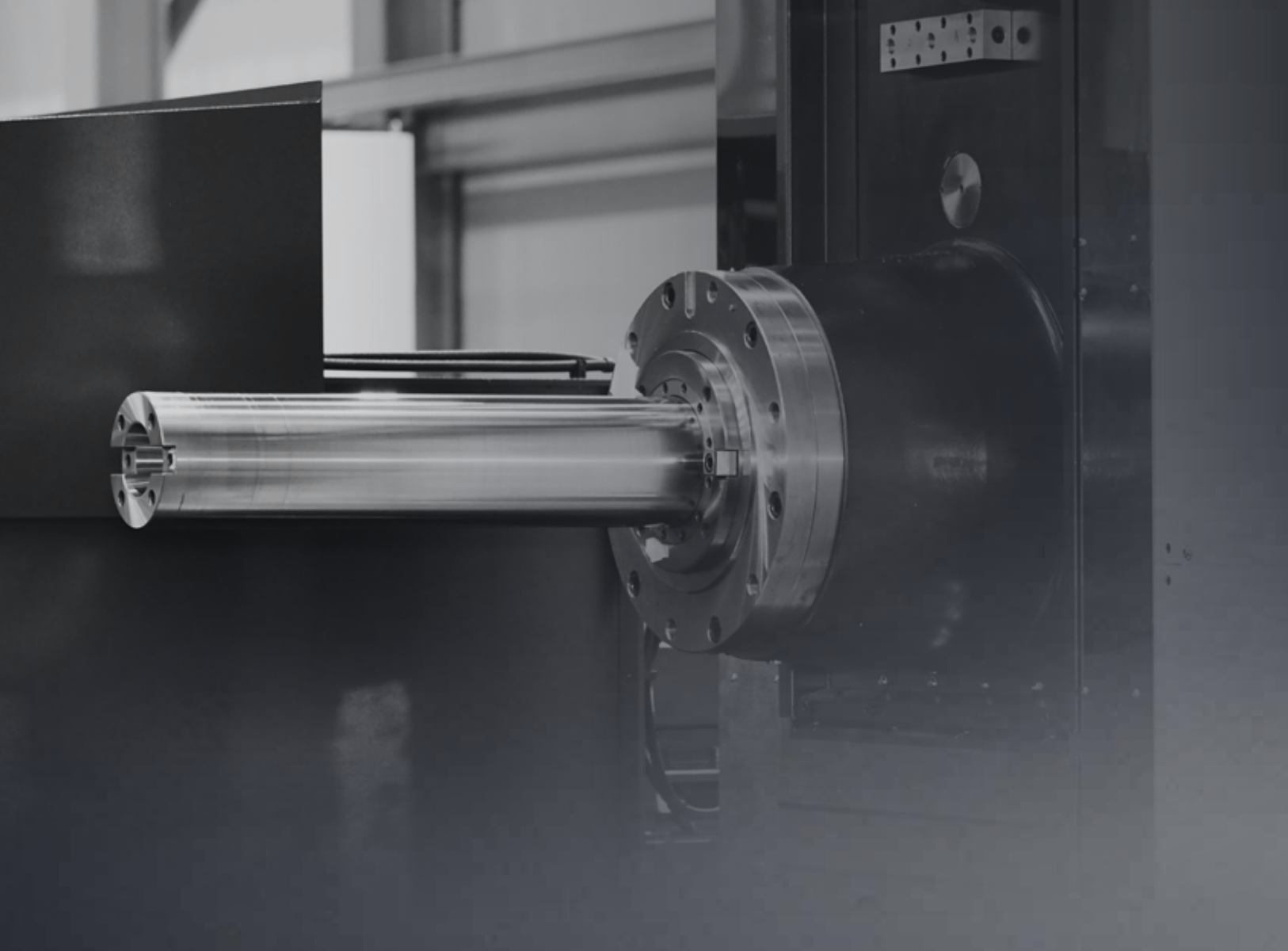
WIA Machine Tools

Heavy Duty Cutting _ Horizontal Boring Machine

KBN | KBR Series

KBN1300C/1600C
KBR1300C/1600C

WIA MACHINE TOOLS



Technical Leader

The heavy duty boring machine KBN/KBR Series, designed by WIA machine tools with years of expertise and the latest technology, provides high performance and maximum productivity.

		KBN1300C | KBR1300C	KBN1600C | KBR1600C
Pallet Size (L×W)	mm(in)	2,000×1,800 (78.7″×70.9″)	2,200×2,000
Max. Load Capacity	kg(lb)	15,000 [20,000] (33,069 [44,092])	20,000 [25,000]
Min. Indexing Angle	deg	0.001°	0.001°
Spindle Quill Dia.	mm(in)	Ø130 (Ø5.1″)	Ø160 (Ø6.3″)
Spindle Taper	-	NT #50	NT #50
Spindle Speed	r/min	2,500 [2,500]	2,000 [2,500]
Spindle Power	kW (HP)	37/30 [45/37] [42/28] (50/40 [60/50] [56/37.5])	45/37 [42/28] (60/50 [56/37.5])
Spindle Driving Method	-	2 Step Gear Box (ZF Reducer)	2 Step Gear Box (ZF Reducer)
No. of Tools	EA	60 [90]	60 [90]

[ ] : Option ■ : SIEMENS

KBN | KBR Series

The Next Generation Boring Machine

- One-piece bed construction for ultra precision
- Extended X/Y/Z-axis options for machining large components
- High-torque geared spindle design for heavy-duty cutting
- Ram-type spindle design optimized for deep-hole machining (KBR Series)
- Enhanced boring capability through W-axis design (Travel: 1300C / 700mm {27.6″}, 1600C / 800mm {31.5″})
- Standard application of X/Y/Z-axis linear scales & B-axis high-precision 1-second rotary encoder



01 BASIC FEATURES

The Most Advanced Mechanism, Revolutionized Productivity & High Performance

High Precision Spindle

- 2 Step Gear Spindle (2,500 r/min)
- W-axis 700 mm (27.6″)
- Ram-type Spindle Applied (KBR Series)

ATC & Magazine

- Tool Shank : BT50 [DIN50, CAT50, BBT50]
- No. of Tools : 60 [Opt. 90] EA

NC Rotary Table

- Table Size
  1300C : 2,000×1,800 mm (78.7″ x 70.9″)
  1600C : 2,200×2,000 mm (86.6″ x 78.7″)
- Max. Load Capacity
  1300C : 15,000 kg [20,000 kg]
  1600C : 20,000 kg [25,000 kg]



HIGH RIGIDITY STRUCTURE

Stable Mechanical Structure

The X-bed, Z-bed, and column are designed with a high-rigidity casting structure to secure a high-rigidity and stable mechanical structure, and the guideway is ground precisely after heat treatment to ensure high stiffness and high precision.

INCREASED RIGIDITY, OPTIMUM MACHINING CAPABILITY

GUIDE WAY

Hydraulic Balance Structure of the Y-axis

The hydraulic balance structure features an accumulator charged with high-pressure nitrogen gas, thereby guaranteeing smooth operation and high precision of the Y-axis.

In addition, noise has been eliminated and energy can be saved as the machine is not equipped with a hydraulic pump.



Hand Scrapping

The counter surface was hand scraped with Turcite attached, and a linear scale was installed as standard to ensure high precision, realizing the optimal conditions for improving processing quality.



KBN1300C Travel (X/Y/Z/W)

3,000 [4,000]/2,000 [2,500]/1,500 [2,000]/700 mm (118.1″[157.5″]/78.7″[98.4″]/59.1″[78.7″]/27.6″)

KBR1300C Travel (X/Y/Z/V/W)

3,000 [4,000]/2,000 [2,500]/1,250/1,500 [2,000]/700 mm (118.1″[157.5″]/78.7″[98.4″]/49.2″/59.1″[78.7″]/27.6″)

KBN1600C Travel (X/Y/Z/W)

4,000 [5,000]/2,500 [3,000]/2,000 [2,500]/800 mm (157.5″[196.9″]/98.4″[118.1″]/78.7″[98.4″]/49.2″/31.5″)

KBR1600C Travel (X/Y/Z/V/W)

4,000 [5,000]/2,500 [3,000]/1,250/2,000 [2,500]/800 mm (157.5″[196.9″]/98.4″[118.1″]/49.2″/78.7″[98.4″]/49.2″/31.5″)

KBN Rapid Traverse Rate (X/Y/Z/W)

10/10/10/8 m/min (394/394/394/315 ipm)

KBR Rapid Traverse Rate (X/Y/Z/V/W)

10/10/10/10/8 m/min (394/394/394/394/315 ipm)

High Precision

Standard application of X/Y/Z-axis linear scales and B-axis high-precision 1-second rotary encoder.

