

# GBV5450/6550

Boxway type Vertical machining center



SUZHOU GUDWAY CNC EQUIPMENT CO.,LTD

Add : No. 21 Xiexin Road, New District, Suzhou City, Jiangsu Province, China.

Tel : +86-0512-65580060

Email : [info@gudwaycnc.com](mailto:info@gudwaycnc.com)

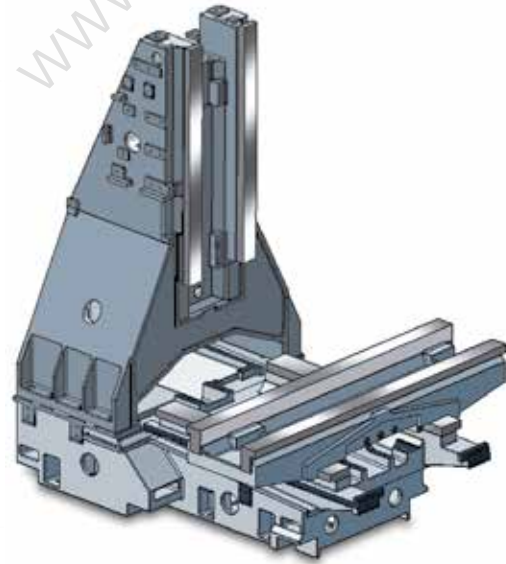
Web : <http://www.gudwaycnc.com>

## Main features

GBV5450/6550 with a new design, high rigidity and productivity are achieved.

### 1 High Rigidity

The specially designed arched column structure offers unmatched high rigidity and excellent stability during heavy cutting.



### 2 Extension of processing scope

The increased Y-axis travel and the widened table increase the working range of the equipment, and it is easy to handle heavy duty machining and the setting of the workpiece. The GBV5450 increases the travel of the X-axis.

### Convenience

New control panel with improved operating keyboard. Expanded display size. Make it easier for the operator to operate. The operation console, which can be rotated 90 degrees, also brings convenience to the operator.



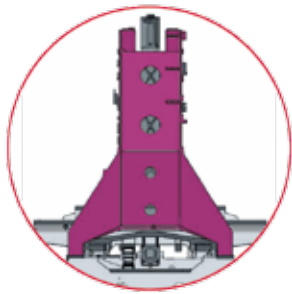
# High Rigidity

The GBV5450/6550 model adopts a newly designed bed structure, and the high-rigidity arched bed structure strengthens the heavy cutting force of the equipment.

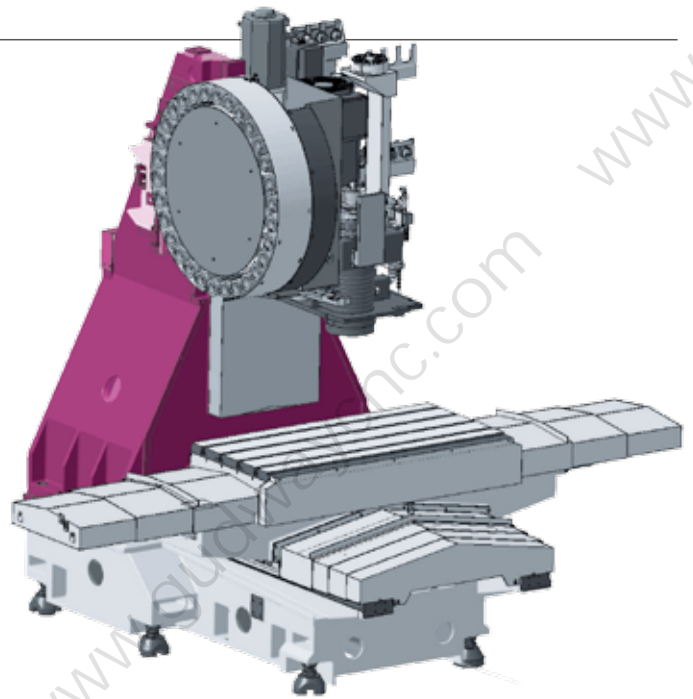
GBV 5450/6550

## High rigidity bed design

Through finite element analysis (FEM), the arched bed structure was adopted to achieve the best structural rigidity of the bed. Effectively prevent vibration during heavy cutting.



