GHB SERIES

Horizontal type Boring machining center

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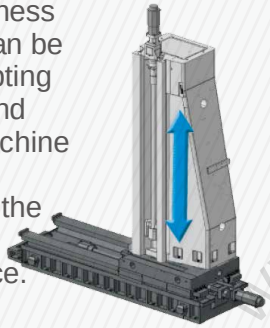
High rigidity and precision
Horizontal type Boring machining center
GHB 135H/135LH

The GHB series is a column mobile horizontal boring and milling machine with special technology. The high rigidity, high precision construction and high performance spindle can greatly improve the processing performance, while a variety of optional configurations can flexibly handle large parts of different sizes, creating higher value for customers.

1 High Rigidity

The dynamic stiffness of the structure can be improved by adopting the high rigidity and stability of the machine structure and the optimal design of the slope column and the contact surface.



2 High Accuracy

High performance spindle and rotary table enable stable and high precision machining.

3 Convenience

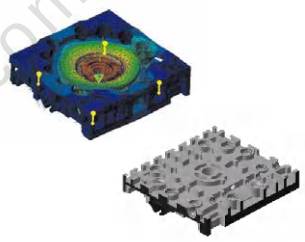
Ergonomic design of slope operation panel, more convenient operation, easy to use operation.

High rigidity structure

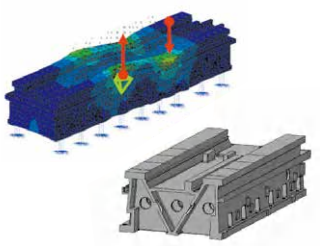
1 High rigidity structure

Through the optimization design of the whole bed mechanism, the rigidity of the mechanism can be greatly improved by using the stiffened bed and the slope column with low center of gravity.

The low center of gravity design greatly reduces vibration, and the column moving structure is suitable for heavy loads.



Reduce deformations caused by heavy workpieces with an optimized design of the table and table base.



The M-shaped bar in the bed greatly reduces deformation and vibration.

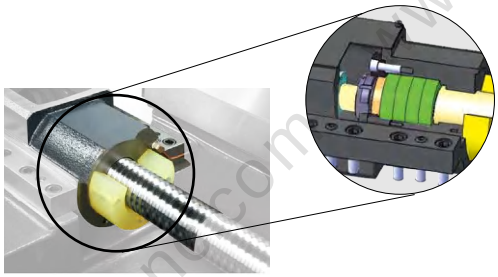
Max. rotation Dia.
Ø3900 mm
No semi-S/G (GHB135H)

Max. rotation Dia.
Ø4800 mm
No semi-S/G (GHB135LH)

Max. rotation Dia.
Ø3400 mm
With semi-S/G

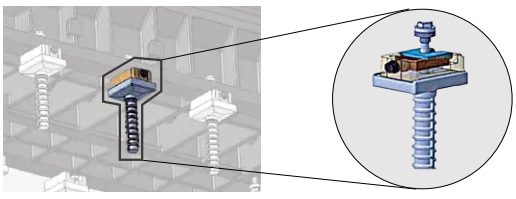
2 High stability bed

Optimized slope column and contact surface design, 4 row bearing and lead screw, which can improve the rigidity of the equipment.



4 aligned bearings and lead screws

Both ends of the lead screw are supported by 4 rows of angular contact bearings to improve stability.



Leveling block

The leveling block can strengthen the anchorage force of the foundation, and the realization is simple

High Accuracy

1 High torque spindle

Adopt high rigidity bearing support, high torque spindle to achiev e strong heavy cutting. At the same time, easy access to the workpiece spindle nose and the optimized design of the spindle head and the telescopic distance provide stable processing capacity.

Spindle motor power:

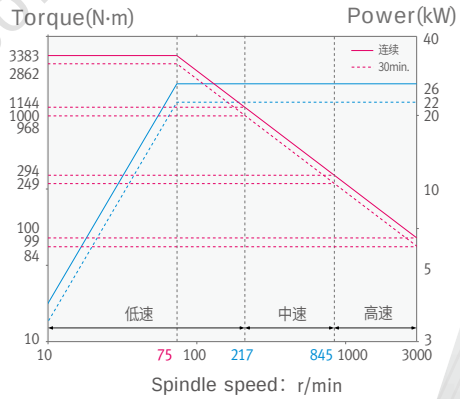
26/22 kW

Maximum spindle torque:

3383 N·m

Spindle power-torque diagram

GHB Spindle 3000r/min 26/22kW Standard



Boring bar Ø130 mm

Max. spindle speed 3000 r/min

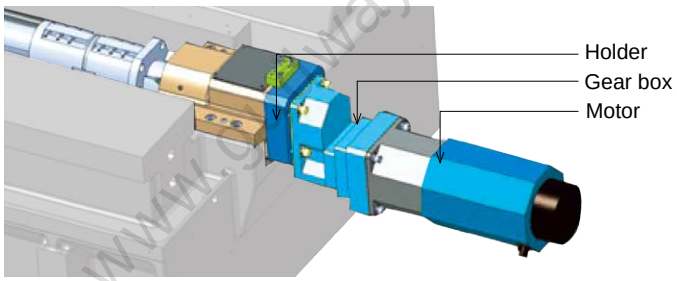
Max. spindle Torque 3383 N·m

2 High precision table

Rotary work table is equipped with high precision, independent encoder standard, to achieve high precision B-axis rotation.

ITEM	GHB SERIES				
	ST	OP	ST	OP (GHB135LH)	OP (GHB135LH)
SIZE(mm)	1600x1800	18000x2000	2000x2200	1800x2000	2000x2200
Max. load(kg)	15000	13000	12000	20000	19000
Pallet surface	$24H_8x9$	$24H_8x11$	$24H_8x13$	$24H_8x11$	$24H_8x13$

The positioning pin is realized by 90° rotation



High torque reduction gear box increases axial thrust, reduces servo load, achieves stable feed and improves machining capacity.

Model	X AXIS	Y AXIS	ZAXIS
GHB135H	OP	ST	OP
GHB135LH	ST	ST	ST

High Efficiency

1 (ATC)

GHB series is equipped with 40 tool storehouses, and the tool storehouses and brackets are driven by servo motors, which gr eatly reduces the hydraulic system load of the whole machine, reduces the failure rate, makes maintenance more convenient, and can effectively improve the processing efficiency.