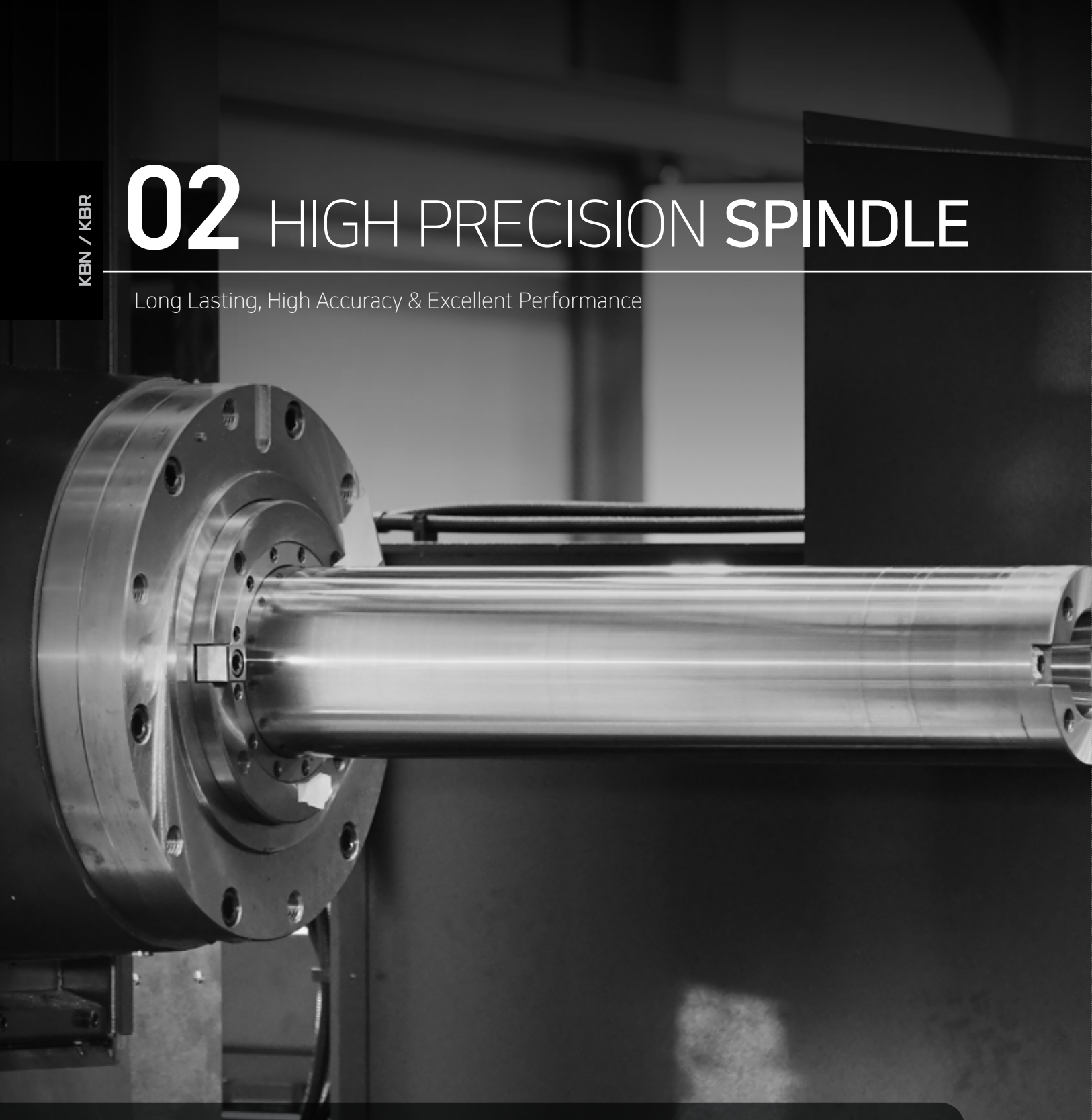
By applying X/Y/Z-axis linear scales and a B-axis rotary scale as standard, highly accurate positioning is





02 HIGH PRECISION **SPINDLE**

Long Lasting, High Accuracy & Excellent Performance



Spindle Specifications

[ ] : Option

Model	**Spindle Speed** r/min	**Power** (Max./Cont.)	**Torque** (Max./Cont.)
KBN/KBR1300C	**FANUC 2,500** prm	**37/30** kW (50/40 HP)	**3,377/2,739** N·m (2,491/2,020 lbf.ft)
	[**FANUC 2,000** prm]	[**45/37** kW (60/50 HP)]	[**4,191/3,377** N·m (3,091/2,491 lbf.ft)]
KBN/KBR1600C	**FANUC 2,000** prm	**45/37** kW (60/50 HP)	**4,191/3,377** N·m (3,091/2,491 lbf.ft)
KBN/KBR Series	[**SIEMENS 2,500** prm]	[**42/28** kW (56/37.5 HP)]	[**4,499/2,937** N·m (3,318/2,166 lbf.ft)]

HEAVY DUTY CUTTING, 2-STEP GEAR TYPE SPINDLE

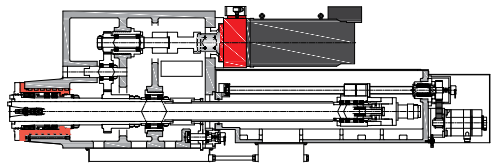
SPINDLE

High-Performance Spindle for Heavy-Duty Cutting

While conventional boring machines arrange bearings only at the front and rear of the spindle, the KBN/KBR series additionally arranges bearings along the middle of the spindle, significantly enhancing spindle rigidity.

In particular, at the front section—where relatively higher rigidity is required—a combination of cylindrical roller bearings for heavy-duty cutting and angular contact bearings for high-speed performance is applied, meeting both rigidity and speed requirements.

Furthermore, a high-performance 2-step ZF reducer is adopted, delivering cutting performance at the highest level in its class.



Ram-type Spindle with Outstanding Machining Capability

A compact structure has been achieved by arranging the milling spindle and boring drive unit inside the ram.

The milling spindle is supported by high-rigidity bearings, maintaining sufficient stiffness even under heavy axial machining loads. For powerful cutting, a ZF gearbox and reduction gears are adopted, enabling high-torque output.

In addition, a large-capacity cooling system is applied to stabilize thermal displacement during long-term operation, cooling both the spindle cartridge and the gearbox (ZF + reduction gears).

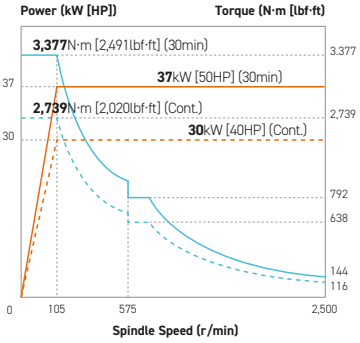


Stable W-Axis drive Structure

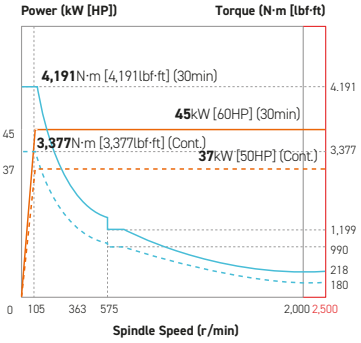
The KBN/KBR Series achieves optimal boring performance with a W-axis travel of up to 700mm for the 1300C model and 800mm for the 1600C model.

In addition, the W-axis adopts a feed mechanism using a ball screw and LM guide, which greatly improves feed stability compared to the conventional guide bushing type.