拱形立柱



Static rigidity

Dynamic rigidity

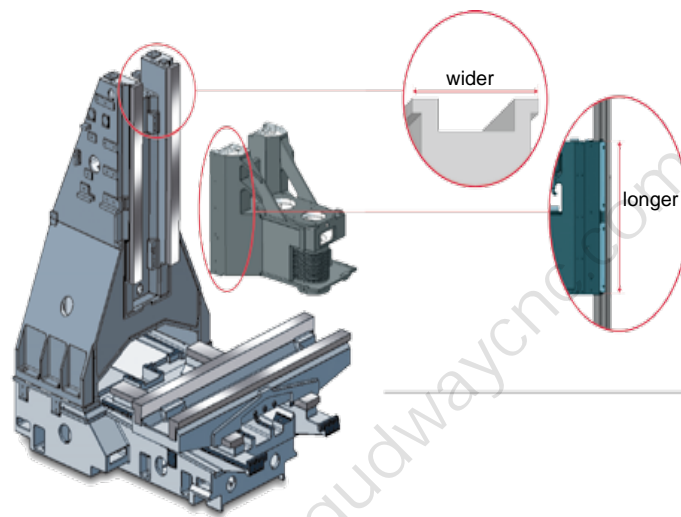


## Fast feed

		Before	GBV 5450	GBV 6550
X axis	m/min	24	30	30
Y axis	m/min	24	30	30
Z axis	m/min	20	20	24

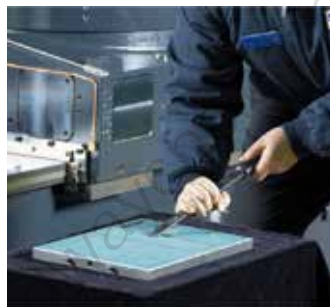
## Extended rail span

Compared with the previous model, GBV series models extend the width and length of Z-axis guide span, increase the stress area between the spindle and the guide surface, make the stress point more uniform, perfectly prevent the vibration of the spindle in the heavy cutting process, but also improve the dynamic rigidity of the fuselage, greatly improve the service life of the machine.



## Surface scraping

Using the fluorine plastic resin Rulon142 good wear resistance and friction characteristics, used to match the surface of the guide rail, and then by hand scraping to achieve the ideal match.



## Three axes all hard rail

The three-axis all-hard rail bed can meet the needs of customers for heavy cutting. The improved fast speed enables GBV series to meet customers' heavy cutting requirements while also meeting customers' needs for parts processing.

# High rigidity spindle

The high speed and rigidity of the BT50 spindle increases the productivity of machined parts.

Spindle motor ▶ **11/15<sub>kW</sub>**

Spindle speed ▶ **6000<sub>r/min</sub> 8000<sub>(r/min)</sub>** OP

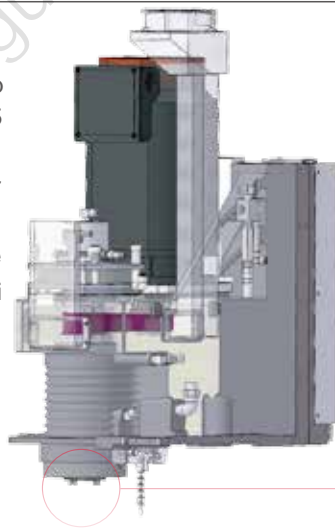
Max. torque ▶ **286.4<sub>N·m</sub>(15min)**

GBV 5450/6550



## Driving Method

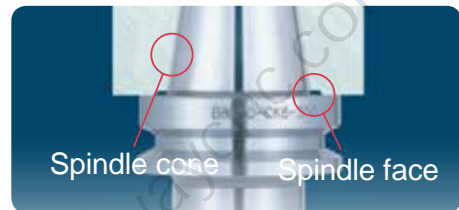
The main shaft of GBV5450/6550 adopts belt drive type spindle. The heavy duty 50 taper high rigidity spindle is supported by four high-precision long-acting lubricated bearings, which improve thermal stability while providing a high cost performance.



## Double-sided Tool Clamping System (BIG PLUS)

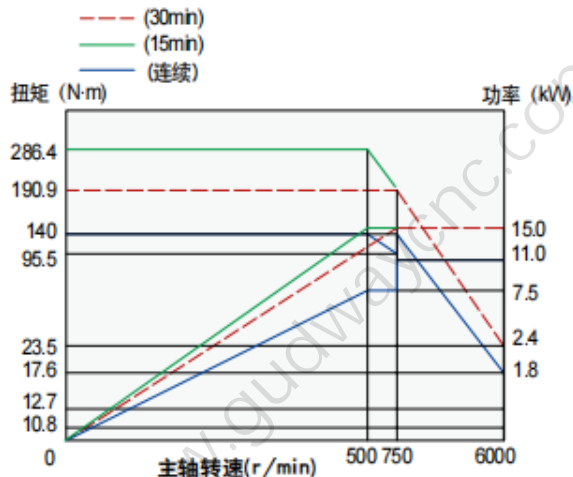
Double-sided tool clamping system is standard, and the double-sided tool spindle positioning system allows the machine tool spindle cone and end face to be in contact at the same time.

