GVT 405 SERIES

Vertical type Turning lathe

V405/M

SUZHOU GUDWAY CNC EQUIPMENT CO.,LTD

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High performance vertical turning center

GV T405 SERIES

A strong player in the field of automotive brake disc processing worldwide, with a sales record of over 3000 units in the global market. Tailored servo double-sided knives for automotive related industries such as brake disc processing can meet the efficient production needs of users.

Brake disc

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1 High stability structure

The optimized bed structure design ensures the machining accuracy and surface smoothness of the workpiece.

2 Powerful processing performance

High performance spindles provide users with more stable machining accuracy while having higher load-bearing capacity.

3 High production

High reliability turrets, servo double-sided knives, rotating tool heads, and other configurations bring higher productivity to users.

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High rigidity and high stability structure

1 Bed and column

The use of high rigidity hard rails and high tension mihanna cast iron body design provides a high rigidity guarantee for high-precision and heavy-duty cutting. The unique rigid bed body and reinforced rib structure design ensure the machining accuracy and surface smoothness of the workpiece while ensuring the rigidity of the machine tool.

X/Z-axis travel

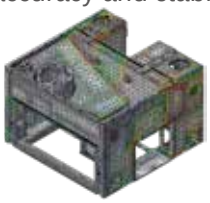
268/488 mm

Servo double-sided knife axial stroke (GVT405/LOP)

5~60 mm

2 Finite Element Analysis Method (FEM)

Perform force analysis and structural optimizatio n on all structural components of the machine tool to achieve optimal design of the bed and column structure. Under long-term continuous heavy load cutting conditions, good machining accuracy and stability can still be maintained.



3 Fast feed

GVT405/L X/Z axis

20/20 m/min

GVT405M/ML X/Z axis

20/24 m/min

Servo double-sided knife movement axis

15 m/min

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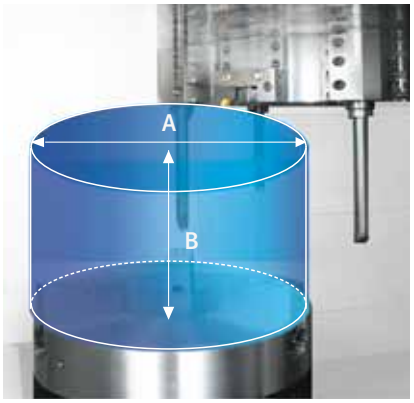
X/Z TRAVEL
268/488
mm

Recommended
turning dia.
305 mm

Swing
over bed
610 mm

4 Machining range

Soindle machining range



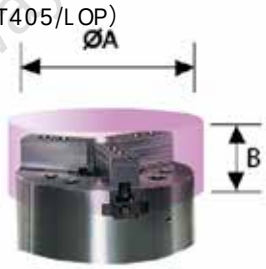
Maximum turning diameter (A)
GVT405/405M

▸ **Ø496/420** mm

Maximum turning diameter (B)
GVT405/405M

▸ **461/400** mm

Servo double-sided tool processing range OP
(GVT405/L OP)



Maximum turning diameter (A)

▸ **Ø376** mm

Maximum turning diameter (B)

▸ **60** mm

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Excellent and powerful performance

1 High speed, high-performance spindle

Equipped with ASA A2-8 spindle nose end, it ensures the machining performance of the machine tool while facilitating maintenance. Especially the rigid coupling bearing components can bear heavy workpieces and reduce thermal displacement of the spindle during long-term operation.