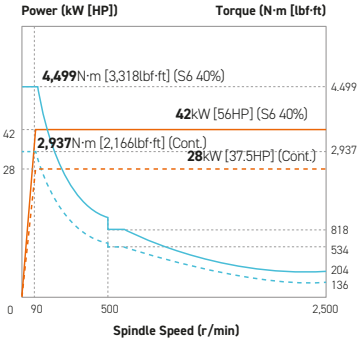
Std. FANUC



Opt. FANUC High torque



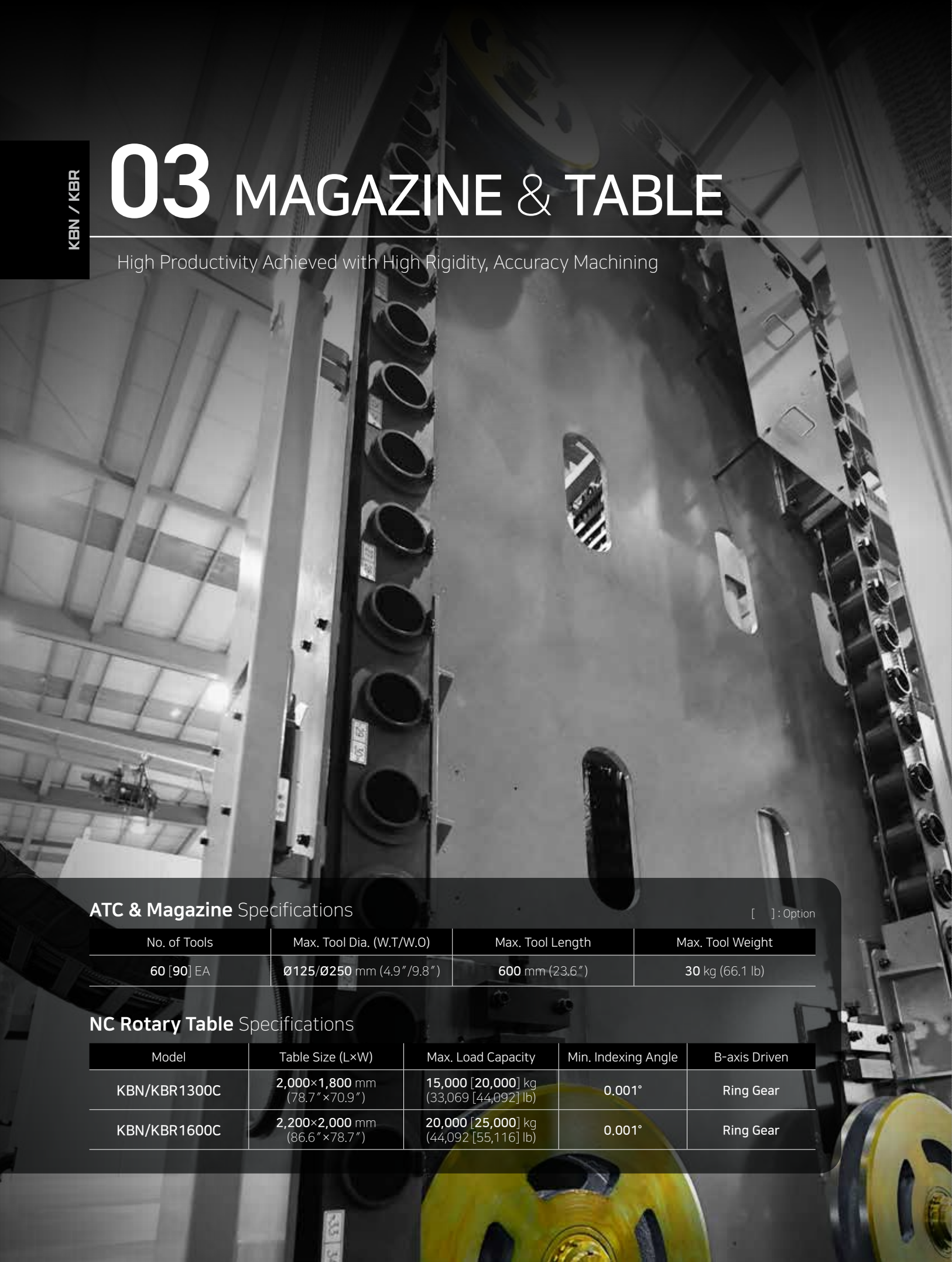
Opt. SIMENS



※ 2,500 r/min High Torque Spindle : KBN/KBR1300C Opt.

03 MAGAZINE & TABLE

High Productivity Achieved with High Rigidity, Accuracy Machining



ATC & Magazine Specifications

[ ] : Option

No. of Tools	Max. Tool Dia. (W.T/W.O)	Max. Tool Length	Max. Tool Weight
60 [**90**] EA	**Ø125**/**Ø250** mm (4.9″/9.8″)	**600** mm (23.6″)	**30** kg (66.1 lb)

NC Rotary Table Specifications

Model	Table Size (L×W)	Max. Load Capacity	Min. Indexing Angle	B-axis Driven
KBN/KBR1300C	**2,000**×**1,800** mm (78.7″×70.9″)	**15,000** [**20,000**] kg (33,069 [44,092] lb)	0.001°	Ring Gear
KBN/KBR1600C	**2,200**×**2,000** mm (86.6″×78.7″)	**20,000** [**25,000**] kg (44,092 [55,116] lb)	0.001°	Ring Gear

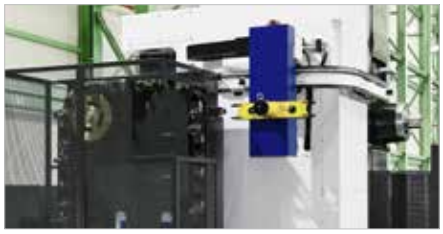
HIGHLY RELIABLE TOOL CHANGE SYSTEM

ATC & MAGAZINE

Reliable Automatic Tool Changer (ATC)

The tool changer consists of a tool magazine and carriage driven by a servo motor to increase reliability.

The adoption of a hydraulic cylindrical structure allows it to function stably even when using heavy tools.

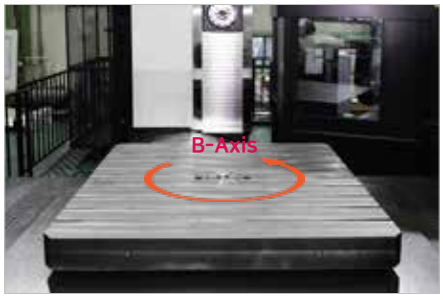


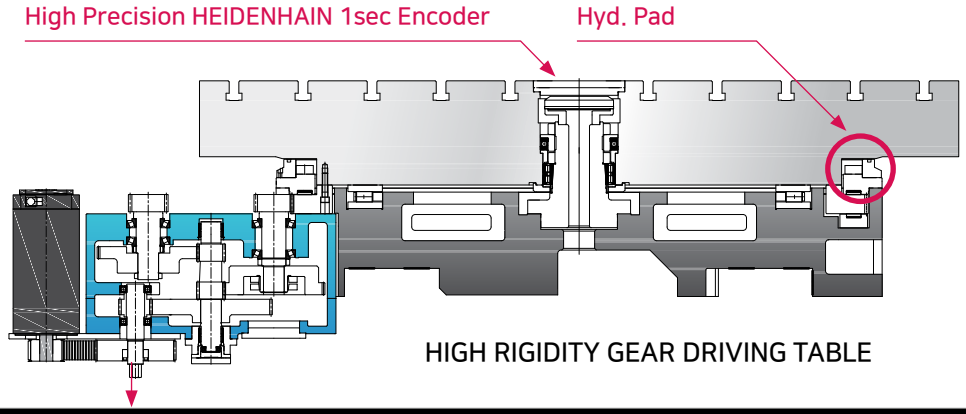
TABLE

NC Rotary Table

To ensure smooth operation of the rotary table under heavy loads, the center shaft is equipped with double roller bearings and thrust ball bearings.

Also, the rotary table features a thrust roller bearing structure and a strong bi-directional clamping structure that ensure stable processing conditions.





B-Axis Double Pinion Gear

The drive of the table has a structure in which a gear box and double pinion rotate a large high-precision ring gear. High-precision encoder is installed at the center of the table as a standard feature, allowing precise control of the index.

04 USER CONVENIENCE

OPTION

Various Devices for User Friendly

CHIP DISPOSAL SOLUTION & COOLANT UNIT



Spindle Nozzle & Cutting Air Blow



Gun Coolant



Air Gun



Through Spindle Coolant

Through spindle coolant is particularly useful for deep hole drilling and helps increase tool life and decrease cycle time.



High Capacity Spindle Cooling Device (Std.)

Standard feature high capacity spindle cooling device(5,590kcal/h) enables stabilized spindle temperature during long operations.Stabilized spindle environment leads to high performance and high quality machining.



Interior Screw Chip Conveyor (Std.)

Dual screw type chip conveyors are located at each side of the bed which makes it convenient to remove chips.



Chip Conveyor

Timely and effective disposal of chips will improve productivity as well as working environment.

Hinge	Chip Type : Roughing chip, long chip, chip complex	Material : SS41, 45C, Cast Steel	Left 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.		

Fire Safety

The use of a water-insoluble coolant or failure to use a coolant while machining inflammables may result in a fire.
Unauthorized modification of the machine may also result in a risk of fire.
Make sure to read and comply with the safety instructions before using the machine.

MEASURING TOUCH PROBE



RENISHAW RMP 60



HEDENHAN TT160



HEIDENHAIN SE G8D/TTASO/TS 480

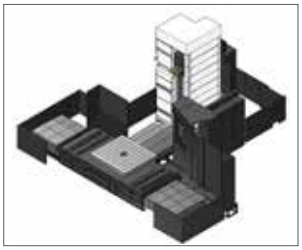
SAFETY COVER & FENCE



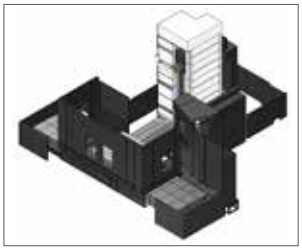
Standard



Opt. 1 Table around cover



Opt. 2 Safety fence



Opt. 3 Table around cover & Safety fence

SPECIAL HEAD



Angle Head (Manual)

Angle head comes with rotary body, which enables machining items that are set perpendicular to the spindle. It is connected to arbors that transfer the torque generated from the main spindle motors.



