

Boxway type Horizontal machining center

# GBH SERIES

**630·800**



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# The bed design of GBH's second generation series equipment

High rigidity bed structure design Using high rigidity bed structure design using FEM analysis technology, resulting in high rigidity.

GBH 630/800

## Thermal deformation prevention measures

The machine adopts isolated heat source design, which can also maintain high machining accuracy in the case of long processing. Heat generated by the machine, such as from the control disc, spindle oil temperature controller or hydraulic device, can deform the bed or column more than the surrounding temperature, resulting in reduced machining accuracy. GBH series machining centers effectively solve the above problems by configuring heat shields and using fans to cool the machine.

High rigidity bed design. The flexural rigidity of the bed was optimized by finite element analysis.



## Guide and shaft drive

The hard rail design provides excellent shock absorption for heavy cutting applications.

tread tackle **24m/min**



# High performance spindle

High torque spindles are excellent for heavy cutting.

Spindle motor ▶ **22/18.5kW** (30min/continuous)

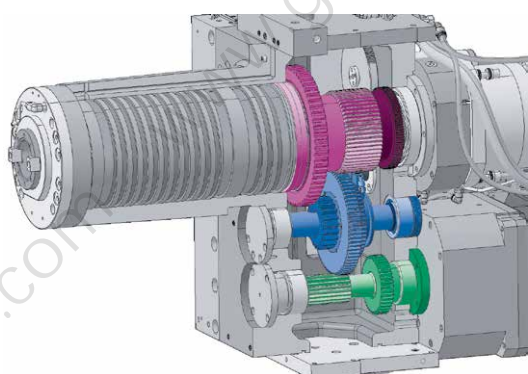
[Option: 26/22kW (30min/ continuous)]

Max speed ▶ **6000** r/min

Max Torque ▶ **1675.8** N · m [Option 1989.4N · m]



## Spindle

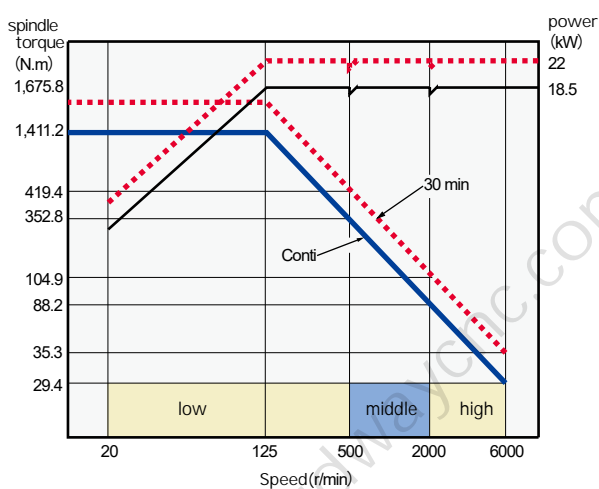


The maximum speed of the spindle is 6000r/min, and the maximum output power is 22kW, which can be used for heavy-duty cutting of steel and high-speed cutting of non-metal. The No. 50 taper heavy duty spindle is supported by four P4 precision, long-lasting grease-lubricated radial thrust spindle bearings.

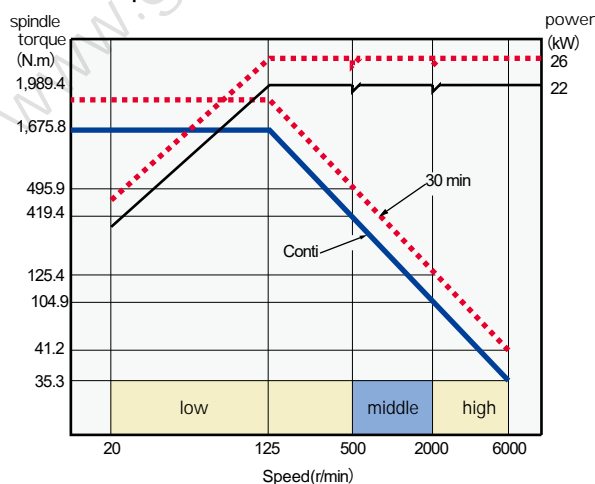
The axial fixing of the main shaft bearing adopts a stepped sleeve assembly to fix the bearing at a right Angle to the machine tool.