Max spindle speed

- **3000** r/min

Max spindle power

- **22** kW(30min)

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GUDWAY

Spindle speed
3000 r/min

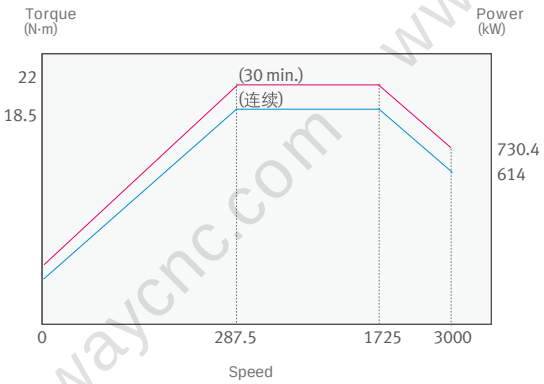
Spindle nose
ASA A2-8

Spindle
bearing dia.
(front/back)
130/120 mm

Main spindle power torque

GVT405/V405M

Maximum spindle speed: 3000 r/min
Maximum spindle power: 22 kW



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High reliability turret

1 High reliability turret

The 12 bit heavy-duty turret has a curved tooth clutch with a diameter of up to 250mm. This heavy-duty design can provide excellent rigidity for rough machining, precision machining, and boring machining, while also extending the service life of the cutting tools. The turret can perform uninterrupted bi-directional rotation, and the rotation time of adjacent tool positions is only 0.15 seconds.

Indexing time (adjacent tool positions)

- **0.15** s

Tool number

- **12** tool position
- **10** tool position OP
  (Servo double-sided tool)

2 Servo double-sided tool op

(GVT405/L op)

Tailored for the automotive brake disc processing industry. The dual tool holder driven by servo motor improves the instability of hydraulic drive in previous models, reduces tool clamping and adjustment time, and greatly improves machining efficiency while ensuring parallel accuracy and workpiece surface smoothness during the machining process.

- The processing time is shortened by nearly 50% compared to general cutting tools

General tool

Servo double-sided tool

50%

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Rotating tool head ST

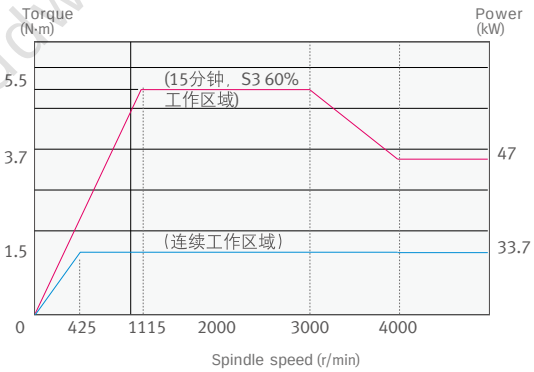
（GVT405M/MLST）

The rotating tool head ensures high rigidity and precision through dual contact between the end face of the rotating tool head, the flange surface of the tool clamping insert (referred to as the Preci flex joint), and the conical surface of the tool head.

GVT405M: BMT65P

Main spindle power torque diagram

Maximum spindle speed: 4000 r/min
Maximum spindle power: 5.5 kW



Clamp application

Precision flex connector application

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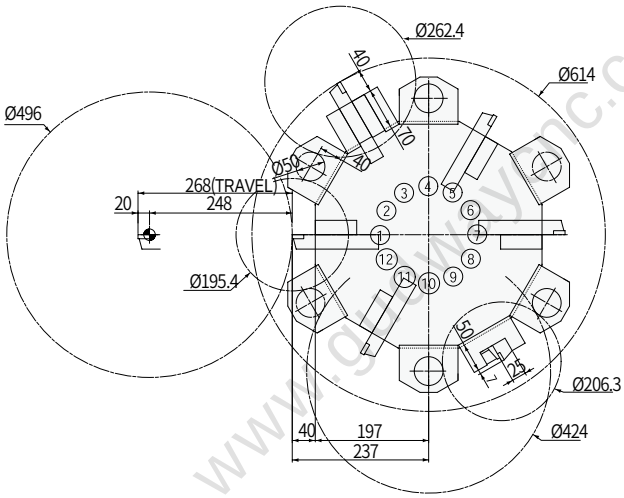
Tool interference diagram