Magazine capacity: **40** ST
60/90 OP

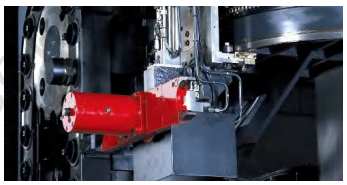
Max. tool dia.: **130** mm(continuous)

Max. tool length: **600** mm

Max. weight: **30** kg

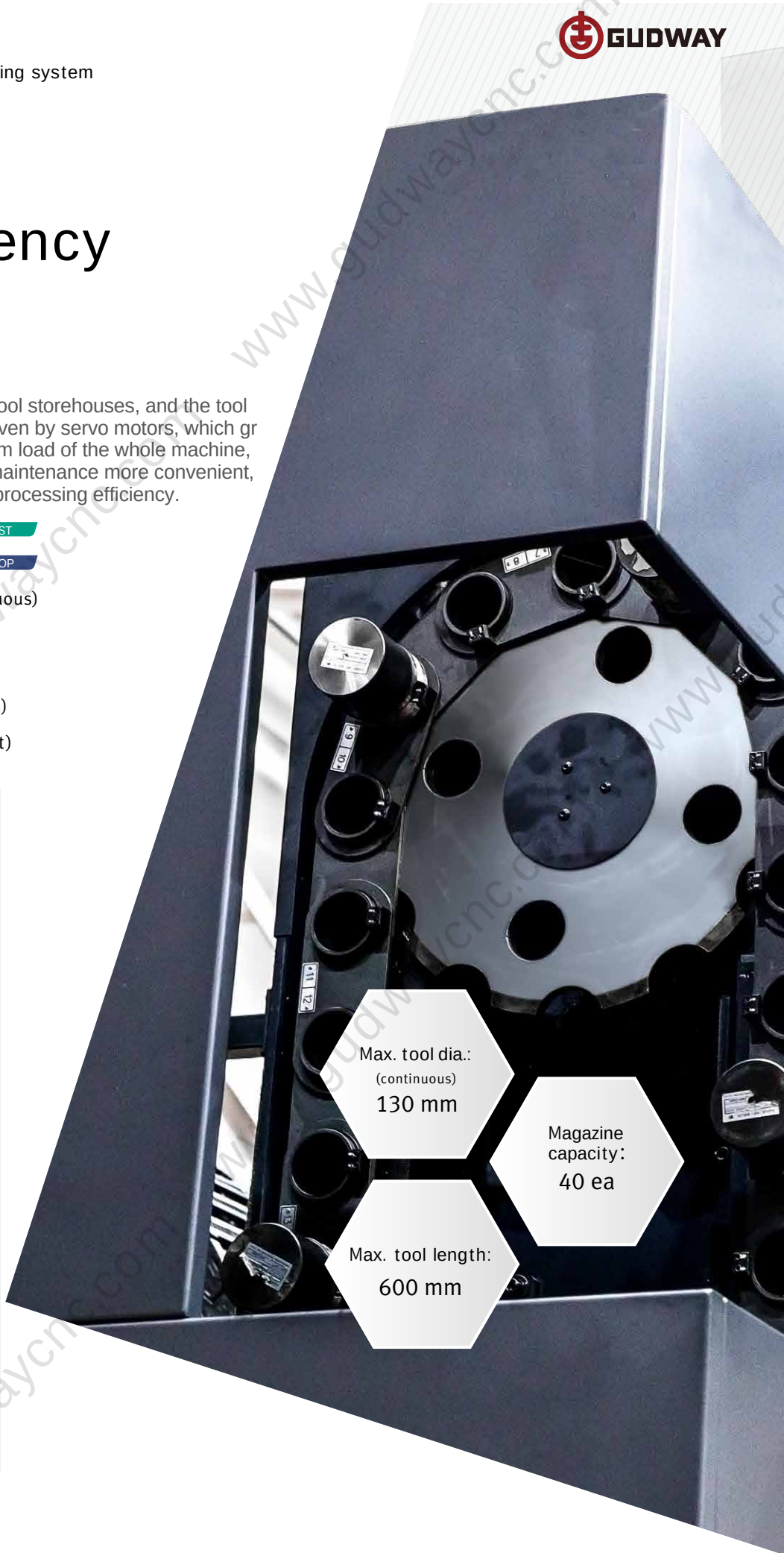
Changing time: **20** s(Tool to tool)
30 s(cut-to-cut)

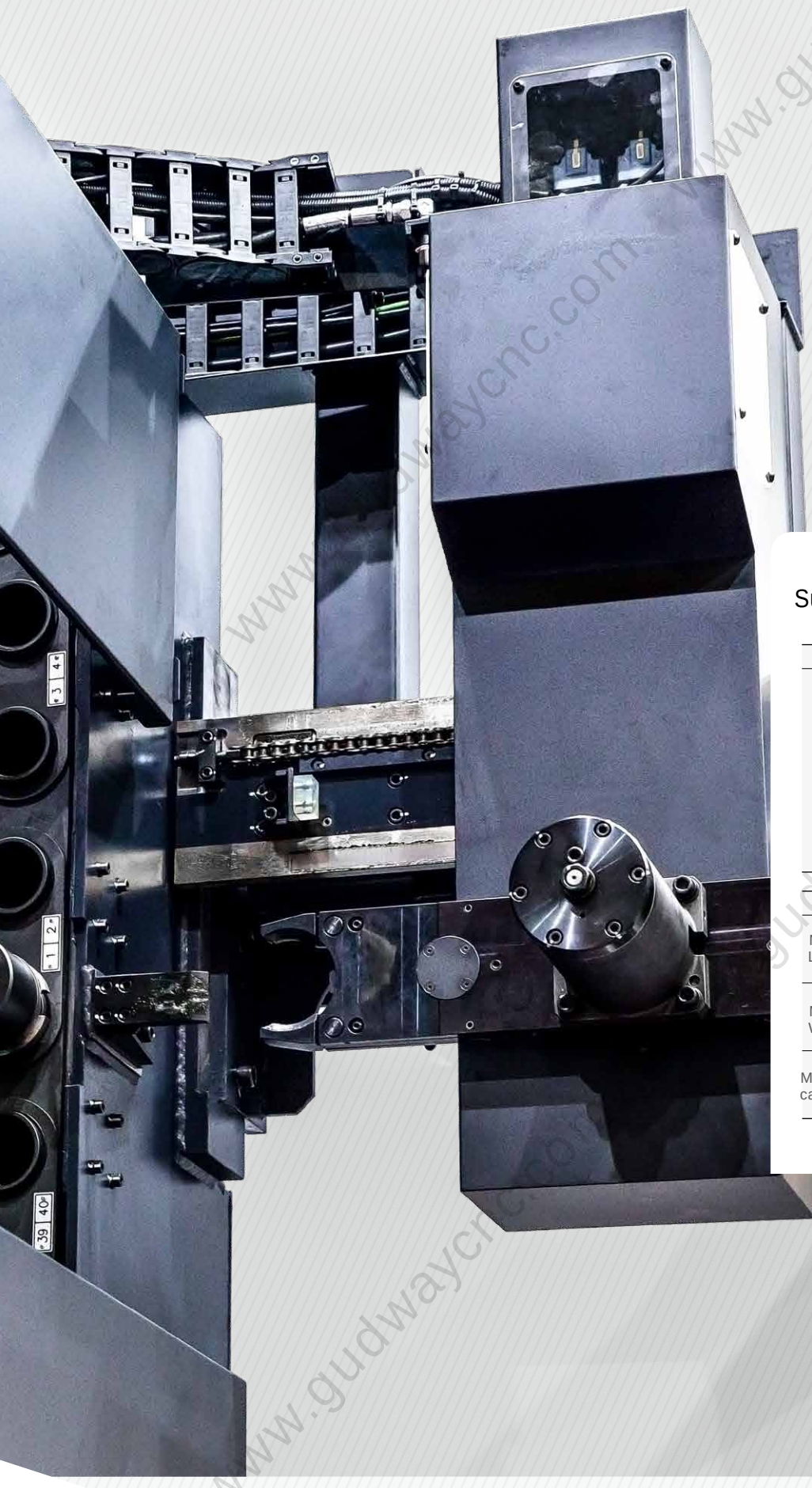
(ATC)