Facing Head (Manual)

A facing head is attached to the cross section of the spindle for various types of operations; outer facing, inner facing, cylindrical and conical boring and threading etc. It shows excellent performance in machining parts such as flange faces of large valves.

SPECIFICATIONS

Standard & Optional (KBN1300C | KBN1600C)

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

Spindle		KBN1300C	KBN1600C
2,500rpm (37kW [50HP])	FANUC	●	-
2,500rpm (45kW [60HP])	FANUC	○	-
2,000rpm (45kW [60HP])	FANUC	-	●
2,500rpm (42kW [56HP])	SIEMENS	○	○
Spindle Cooling System		●	●
W Axis Support Sleeve		○	○
ATC			
ATC Extension	60T	●	●
	90T	○	○
Tool Shank Type	BT50	●	●
	BBT50	○	○
	CAT50	○	○
	DIN50	○	○
Heavy Weight Tool	30kg (66lb)	●	●
U-Center	D'andrea	☆	☆
Pull Stud	45°	●	●
	60°	☆	☆
	90°	☆	☆
Facing Head (Manual)		○	○
Facing Tool Holder (Facing heads when applying)		○	○
Telescopic Tool Holder (Facing heads when applying)		○	○
Angle Head	500mm(19.7")	○	○
	800mm(31.5")	○	○
Compact Head		○	○
Universal Head		○	○
Table & Column			
Maximum Load Capacity	15t (33,069lb)	●	●
	20t (44,092lb)	○	○
T-Slot Table		●	●
B Axis Table	0.001°	●	●
X Axis Extension	4,000mm(157.4")	○	-
	5,000mm(196.9")	-	○
Y Axis Extension	2,500mm(98.4")	○	-
	3,000mm(118.1")	-	○
Z Axis Extension	2,000mm(78.7")	○	-
	2,500mm(98.4")	-	○
Table Auto Clamp Device	Hyd. Brake Pad	●	●
Coolant & Air Blow			
Coolant Device		○	○
Through Spindle Coolant*	30bar (435psi)	○	○
	50bar (725psi)	○	○
Gun Coolant (Only for Coolant Device)		○	○
Air Gun		○	○
Cutting Air Blow		○	○
Tool Measuring Air Blow (Only for TLM)		○	○
Coolant Chiller (Only for Coolant Device)		☆	☆
Coolant Level Sensing		○	○
Chip Disposal			
Coolant Tank	515 ℓ (136 gal)	○	○
Internal Screw Chip Conveyor		●	●
Chip Conveyor (Hinge/ Scraper) -Only for Coolant Device	Left(Front)	○	○
	Left(Rear)	○	○
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○
	Swing (200 ℓ [52.8 gal])	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○
	Large Size (330 ℓ [87.2 gal])	○	○
	Customized	☆	☆
Safety Device			
Standard Cover		●	●
Table Around Cover (Only for Thru. Coolnat)		○	○
Extension Table Around Cover		☆	☆
Safety Fence		○	○

Electric Device		KBN1300C	KBN1600C
Call Light	1 Color : ■	●	●
Call Light & Buzzer	3 Color : ■■■B	○	○
Work Light		●	●
Electric Cabinet Light		●	●
Remote MPG		●	●
3 Axis MPG		●	●
Work Counter	Digital	●	●
Total Counter	Digital	○	○
Tool Counter	Digita	○	○
Multi Tool Counter	6 EA	☆	☆
	9 EA	☆	☆
Electric Circuit Breaker	FANUC	○	○
	SIEMENS	-	-
AVR (Auto Voltage Regulator)		☆	☆
Transformer	90kVA	○	○
Auto Power Off		○	○
Back up Module for Black out		○	○
Measurement			
TLM (Marposs/Renishaw/ Blum)	Touch	○	○
	Laser	○	○
Tool Broken Detective Device		☆	☆
Linear Scale	X/Y/Z Axis	●	●
Rotary Scale	B Axis	●	●
Environment			
Air Conditioner		○	○
Dehumidifier		○	○
Oil Mist Collector		☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Sub O/P		-	-
Control of Additional Axis	1Axis	☆	☆
	2Axis	-	-
External M Code 4ea		○	○
I/O Extension (In & Out)	16 Contact	☆	☆
Workpiece Ejection Device	32 Contact	☆	☆
Hyd. Device			
Std. Hyd. Unit	30 ℓ (7.9 gal)	●	●
Center Hyd. Supply Device		-	-
Hyd. Unit for Fixture	45bar	☆	☆
	70bar	☆	☆
	100bar	☆	☆
	Customized	☆	☆
NC			
FANUC 31i-B PLUS		●	●
SIEMENS SINUMERIK ONE		○	○
HEIDENHANI iTNC 640		○	○
ETC			
Tool Box		●	●
CAD&CAM Software		☆	☆
Customized Color	Need for Munsel No.	☆	☆
Thermal displacement compensation		○	○

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

*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (KBR1300C | KBR1600C)

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

Spindle		KBR1300C	KBR1600C
2,500rpm (37kW [50HP])	FANUC	●	-
2,500rpm (45kW [60HP])	FANUC	○	-
2,000rpm (45kW [60HP])	FANUC	-	●
2,500rpm (42kW [56HP])	SIEMENS	○	○
Spindle Cooling System		●	●
W Axis Support Sleeve		○	○
Ram Type		●	●
ATC			
ATC Extension	60T	●	●
	90T	○	○
Tool Shank Type	BT50	●	●
	BBT50	○	○
	CAT50	○	○
	DIN50	○	○
Heavy Weight Tool	30kg (66lb)	●	●
U-Center	D'andrea	☆	☆
Pull Stud	45°	●	●
	60°	☆	☆
	90°	☆	☆
Facing Head		○	○
Facing Tool Holder (Facing heads when applying)		○	○
Telescopic Tool Holder (Facing heads when applying)		○	○
Angle Head	500mm(19.7")	○	○
	800mm(31.5")	○	○
Compact Head		○	○
Universal Head		○	○
Table & Column			
Maximum Load Capacity	20t	●	●
	25t	○	○
T-Slot Table		●	●
B Axis Table	0.001°	●	●
X Axis Extension	4,000mm(157.4")	○	-
	5,000mm(196.9")	-	○
Y Axis Extension	2,500mm(98.4")	○	-
	3,000mm(118.1")	-	○
V Axis Extension	2,000mm(78.7")	○	-
	2,500mm(98.4")	-	○
Z Axis (Ram)	1,250mm(49.2")	●	●
Table Auto Clamp Device	Hyd. Brake Pad	●	●
Coolant & Air Blow			
Coolant Device		○	○
Through Spindle Coolant*	30bar (435psi)	○	○
	50bar (725psi)	○	○
Gun Coolant (Only for Coolant Device)		○	○
Air Gun		○	○
Cutting Air Blow		○	○
Tool Measuring Air Blow (Only for TLM)		○	○
Coolant Chiller (Only for Coolant Device)		☆	☆
Coolant Level Sensing		○	○
Chip Disposal			
Coolant Tank	515 ℓ (136 gal)	○	○
Internal Screw Chip Conveyor		●	●
Chip Conveyor (Hinge/ Scraper) -Only for Coolant Device	Left(Front)	○	○
	Left(Rear)	○	○
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○
	Swing (200 ℓ [52.8 gal])	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○
	Large Size (330 ℓ [87.2 gal])	○	○
	Customized	☆	☆
Safety Device			
Standard Cover		●	●
Table Around Cover (Only for Thru. Coolnat)		○	○
Extension Table Around Cover		☆	☆
Safety Fence		○	○

Electric Device		KBR1300C	KBR1600C
Call Light	1 Color : ■	●	●
Call Light & Buzzer	3 Color : ■■■B	○	○
Work Light		●	●
Electric Cabinet Light		●	●
Remote MPG		●	●
3 Axis MPG		●	●
Work Counter	Digital	●	●
Total Counter	Digital	○	○
Tool Counter	Digita	○	○
Multi Tool Counter	6 EA	☆	☆
	9 EA	☆	☆
Electric Circuit Breaker	FANUC	○	○
	SIEMENS	-	-
AVR (Auto Voltage Regulator)		☆	☆
Transformer	90kVA	○	○
Auto Power Off		○	○
Back up Module for Black out		○	○
Measurement			
TLM (Marposs/Renishaw/ Blum)	Touch	○	○
	Laser	○	○
Tool Broken Detective Device		☆	☆
Linear Scale	X/Y/Z/V Axis	●	●
Rotary Scale	B Axis	●	●
Environment			
Air Conditioner		○	○
Dehumidifier		○	○
Oil Mist Collector		☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○
MQL (Minimal Quantity Lubrication)		☆	☆
Fixture & Automation			
Sub O/P		-	-
Control of Additional Axis	1Axis	☆	☆
	2Axis	-	-
External M Code 4ea		○	○
I/O Extension (In & Out)	16 Contact	☆	☆
Workpiece Ejection Device	32 Contact	☆	☆
Hyd. Device			
Std. Hyd. Unit	30 ℓ (7.9 gal)	●	●
Center Hyd. Supply Device		-	-
Hyd. Unit for Fixture	45bar	☆	☆
	70bar	☆	☆
	100bar	☆	☆
	Customized	☆	☆
NC			
FANUC 31i-B PLUS		●	●
SIEMENS SINUMERIK ONE		○	○
HEIDENHANI iTNC 640		○	○
ETC			
Tool Box		●	●
CAD&CAM Software		☆	☆
Customized Color	Need for Munsel No.	☆	☆
Thermal displacement compensation		○	○