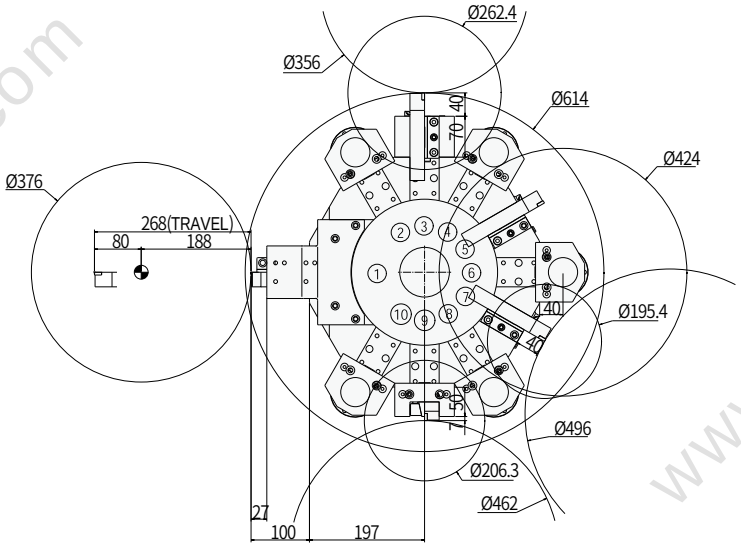
GVT405/L

UNIT:mm

GVT405 [OP]