The BIG PLUS tool holder system can be contacted simultaneously on the spindle cone and the spindle end face.

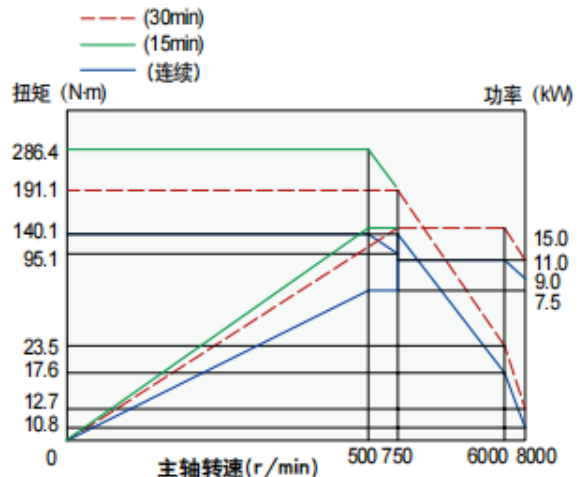


## Spindle power-torque diagram(GBV 5450/6550)

Spindle speed 6000r/min



Spindle speed 8000r/min







## Travel (X/Y/Z)

Before

X 1020mm  
Y 510mm



GBV 5450

1040mm  
540mm

Before

X 1300mm  
Y 650mm

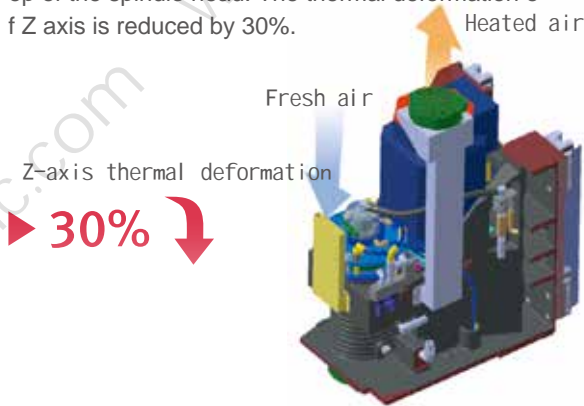


GBV 6550

1270mm  
670mm

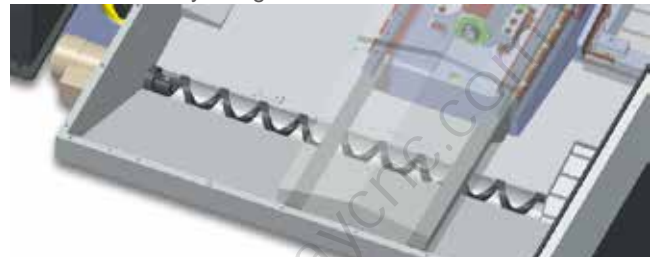
### Thermal deformation reduction device

In order to further improve the thermal stability of the spindle, we have increased the air flow of the spindle head assembly. Through the replacement of cold air, the heated air is discharged from the top of the spindle head. The thermal deformation of Z axis is reduced by 30%.



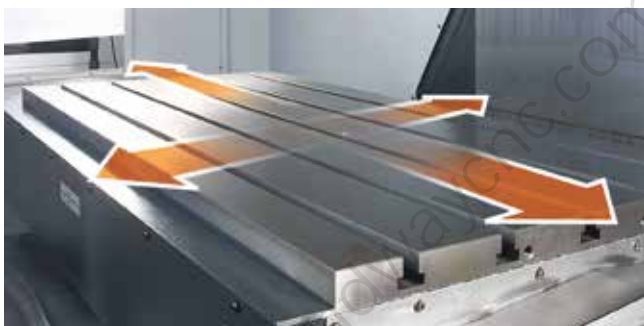
### Built-in spiral chip extractor

GBV5450/6550 replaces the previous model's chip removal method with a spiral chip removal device, which effectively prevents chip accumulation, especially for a large number of iron chips caused by heavy cutting, so that the chip removal efficiency is higher.



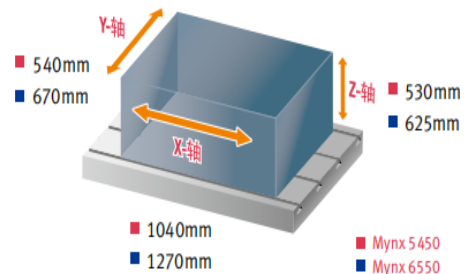
### Expanded processing area

The expanded processing area makes full use of space and improves production capacity.



### Extended Y-axis travel

Compared with the previous model, the extended Y-axis stroke increases the working range and also expands the diversity of machined parts.



# Convenience

The self-developed control panel is adopted to improve the convenience of the operation panel. Standard computer keyboard, centralized key control, easy to operate.



