK-A63 (12/15K)	○
	CAT40/BCV40	○
U-Center	D'andrea	○
Pull Stud	45"	●
Table & Column		
T-Slot Table		●
3-row T-slot		-
4-row T-slot		-
5-row T-slot		●
NCRotary Table		☆
High Column	300mm (11.8")	○
Coolant System		
Std. Coolant (Main Spindle Nozzle)		●
Through Spindle Coolant	20bar (290psi)	○
	30bar, 20 ℓ (435psi, 5.3gal)	○
	70bar, 15 ℓ (1,015psi, 4gal)	○
	70bar, 30 ℓ (1,015psi, 7.9gal)	○
Top Cover		●
Shower Coolant		○
Gun Coolant		○
Bed Flushing Coolant		○
Air Gun		○
Cutting Air Blow		○
Tool Measuring Air Blow (Only for TLM)		○
Air Blow for Automation		☆
Thru MQL Device (Without MQL)		☆
Coolant Chiller (Sub Tank)		☆
Power Coolant System (For Automation)		☆
Chip Disposal		
Coolant Tank	370 ℓ (97.7 gal)	●
Interior Screw Chip Conveyor		●
Upper Chip Conveyor (Hinge)	Left	○
	Right	○
Flood Chip Conveyor (Hinge/Scraper)	Left	○
	Right	○
	Rear	○
Screw Type Chip Conveyor	Left	☆
	Right	☆
Drum Filter Type Chip Conveyor	Left	☆
	Right	☆
	Rear	☆
Chip Wagon	Standard / 180 ℓ (47.6 gal)	○
	Swing / 200 ℓ (52.8 gal)	○
	Large Swing / 290 ℓ (77.6 gal)	○
	Large Size / 330 ℓ (87.2 gal)	○
	Customized	☆
*Special Option		
ATC Auto Shutter	30T/40T/60T	○
ATC Full Cover	30T/40T/60T	○
*Fine Dust Protecting Package		
Table Around Cover	Wet Machining	○
Bellows Cover (X/Y)		○
Multi Cover (Z)	Dry Machining	○
Guide Way Double Wiper		○

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

Electric Device		KF6
Call Light	1 Color : ■	●
Call Light & Buzzer	3 Color : ■ ■ ■ B	○
Electric Cabinet Light		○
Remote MPG		●
3 Axis MPG		○
Work Counter	Digital	○
Total Counter	Digital	○
Tool Counter	Digital	○
Multi Tool Counter	Digital	☆
Electric Circuit Breaker	FANUC	○
	SIEMENS, HEIDENHAIN	○
AVR (Auto Voltage Regulator)		☆
Transformer	30kVA	○
	35kVA	-
Auto Power Off		○
Back up Module for Black out		○
Measuring Device		
Air Zero	TACO	○
	SMC	○
Work Measuring Device		○
TLM	Touch	○
(Marposs/Renishaw/Blum)	Laser	○
Tool Broken Detective Device		☆
Linear Scale	X/Y/Z Axis	○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)		☆
Environment		
Air Conditioner		○
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		
Hyd. Unit for Fixture	45bar	-
	70bar	○
	100bar	○
	Customized	☆
S/W		
Dialogue Program (HW-DPRO)		○
DNC software (HW-eDNC)		○
Smart Guide-i : FANUC		●
Smart S/W		☆
Feed Axis		
Automatic Grease Supply Unit		●
Oil lubrication supply system		○
ETC		
Tool Box		●
Customized Color	Need for Munsell No.	☆
CAD&CAM Software		☆
Thermal displacement compensation		○

* Detailed options require consultation with WIA machine tools.
Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (KF5/50 | KF6/50)