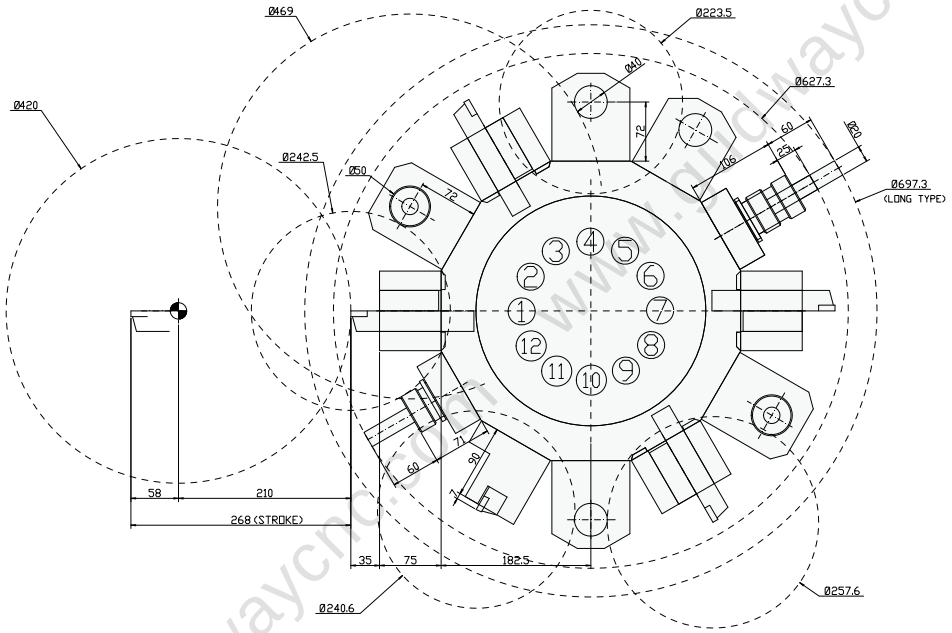


Servo double-sided Tool OP



GVT405M/ML

UNIT:mm



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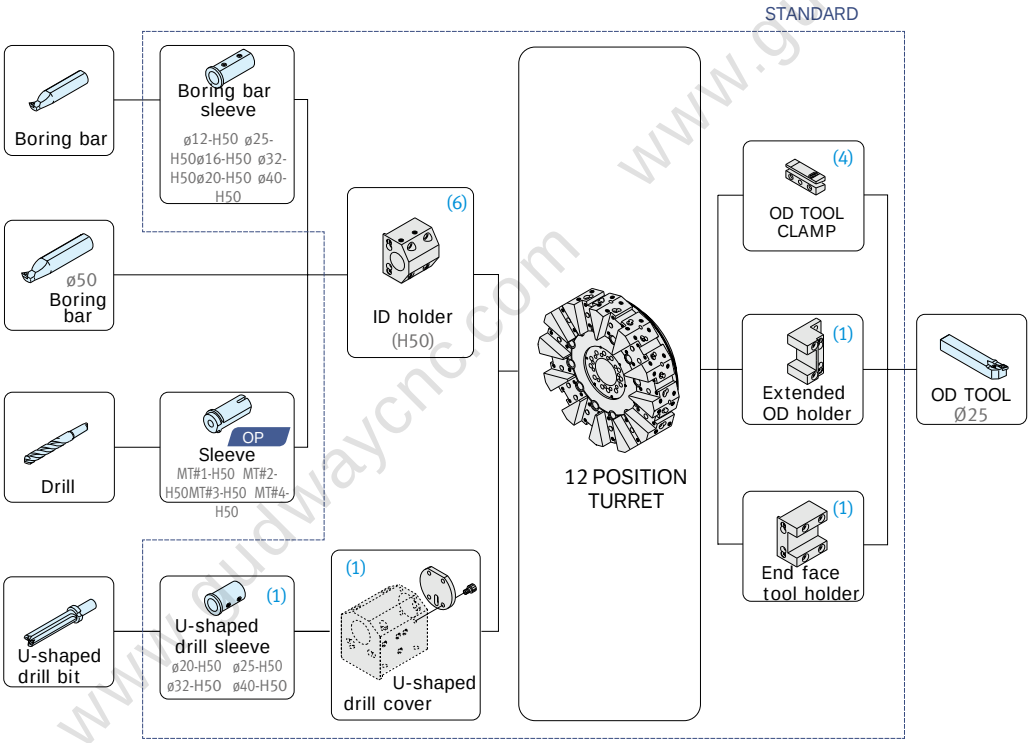
TOOL SYSTEM