## Spindle power-torque diagram

Spindle 6000r/min, 22kW

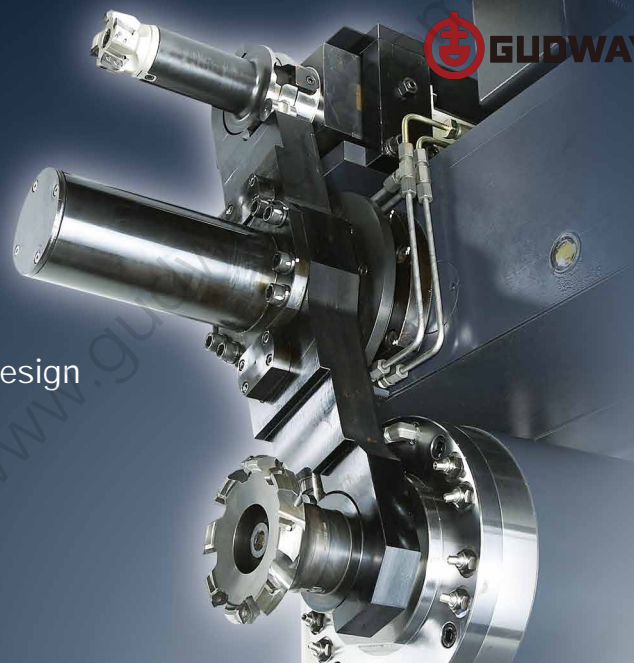


Spindle 6000r/min, 26kW <sup>OP</sup>



# Automatic tool changer

Rapid tool change through optimized structural design improves reliability and processing efficiency.



Tool exchange time(T-T) **2.5 s**

GBH 630/800

## Reliable tool changing device

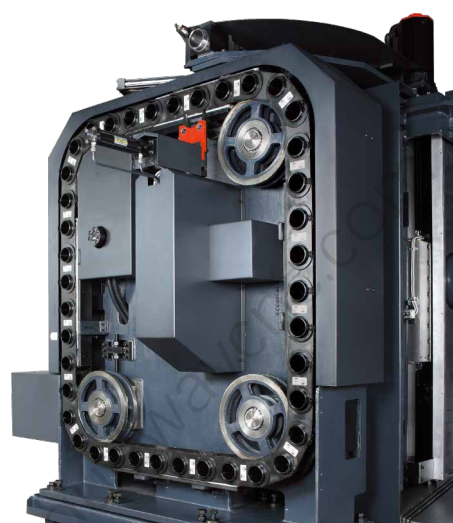
Cutter selection adopts the shortest path fixed address method. Accurate and efficient. The tool library is available in a variety of capacities to facilitate complex processing and management.

## Tool magazine

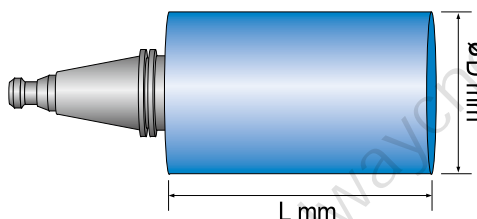
▶ Tool magazine storage capacity  
**40 tool**

(OP 60/90 Tool)

GBH 630/800 machine tool library In addition to the standard 40 tools, you can also choose other capacity tool library for complex processing and management to provide convenience.



## Maximum tool size



Maximum tool length

▶ **550 mm**

Maximum tool weight

▶ **25 kg**

Maximum tool diameter

▶ **Ø135 mm** (Continuous)

**Ø250 mm**(No tool in adjacent cutter position)



# Automatic pallet exchange device

GBH630/800

Machining center is equipped with rotary automatic tray exchange device, stable structure, large working range, fast exchange, accurate positioning.

## Worktable

Pallet exchange time

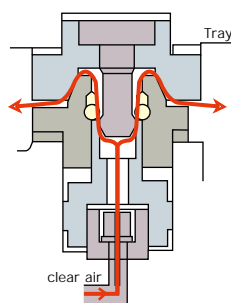
▶ **25 s**

GBH630



▶ **29 s**

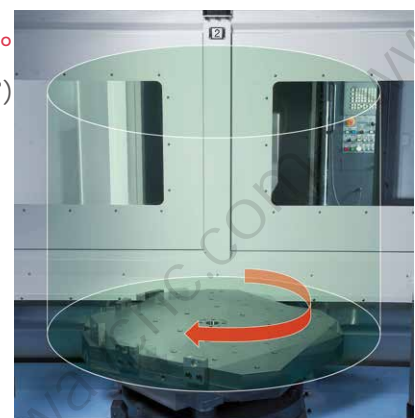
GBH800



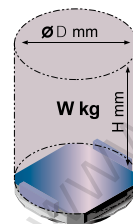
Minimum table indexing<sup>1°</sup>  
Table indexing time (0 to 90°)

GBH630 **3.7s**

GBH800 **3.9s**



On the GBH630/800 machining center, when the tray is exchanged, strong air is sprayed from the positioning hole of the pin to remove the chip on the cone to prevent the residual chip from affecting the positioning accuracy of the tray.



	GBH630	GBH800
Tray size (mm)	630×630	800×800
Max size (mm)	Ø1000×H1000	Ø1300×H1200
Max weight (kg)	1200	1600

## Fixture characteristics



Number of ports

2<sup>1</sup> x 1<sup>2</sup>    2<sup>1</sup> x 2<sup>2</sup>

2<sup>1</sup> x 3<sup>2</sup>    2<sup>1</sup> x 4<sup>2</sup>

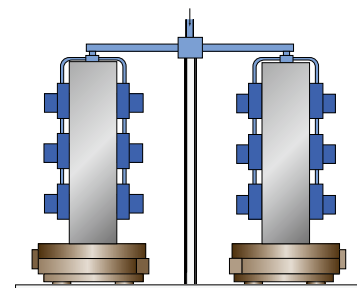
<sup>1</sup>: Number of pallets (pallets 1 and 2)