GBV 5450/6550

## OCL Operating Console



### Rotary operation console

The operation panel is easy to use and can be rotated 0-90°.

### 10.4" color TFT LCD monitor, as standard

The wide display allows the operator to display more useful information. Customised pages make installation, operation and monitoring of machine condition easier.

### PCMCIA CARD

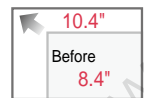
The PCMCIA card is used to download programs, using the CNC control slot. Provide more convenience to users.

### USB PORT

Easy to use USB input or output machining or CNC data.  
 - NC program, NC parameters, tool data and ladder program  
 - Input/output on "Easy Guide i"  
 Able to back up and restore CNC data using the USB memory available on the market.  
 DNC processing does not support USB memory, but PCMCIA cards are more used as large-capacity memory for large input and output.

### Portable MPG

The portable manual pulse generator makes it easier for the operator to install the workpiece.



## Large size door opening distance

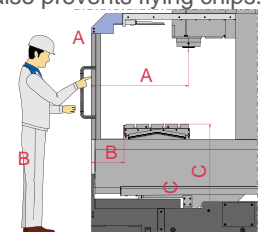
The large size of the opening distance, while convenient for the operator, but also for the workpiece handling and other operations to provide convenience.



1410 mm

## Easy to install

GBV5450/6550 uses a new design, so that the upper guard is connected with the door, and the upper guard can be opened at the same time of opening the door, which is convenient for the loading of the workpiece. It also prevents flying chips. It also saves the time of manually opening the upper shield.



UNIT: mm

	A	B	C
GBV5450	830	290	950
GBV6550	895	22	950

# Environmental friendly

While pursuing high productivity, we also pay great attention to the energy saving and environmental protection of the machine, and contribute to energy saving and environmental protection.



## LED light

The energy consumption of LED lighting is only 1/10 of that of incandescent lamps and 1/4 of energy-saving lamps, which greatly saves energy consumption. Its life can reach more than 100,000 hours, and the seismic effect is very good. Environmental protection, no mercury harmful substances.



## NC screen auto off function

The NC screen is automatically closed if no operation is performed within a certain period of time.



## Large capacity coolant tank

Large capacity coolant tank with chip tray and optimized box filter. Increase the number of cycles to reduce waste coolant.



Optimized box filter to filter finer chips for cleaner coolant.

## Oil skimmer

The skimmer device can recover the lubricating oil mixed in the cutting oil, which can extend the service time of the cutting oil. Through physical separation, no chemical pollution. Environmental protection also saves costs.



## Automatic closing of chip remover

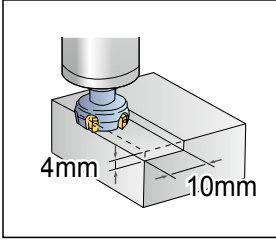
By setting the NC system, the chip extractor can be stopped in time when it is not working, saving power for the machine tool.

## Oil mist collection

The oil mist collector can effectively collect and remove the oil mist produced during processing. While protecting the health of the operator, it also purifies the air and makes the working environment more comfortable.



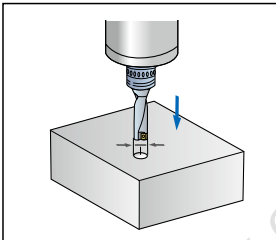
# Machinability



## Face milling(BT50)

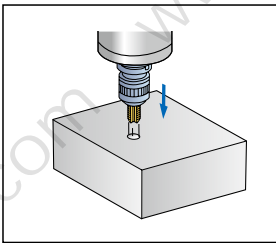
UNIT: mm

Tool	Ø50 Face milling cutter
Material	carbon steel(SM45C)
Spindle speed(r/min)	750
Feed speed(mm/min)	1800
Machining speed(cm <sup>3</sup> /min)	461



## Drill milling(BT50)

Tool	Ø50 Drill (2Z)
Material	carbon steel(SM45C)
Spindle speed(r/min)	200
Feed speed(mm/min)	42



## Tapping (BT50)

Tool	M36×P4.0
Material	carbon steel(SM45C)
Spindle speed(r/min)	250
Feed speed(mm/min)	1000

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

## Accuracy

Improve repeatability and reliability.  
Excellent high-precision design minimizes thermal displacement and vibration.

