GV-500 SERIES

High Speed Vertical CNC Turning Centers

THE ULTIMATE MACHINING POWER

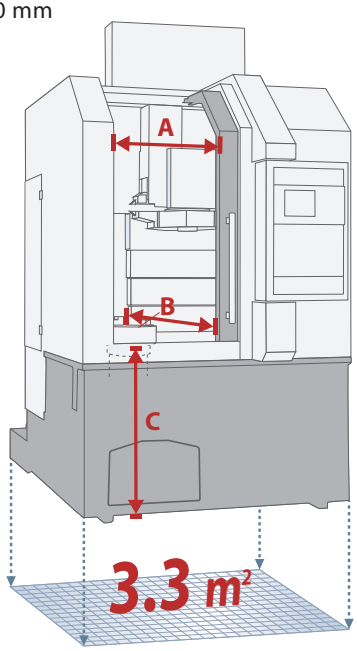
HIGH SPEED VERTICAL CNC TURNING CENTERS

Packed with the latest machine tools technology and high precision turning capabilities, the GOODWAY GV-500 series high speed vertical CNC turning center combines a super rigidity structure and precision linear guideways with a servo indexing turret and powerful spindle (max. torque up to 883 N-m). These series features a compact machine size with heavy duty turning capabilities. In addition to the GV-500 series, the GV-500X series twin spindles & turrets equipped with loading & unloading systems can complete disk-shape work-pieces that need multi-processing in one single setup which saves a great amount of time and increases production efficiency to meet your needs of today and tomorrow.

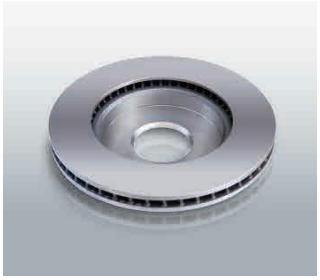
(GV-500 model shown with optional accessories)

- Fully enclosed splashguard keep chips and coolant contained for a safe clean working environment.
- Machine design with optimized specification can reduce the floor space of the machine and increase the convenience of operation

A： Max. 630 mm
B： 420 mm
C： 865 mm



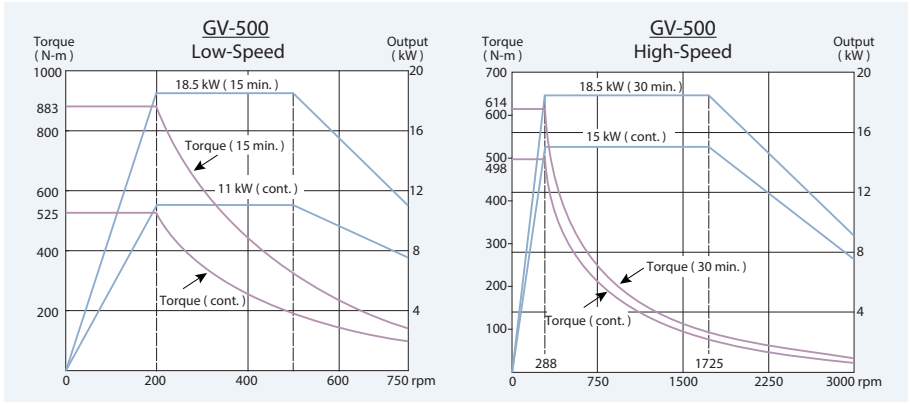


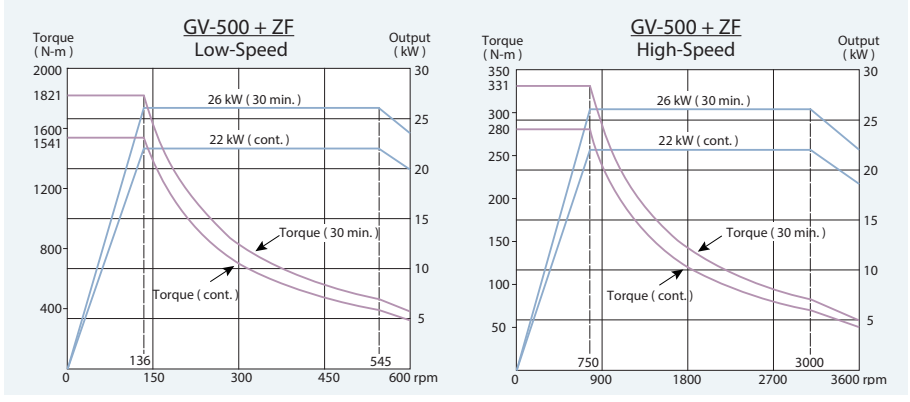



(GV-500X model shown with optional accessories)