<sup>2</sup>: Number of ports per pallet

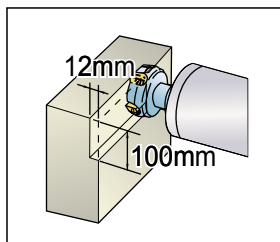
Hydraulic power unit

Special request

\_\_\_ At MPa   L/min \_\_\_



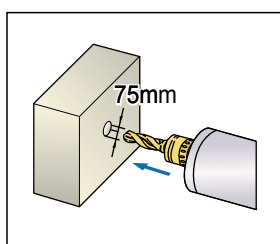
# Machinability



## Face milling cutter

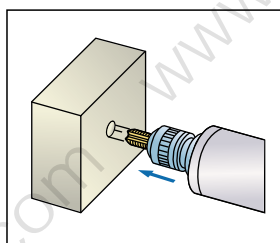
UNIT: mm

Tool	Ø125 face milling cutter
Material	carbon steel(SM45C)
Spindle speed(r/min)	308
Feedrate(mm/min)	1000
Processing speed(cm <sup>3</sup> /min)	1200



## Drill

Tool	Ø75 drill (2Z)
Material	Gray Cast iron(GC25)
Spindle speed(r/min)	137
Feedrate(mm/min)	72
Processing speed (cm <sup>3</sup> /min)	318

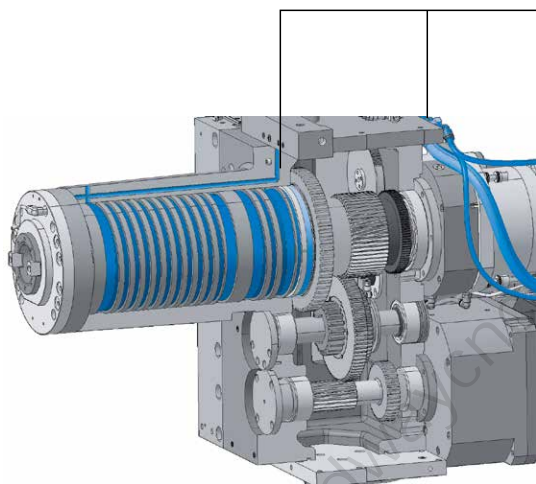


## Screw tap

Tool	M56×P5.5
Material	Carbon Steel(SM45C)
Spindle speed(r/min)	120
Feedrate(mm/min)	660

The results in the above column may differ due to different measurement and cutting environmental conditions.

# Cooling system and lubrication device



## Oil coolers

The temperature of the hydraulic oil is regulated by the cooling system



## Lubricating device

Provides automatic lubrication for guide rails, ball screws and spindle transmissions. The piston oil distributor delivers lubricating oil to the rail and accurately measures the amount of lubricating oil.



# Ease of Operation

## Comfortable proximity

In order to operate easily, the approach of the tool holder is optimized.

Distance between man and worktable center

▶ **550 mm**

GBH630

▶ **785 mm**

GBH800

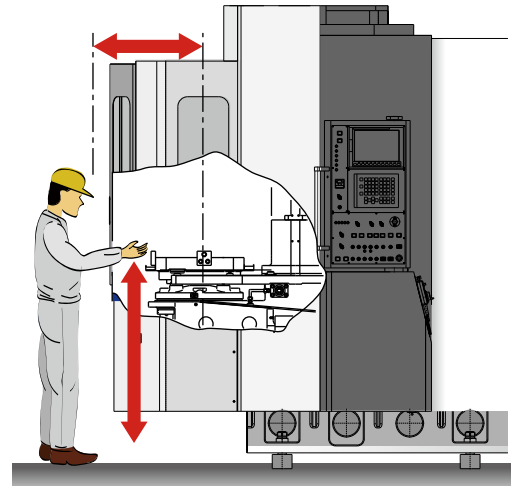
Table height

▶ **1235 mm**

GBH630

▶ **1250 mm**

GBH800

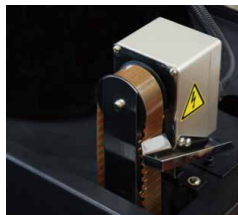


## Collection of spent lubricating oil

Collecting spent lubricating oil extends the life of the coolant and reduces dirt and odors inside the machine.

### Oil skimmer

The skimmer can collect and remove waste oil from the coolant tank, extend the service life of the coolant, and help maintain the plant environment.



### Portable MPG

The portable manual pulse generator facilitates the installation of the workpiece by the operator.