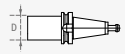
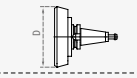
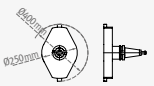
Servo tool magazine

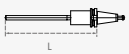
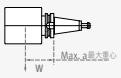
Servo bracket





Suitable cutter type

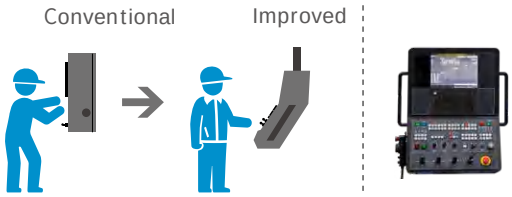
	Specification	Shape
Max. Dia.	Ordinary: D = ø130 mm	
	Face cut: D= ø250 mm (Adjacent toolsets must be empty)	
	Boring : D = ø400 mm D = ø600 mm OP (Adjacent toolsets must be empty)	

	Specification	Shape
Max. Length	L = 600 mm	
Max. Weight	W = 30 kg	
Magazine capacity	40 {60 / 90} OP	

Convenience

1 Convenience of operation

Standard equipped with FANUC 0iF PLUS system, improve user operation convenience.



The use of ergonomic design, the user more convenient operation slope operation panel makes the operation more convenient.

The newly designed operation panel gives GHB series quick access to commonly used functions thanks to differentiated shortcut keys.

Optimized design of the operating panel for improved convenience.
Comes standard with a pulse handle for easy operation and an MPG for easy workpiece fixation.
The top of the main operating panel is equipped with a single lever point switch (standard) to facilitate the long axis movement of large machine tools.

Portable MPG

ATC Operation panel

3 portable MPG

OP

MPG with LCD display

OP

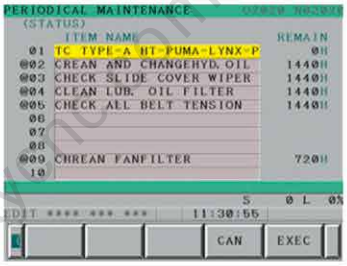
Single lever point switch

User-friendly software （EOP Function）

User-friendly software

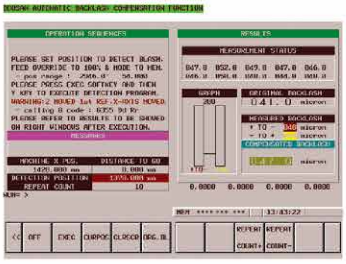
Tool load detection

Use the M code to automatically detect tool wear when the workload is abnormal. Can store the specific processing data of the workpiece.



Periodic check function

This feature updates the operator's maintenance-related information, such as refill time.

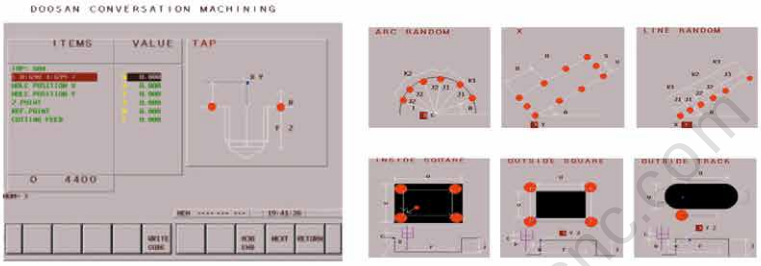


Auto back backlash compensation

After the workpiece is set, the feed backlash is automatically detected and compensated by G-code instructions or through the function screen.

Tool management

Avoid abnormal load on the servo shaft by skipping the tool or issuing a stationary alarm.



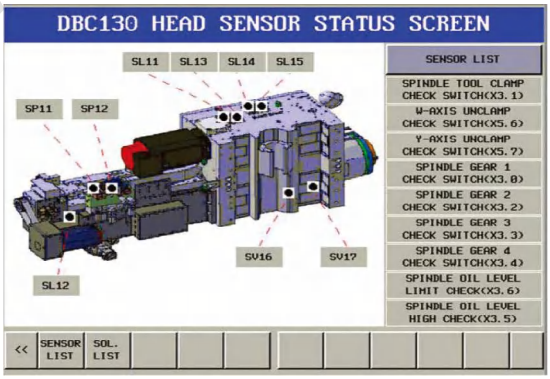
Simple mode cycle

Major processing mode loops and programs can be created by entering only major factors. This feature is built into the CNC, thus greatly reducing programming time and making it easy to use in the field. A total of 22 modes are available, including 5 basic modes.

Maintenance Support - Simple operation guide

OP

Detect machine faults including ATC tool library and recommend corrective actions to troubleshoot faults. For simple instructions, display Windows are provided - including function selection, thermal error setting, program processing display, and operation report display.