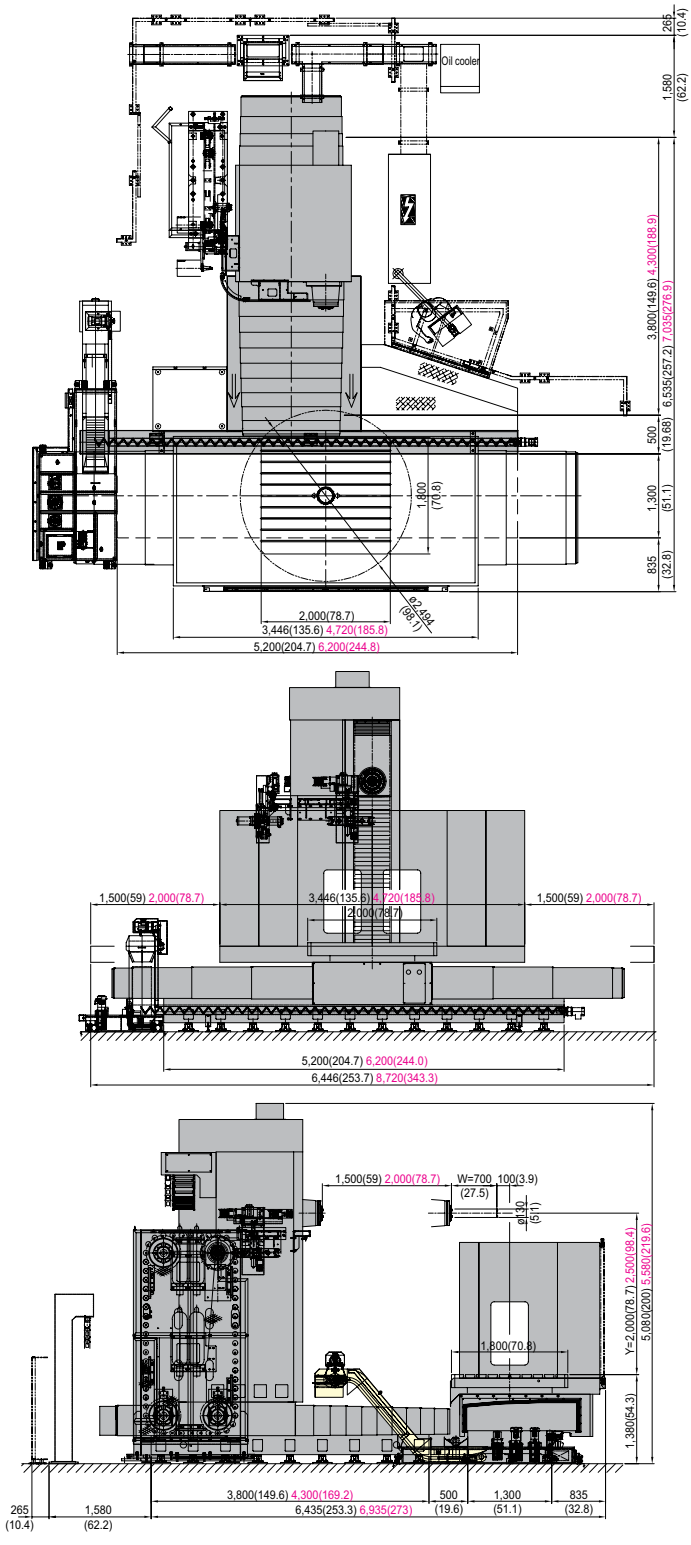
Through Spindle Coolant* : Please check the filter types with sales representative.

*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

External Dimensions (KBN1300C | KBR1300C) <Extended Option>

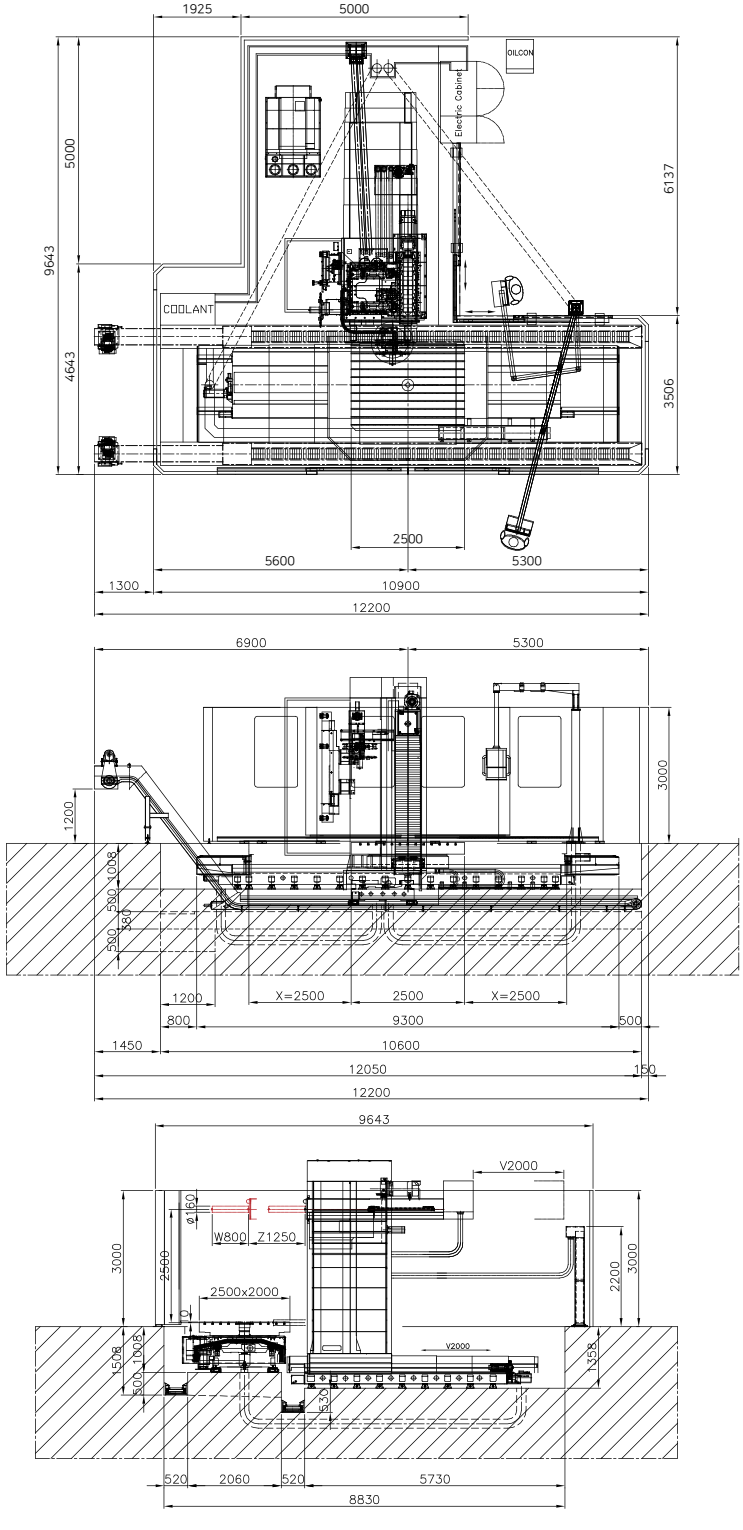
unit : mm(in)



*Specifications are subject to change without notice for improvement.