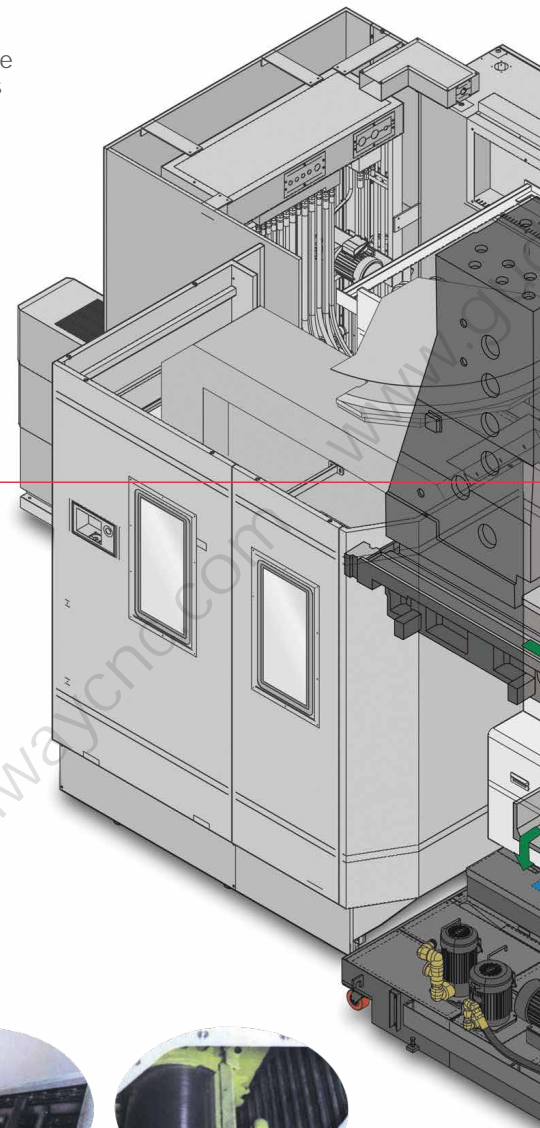


# Ergonomics and amenity design

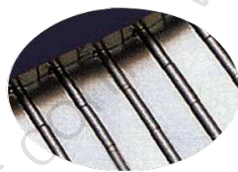
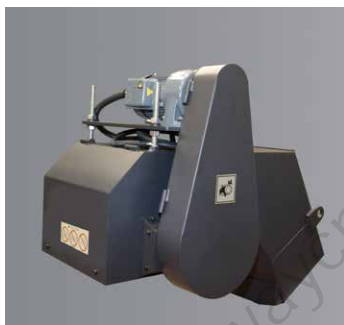
## Convenient chip removal structure

Separate chip extractor and coolant tank make cleaning and maintenance easy. The enclosed GBH series machines ensure that the chips and coolant are enclosed inside the processing area. The chip is removed from the machine by the chip extractor.