Various optional configurations

1 Chip conveyor OP

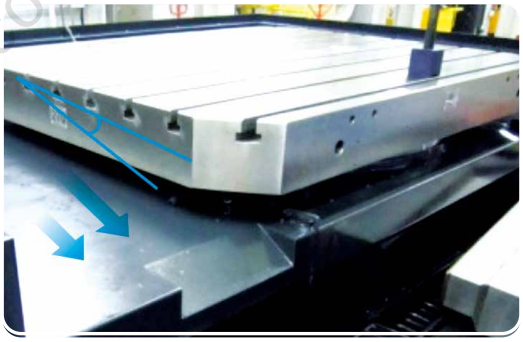
Chip conveyor	Material	Note
hinge type	Steel	Common chip conveyor types are suitable for steel production of 30mm or longer lengths of chips
Drag type	Cast iron	The conveyor with magnet is suitable for the processing of cast iron with small and fine chips

Drag type

Drum filter

Hinge type

2 Optional



Chip catcher ST

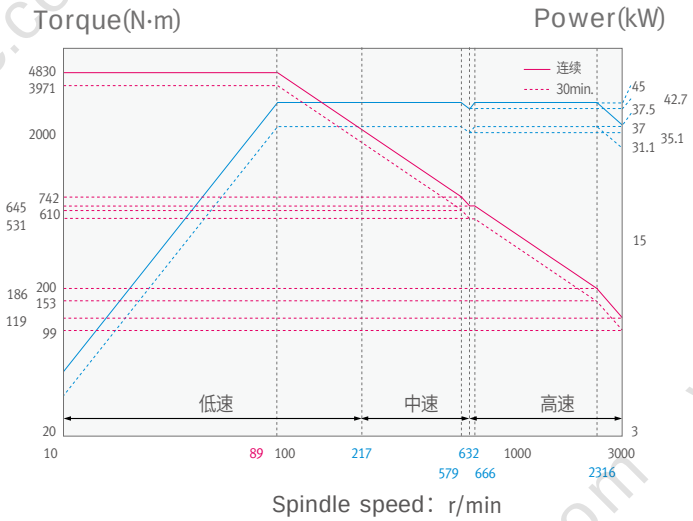
Coolant gun OP

Hinged chip extractor ST

Lifting chip extractor OP

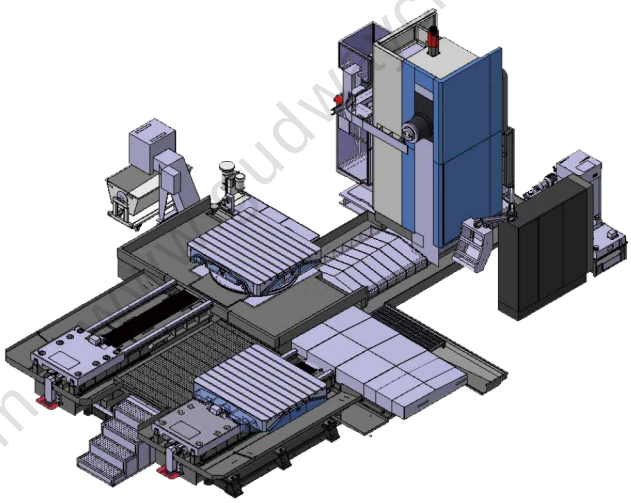
3 SPINDLE (GHB SERIES)

Speed 3000 r/min, Power45/37kW OP



4 (APC) OP

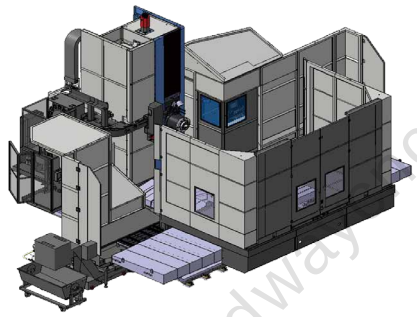
GHB SERIES WITH APC 3D LAYOUT



APC Specification

Description	Unit	Specification
Number of pallet	ea	2
APC type	-	Parallel propulsion (Z-axis direction)
Pallet size (W x L) and workpiece load	mm & ton	• 1600 x 1800 & 10 • 1800 x 2000 & 8

5 Semi-enclosed shield OP



6 grating ruler (X/Y/Z) OP

7 (TSC) OP

	20 BAR	30 BAR	70 BAR
Specifications (Pressure/flow)	MAX. 2 MPa / MAX. 20 L/min	MAX. 3 MPa / MAX. 15 L/min	MAX. 7 MPa / MAX. 30 L/min
Pump type	Gear pump	Gear pump	Screw Pumps
Tank specifications (with filter)	Independent water tank40L	Independent water tank40L	Independent water tank65L
Pump power	1.5kW	1.5kW	7.5kW

8 Special option OP

1. Angle head (Manual) (L=365mm)

2. Elongated Angle head (Manual) (L=660mm)

3. Universal head Manual

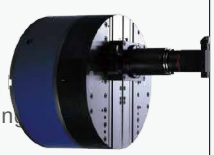
4. Chuck (Manual) (Ø650mm)

5. Rotary Angle head (90° Auto)

6. spindle carrier * ghb135h,L=310mm

7. Face milling head **TA-Center** (D' andrea)
U-axis preparation
• ATC tool changing

8. Face milling headU-Tronic (D' andrea)
U-axis preparation
Manual tool changing
Manual installation



9. Angle plate (4 models)

Unit:mm

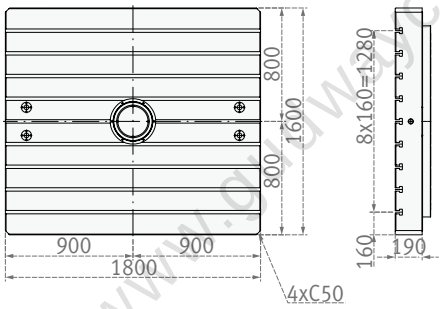
A	600	1000	1250	2000
B	450	500	750	1000
C	400	550	750	1000

Work table

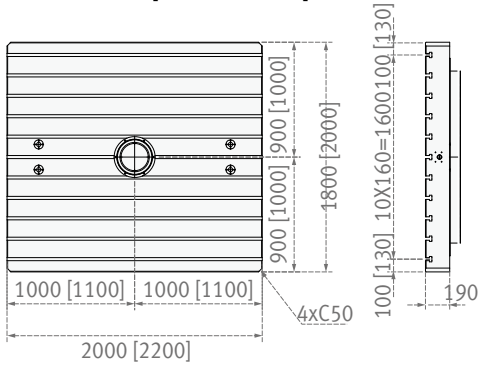
UNIT: mm

GHB SERIES

1600 x 1800(63.0 x 70.9)



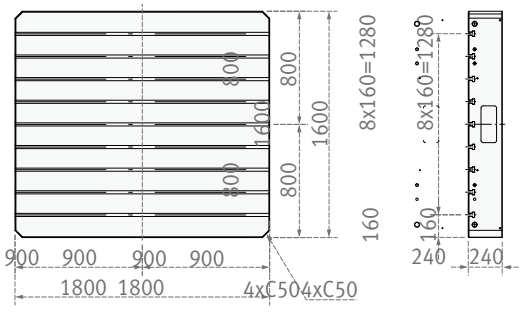
1800 x 2000 [2000 x 2200] OP



GHB SERIES(APC)