External Dimensions (KBN1600C | KBR1600C)

unit : mm(in)



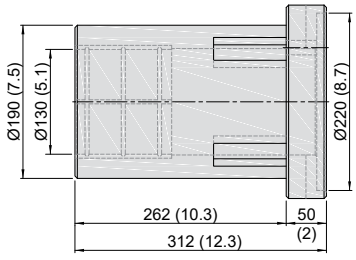
*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

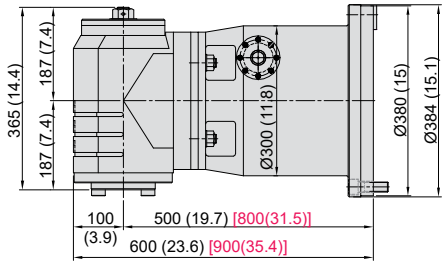
Special Head Dimensions

unit : mm(in)

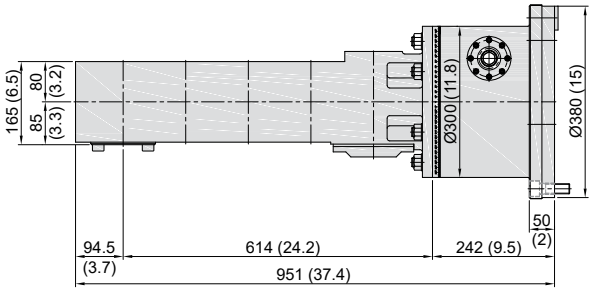
Spindle Support Ø130



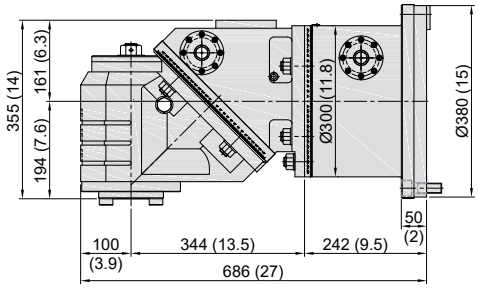
Right Angular Head Ø130



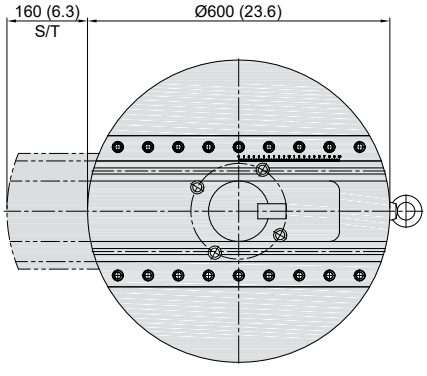
Compact Angle Head Ø130



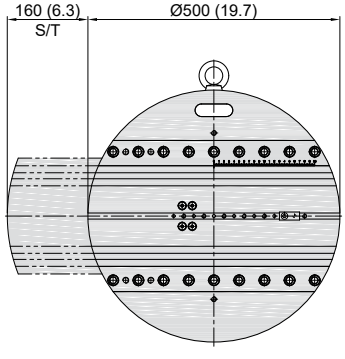
Universal Head Ø130 (Manual)



Facing Head (Manual)



Facing Head (Auto) (D'ANDREA)

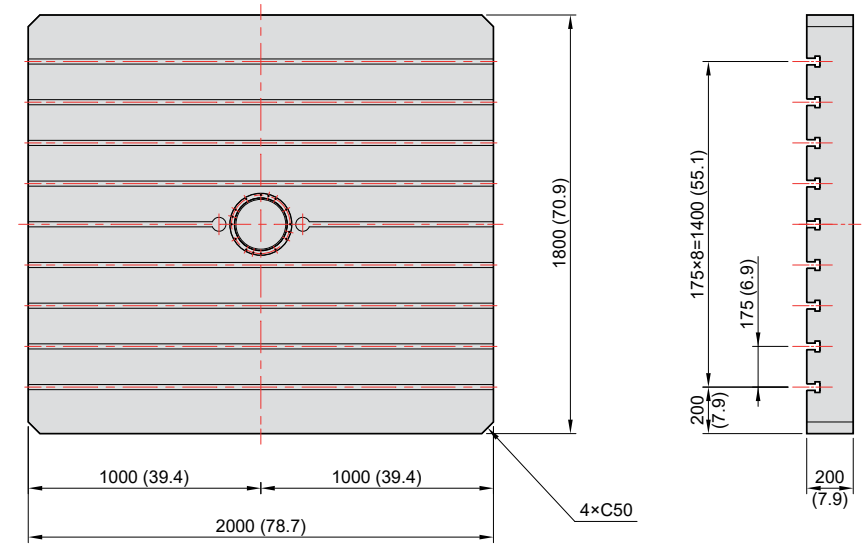


*Specifications are subject to change without notice for improvement.

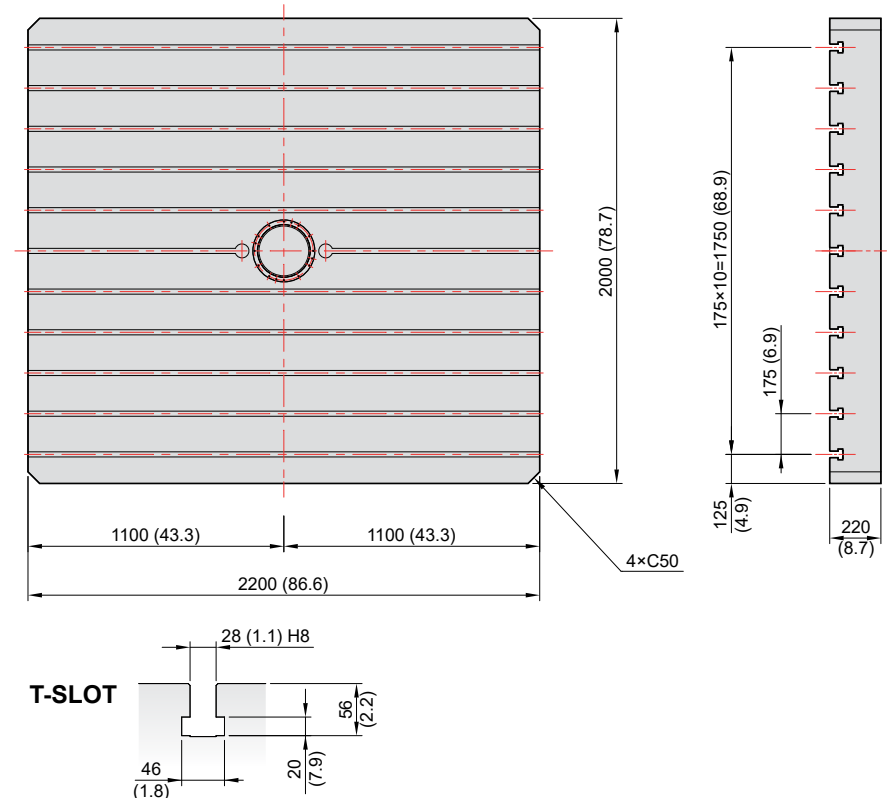
Table Dimensions

unit : mm(in)

KBN1300C / KBR1300C



KBN1600C / KBR1600C



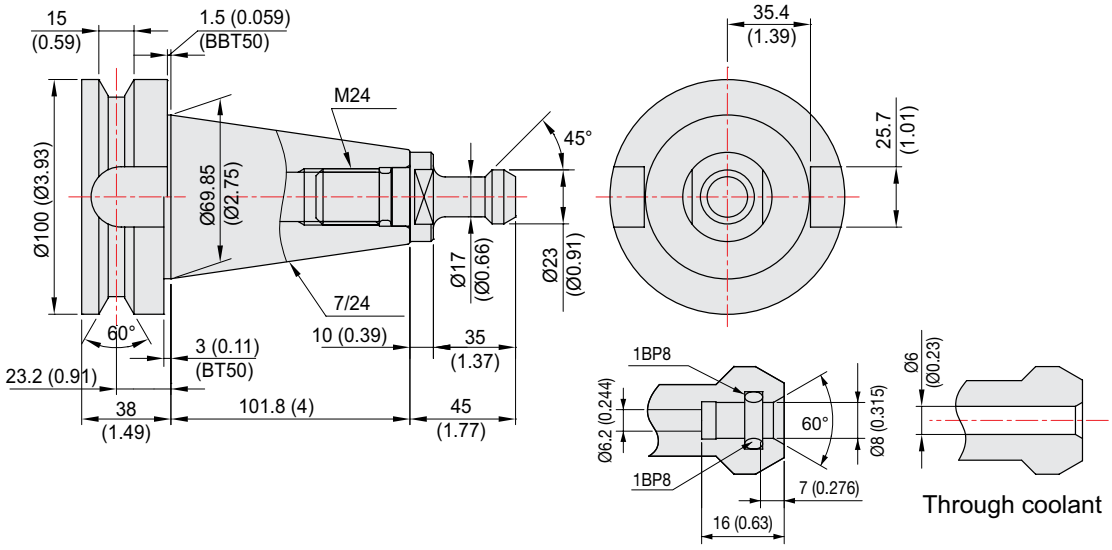
*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