### Spiral chip extractor



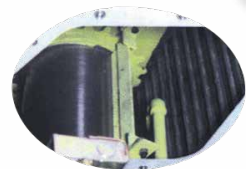
### Chip extractor & coolant tank OP



hinge type

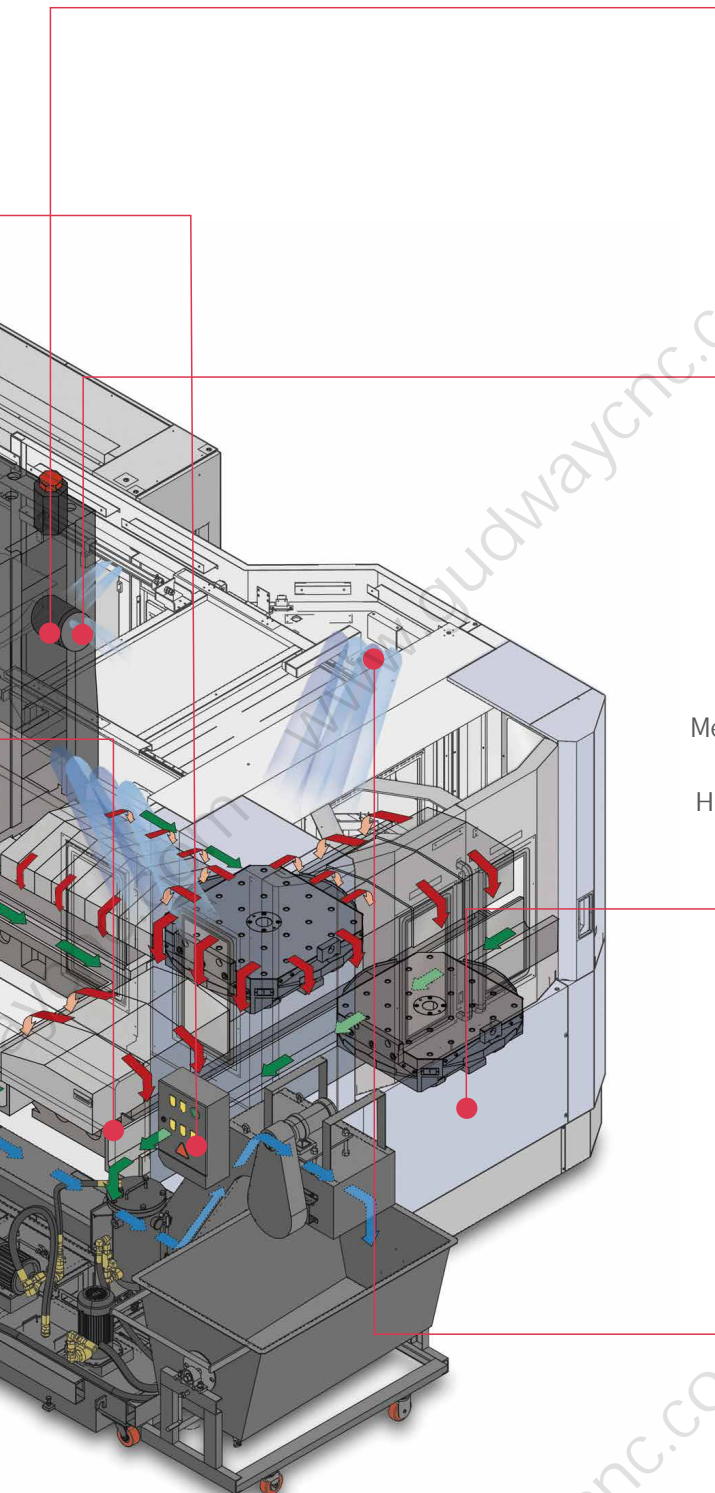


drag type



drum filter type



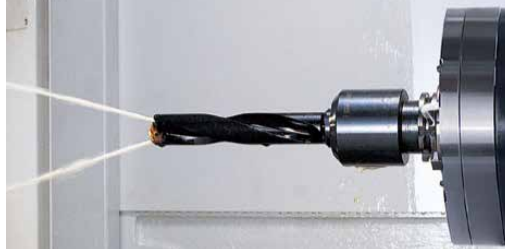


Internal jet cooling



OP

Spindle center discharge



Medium **1.96 MPa**

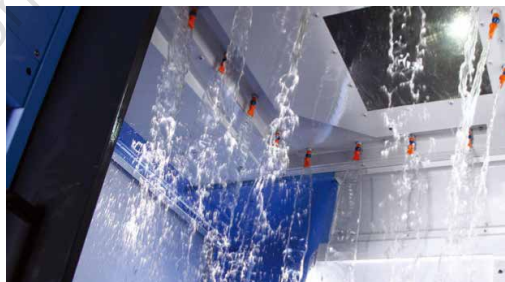
High **6.86 MPa**

OP



Spray cooling

OP

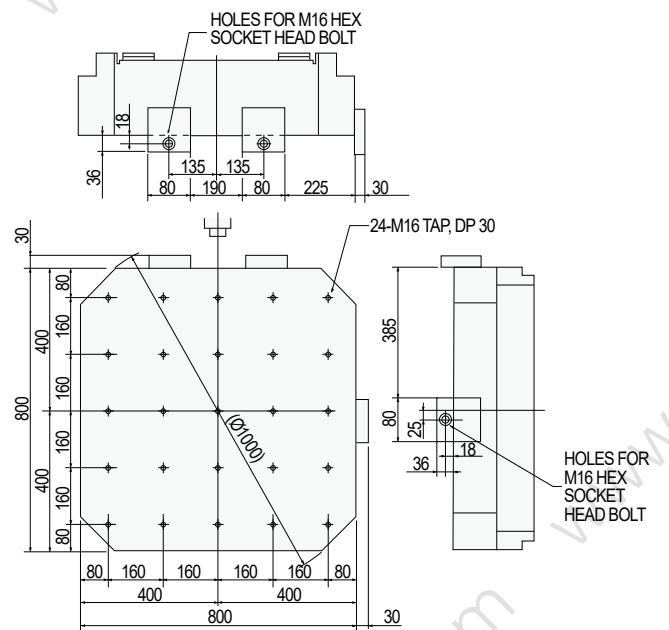
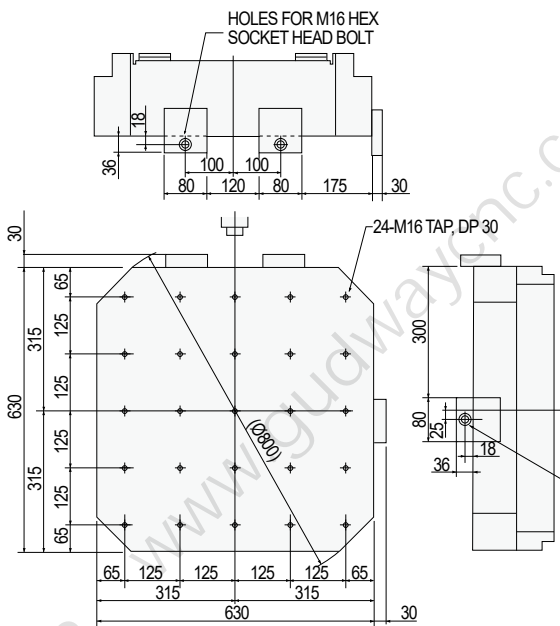