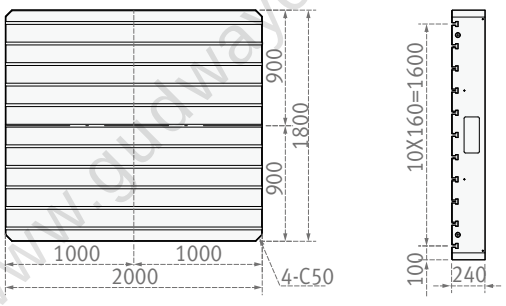
1600 x 1800 OP

APC Capacity 10 tons



1800 x 2000 OP

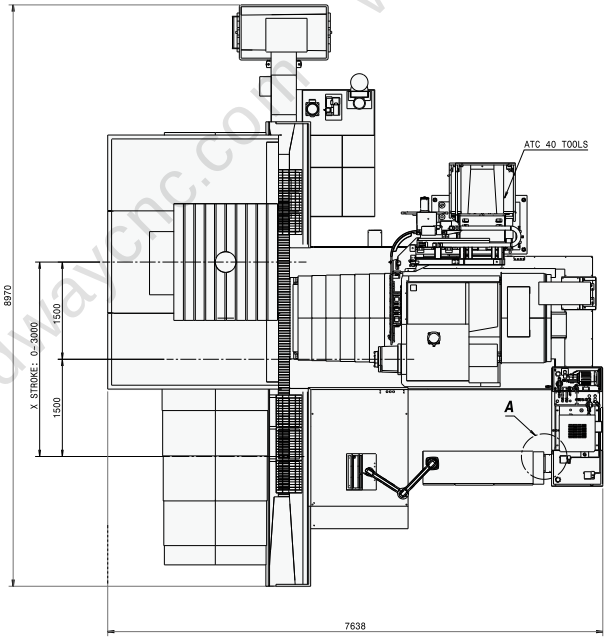
APC Capacity 8 tons

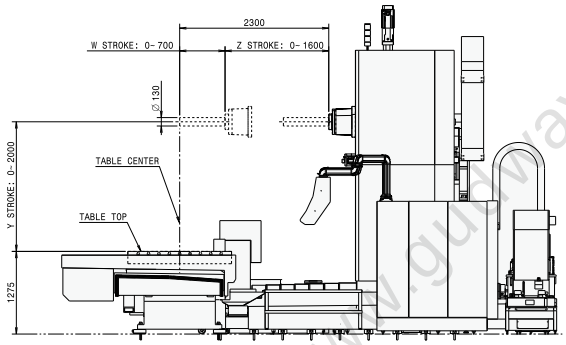


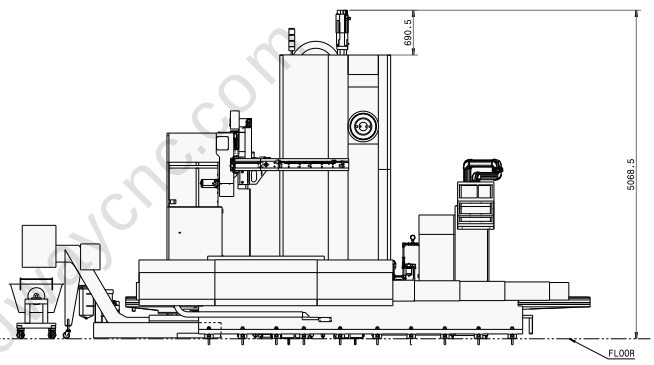
Size

GHB135H

UNIT: mm



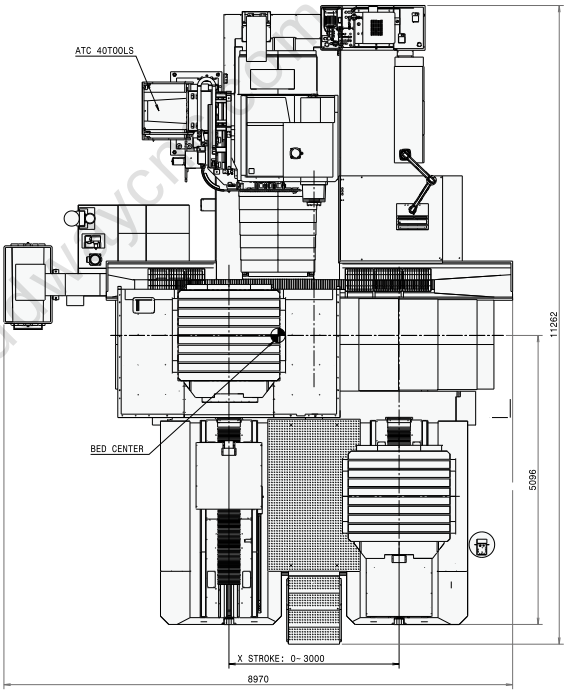


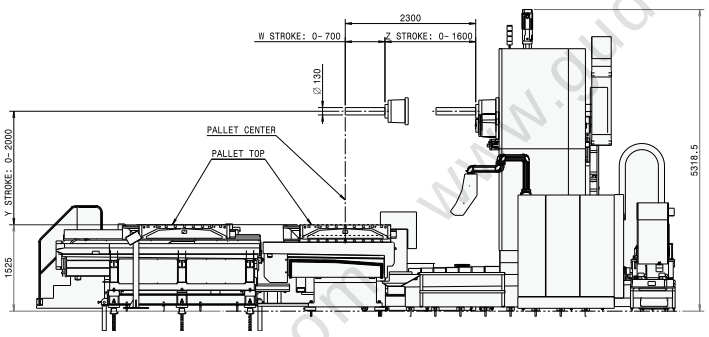


SIZE

DGHB135H(APC) OP

UNIT: mm





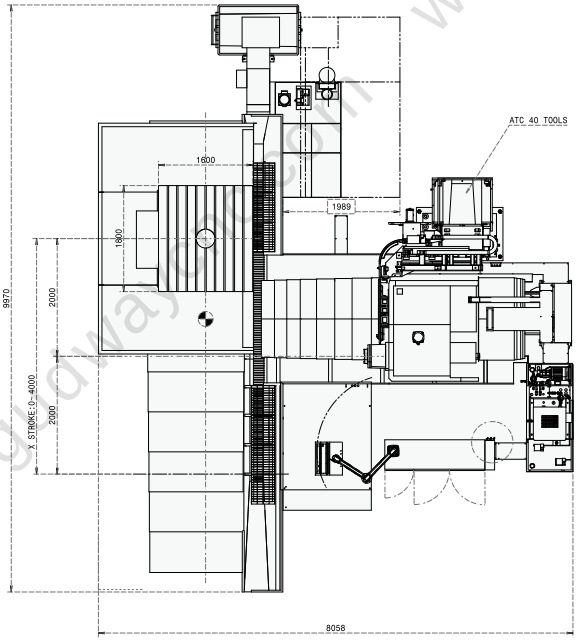
* Some peripherals can be placed elsewhere
** Anchor bolts are available. The foundation must be laid.