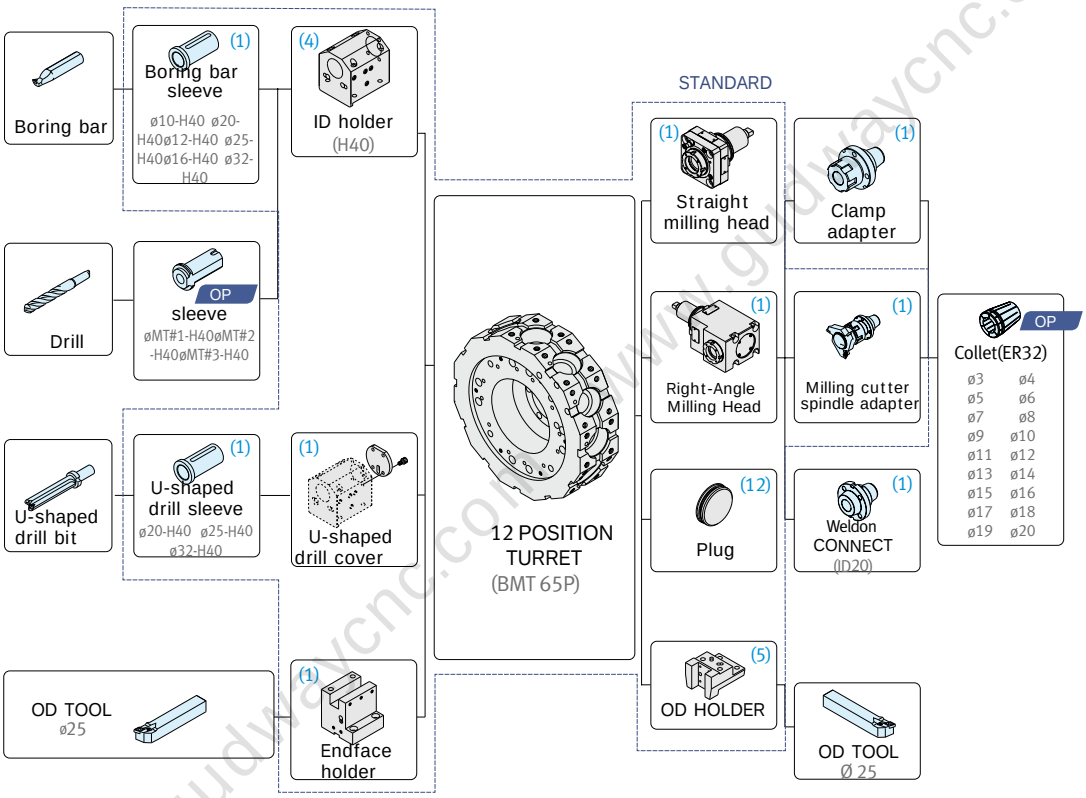
GVT405/L

UNIT:mm



GVT405M/ML

单位:mm

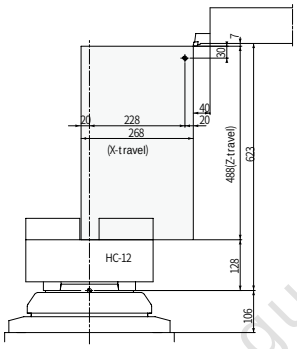


Machining range

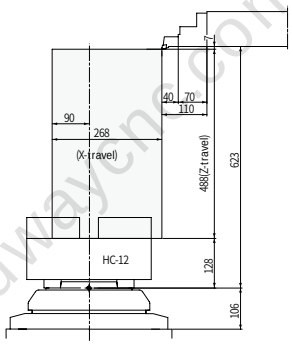
GVT405/L

UNIT: mm

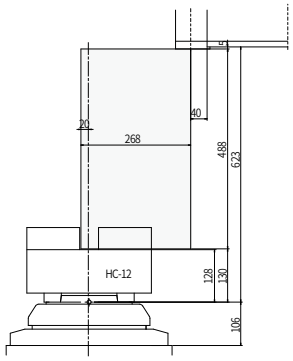
OD tool holder range



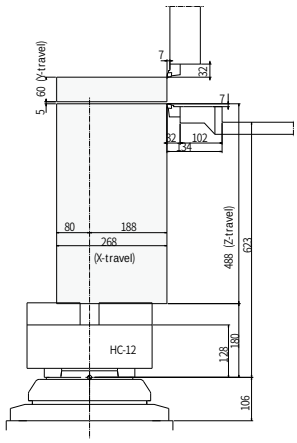
Expanded OD tool holder



ID tool holder range



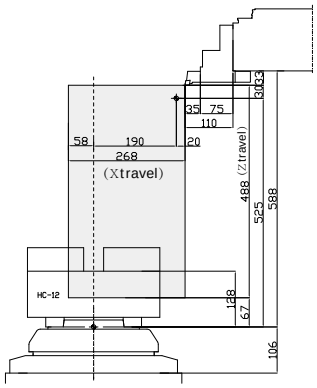