# Table size

GBH 630

GBH 800

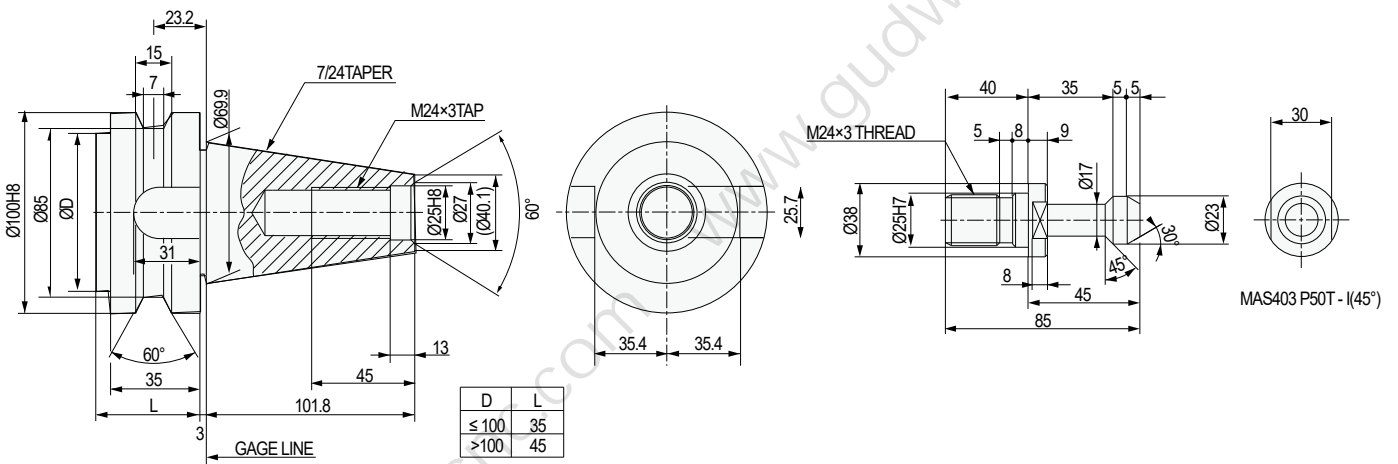
UNIT:mm



# Shank type

BT 50

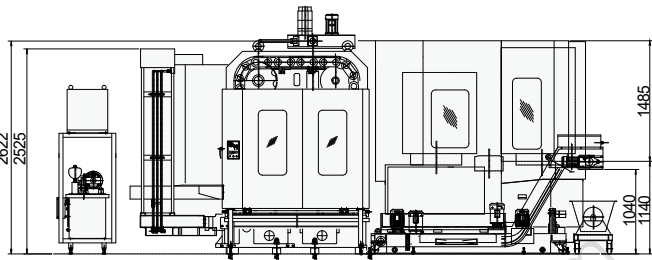
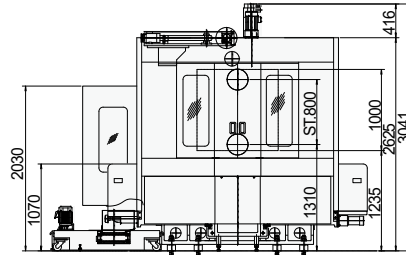
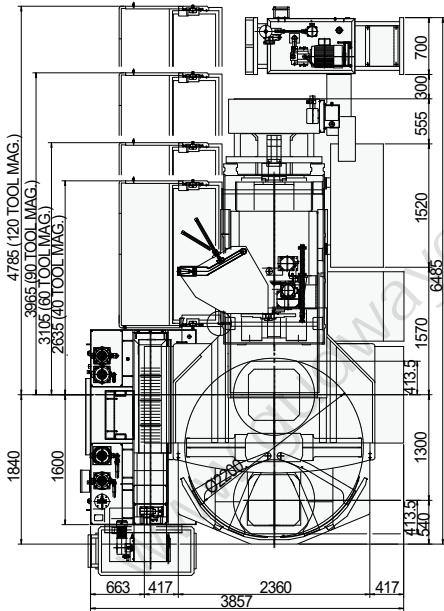
UNIT:mm



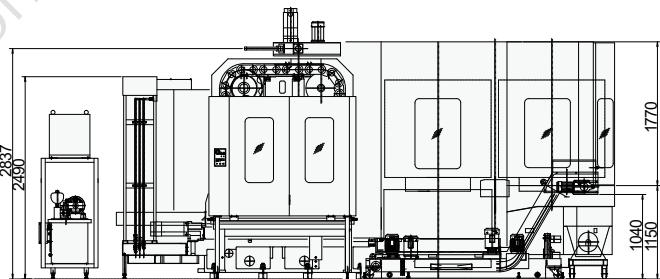
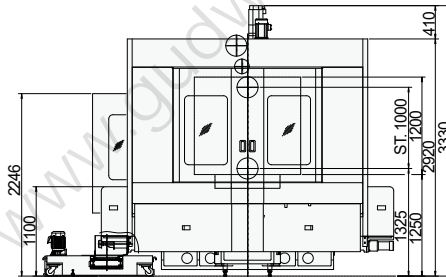
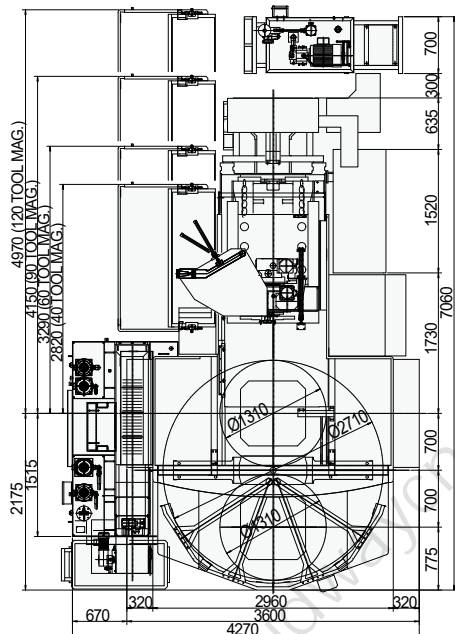
# Size