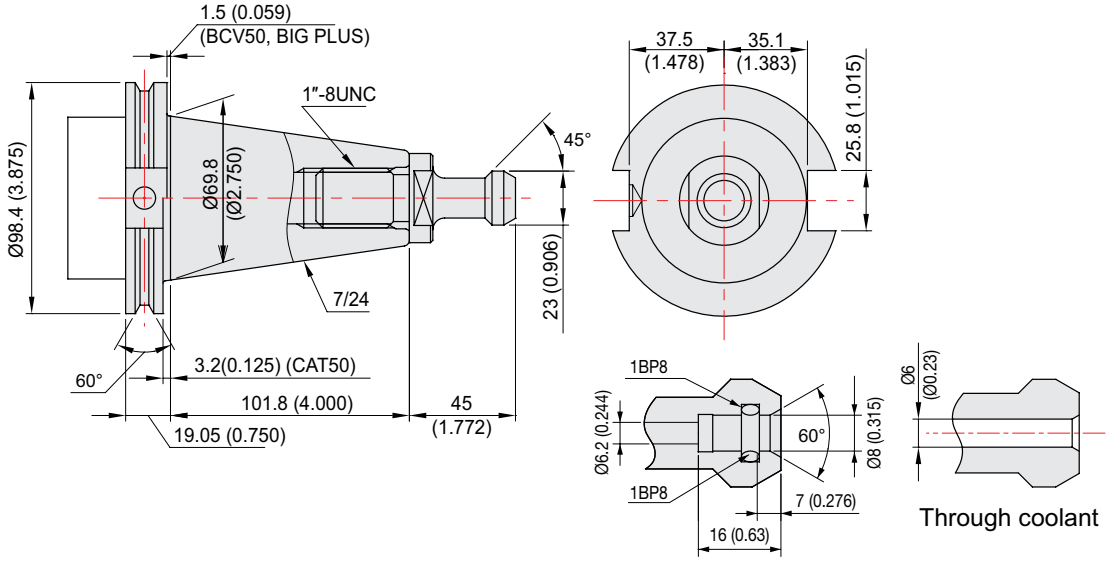
Tool Shank

unit : mm(in)

BT50/BBT50, BIG PLUS



CAT-50/BCV50



*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option ■ : SIEMENS

ITEM				KBN1300C	KBN1600C
Table	Table Size		mm(in)	2,000×1,800 (78.7″×70.9″)	2,200×2,000 (86.6″×78.7″)
	Maximum Load Capacity		kgf(lb)	15,000 [20,000] (33,069 [44,092])	20,000 [25,000] (44,092 [55,116])
	Min. Indexing Angle		deg	0.001°	
Spindle	Boring Spindle		mm	Ø130 (Ø5.1″)	Ø160 (Ø6.3″)
	Spindle Taper		-	BT50 [BBT50]	
	Spindle Speed (rpm)		r/min	2,500 [2,500] [2,500]	2,000 [2,500]
	Spindle Power (Max./Cont.)		kW(HP)	37/30 [45/37] [42/28] (50/40 [60/50] [56/37.5])	45/37 [42/28] (60/50 [56/37.5])
	Spindle Torque(Max./Cont.)		N·m(lbf·ft)	3,377/2,739 [4,191/3,377] [4,499/2,937] (2,491/2,020 [3,091/2,491] [3,318/2,166])	4,191/3,377 [4,499/2,937] (3,091/2,491 [3,318/2,166])
	Spindle Driving Method		-	2 Step Gear Box (ZF Reducer)	
Feed	Travel	X-axis	mm(in)	3,000 [4,000] (118.1″ [157.5″])	4,000 [5,000] (157.5″ [196.9])
		Y-axis	mm(in)	2,000 [2,500] (78.7″ [98.4″])	2,500 [3,000] (98.4″ [118.1″])
		Z-axis	mm(in)	1,500 [2,000] (59.1″ [78.7″])	2,000 [2,500] (78.7″ [98.4″])
		W-axis	mm(in)	700 (27.6″)	800 (31.5″)
	Distance from Table Surface to SP. Center		mm(in)	0 ~ 2,000 (78.7″)	0 ~ 2,500 (98.4″)
	Distance from Table center to SP. Nose		mm(in)	800 ~ 2,300 [800 ~ 2,800] (31.5″~90.6″ [31.5″~110.2″])	900 ~ 2,900 [900 ~ 3,400] (35.4″~114.2″ [35.4″~133.5″])
	Rapid Traverse Rate (X/Y/Z/V/W)		m/min(ipm)	10/10/10/8 (393/393/393/314)	
	Slide Type		-	BOX GUIDE	
ATC	Number of Tools		EA	60 [90]	
	Tool Shank		-	BT50	
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø125/Ø250 (Ø4.9″/ Ø9.8″)	
	Max. Tool Length		mm(in)	600 (23.6″)	
	Max. Tool Weight		kg(lb)	30 (66.1)	
	Tool Change Time	C-C	sec	30	
	Max. tool moment		N·m(lbf·ft)	34 (25.1)	
Power	Reguired Power Capacity		KVA	81	120
Machine	Floor Space (L×W)		mm(in)	6,446×8,180 [8,720×8,880] (253.8″×322″ [343.3″×349.6″])	7,446×8,680 [8,446×9,180] (293.1″×341.7″ [332.5″×361.4″])
	Height		mm(in)	5,080 [5,580] (200″ [219.7″])	5,607 [6,107] (220.7″ [240.4″])
	Weight		kg(lb)	48,000 [52,000] (105,822 [114,640])	55,000 [60,000] (121,254 [132,277])
NC	Controller		-	FANUC 31i-B Plus [SIEMENS SINUMERIK ONE]	

*Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Specifications

[ ] : Option ■ : SIEMENS

ITEM				KBR1300C	KBR1600C
Table	Table Size		mm(in)	2,000×1,800 (78.7″×70.9″)	2,200×2,000 (86.6″×78.7″)
	Maximum Load Capacity		kgf(lb)	15,000 [20,000] (33,069 [44,092])	20,000 [25,000] (44,092 [55,116])
	Min. Indexing Angle		deg	0.001°	
Spindle	Boring Spindle		mm	Ø130 (Ø5.1″)	Ø160 (Ø6.3″)
	Spindle Taper		-	BT50 [BBT50]	
	Spindle Speed (rpm)		r/min	2,500 [2,500] [2,500]	2,000 [2,500]
	Spindle Power (Max./Cont.)		kW(HP)	37/30 [45/37] [42/28] (50/40 [60/50] [56/37.5])	45/37 [42/28] (60/50 [56/37.5])
	Spindle Torque(Max./Cont.)		N·m(lbf·ft)	3,377/2,739 [4,191/3,377] [4,499/2,937] (2,491/2,020 [3,091/2,491] [3,318/2,166])	4,191/3,377 [4,499/2,937] (3,091/2,491 [3,318/2,166])
	Spindle Driving Method		-	2 Step Gear Box (ZF Reducer)	
Feed	Travel	X-axis	mm(in)	3,000 [4,000] (118.1″ [157.5″])	4,000 [5,000] (157.5″ [196.9])
		Y-axis	mm(in)	2,000 [2,500] (78.7″ [98.4″])	2,500 [3,000] (98.4″ [118.1″])
		V-axis	mm(in)	1,500 [2,000] (59.1″ [78.7″])	2,000 [2,500] (78.7″ [98.4″])
		W-axis	mm(in)	700 (27.6″)	800 (31.5″)
		Z-axis (Ram)	mm(in)	1,250 (49.2″)	
	Distance from Table Surface to SP. Center		mm(in)	0 ~ 2,000 (78.7″)	0 ~ 2,500 (98.4″)
	Distance from Table center to SP. Nose		mm(in)	800 ~ 2,300 [800 ~ 2,800] (31.5″~90.6″ [31.5″~110.2″])	900 ~ 2,900 [900 ~ 3,400] (35.4″~114.2″ [35.4″~133.5″])
	Rapid Traverse Rate (X/Y/Z/V/W)		m/min(ipm)	10/10/10/10/8 (393/393/393/393/314)	
	Slide Type		-	BOX GUIDE	
ATC	Number of Tools		EA	60 [90]	
	Tool Shank		-	BT50	
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø125/Ø250 (Ø4.9″/ Ø9.8″)	
	Max. Tool Length		mm(in)	600 (23.6″)	
	Max. Tool Weight		kg(lb)	30 (66.1)	
	Tool Change Time	C-C	sec	30	
	Max. tool moment		N·m(lbf·ft)	34 (25.1)	
Power	Reguired Power Capacity		KVA	81	120
Machine	Floor Space (L×W)		mm(in)	6,446×8,180 [8,720×8,880] (253.8″×322″ [343.3″×349.6″])	10,650 x 9,532 [11,650 x 10,032] (419.3″×375.3″ [458.7″×395″])
	Height		mm(in)	5,080 [5,580] (200″ [219.7″])	6,042 [6,542] (237.9″ [257.6″])
	Weight		kg(lb)	48,000 [52,000] (105,822 [114,640])	55,000 [60,000] (121,254 [132,277])
NC	Controller		-	FANUC 31i-B Plus [SIEMENS SINUMERIK ONE]	

*Specifications are subject to change without notice for improvement.