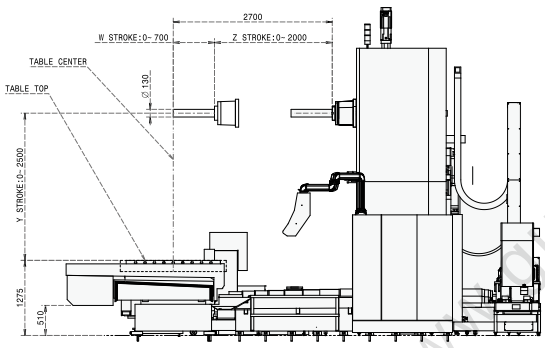
For more details about the specifications, please contact us.

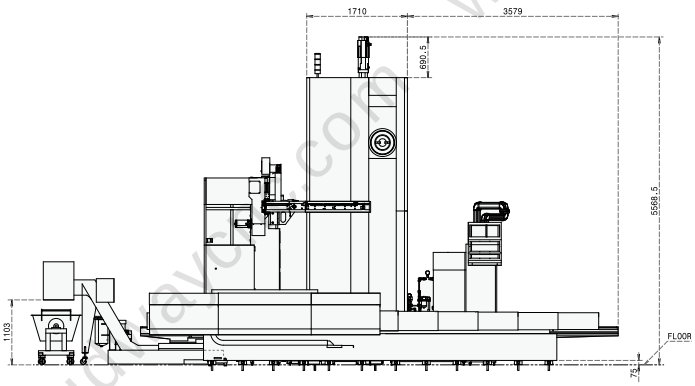
SIZE

GHB135LH

UNIT: mm



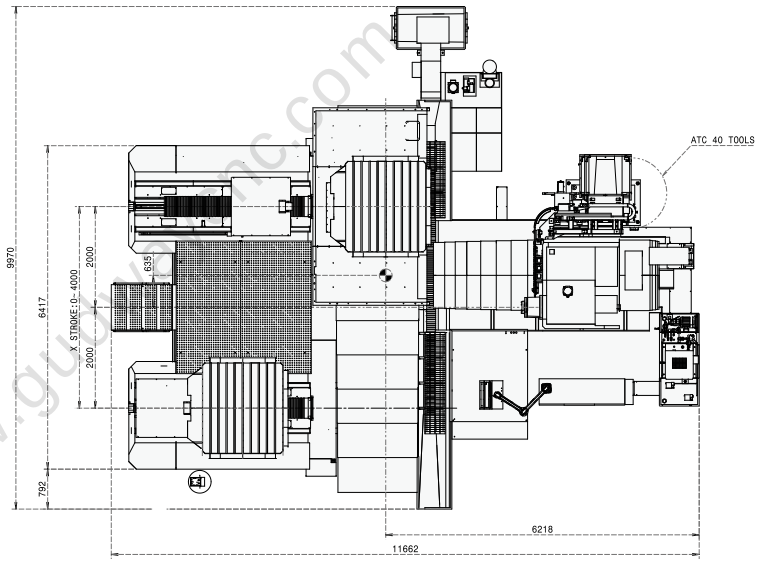


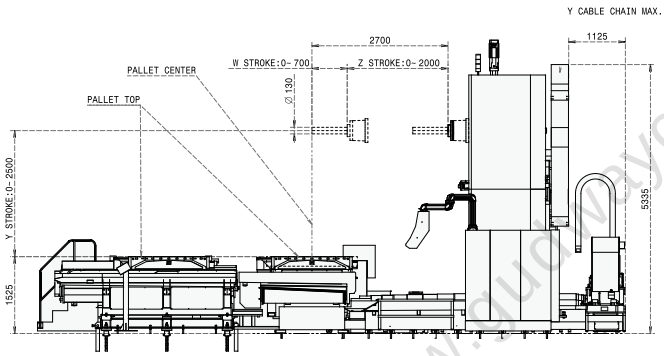


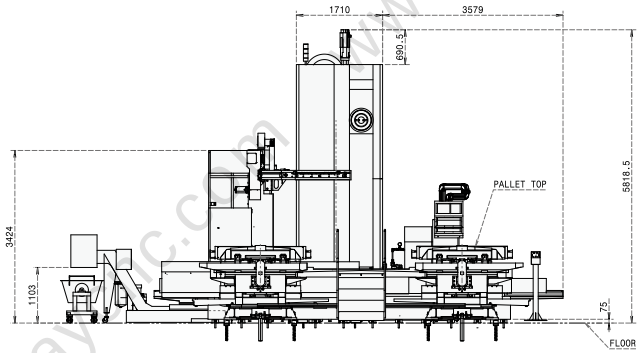
SIZE

GHB 135LH (APC) OP

UNIT: mm







* Some peripherals can be placed elsewhere
** Anchor bolts are available. The foundation must be laid.

For more details about the specifications, please contact us.

Parameters

GHB series

ITEM			UNIT	GHB135H	GHB135H
TRAVEL	X AXIS		mm	3000	4000
	YAXIS		mm	2000	2500
	Z AXIS		mm	1600	2000
	W AXIS		mm	700	700
	Distance from spindle face to table surface		mm	0-2000	0-2500
	Distance from spindle end face to center of table		mm	700-2300	700-2700
TABLE	TABEL SIZE		mm	1600x1800 {1800x2000,2000x2200}	1600x1800 {1800x2000,2000x2200}
	Tactical diameter	without simi-S/G	mm	Φ3900	Φ4800
		with simi-S/G	mm	Φ3400	
	Max. load		kg	15000 {13000,12000}	15000 {13000/20000,12000/19000}
Spindle	Maximum spindle speed		r/min	3000	
	Boring bar diameter		mm	Φ130	
	Maximum spindle motor power		kW	26/22 {30/22,45/37}	
	Maximum spindle torque (30min)		N·m	3383	
ATC	Tool storage capacity		ea	40 {60/90}	
	Shank type			MAS403 BT50	
	Maximum tool diameter (continuous)		mm	Φ130	
	Maximum tool length		mm	600	
	Maximum tool weight		kg	30	
	Maximum tool moment		N·m	34.3	
	Tool change time (cutting - cutting)		s	30	
	Tool change time (tool-tool)		s	20	
Feedrate	Fast feed(X/Y/Z/W)		m/min	10/10/10/6	10{7}/8/10/6
	Cutting feed speed		mm/min	1-4000	
Power	Power supply (rated power)		KVA	70	
Tank capacity	Coolant tank capacity		L	120	110
	Lubricating oil pot capacity		L	45	
Size	Height		mm	4910	5570
	Length x Width		mm	8970x7660	9970x8040
	Weight		kg	45650	50650
NC system				FANUC 0i PLUS {31i,32i}	