- The wide-range FANUC α P30/6000i motor driven spindle system can generate twice the torque output of standard motors.

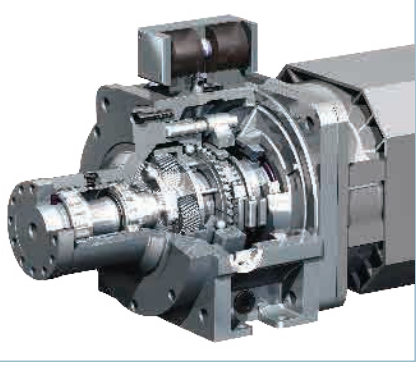
Spindle Output



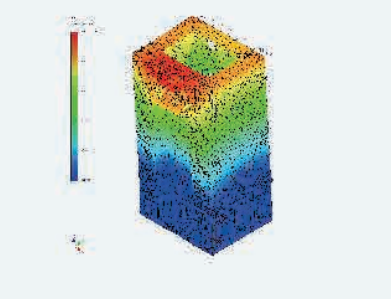


ZF Gear Box Output (Opt.)

Optional GERMAN made oil bath gear box is also available,providing maximum torque of 1,821 N-m.

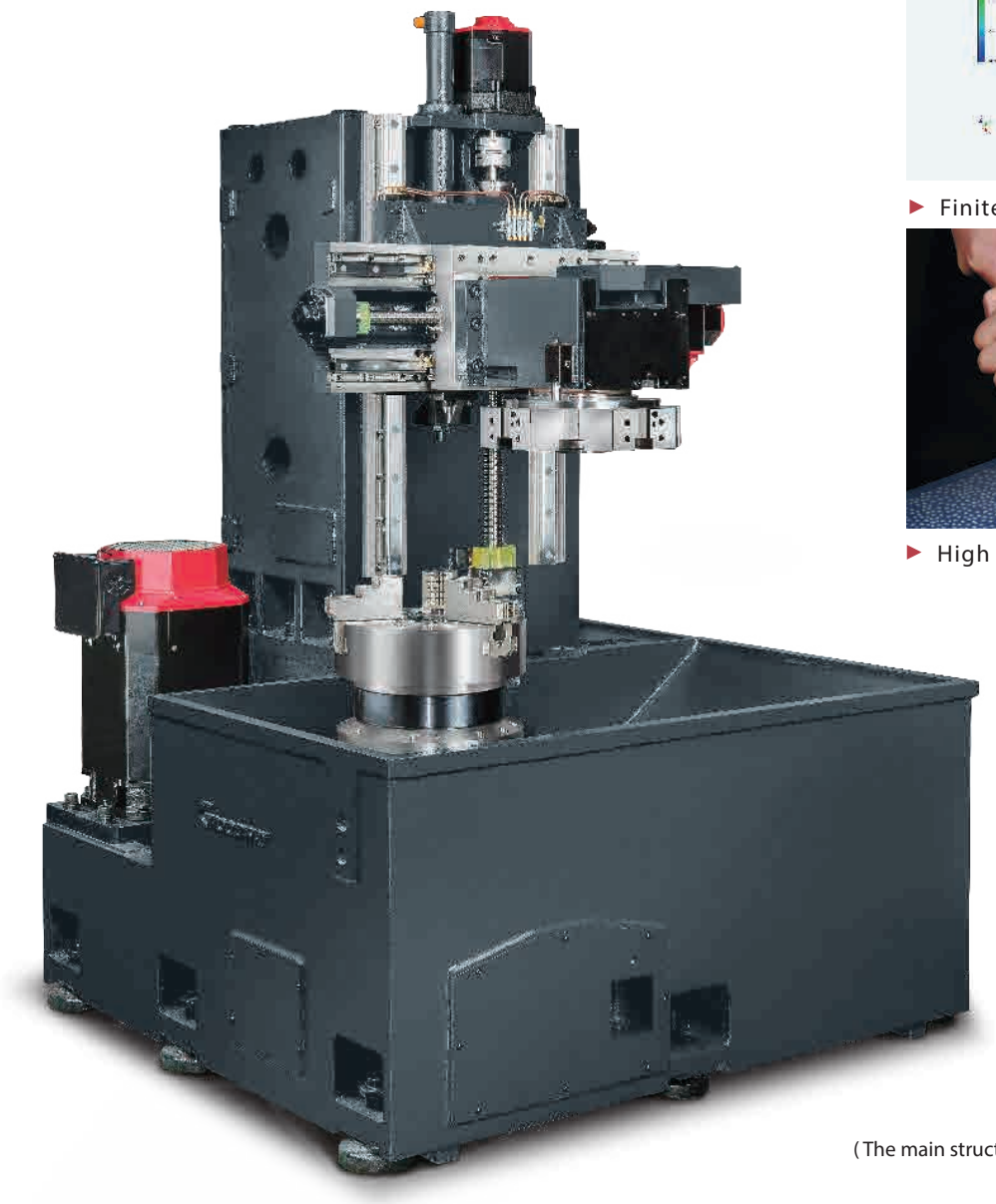


SUPER RIGID CONSTRUCTION



► Finite Element Analysis (FEA)

► High precision hand scraped



(The main structure of the GV-500 series)

► By using Finite Element Analysis (FEA), optimal reinforced ribbings are directly casted into the one-piece bed and column structure. Mechanical rigidity has been increased by 30% when compared to conventional designs. The GV-500 series is capable of performing heavy-duty turning and maintain long-term high-precision accuracy. More rigidity also means extended tool life.

► Built to withstand years and years of rigorous high production turning, the heavily ribbed, one-piece thermally balanced bed and column are of " MEEHANITE " casting.

► High precision linear guide way design is used in X and Z axes to provide the optimum control and efficient movement.