### Roundness

**5.8**µm  
Material : A7075F  
Tool : Face milling  
Ø16mm (4 blade)

### Roughness

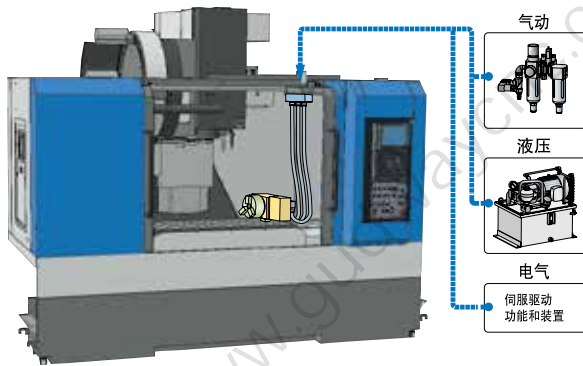
**Ra 0.12**µm  
Spindle speed: 8000r/min  
Feed speed: 1000 mm/min

# Optional

We offer options for different applications to improve machine performance.

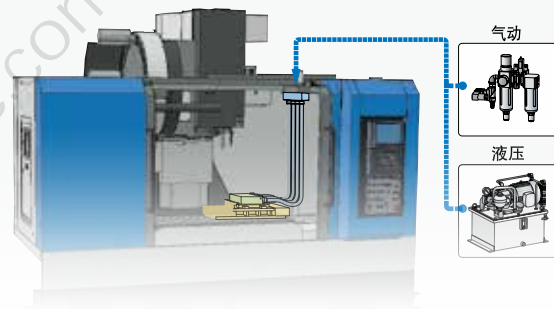
## Attached device interface

Example: 1 additional axis



Hydraulic power units can be used in a variety of applications, including rotary tables

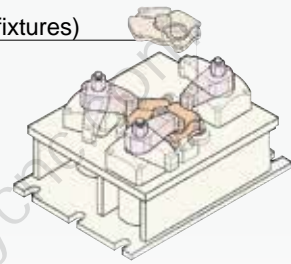
Example: hydraulic jig



### Fixture list (for hydraulic/pneumatic fixtures)

Pressure source  
Hydraulic P/T A/B  
Air pressure P/T A/B

Number of ports  
1 pair(2-PT 3/8" PORT)  
2 pairs(4-PT 3/8" PORT)  
3 pairs(6-PT 3/8" PORT)  
Hydraulic power unit



Auto Tool measurement

Auto workpiece measurement

Minimal quantities of lubricant(MQL)