Dual carriage tool holder range OP



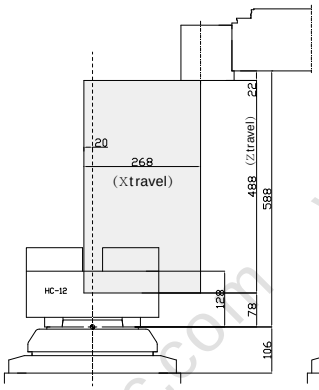
GVT405M/ML

UNIT: mm

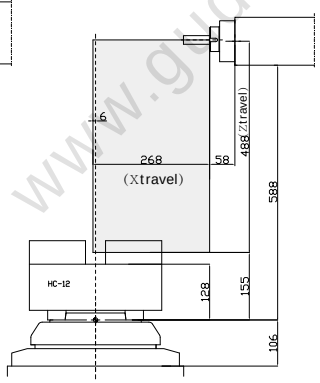
OD tool holder range



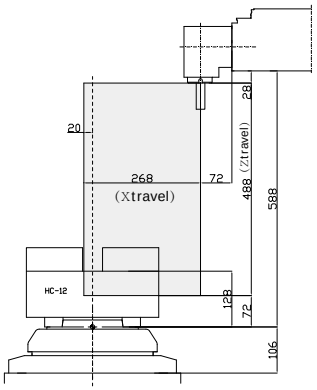
ID tool holder range



Straight milling head



Right-Angle Milling Head



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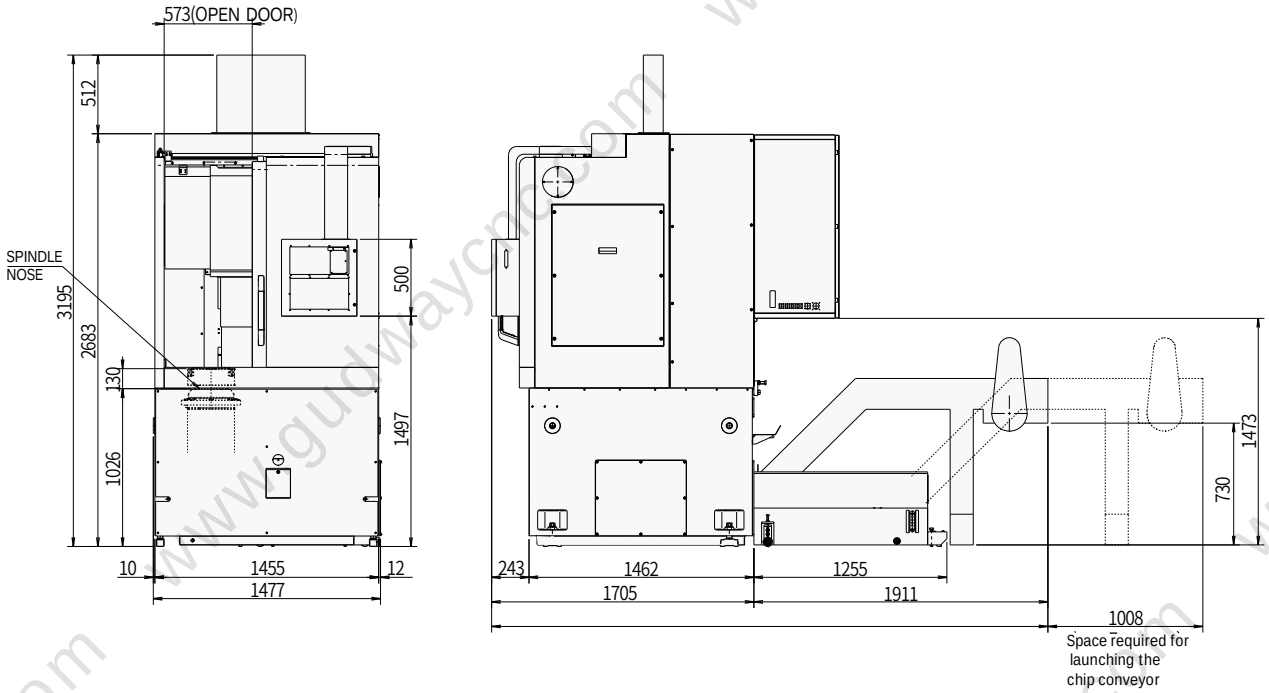
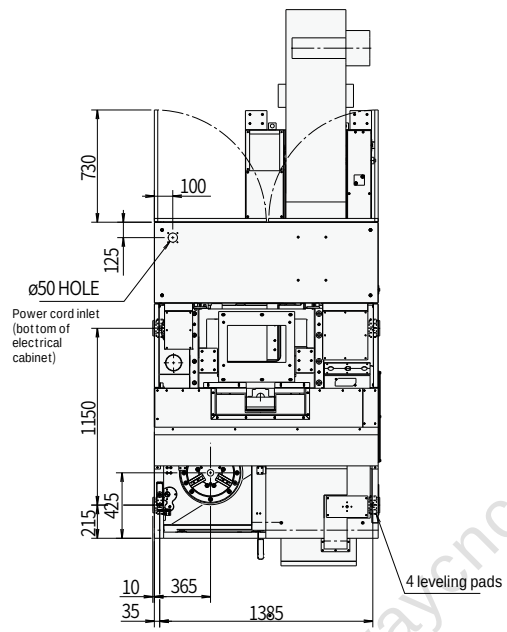
SIZE