## GBH 630

UNIT:mm



## GBH 800



# Machine tool technical parameter

	ITEM	UNIT	GBH630	GBH800	
Travel	X-axis (table longitudinal movement)	mm	1000	1250	
	Y-axis (spindle head moving vertically)	mm	800	1000	
	Z-axis (lateral movement of column)	mm	850	1000	
	Distance from spindle center to tray surface	mm	75-875	75-1075	
	Distance from spindle end face to tray center	mm	150-1000	200-1200	
Worktable	Pallet type		24-M16xP2.0Tapping Hole		
	Indexing	deg	1"{0.001}"		
	Worktable load	kg	1200	1600	
	Pallet size	mm	630x630	800x800	
Spindle	Max spindle speed	r/min	6000		
	Taper form		ISO#50 7/24 Taper		
	Max spindle torque	N·m	1675.8{1989.4}		
	Fast move speed (X,Y,Z)	m/min	24		
	Cutting feed speed	mm/min	1-12000		
Auto tool changer	Holder type		MAS403 BT50		
	Tool magazine capacity		40{60/90}		
	Max tool diameter	mm	135		
	Max tool dia(empty adjacent tool positions)	mm	250		
	Max tool length	mm	550		
	Max tool weight	kg	25		
	Max tool inertia	N·m·s <sup>2</sup>	34.30		
	Tool selection mode		Fixed address		
	Tool change time (tool to tool)	s	2.5		
	Tool change time (cut-cut)	s	8.5	9	
Automatic pallet exchange device	Pallet quantity	ea.	2		
	Swap mode		Spinning form		
	Pallet exchange time	s	25	29	
	Loading station tray rotation Angle		90°transposition		
Motor	Spindle motor (30min)	kW	22{26}		
	Feed motor (X/Y/Z/B)	kW	4.0/7.0/7.0/3.0		
Power	Power supply (rated capacity)	kVA	49	50	
	Compressed air supply	MPa	0.54		
Unit capacity	Coolant tank capacity	L	550		
	Lubricating oil pot capacity	L	4		
Machine size	Height	mm	3041	3330	
	Floor dimension	mm	6458x3863	7060x4276	
	Weight	kg	18000	20000	

Note: {} is OP

\* Design and specifications are subject to change without prior notice

## STANDARD

- Fully enclosed splash proof sheet metal
- Coolant tank & standard cooling system
- Portable hand wheel
- Spiral chip extractor
- Spindle cooling & oil cooler
- Work light
- Condition light (red, yellow, green)
- Install parts
- Spare parts
- Install & debug tools

## OPTIONAL

- Chip extractor & chip pickup truck
- Spindle center discharge
- Test rod
- Automatic Power Off
- APC protected automatic door
- Hydraulic line preparation
- Spray cooling system
- Automatic workpiece measurement system
- Automatic tool length measurement system
- Oil skimmer
- Water gun

The above technical specifications are subject to change without prior notice due to improvements in machine performance.