CONTROLLER

FANUC 31i-B Plus

[ ] : Option ☆ Needed technical consultation

Control Axis	
Controlled axes	6 axis (X, Y, Z, W, V, B)
Simultaneously controllable axes	Positioning(G00) Linear interpolation(G01) : 3axes
	Circular interpolation(G02, G03) : 2axes
Backlash compensation	
Emergency stop / overtravel	
Follow up	
Least command increment	0.001mm / 0.0001 (inch)
Least input increment	0.001mm / 0.0001 (inch)
Machine lock	All axes / Z axis
Mirror image	Reverse axis movement (setting screen and M - function)
Stored pitch error compensation	Pitch error offset compensation for each axis
Stored stroke check 1	Overtravel controlled by software
Compensation and Feed Funcion	
2nd reference point return	G30
AI Contour Control II	200 block preview
Automatic corner deceleration	
Circular interpolation	G02, G03
Control axis detach	
Dual position feedback	
Dwell	G04
Exact stop check	G09, G61(mode)
Feed per minute	mm / min
Feedrate clamp by circular radius	
Feedrate override (10% increments)	0 - 200%
Helical interpolation	
Jog feedrate	0~5000mm / min
Linear ACC/DEC after interpolation	
Linear ACC/DEC before interpolation	
Linear interpolation	G01
Manual handle feed(1unit)	
Manual handle feedrate	0.1 / 0.01 / 0.001mm
Override cancel	M48 / M49
Positioning	G00
Program restart	
Rapid traverse bell-shaped acceleration / deceleration	
Rapid traverse override	F0 (fine feed), 25 / 50 / 100%
Reference point return	G27, G28, G29
Skip function	G31
Smooth backlash compensation	
Thread cutting, synchronous cutting	
Handle interruption	
High speed skip function	
Spindle and M Code Function	
M - code function	M3 digits
Polar coordinate interpolation	G12.1 / G13.1
Retraction for rigid tapping	
Rigid tapping	G84, G74
Scaling	G50, G51
Spindle orientation	
Spindle output switching	
Spindle serial output	
Spindle speed command	S5 digits
Spindle speed override (10% increments)	10 - 150%
TOOL Funcion	
Tool offset B	G43, G44, G49
Tool life management	Geometry / Wear and Length / Radius offset memory
Tool number command	T3 digits
Tool offset memory C	
Tool offset pairs	200 ea
Tool offset	G45 - G48
Programming and Edit Function	
Absolute / Incremental programming	G90 / G91
Addition of custom macro common variables	
Additional work coordinate system(48 Pair)	G54.1 P1 - 48 pairs
Auto.Coordinate system setting	
Background editing	
Canned cycle	G73, G74, G76, G80 - G89, G99

Programming and Edit Function	
Circular interpolation by radius programming	
Coordinate system rotation	G68, G69
Custom macro	
Increment system 1/10	
Decimal point input	
Extended part program editing	
I / O interface	USB / Ethernet
Inch / metric conversion	G20 / G21
Label skip	
Local / Machine coordinate system	G52 / G53
Maximum commandable Demension	±99999.999mm(±9999.9999 inch)
No. of Registered programs	1000 ea
Optional angle chamfering / corner R	
Optional block skip	
Optional stop	M01
Part program storage size	4Mbyte(10,240 m)
Program number	O4 - digits
Program protect	
Program stop / end	M00 / M02, M30
Programmable data input	Tool offset and work offset are entered by G10, G11
Sub program	Up to 4 nesting
Tape code	ISO / EIA Automatic discrimination
Work coordinate system	G54 - G59
OTHERS FUNCTIONS (Operation, Setting & Display, etc)	
Alarm display	
Alarm history display	
Clock function	
Cycle start / Feed hold	
Display of PMC alarm message	Message display when PMC alarm occurred
Dry run	
Ethernet function (Embedded)	
External data input	
Graphic display	Tool path drawing
Help function	
MDI / DISPLAY unit	15" Color LCD, Touchscreen
Memory card interface	
Multi language display	
Operation functions	Tape / Memory / MDI / Manual
Operation history display	
Program restart	
Run hour and part number display	
Search function	Sequence NO. / Program NO.
Self - diagnostic function	
Servo setting screen	
Single block	

Optional Function	
3 - dimensional coordinate conversion	
3 - dimensional tool compensation	
Addition of tool pairs for tool life management	1024 pairs
Additional controlled axes	max. 6 axes in total
Additional work coordinate system	G54.1 P1 - 300 (300 pairs)
AI Contour Control II	600 block preview
Automatic corner override	G62
Chopping function	G81.1
Cylindrical interpolation	G07.1
Data server	
Dynamic graphic display	Machining profile drawing
Exponential interpolation	
Figure copying	G72.1, G72.2
Interpolation type pitch error compensation	
Involute interpolation	G02.2, G03.2
Machining time stamp function	
Manual handle feed 2/3 unit	
No. of Registered programs	4000 ea
Number of tool offsets	499 / 999 / 2000 ea
Part program storage size	8Mb (20480m)
Polar coordinate command	G15 / G16
Programmable mirror image	G50.1 / G51.1
Single direction positioning	G60

*The contents of the catalogue are subjected to change without prior notice

CONTROLLER

SIEMENS SINUMERIK ONE

[ ] : Option ☆ Needed technical consultation

Controlled axis / Display / Accuracy Compensation	
Control axis	6 axis (X, Y, Z, W, V, B)
Simultaneously controlled axis	Max. 4 axis
Least setting Unit	X, Y, Z axis : 0.001 mm (0.0001 inch),
	B axis : 1 deg
Least input increment	X, Y, Z axis : 0.001 mm (0.0001 inch),
	B axis : 1 deg
Inch / Metric changeover	G70 (inch) / G71 (metric)
Interlock	All axis / Each axis
Machine lock	All axis
Backlash compensation	
Pitch error compensation	
Feedforward control (Torque control)	
LCD / MDI	22 inch color LCD (With Touch panel)
Keyboard	QWERTY full keyboard
Stored stroke check	Over travel
Operation	
Automatic operation (Memory)	
MDI operation	
Program restart	
Program check function	Dry run / Program check / Machine lock
Single block	
Block search	Block search
Reposition	
Working area limit	Working area limitations
Interpolation functions	
Positioning	G00
Linear interpolation	G01
Circular interpolation	Circular Interpolation CW (G02)
	Circular Interpolation CCW (G03)
Exact position stop	Single block exact stop (G09)
	Exact stop G60 (G601, G602, G603)
Dwell	Dwell (G04)
Reference position return	Return to reference point
	Return to 2nd reference point
Helical interpolation	
Spline interpolation	Non-uniform rational B splines
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 ~ 120%
Rapid traverse override	1%, 25%, 50%, 100%
Feed per minute	G94
Feed per revolution	G95
Program input	
ISO correspondence	G291(ISO)/G290 (SIEMENS)
	(ISO G Code system-A)
Optional block skip	8 ea (0~7)
Program stop / end	G90 / G91
Absolute / Incremental program	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm, ± 99,999.9999 inch
Plane selection	X-Y : G17, X-Z : G18, Y-Z : G19
Workpiece coordinate system	G54 ~ G57, G505~G549
	G500 (Basic frame - setable zero offset)
	G53 (Work offset non modal)
	G153 (basic frame non modal)
Sub program call	16 folds nested
G code preventing buffering	STOPRE
Drilling/Milling cycle	with programing support
User cycle	

Auxiliary function / Spindle speed function	
Auxiliary function	M Code 4 digit
Spindle speed function	S Code 5 digit
Spindle override	0% ~ 120%
Spindle orientation	SPOS
Rigid tapping	
Autometic mode Interchange	Spindle / Axis mode
Constant surface speed control	G96, G97
Spindle speed limitation	LIMS
Tool function / Tool compensation	
Tool function	Tool number & Tool name
Tool life management	
Tools in tool list	600 ea
Cutting Edges in tool list	1,500 ea
Tool radius compensation	ISO (G40, G41, G42)
Geometry / Wear compensation	
Tool management function	
Editing function	
Part program storage size	10MB
External Strorage devices	USB
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 memory interface
Screenshot	
Setting, display and diagnosis	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Multi language display	Support 7 languages Chinese, English, French, German, Italian, Korean, Spanish
LCD Screen Saver	Screen saver & Motion sensing

Option	
ShopMill	Machining step programming for milling
3D simulation	
Real time simulation	
Compressor (Improving machining quality)	Compcad / Compcurv (Cycle 832)
Look-ahead block	3,000 block (With Mdynamics)
Measurement of tool length	
Built-in PC	Industrial PC (IPC427E)
Multi language display	☆ 20 Support languages : Inquiry need

GLOBAL NETWORK



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