GVT405/405M

UNIT: mm





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PARAMETER

ITEM		UNIT	GVT405/L	GVT405M/ML
CAPABILITY	Swing over bed	mm	Ø610	
	Max. turning dia. on the saddle	mm	Ø500	
	Recommended turning diameter	mm	Ø305	
	Max turning diameter	mm	Ø496	Ø420
	Max. turning diameter	mm	Ø376	
	Max. turning length	mm	461	400
TRAVEL	X-axis	mm	268	
	Z-axis	mm	488	
	C-axis	degree		360
	{Servo double-sided knife axial stroke}	mm	5~60	
SPINDLE	Max. spindle speed	r/min	3000	
	Spindle nose	ASA	A2-8	
	Spindle bearing diameter (front)	mm	Ø130	
	spindle bore	mm	Ø90	
TURRET	Tool number	st	12	
	Number of cutting tools	st	10	
	OD tool size	mm	25×25	
	Servo end face tool size	mm	25×25	
	Boring bar diameter	mm	Ø50	Ø40
	Adjacent tool position rotation time	s	0.15	
FASTFEED	X-axis	m/min	20	
	Z-axis	m/min	20	24
	C-axis	r/min		200
	{Servo double-sided tool move axis}	m/min	15	
MOTOR POWER	Spindle motor power (30min/continuous)	kW	22/18.5	
	Servo motor power	kW	3.0/4.0	3.0/7.0
	{Servo double-sided knife motor}	kW	0.75	
POWER	Electricity supply (rated capacity)	kVA	30.49	37.14
SIZE	Height	mm	3195	
	Length×Width	mm	1475 × 2717	
	Net weight	kg	6000	

• {}OP

STANDARD

- Hydra chuck&rotary cylinder
- Soft claw
- Standard tool holder
- Hydraulic power unit
- Cutting fluid supply
- Lubrication equipment
- Work light
- Pedal switch
- Front door interlock device
- Safety warning nameplate
- Leveling bolts and shims
- Random toolbox (including small tools for operation)
- Work condition light
- Iron filings and cooling safety protection sheet metal
- Operation and component manual

OPTIONAL

- Chip conveyor
- Chip truck
- Hard claw
- Air gun
- Water gun
- Oil skimmer
- Servo double-sided tool (GVT405/L)
- Additional tool holder&boring sleeve
- Auto tool alignment (plug-in)
- Auto door
- Claw cleaning and blowing
- Auto power off
- Air condition