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

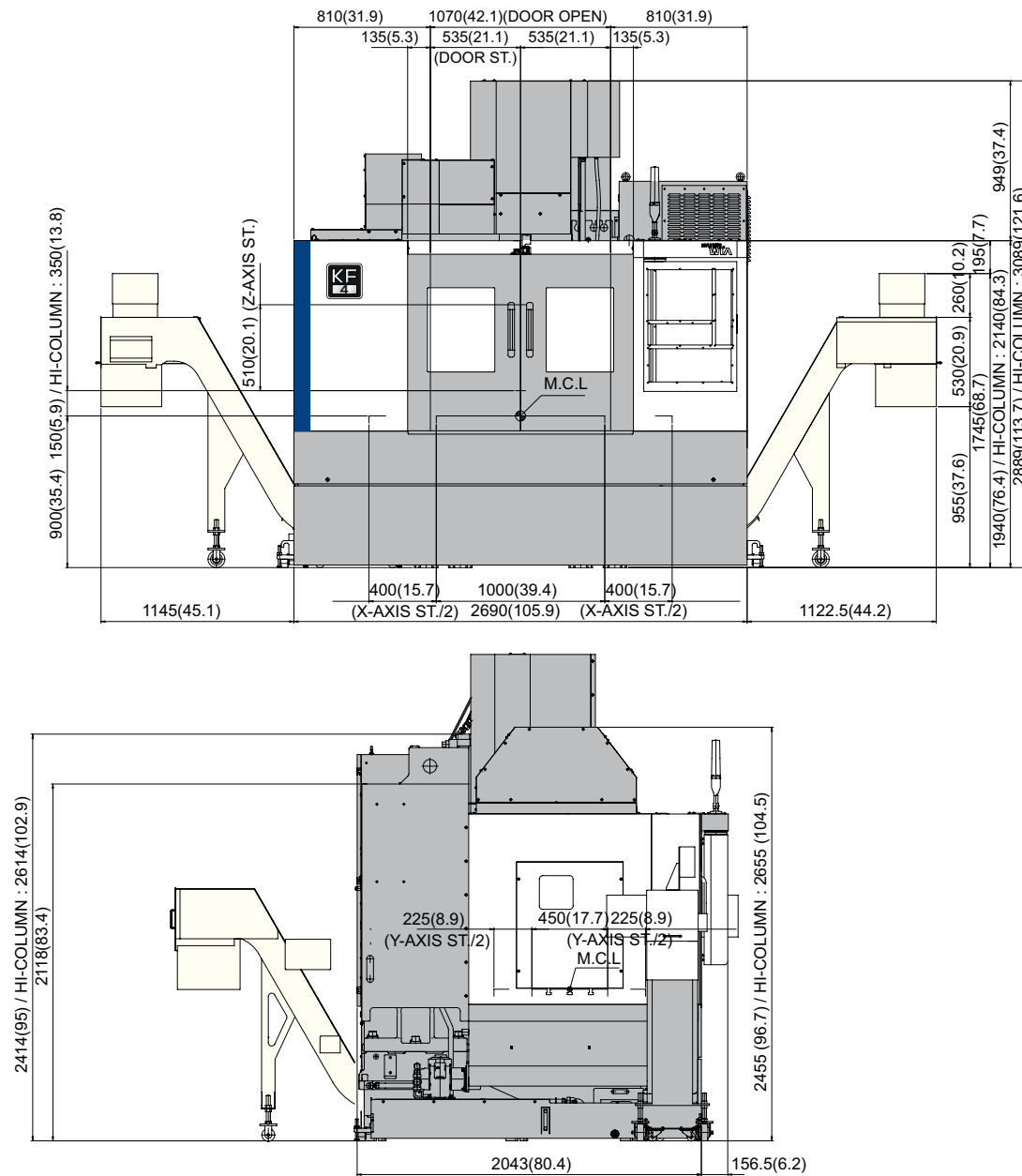
Spindle		KF5/50	KF6/50
8,000rpm		●	
Spindle Cooling System		●	
ATC			
ATC Extension	24		●
	32	-	○
Tool Shank Type	BBT50	●	
	HSK-A100	○	
	CAT50/BCV50	○	
U-Center	D'andrea	○	
Pull Stud	45"	●	
Table & Column			
T-Slot Table		●	
3-row T-slot		-	-
4-row T-slot		●	-
5-row T-slot		○	●
NCRotary Table		☆	
High Column	Z-Axis 635mm (25")	○	-
	Z-Axis 635mm + 300mm (25"+11.8)	○ (60T : -)	○ (60T : -)
Coolant System			
Std. Coolant (Main Spindle Nozzle)		●	
Through Spindle Coolant	20bar (290psi)	○	
	30bar, 20 ℓ (435psi, 5.3gal)	○	
	70bar, 15 ℓ (1,015psi, 4gal)	○	
	70bar, 30 ℓ (1,015psi, 7.9gal)	○	
Top Cover		●	
Shower Coolant		○	
Gun Coolant		○	
Bed Flushing Coolant		○	
Air Gun		○	
Cutting Air Blow		○	
Tool Measuring Air Blow (Only for TLM)		○	
Air Blow for Automation		☆	
Thru MQL Device (Without MQL)		☆	
Coolant Chiller (Sub Tank)		☆	
Power Coolant System (For Automation)		☆	
Chip Disposal			
Coolant Tank	340 ℓ	●	-
	370 ℓ	-	●
Interior Screw Chip Conveyor		●	
Upper Chip Conveyor (Hinge)	Left	○	
	Right	○	
Flood Chip Conveyor (Hinge/Scraper)	Left	-	
	Right	-	
Screw Type Chip Conveyor	Left	☆	
	Right	☆	
Drum Filter Type Chip Conveyor	Left	☆	
	Right	☆	
Chip Wagon	Standard / 180 ℓ (47.6 gal)	○	
	Swing / 200 ℓ (52.8 gal)	○	
	Large Swing / 290 ℓ (77.6 gal)	○	
	Large Size / 330 ℓ (87.2 gal)	○	
	Customized	☆	