Spindle center discharge

Oil mist device

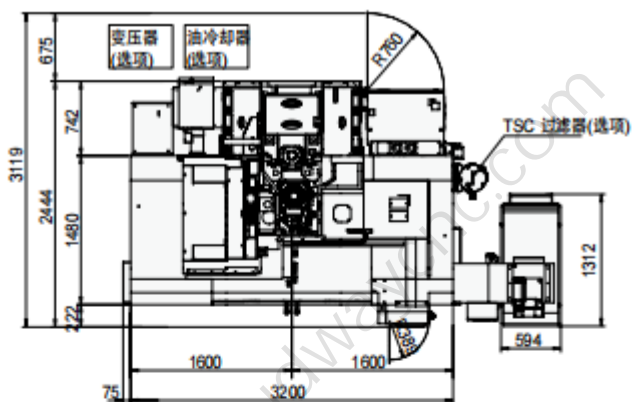
# Overall dimensions

GBV 5450

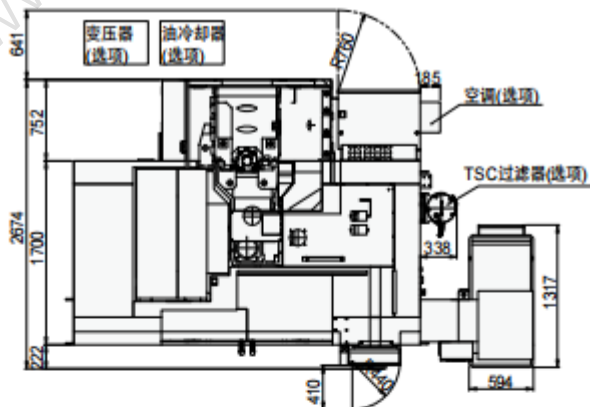
GBV 6550

UNIT:mm

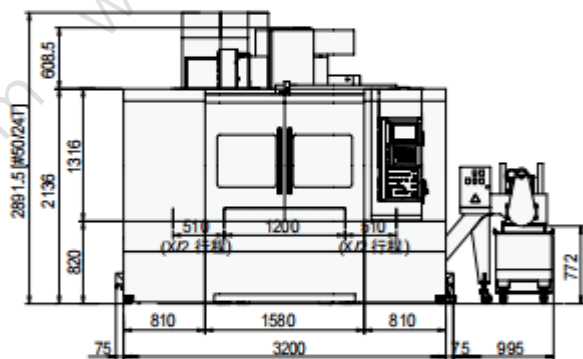
顶视图



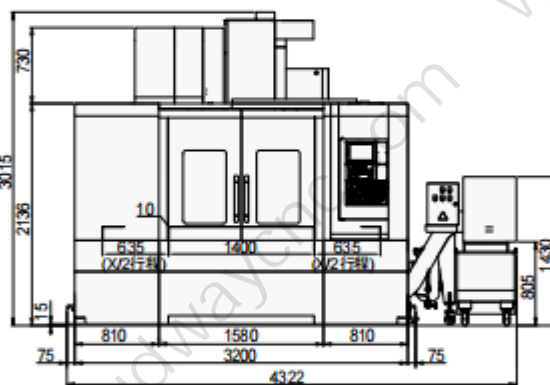
顶视图



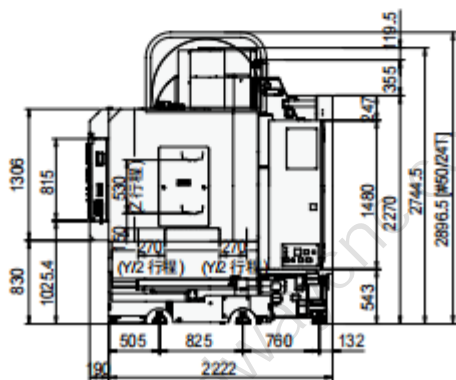
前视图



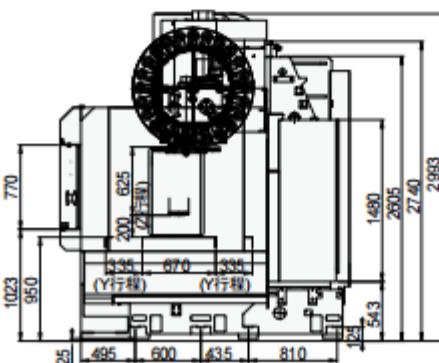
前视图



侧视图



侧视图

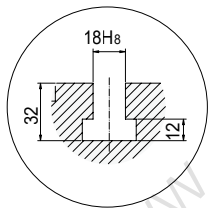
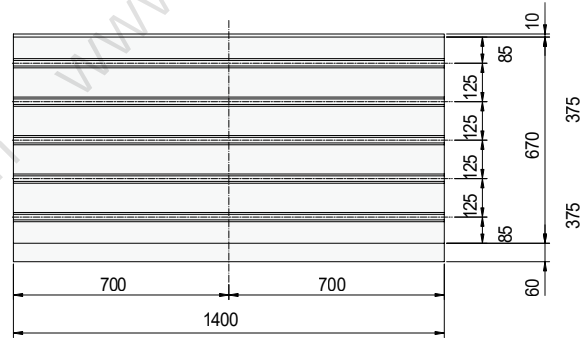
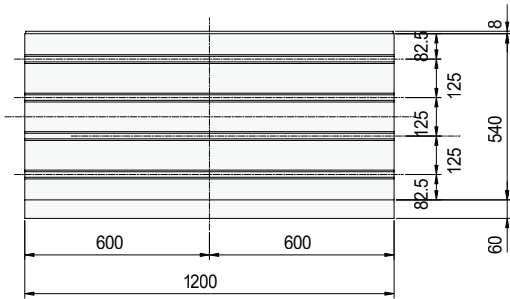


# Work table

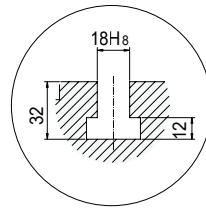
GBV 5450

GBV 6550

UNIT:mm



T-slot

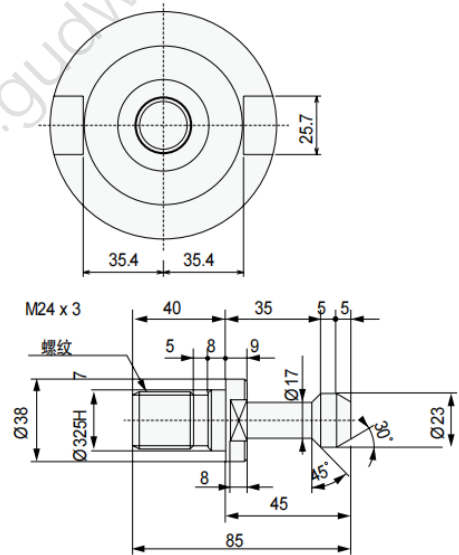
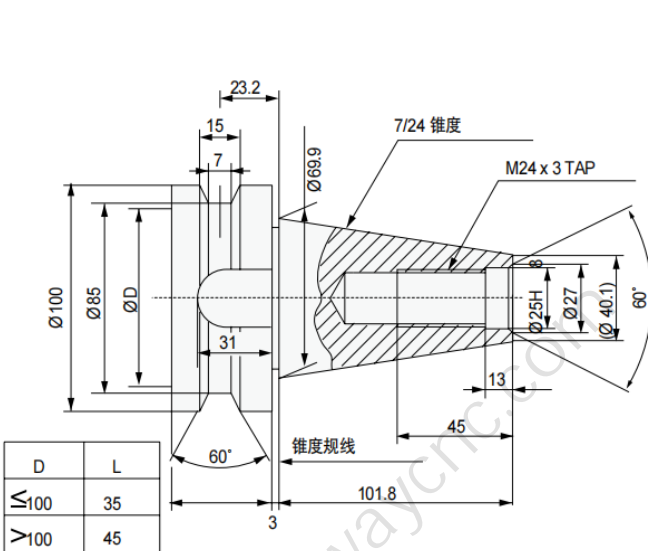