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NC SPECIFICATION

FANUC i Plus Series

Axis control		User macro	
Control path	1 path	Decimal point input/Calculator decimal point input	
Control number of axes 2axis		Diameter/radius specified	
Also control the number of axes 2axis		Coordinate offset direct input	
Control shaft disassembly		G code class B/C	
Reverse clearance compensation		Any Angle chamfer/corner R	
Reverse clearance compensation for each quick feed and cut feed		10 times input units	
Chamfer start/stop		Mark Skip	
Advanced feedforward control		Manual Absolute value 0N/OFF	
Position tracking		Maximum instruction value	Earth 9 digits
Servo HRV controls HRV2		Compound fixed loop	
Imperial/metric conversion		Composite fixation cycle II	
Interlocking	All axes/all axes	Select program segment Skip	9 pieces
Minimum input increment 0.001/0.0001 mm /inch		Parity Check	
Minimum setting unit C SXC		Plane selection	G17,G18,G19
Mechanical lock	All axes/all axes	Program file name	04 digits
Mirroring		Programmable data entry	G10
Overpass		Sequence number	N8 digits
Servo off		Subroutine instruction call	10 layers of nesting
Storage stroke detection 1		Paper tape code	EIA RS422/IS0840
Abnormal Load Detection		FANUC10/11 System paper tape format	
Emergency stop		Workpiece coordinate System	G52-G59
Position switch		Job coordinate system preset	
Operations		User software capacity	6 M
Autorun (memory)		Macro actuator	
MDI run		Tool function/tool compensation	
Buffer register		Automatic tool compensation	
DNC run		The measurement of tool compensation value is entered directly into B	T2+2 digits
Use a memory card for a DNC run	A CF card and a dedicated adapter are required	Cutter features	
Scheduling features		Tool shape/wear compensation	
Empty run		Tool life Management	
Incremental feed	X1,X10,X100	Tool radius compensation	G43,G44,G49
Handwheel feed interrupt		Tool position offset	128 pairs
JOG feed		Number of tool compensation	
Manual intervention and return		Tool life management extension	
Hand wheel feed		Program Editing	
Manually return to the reference point		Background editing	
Program number retrieval		Extension editing	
Program restart		Number of login programs	1000 ea
Sequence number search		Program editing	
Interpolation function		Program Protection	
Return to first reference point	Manual, G28	Program storage capacity	2 M
Return to second reference point G30		Setup and display	
Return to reference points 3 and 4		Show actual speed	
Naninterpolating		Display alarm information	
Exact way to stop		Show alarm history	
Tapping method		Show current location	
Method of cutting		Display the floppy disk directory	
Accurate stopping		Displays the actual spindle rotation number /T code	
Arc interpolation G02,G03		Help features	
Continuous Thread Cutting		Display in languages by country	
Polygon machining		Show operational history	
Cylindrical interpolation		Show parameter Settings	
Pause		Show program notes	32,31 characters
High Speed skip		Show working hours/number of parts	
Straight interpolation	G01	Self-diagnostic function	
Multiple thread cutting		Servo information screen	
Positioning	G00	Spindle information screen	
Return to reference point to detect G27		Graphic display	Knife path display
Thread cutting/synchronous feed		Status display	

Thread cut cycle back		Clock function	
Torque limit skip		Parameter checksum function	
Variable pitch thread cutting		Data input/output	
Feed function		External data input	
Automatic acceleration/deceleration		External key input	
Cutting feed rate reed		External program number retrieval	1-9999
Feed per minute	G98	External job number retrieval	9999
Feed per turn	G99	Input/output of memory card	
Feed rate multiplier (10% unit)	0-200%	Reader/puncher interface	CH1. Interface
JOG magnification (10% units)	0-2,000 mm/min	RS232C port	
Manual feed per turn		USB port	
Multiplier cancel		Automatic data backup	
Quick feed multiplier	F0, 50100%	Other	
Fast feed speed		Start running and the indicator lights up	
Fast feed bell type acceleration and deceleration		Display unit	10.4 "color LCD/MDI
Auxiliary/spindle speed function		Feed is held and indicator light is on	
Spindle positioning		NC and servo ready	
Actual spindle speed output		PMC System	0i-PMC
Auxiliary function locks		Ethernet features	
Constant weekly speed control		EOP(Easy operation screen)	
Auxiliary functions	M 8-bit number	Select specifications	
Spindle function	S5 digits	- Data Server	
Spindle serial output	S5 digits	- Hand wheel feed rollback	
Spindle magnification	0-150%	Dynamic graphic display	
Spindle output switching		- Operation guide i	
Rigid tapping		- Operation boot 0i	
Program input		- Tool load monitoring	
Absolute/incremental instructions		-CF Card (2GB)	
Append user macro public variables		PROFIBUS-DP	
Fixed loop for drilling		-AI Profile Control I	Maximum number of preread segments 40
Single shape fixed cycle		PRO FINET	
Arc radius R specified		-CC-LINK	
Control input/output		-AI Profile Control II	Maximum number of preread segments 200
Coordinate system setting	G50	- Fast Ethernet	
Frame offset			

GUDWAY

GVT405 SEREIS

ITEM	UNIT	GVT405/L	GVT405M/ML
Max. turning dia.	mm	Ø496	Ø420
Max. turning dia.	mm	Ø376	
Max. turning length	mm	461	400
Spindle motor power (30min/continuous)	kW	22/18.5	
Max spindle speed	r/min	3000	
Tool number	st	12	
Number of cutting tools	st	10	

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