Electric Device		KF5/50	KF6/50
Call Light	1 Color : ■	●	
Call Light & Buzzer	3 Color : ■ ■ ■ B		○
Electric Cabinet Light			○
Remote MPG		●	
3 Axis MPG			○
Work Counter	Digital		○
Total Counter	Digital		○
Tool Counter	Digital		○
Multi Tool Counter	Digital		☆
Electric Circuit Breaker			○
AVR (Auto Voltage Regulator)			☆
Transformer	30kVA		○
	35kVA		-
Auto Power Off			○
Back up Module for Black out			○
Measuring Device			
Air Zero	TACO		☆
	SMC		☆
Work Measuring Device			○
TLM	Touch		○
(Marposs/Renishaw/Blum)	Laser		○
Tool Broken Detective Device			○
Linear Scale			○
Coolant Level Sensor (Only for Chip Conveyor, Bladder Type)			☆
Environment			
Air Conditioner			○
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			
Hyd. Unit for Fixture	45bar		-
	70bar		○
	100bar		○
	Customized		☆
S/W			
Dialogue Program (HW-DPRO)			○
DNC software (HW-eDNC)			○
Smart Guide-i : FANUC			●
Smart S/W			☆
Feed Axis			
High performance servo motor			-
Automatic Grease Supply Unit			●
Oil lubrication supply system			○
ETC			
Tool Box			●
Customized Color	Need for Munsel No.		☆
CAD&CAM Software			☆
Thermal displacement compensation			○

SPECIFICATIONS

External Dimensions (KF4)

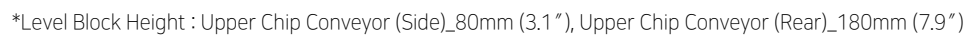
unit : mm(in)



*Level Block Height : Upper Chip Conveyor (Side)_80mm (3.1"), Upper Chip Conveyor (Rear)_180mm (7.9")

KF4/5/6 Series
Vertical Machining Center

unit : mm(in)

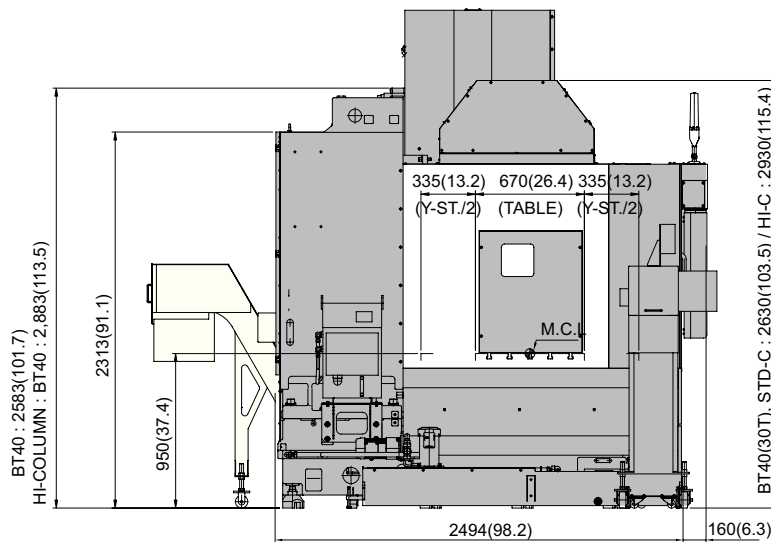


unit : mm(in)