T-slot

# Shank type

BT50 shank

UNIT:mm



※ 45° 拉钉为标配



# Parameter

Item		UNIT	GBV 5450	GBV 6550
Travel	X-axis (lateral movement of table)	mm	1040	1270
	Y-axis (longitudinal movement of saddle)	mm	540	670
	Z-axis (vertical direction of spindle head)	mm	530	625
	Distance from spindle to table	mm	200-730	200 - 825
	Distance between spindle center and guide rail	mm	567	567
Table	Table size	mm	1200×540	1400×670
	Table allowable load	kg	800	1000
	T slot		4 - 125 x 18H8	5 - 125 x 18H8
Spindle	Max spindle speed (15min)	r/min	6000 {8000}	6000 {8000}
	Taper pattern		ISO#50 7/24 Taper	ISO#50 7/24 Taper
	Max spindle torque	N·m	286.4	286.4
Feedrate	Fast moving speed (X/Y/Z)	m/min	30/30/20	30/30/24
	Cutting feed speed (all axes)	mm/min	8000	8000
Auto tool change	Shank type		MAS403 BT50	MAS403 BT50
	Tool memory capacity	ea.	24	24
	Max tool dia	mm	Ø127	Ø127
	Max not adjacent tool diameters	mm	Ø200	Ø200
	Max tool length	mm	300	300
	Max tool weight	kg	15	15
	Tool choose type		Random Access Memory	Random Access Memory
	Tool change time (knife to knife)	s	2.9	2.9
Motor	Tool change time (cutting to cutting)	s	5.9	5.9
	Spindle motor power (30min)	kW	11 / 15 / 15	11 / 15 / 15
Equipment	Feed motor power (X/Y/Z)	kW	3.0/3.0/3.0	4.0/4.0/7.0
	Power supply (kVA: rated capacity)	kVA	35	42.2
Box capacity	Air supply	MPa	0.54	0.54
	Coolant tank capacity	L	400	380
Size	Lubricating oil pot capacity	L	4	4
	Height	mm	2900	3015
	Size	mm	2416×3350	2674 x 3350
	Weight	kg	7200	9200

NOTE: {}OP

## STANDARD

Assembly & operation tools	Condition light (red, yellow, green)
Coolant tank & chip tray	• Portable MPG
Security door interlock device	Working light (LED light)
Standard cooling system	X,Y,Z absolute pulse encoder
Installation parts	• 10.4" color LCD
Built-in spiral chip extractor	

## OPTIONAL

4th axis preparation	Oil cooler spindle head cooling *
Auto Power Off	Oil skimmer
Auto tool length measurement	Spray cooling system
Auto workpiece measurement	Test bar
Chip remover and chip truck	Spindle center water
Minimal quantities of lubricant	* Standard at 8000r/min