• {}

ST

- Working light(LED)
- Internal hinge chip extractor
- Lamp(red, yellow, green)
- Installation parts
- Spare parts
- Install & debug tools
- Spindle cooling unit & oil cooler

OP

- Chip extractor - side mounted
- Chip truck
- CTS
- CTS preparation
- Test bar
- Auto off
- Auto measurement system
- Aut tool length measurement
- Water gun system
- Scale ruler-X/Y/Z axis
- Oil skimmer
- Column heightening-250mm
- Auto pallet exchange device

NC specification

FANUC i Plus Series (ST)

Axis control

- Axis control	4 (X, Y, Z, B)
- Simultaneously Controlled Axes	
	Position (G00)/line interpolation(G01): 4axis
	Circle interpolation(G02,G03): 2axis
- Control shaft removal	
- Reverse gap compensation	
- Emergency stop/trip	
- HRV control	HRV3
- Position tracking	
- Incremental system	0.001/0.0001 mm/inch
- Least input increment	0.001/0.0001 mm/inch
- Incremental system C	ISXC
- Machine lock	All axis/Zaxis
- Mirror	All axis
- Memory pitch error compensation	
- Memory trip check	
- Position switch	
- Absolute pulse encoder	

Interpolation and feed function

- Return to the second reference point	G30
- Return to reference point 3/4	
- Circle interpolation	G02,G03
- Nanointerpolation	
- Inverse time feed	
- Cylindrical interpolation	G07.1
- Polar coordinate interpolation	G15,G16
- Feed pause	G04
- Exact stopping mode	G09,G61
- Feed rate ratio (10%)	0-200%
- Spiral interpolation	
- Pre-read interpolation bell acceleration and deceleration	
- Smooth reverse clearance compensation	
- JOG rate 10%	0-200%
- Automatic corner magnification	G62
- Automatic corner reduction	
- Cutting feed rate pliers	
- Rapid fluid acceleration and deceleration	
- Linear interpolation	G01
- Manual feed per turn	
- Hand wheel feed rate	0.1/0.01/0.001mm
- Rate cancel	M48/M49
- Manual wheel break	
- Position	ONLY DBC 135 II
- Fast feed rate	F0 (fine feed),25/50/100%
- 返回参考点	G27,G28,G29
- PASS	G31
- Feed per minute	mm/min
- AICC II	200BLOCK
- Selection of processing conditions	
- High speed and high precision processing package	
- Interpolation pitch error compensation	
- nanosmoothing	
- Acceleration control	

Spindle and M code function

- M code	M3 digits
- Orientation	
- Spindle serial output	
- Spindle speed function	S5 digits
- Spindle output switching	
- Rigid tap return	
- Rigid tap	G84,G74
- Spindle speed ratio	50-150%

Tool function

- Tool radius compensation C	G40,G41,G42
- Tip radius compensation	G40,G41,G42
- Number of tool offset	400 pairs
- Tool life management expanded	
- Tool life management	
- Tool length compensation	G43,G44,G49
- Tool length measurement	
- Tool function	T8 digits
- Tool length compensation	
- Tool compensation	G45 X G48
- Tool function	
- Tool life management	
- Tool compensation storage C	H/D code, Geometry / Wear memory
- Tool length measurement	

Programming and editing functions

- Absolute/incremental programming	G90/G91
- Automatic coordinate system setting	
- Background editing (background editing)	
- Process recycle	G73,G74,G76,G80-G89,G99
- RProgramming circular interpolation	
- User macro	
- User macro public variable appends	#100 - #199, #500 - #999
- 1010 times the input unit	
- Multistage jump	
- Macro actuator	
- User package	6M
- Extension editing	

NC specification

FANUC i Plus Series (ST)

RS-232C interface	
-USB port	
Imperial/metric conversion	G20/G2
- Mark Skip	
Maximum instruction value	+ / - 99999.999 mm (9999.9999 inch) -
Number of programs that can be stored	500 ea
Select program segment Skip	
- Select Stop	M01
Parts program store length	2 m
- Program protection	
- Program number	04 digits
- Sequence number	N5 digit
Inversion function	
- Program stop/end	M00,M02,M30
Programmable data entry	Type tool compensation and workpiece compensation through G10,G11
- Rigid tapping	G84,G74
Subroutine call	10 layers of nesting
Paper tape code	EIA RS422/IS0840
- Thread cutting	
Local/machine coordinate system	G52/G53
- Program restart	

Load table display	
- Display device	10.4" color LCD/MDI
Look-ahead control	G08
Memory card port	
- Operating functions	
Operation resume display	
Arbitrary chamfer/corner R	
Programmable data input ONLY DBC 135II	
Run time and component count display	
Scale scaling	G50,G51
Coordinate system rotation	G68,G69
Retrieval function	Sequence number/program number
Self-diagnostic function	
Servo setting screen	
Single step run	
One way position G60	
Store Trip Check 2	
Ethernet Features	
Automatic data backup	
Dynamic graphics display (10.4"ColorTFT LCD)	
- Machining quality level adjustment function	
-EOP(Easy Operation Package)	
Tool load monitoring function	

Other functions (operation, setting, display, etc.)