KF4/5/6 Series
Vertical Machining Center

unit : mm(in)



*Level Block Height : Upper Chip Conveyor (Side)_80mm (3.1"), Upper Chip Conveyor (Rear)_180mm (7.9")

unit : mm(in)

BT50 : 2633(103.7)
HI-COLUMN : 2.933(115.5)

2313(91.1)

950(37.4)

335(13.2) 670(26.4) 335(13.2)
(Y-ST./2) (TABLE) (Y-ST./2)

M.C.I.

2494(98.2)

160(6.3)

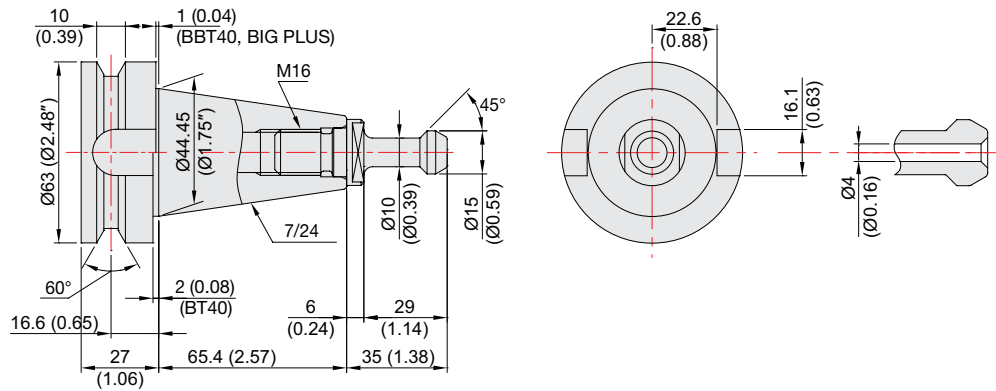
BT50(24T), STD-C : 3036(119.5) / HI-C : 3336(131.3)

SPECIFICATIONS

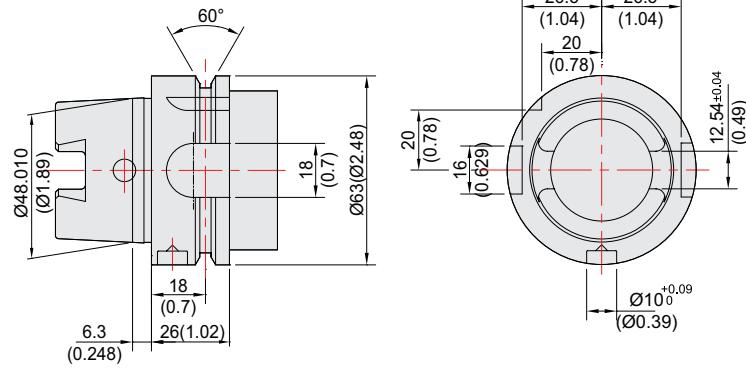
Table Dimensions (BT40/BBT40 | Opt. HSK A-63)

unit : mm(in)