## PARAMETER -Fanuc i Plus Series

<b>Shaft control</b>	-RS-232C interface
- Number of control axes 4(X,Y,Z,B)	-USB port
- Control the number of axes simultaneously	- Imperial/metric conversion G20/G21
	- Mark skip
Positioning (G00)/ Linear Interpolation (G01):4 axes	- Maximum command value ±99999.999mm(±9999.9999 inch)
Arc interpolation (G02,G03):2 axes	- Number of programs that can be stored 1000 ea
- Control shaft removed	- Select program segment Skip
Reverse gap compensation	- Select Stop MO1
- Emergency Stop/overdrive	- Part program storage length 2 m
-HRV controls HRV2	- Program protection
- Location tracking	- Program number 04 digits
- Increment system 0.001/0.0001 mm/inch	- Sequence number N5 digit
- Minimum input increment 0.001/0.0001 mm/inch	- Inversion function
Incremental system C ISXC	- Program stop/end M00,M02,M30
Machine lock all axes /Z axes	- Programmable data entry Type tool compensation and workpiece
- Mirror each axis	- Rigid tapping G84,G74
- Storage type pitch error compensation	- Subroutine call 10 layers of nesting
- Store trip Check 1	- Paper tape code EIA RS422/ISO840
- Position switch	- Thread cutting
- Absolute pulse encoder	- Local/machine coordinate system G52/G53
<b>Interpolation and feed function</b>	- Program restart
- Return to second reference point G30	- The number of workpiece coordinate G54.1 P1-48 (48 pairs)
- Return 3/4 reference point	- Workpiece coordinate system G54-G59
- Arc interpolation G02,G03	<b>Other functions (operation, setting and display, etc.)</b>
- Nanointerpolation	- Alarm display
- Inverse time feed	- Alarm resume display
Cylinder interpolation G07.1	- Automatic corner magnification G62
- Polar coordinates interpolation G15,G16	- Clock display
Jin Yuan G04	- Start run/feed hold
Accurate Stop Mode 09,G61	- PMC alarm information display
- Feed speed multiplier (10% unit) 0-200%	Running empty
Screw interpolation	- Actual speed display
Bell type acceleration and deceleration before pre-read interpolation	- Embedded Ethernet
Smooth reverse clearance compensation	- Memory card-based DNC operation
- JOG magnification (10% unit) 0200%	- External data input
- Automatic corner multiplier G62	- Multilingual display
- Automatic corner deceleration	- Cs profile control
- Cutting feed speed pliers	- RS232 interface (for 2ch)
- Fast bell acceleration and deceleration	- Polar coordinates command G15,G16
- Straight line interpolation G01	- Programmable mirror G50.1, G51.1
Manual feed per turn	- Mode data input
- hand wheel feed rate 0.1/0.01/0.001mm	- FS10/11T format
- Magnification Cancel MA8/MA9	Graphic display
- Hand-controlled handwheel break	- Help features
Set 1 to ONLY NHM	- High-speed skip function
- Fast feed multiplier F0(fine feed),25/50/100%	Charge meter display
- Return to reference point G27,G28,G29	- Display device 10.4 "color LCD/MDI
- Skip G31	- Look-ahead control G08
Feed mm/min per minute	Memory card interface
-AICC II 200BLOCK	- Operating function
- Selection of processing conditions	- Operation resume display
- High speed and high precision processing package	- Arbitrary chamfer/corner R
- Interpolation type pitch error compensation	- Programmable data entry ONLY NHM
- Nanosmooth	- Run time and component count element
- Add acceleration control	- Scale scaling G50,G51
<b>Spindle and M code function</b>	- Coordinate system rotation G68,G69
- M code function M3 digits	- Search function sequence number/program number
- Spindle orientation	- Self-diagnostic function
- Spindle serial output	- Servo setting screen
- Spindle speed function S5 digits	- Single step operation
- Spindle output switching	- One-way positioning G60
- Rigid tap return	- Storage stroke Check 2
- Rigid tapping G84,G74	- Ethernet features
- Spindle speed multiplier 50-150%	- Automatic data backup
<b>Tool function</b>	- Dynamic graphics display (10.4 "Color TFTLCD)
- Tool radius compensation C G40,G41,G42	- Machining quality level adjustment function
- Tip radius compensation G40,G41,G42	- EOP(Easy Handling Package)
- Tool offset quantity 400 pairs	- Tool load monitoring function
- Tool life management extension	<b>OP Specifications</b>
- Tool life management	- Additional control axis number total 5 axes
- Tool length compensation G43,G44,G49	- Hand controlled hand rotation back
- Tool length measurement	- Data Server
- Cutter function T8 digits	- Operation Guide i
- Tool length compensation	- Operating guide oi
- Tool compensation G45XG48	- Text engraving
- Tool function	- CF card (2GB)
- Tool life management	- PROFIBUS-DP
- Tool compensation storage C/H/D code,Geometry /Wear memory	- PROFINET
- Tool length measurement	- CC-LINK
<b>Programming and editing functions</b>	- Number of login programs 1000
Absolute/incremental programming G90/G91	- Number of workpiece coordinate system groups add G54.1P1X300(300 pairs)
- Automatic coordinate system setting	- Incline plane indexing instruction G68.2,Guidance screens is not shown on 8.4"LCD
- Background editing (background editing)	- Incline plane indexing command G68.2TWP command or guidance window
- Processing recycle G73,G74,G76,G80-G89,G99	- Multi-spindle control
- R programming arc interpolation	- Data server (GB PCMCIA card)
- User macro program	- Fast Ethernet Board
- User macro public variables append #100-#199,#500-#999	- 3D coordinate conversion 72.1,G77.2
- 10x input units	- Graphic copy
- Multi-stage jump	- Machine timestamp function
- Macro actuator	- EZ Guide I(10.4"Color TFTLCD)
- User software package 6M	
- Extension editing	

## GBH630/800



ITEM	UNIT	GBH 630	GBH 800
Axial travel (X/Y/Z)	mm	1000 / 800 / 850	1250 / 1000 / 1000
Work table size	mm	2-630 x 630	2-800 x 800
Maximum load of table	kg	1200	1600
Max spindle motor power	kW	22 {26}	22 {26}
Maximum spindle speed	r/min	6000	6000
Maximum spindle torque	N·m	1675.8 {1989.4}	1675.8 {1989.4}
Tool storage capacity	ea.	40 {60, 90}	40 {60, 90}
Holder	-	MAS403 BT50	MAS403 BT50
Fast feed speed (X/Y/Z[B])	m/min	24 / 24 / 24 [10 r/min]	24 / 24 / 24 [10 r/min]
Maximum workpiece size	mm	Ø1000 x 1000	Ø1300 x 1200