· Alarm display
· Report history shows
Self-actuating Angle multiplier G62
· Clock display
· Start running/feed hold
·PMC alarm information display
· Empty operation
· Actual speed display
· Embedded Ethernet
Memory card-based DNC running
· External data entry
· Multilingual display
·Cs profile control
RS232 interface (for 2ch)
· Polar coordinates commands G15,G16
- Programmable mirror G50.1,G51.1
Schema data entry
·FS10/11T format
· Graphic display
.Help function
· High-speed skip function

Optional specification

· Additional control axis number	5 axes in total
· Hand controlled hand rotation retreat	
· Data Server	
· Operational bootstrap i	
· Operation guide 0i	
- Word carving	
·CF Card (2GB)	
-PROFIBUS-DP	
-PROFINET	
-CC-LINK	
· Number of login programs	1000
· The number of workpiece coordinate system groups is added	G54.1 P1X300 (300 pairs)
· Incline plane indexing instruction	G68.2,Guidance screens is not shown on8.4"LCD
Incline plane indexing instruction function	G68.2 TWP command on guidance window
· Multi-spindle control	
- Data server (1GB PCMCIA card)	
· Fast Ethernet board	
Three-dimensional coordinate conversion	G72.1, G72.2
- Graphic copy	
· Machine timestamp function	
-EZGuide1(10.4"Color TFTLCD)	

NC specification

FANUC 31i
Series (OP)

Axis control			Select Stop		M01
Number of control axes 4(X,Y,Z,B) Program file name 32 characters					
Also control axis number 4 axis serial number N 8-digit					
Positioning (G0O)/ Linear Interpolation (G01):3 axes Program protection					
Arc Interpolation (G02,G03): 2-axis program stop [End M00/M02,M30					
Reverse gap compensation programmable data input tool offset with workpiece offset by G10,G11 input					
Emergency stop/overpass subroutine call 10 layers nested					
Location tracking paper tape code ISO/EIA automatic identification					
Increment system 0.001mm/0.0001" G54-G59					
Minimum input increment 0.001mm/0.0001" Additional workpiece coordinate system G54.1P1-48 pairs					
Machine locks all axis/Z-axis rotating coordinate system G68,G69					
Mirror each axis extension section program edit					
(Set screen and M function) Optional chamfer Angle R					
Memory type pitch error compensation Macro actuator for pitch error compensation of each axis					
Storage stroke check 1 Overrange is controlled by software rigid tapping diamond acceleration and deceleration (NHP series)					
Interpolation and feed function		Other functions (operation,setting,display,etc.)			
Locate the G00 USB port					
Straight line interpolation G01 alarm display					
Arc interpolation			911 resume shows		
Feed pause	G02,G03		Actual cutting speed displayed		
Exact way to stop	G04		Clock display		
Skip	G09,G61(mode)		Start running/feed hold (cycle stop)		
Return to reference point to check	G31 G27		Display		Information displayed when PMC alarm occurs.
Return to reference point check	G28		Running Empty		
Return to the second reference	G30		Single step run		
Return third/fourth reference point (HM1000/1250 is			Ethernet features (Embeded)		
Feed per minute	mm/min.		Graphic display		Tool path drawing
Quick feed multiplier	F0(fine feed),25/50/100%-		Help features		
	0-200%		Load table display		
JOG magnification (10%	0-200%.		Display device		10.4 "color LCD/ data entry keyboard, soft keys
Magnification Cancel	M48/M49		Memory card interface		
Manual feed for each turn			Operating function		Tape/Memory/MDI/Manual
Hand wheel feed multiplier	0.1/0.01/0.001 mm		Operating history display		
Automatic acceleration/deceleration			DNC operation with memory card		
Spiral interpolation			Program restart		
AI Contour Control II	200		Run time and part count display		
Machine status selection function			Retrieval function		Serial number/program number
Thread cutting, synchronous cutting			Self-diagnostic function		
Program restart			Servo setup screen		
Automatic corner deceleration (specify AI contour control IJ			External data entry Multilingual display		
Linear acceleration and deceleration before		Optional specification			
Linear acceleration and deceleration before		3 D coordinate conversion			
Control axis separation		3D tool compensation			
Diamond quick feed acceleration and		Additional tool life management tool logarithm 1024 pairs			
Leveling clearance compensation		Attach control shafts up to 6 shafts per channel			
Spindle and M code function		Additional workpiece coordinate system G54.1P1-300(300 pairs)			
M code function		M3 digits.AI Profile control preread 600 paragraphs			
Spindle orientation					Preread 1000 paragraphs
Spindle serial output		Automatic corner magnification G62			
Spindle speed function		S5 digits Cutting function G81.1			
Spindle speed multiplier		10-150% Cylindrical interpolation G07.1			
Spindle Output conversion		Data server			
Rigid tapping backdrop		Dynamic graphics show the contour of the machining wheel is displayed			
Rigid tapping		G84.G74 = "The dynamic graphics display function cannot be installed when using			
		Interpolation type pitch error compensation			
Tool function EZGuidei (Doosan Interactive Program Scheme)					
Tool Tip Radius compensation FS15 tape format					
Number of tool offset		Increment system 1/10			
Tool length compensation		Graphic copy G72.1,G72.2			
Tool function		Manual hand wheel feed 2/3 unit			
Tool Life Management		Hand wheel interpolation			
Tool compensation store C H/D code,Geometry /Wear memory		High speed jump function			
Tool length measurement _		Involute interpolation G02.2,G03.2			
Programming and editing functions		Screw interpolation			
Absolute/incremental programming G90/G91-		Third/fourth reference point return			
Automatic coordinate system setting machining time identification function					
Background editing (background editing - register the number of programs 1000 ea					
Machining recycle G73,G74,G76.G80-G89 Gg9 Tool compensation number 400/499/999/2000 ea					
R programming arc interpolation 2~9 blocks					
Work plane set G17,G18,G19 program storage capacity 512kb(1280m)kbyte					
User Macro B 1 MB (2560 m) / 2 MB (5120 m) / 8 MB mbyte (20480 m)					
Custom software size 8MB(31i) Rewind feature					
Extended P-code variable size 512kb Polar coordinate instruction G15/G16					
Add custom macros Common variables #100-#199,#500-#999- polar coordinate interpolation G12.1 / G13.1					
10x input unit programmable image G50.1 / G51.1					
I/O interface RS-232C Scale to scale G50,G51					
Imperial/Metric conversion G20/G21- single phase positioning G60					
Mark Skip Storage type trip detection 2/3					
Local/machine coordinate system G52/G53- Tool position offset G45-G48					
Max command value (±9999.9999inch)- Position switch					
Part program Storage Length 256kb (640m)256kb Tool center vintage control G43.4					
Number of programs that can be stored 500 ea- Turntable dynamic fixture compensation					
Selecting Program segment Skip *) indicates advance negotiation is required					

GHB SERIES

Item	UNIT	GHB135H	GHB135H
Travel (X/Y/Z/W)	mm	3000/2000/1600/700	4000/2500/2000/700
Max. spindle motor power	kW	26/22 {30/22,45/37}	26/22 {30/22,45/37}
Spindle power rate	r/min	3000	3000
Tool Capacity	ea	40 {60/90}	40 {60/90}
Fast move(X/Y/Z/W)	m/min	10/10/10/6	10{7}/8/10/6

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