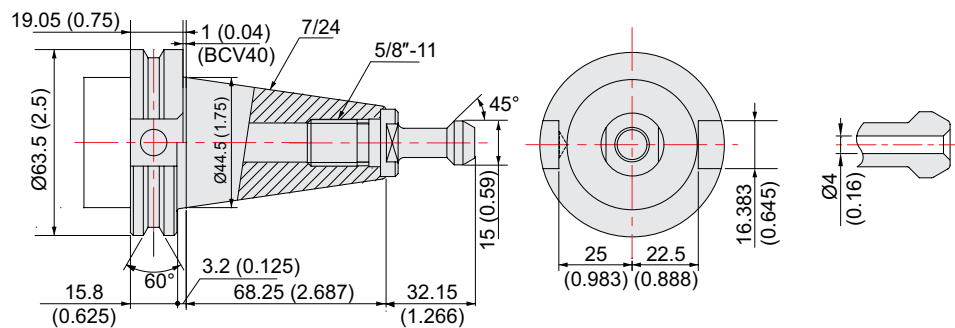
BT40/BBT40, BIG PLUS



HSK A-63



CAT40/BCV40



unit : mm(in)

Technical drawing of the BCBV50, BIG PLUS tool, showing dimensions in millimeters (mm) and inches (in).

Side View Dimensions:

- Overall length: 198.4 (3.875)
- Tip diameter: $\varnothing 69.8$ ($\varnothing 2.750$)
- Tip angle: 60°
- Tip length: 3.2 (0.125) (CAT50)
- Thread: 1"-8UNC
- Shoulder diameter: 7/24
- Shoulder length: 45 (1.772)
- Shoulder diameter: 23 (0.906)
- Shoulder angle: 45°
- Top flange diameter: 37.5 (1.478)
- Top flange thickness: 35.1 (1.383)
- Top flange height: 25.8 (1.015)

Top View Dimensions:

- Overall diameter: 37.5 (1.478)
- Inner diameter: 35.1 (1.383)

Detail View Dimensions:

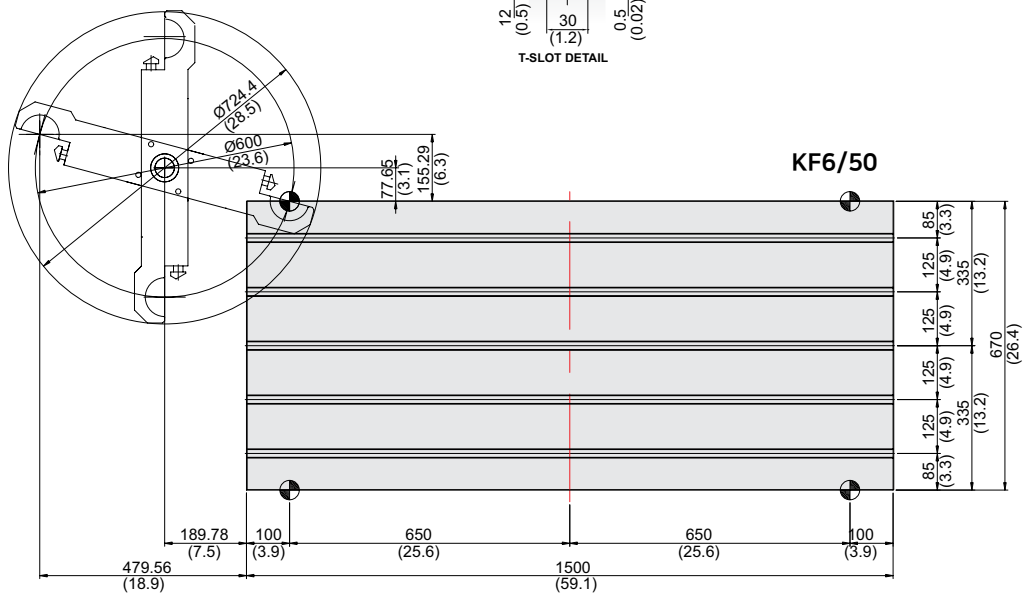
- Tip diameter: $\varnothing 6$ (0.24)

KF4/5/6 Series
Vertical Machining Center

unit : mm(in)



unit : mm(in)