# NC SPECIFICATION

## DOOSAN-FANUC i Plus Series

Shaft control		Number of programs that can be stored 1000 ea
Number of control axes 3 axes		Select program segment Skip
Also control the number of axes		Multiple jumps
Positioning (G00)/ Linear Interpolation (G01) 4 axes		Macro actuator
Arc interpolation (G02,G03) 2 axes		Select Stop
Control shaft removal		Part program store length
Reverse gap compensation		2 M
Emergency stop/override		Program protection
HRV Controls HRV2		Program number
Location tracking		Sequence number
Incremental System C ISXC		Program stop/end
Minimum instruction increment 0.001/0.0001 mm/inch		M00 M02,M30
Minimum input increment 0.001/0.0001 mm/inch		Programmable data entry
Machine locks all axes /Z axes		Tool offset and workpiece offset are input by
Mirror each shaft		Subroutine call
Memory type pitch error compensation		10 layers of nesting
Store trip Check 1		Paper tape code
Stroke switch		EIA RS422/ISO840
Absolute pulse encoder		T thread cutting
Interpolation & Feed function		Local/machine coordinate system G52/G53
Return to the second reference point G30		Program loop start
Return the third and fourth reference points		Workpiece coordinate system G54-G59
Arc interpolation G02,G03		Added workpiece coordinate system
Cylindrical interpolation G07.1		Other functions (operation, setting and display, etc.)
Nanointerpolating		Return to reference point 3/ 4
Inverse time feed		Additional workpiece coordinate system G54.1P1-48(48 pairs)
Feed pause G04		Show the actual speed
Exact Stop Mode G09,G61		Coordinate system rotation
Feed speed multiplier (10%UNIT) 0-200		Embedded Ethernet
Screw interpolation		USB memory interface
JOG magnification (10%UNIT) 0-200%		DNC run based on memory card
Automatic corner magnification	G62	External data entry
Automatic corner deceleration		Multilingual display
Balanced Cutting		RS232 interface (for2ch)
Fast feed bell type acceleration and deceleration		Programmable image
Straight line interpolation	G01	Cs Profile Control
Manual feed per turn		External key input
Beta type interpolation before bell type acceleration and deceleration		FS10/11 paper tape format
Smooth interpolation		Alarm display
Hand wheel feed multiplier	0.1/0.01/0.001 mm	Alarm history shows
Magnification Cancel	M48/M49	Automatic corner multiplier
Positioning	G00	G62
Fast feed multiplier	F0(fine feed),25/50/100%	Clock display
Return to reference point	G27,G28,G29	Coordinate system rotation
Skip	G31	G68,G69
Feed per minute	mm/min	Start running/feed hold
AICC	40(DNM605W)	PMC alarm information display
AICC II	Pread 200(except DNM605W)	Running empty
Processing condition selection		Graphic display
Interpolated pitch compensation		Superhelp
High speed and high quality machining software package	DNM605W optional	High Speed Skip feature
Spindle & M code function		Current location Show
M Code function	M3 digits	Look-ahead control
Spindle orientation		G08
Spindle serial output		Display unit
Spindle speed function	S5 digits	10.4" color LCD/MDI
Spindle speed multiplier	50-150%	Memory card interface
Axis output switch		Operating function
Rigid tap rollback		Operating history display
Rigid tapping		Any chamfer/corner R
Tool function		Polar coordinate instruction
Tool radius compensation G40,G41,G42		G15/G16
Tool bias number 400 pairs		Program restart
Tool length compensation G43,G44,G49		Programmable data entry
Tool Length measurement		Run time and component count display
Tool life Management		Scale to zoom
Tool Life Management extension		G50,G51
Tool function T8 digits		Retrieval function
Tool length offset		Self-diagnostic function
Tool compensation memory C shape, wear are stored separately, length		Servo setting screen
Tool position offset G45XG48		Single step run
Program & Editing functions		One-way positioning
Absolute/incremental programming G90/G91		G60
Automatic coordinate system setting		Store trip Check 2
Background editor (background editing)		Ethernet features
Process recycle G73,G74,G76,G80-G89,G99		Automatic Data backup
R programming arc interpolation		Dynamic graphic display
User software capacity 6 M		EOP(Easy to Operate Package)
Append user macro variables #100X#199,#500X#999		Tool Load Monitoring
10 times input UNIT		Select Specs
RS-232C interface		Add controllable axis number for a total of 5 axes
USB port		Hand control hand cycle back
Imperial/metric conversion G20/G21		Operation Guide I
Mark Skip		Operation Guide oi
Max command value ±99999.999mm(±9999.9999 inch)		Word carving
		CF card (2GB)
		PROFIBUS-DP
		PROFINET
		CC-LINK
		Number of workpiece coordinate system groups add G54.1P1X300 (300 pairs)
		Inclined plane indexing instruction G68.2
		Tilt plane division command function G68.2 TWP command on guidance window
		Multi-spindle control
		3D rigid tap return
		Acceleration control
		Data server (1GB PCMCIA card)
		Fast Ethernet board

**GBV5450/6550**


ITEM	UNIT	GBV 5450	GBV 6550
Axial travel (X/Y/Z)	mm	1040/540/530	1270/670/625
Worktable	mm	1200 x 540	1400 x 670
Maximum load of table	kg	800	1000
Max spindle motor power	kW	15	15
Max spindle speed	r/min	6000{8000}	6000{8000}
Maximum spindle torque	N·m	286.4	286.4
Tool storage capacity	ea.	24	24
Holder	-	MAS403 BT50	MAS403 BT50
Fast feed speed (X/Y/Z)	m/min	30 / 30 / 20	30 / 30 / 24

**SUZHOU GUDWAY CNC EQUIPMENT CO.,LTD**

Address: Room 418B-35, Building 6, No. 25 Lushan Road, New district, Suzhou, China