SPECIFICATIONS

Specifications

[] : Option

ITEM			KF4
TABLE	Table Size (L×W)	mm(in)	1,000×450 (39.4×17.7)
	Maximum Load Capacity	kg(lb)	600 (1,323)
FEED	Travel (X/Y/Z)	mm(in)	800/450/510 (31.5/17.7/20.1)
	Rapid Traverse Rate (X/Y/Z)	m/min (ipm)	36/36/30 [42/42/36] (1,417/1,417/1,181 [1,654/1,654/1,417])
	Distance from Table Top to SP. Nose	mm(in)	150 ~ 660 [860](5.9" ~ 25.9" [33.9"])
	Distance from Column to SP. center	mm(in)	585 (23")
	Slide Type	-	ROLLER TYPE LM GUIDE
ATC	Number of Tools	ea	30 [40]
	Tool Shank	-	BBT40 [12K, 15K : HSK-A63]
	Max. Tool Dia. (W.T / W.O)	mm(in)	30T : Ø80 [40T : Ø76]/Ø125 (30T : Ø3.1" [40T : Ø3"]/Ø4.9")
	Max. Tool Length	mm(in)	300 (11.8")
	Max. Tool Weight	kg(lb)	8 (17.6)
	Tool Selection Method	-	RANDOM [FIXED]
	Tool Change Time	C-C sec	3.0
TANK CAPACITY	Coolant Tank	ℓ (gal)	300 (11.8)
	Lubricating Tank	ℓ (gal)	Grease : 0.7 [Oil : 4] (Grease : 0.18 [Oil : 1])
	Hydraulic Tank	ℓ (gal)	-
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal)	110 (29)
	Electric Power Supply	KVA	26
	Thickness of Power Cable	mm ²	Over 25
	Voltage	V/Hz	220/60 (200/50)
MACHINE	Floor Space (L×W)	mm(in)	2,690×2,043 (105.8×80.4)
	Height	mm(in)	2,889 (113.7)
	Weight	kg(lb)	5,500 (12,125)
CNC	Controller		FANUC i Series - Smart Plus [12K : SIEMENS 828D], [12K : HEIDENHAIN TNC 620]

KF4/5/6 Series
Vertical Machining Center

30
+
31

Spindle

[] : Option

ITEM	Speed (r/min)	Power (Max./Cont.) kW (HP)	Torque (Max./Cont.) N.m (lb.ft)	Driving Method
FANUC	8,000	18.5/11 (25/15)	118/52.5 (87/38.7)	DIRECT
	[8,000 : High-torque]	15/11 (20/15)	286/143 (210.9/105.5)	
	[10,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[12,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[15,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
SIEMENS	[12,000]	16.2/8.5 (21.7/11.4)	119.7/63 (88.3/46.5)	DIRECT
HEIDENHAIN	[12,000]	17/10 (22.8/13.4)	108.6/63.7 (80/47)	

SPECIFICATIONS

Specifications

[]: Option

ITEM			KF5	KF5/50
TABLE	Table Size (L×W)	mm(in)	1,300×560 (51.2×22)	
	Maximum Load Capacity	kg(lb)	1,000 (2,204)	
FEED	Travel (X/Y/Z)	mm(in)	1,050/560/510 [635] (41.3/22/20 [25])	
	Rapid Traverse Rate (X/Y/Z)	m/min (ipm)	36/36/30 [42/42/36] (1,417/1,417/1,181 [1,654/1,654/1,417])	36/36/30 (1,417/1,417/1,181)
	Distance from Table Top to SP. Nose	mm(in)	150~660 [150~785] [450~1,085] (5.9~26 [5.9~30.9] [17.7~42.7])	200~710 [200~835] [500~1,135] (7.9~27.9 [7.9~32.9] [19.7~44.7])
	Distance from Column to SP. center	mm(in)	650 (25.6)	
	Slide Type	-	ROLLER TYPE LM GUIDE	
ATC	Number of Tools	ea	30 [40, 60]	24
	Tool Shank	-	BBT40 [HSK-A63]	BBT50 [HSK-A100]
	Max. Tool Dia. (W.T / W.O)	mm(in)	30T : Ø80/125 [40, 60T : Ø76/125] (30T : Ø3.1/4.9 [40, 60T : Ø3/4.9])	Ø125/Ø250 (Ø4.9/Ø9.8)
	Max. Tool Length	mm(in)	300 (11.8)	350 (13.8)
	Max. Tool Weight	kg(lb)	8 (17.6)	15 (33.1)
	Tool Selection Method	-	RANDOM [FIXED]	RANDOM
	Tool Change Time	C-C sec	3.0 [Z-Axis 635mm : 3.2]	5.5
TANK CAPACITY	Coolant Tank	ℓ (gal)	340 (89.8)	
	Lubricating Tank	ℓ (gal)	Grease : 0.7 [Oil : 4] (Grease : 0.18 [Oil : 1])	
	Hydraulic Tank	ℓ (gal)	- [BUILT-IN : 3.9] ([BUILT-IN : 1])	-
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal)	110 (29)	
	Electric Power Supply	KVA	26	
	Thickness of Power Cable	Sq	Over 25	
	Voltage	V/Hz	220/60 (200/50)	
MACHINE	Floor Space (L×W)	mm(in)	2,830×2,176 (111.4×85.7)	2,830×2,176 (111.4×85.7)
	Height	mm(in)	2,889 [3,014/3,314] (113.7 [118.7/130.5])	3,167 [3,292/3,592] 124.7 [129.6/141.4]
	Weight	kg(lb)	6,500 [7,000] (14,330 [15,432])	7,300 (16,094)
CNC	Controller	-	FANUC i Series - Smart Plus [12K : SIEMENS 828D], [12K : HEIDENHAIN TNC 620]	FANUC i Series - Smart Plus

Spindle

[]: Option

ITEM	Speed (r/min)	Power (Max./Cont.) kW (HP)	Torque (Max./Cont.) N.m (lb.ft)	Driving Method
KF5-FANUC	8,000	18.5/11 (25/15)	118/52.5 (87/38.7)	DIRECT
	[8,000 : High-torque]	15/11 (20/15)	286/143 (210.9/105.5)	
	[10,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[12,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[15,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[20,000]	22/18.5 (29.5/25)	98/80 (72.3/59)	BUILT-IN
KF5-SIEMENS	[12,000]	16.2/8.5 (21.7/11.4)	119.7/63 (88.3/47)	DIRECT
KF5-HEIDENHAIN	[12,000]	17/10 (22.8/13.4)	108.6/63.7 (80.1/47)	
KF5/50-FANUC	8,000	22/11 (29.5/15)	353.2/143 (260.5/105.5)	

SPECIFICATIONS

Specifications

[] : Option

ITEM			KF6	KF6/50
TABLE	Table Size (L×W)	mm(in)	1,500×670 (59.1×26.4)	
	Maximum Load Capacity	kg(lb)	1,300 (2,866)	
FEED	Travel (X/Y/Z)	mm(in)	1,300/670/635 (51.2×26.4×25)	
	Rapid Traverse Rate (X/Y/Z)	m/min (ipm)	36/36/30 (1,417/1,417/1,181)	
	Distance from Table Top to SP. Nose	mm(in)	150 ~ 785 [450 ~ 1,085] (5.9~30.9) [17.7~42.7])	200 ~ 835 (7.9~32.9)
	Distance from Column to SP. center	mm(in)	690 (27.2)	
	Slide Type	-	ROLLER TYPE LM GUIDE	
ATC	Number of Tools	ea	30 [40, 60]	24 [32]
	Tool Shank	-	BBT40 [HSK-A63]	BBT50 [HSK-A100]
	Max. Tool Dia. (W.T / W.O)	mm(in)	30T : Ø80/125 [40, 60T : Ø76/125] (30T : Ø3.1/4.9 [40, 60T : Ø3/4.9])	Ø125/Ø250 (Ø4.9/Ø9.8)
	Max. Tool Length	mm(in)	300 (11.8")	350 (13.8)
	Max. Tool Weight	kg(lb)	8 (17.6)	15 (33.1)
	Tool Selection Method	-	RANDOM [FIXED]	RANDOM
	Tool Change Time	C-C sec	3.2	5.5
TANK CAPACITY	Coolant Tank	ℓ (gal)	370 (97.7)	
	Lubricating Tank	ℓ (gal)	Grease : 0.7 [Oil : 4] (Grease : 0.18 [Oil : 1])	
	Hydraulic Tank	ℓ (gal)	- [BUILT-IN : 3.9] ([BUILT-IN : 1])	-
POWER SUPPLY	Air Consumption (0.5MPa)	ℓ /min(gal)	110 (29)	
	Electric Power Supply	KVA	26	
	Thickness of Power Cable	mm ²	Over 25	
	Voltage	V/Hz	220/60 (200/50)	
MACHINE	Floor Space (L×W)	mm(in)	3,316×2,494 (130.6×98.2)	
	Height	mm(in)	3,062 (120.6)	3,342 (131.6)
	Weight	kg(lb)	7,500 (16,535)	8,900 (19,621)
CNC	Controller	-	FANUC i Series - Smart Plus [12K : SIEMENS 828D], [12K : HEIDENHAIN TNC 620]	FANUC i Series - Smart Plus

Spindle

[] : Option

ITEM	Speed (r/min)	Power (Max./Cont.) kW (HP)	Torque (Max./Cont.) N.m (lb.ft)	Driving Method
KF6-FANUC	8,000	18.5/11 (25/15)	118/71.6 (87/52.8)	DIRECT
	[8,000 : High-torque]	15/11 (20/15)	286/143 (210.9/105.5)	
	[10,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[12,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[15,000]	18.5/11 (25/15)	118/52.5 (87/38.7)	
	[20,000]	22/18.5 (29.5/25)	98/80 (72.3/59)	BUILT-IN
KF6-SIEMENS	[12,000]	16.2/8.5 (21.7/11.4)	119.7/63 (88.3/47)	DIRECT
KF6-HEIDENHAIN	[12,000]	17/10 (22.8/13.4)	108.6/63.7 (80.1/47)	
KF6/50-FANUC	8,000	22/11 (29.5/15)	353.2/143 (260.5/105.5)	

Specifications are subject to change without notice for improvement.

CONTROLLER

FANUC i Series - Smart Plus

[]: Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axis	3 axis (X, Y, Z) [4 axis (X, Y, Z, A)] [5 axis (X, Y, Z, A, C)]
Simultaneously controlled axis	3 axis [Max. 4 axis]
Least setting Unit	X, Y, Z axis : 0.001 mm (0.0001 inch) B axis : 1 deg [0.001] deg
Least input increment	X, Y, Z axis : 0.001 mm (0.0001 inch) B axis : 1 deg [0.001] deg
Inch / Metric conversion	
High response vector control	
Interlock	All axis / Each axis
Machine lock	All axis
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 axis (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 (± 99,999.999 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	Smart Guide-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 #100 ~ #199, #500 ~ #999, #98000 ~ #98499
Addition of custom macro	#500 ~ #999, #98000 ~ #98499
Add. Workpiece	Max. 300 pairs (G54.1 P1 ~ P300)
AICC II	400 blocks ☆

CONTROLLER

SIEMENS 828D

[] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation

Control axis	3 axis (X, Y, Z) [4 axis (X, Y, Z, A)] [5 axis (X, Y, Z, A, C)]
Simultaneously controlled axis	Max. 4 axis
Least setting Unit	X, Y, Z axis : 0.001 mm (0.0001 inch) [A, C (B) axis : 1 deg [0.001] deg]
Least input increment	X, Y, Z axis : 0.001 mm (0.0001 inch) [A, C (B) axis : 1 deg [0.001] deg]
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axis / Each axis
Pitch error compensation	Ball screw Pitch error compensation
Feedforward control	
LCD / MDI	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) Single block exact stop (G09)
Exact position stop	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)	Compacad / 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

Program input

ISO correspondence	G291(ISO)/G290 (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 G54 ~ G57, G505~G549
Workpiece coordinate system	G500 (Basic frame - settable 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	
Automatic 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
Cutting Edges in tool list	512 ea
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 : (NC SRAM) 2GB(V4.95 later) : (NC CARD)
No. of registerable programs	750 ea
External Storage 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	USB memory interface Embedded Ethernet 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

NC Functional Std.

ShopMill (P17)	Machining step programming for milling
Real time simulation (P22)	Real time simulation
3D simulation (P25)	3D simulation
Network drive (P01)	Network drive
Advanced Surface (S17)	Specialized option for modl machining 1

■ Option

Top Surface (S17)	Specialized option for modl machining 2
Top Speed plus (S62)	Specialized option for modl machining 3
Execute external storage device, EES (P75)	
Added optional skip block (P16)	10 ea
Contour handwheel (M08)	
Axis additional option (C20)	☆

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