► The servo motor of each axis feed system uses FANUC αi series components to ensure peak machining performance and accuracy.

► Contact surfaces of all slides, spindle, turret, and ball screws bearing housings with the machine bed and column are precision hand scraped to provide maximum assembly accuracy, structural rigidity, and load distribution.

ADVANCED TURRET TECHNOLOGY

Standard Turret

- The super heavy-duty servo indexing turret features the latest non-lifting turret disk technology, achieving 0.2 second indexing for adjacent stations and 0.5 second for stations at the opposite end of the disk.
- The JAPANESE super high precision curvic couplings accurately position the turret disk and 3,620 Kg (7,240 lbs.) of clamping force ensures abundant turret rigidity for all cutting conditions.
- The curvic couplings features auto-centering, auto-cleaning and a large size tooth ank which are superior to traditional curvic couplings and are greatly used in our products.

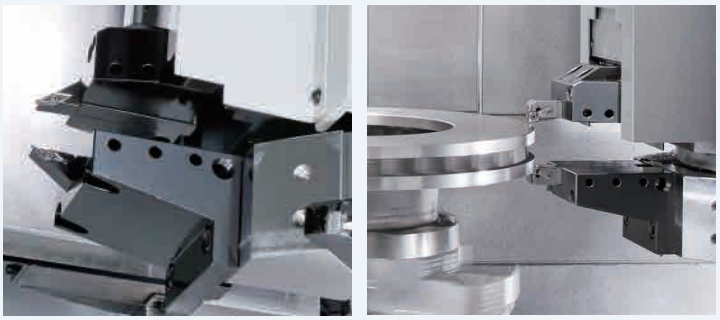
Live Tooling Turret (Opt.)

- Live tooling turret and C-axis control capabilities allows the GV-500 series to perform multi-tasks on a work-piece, such as turning, milling, drilling and tapping. This eliminates manpower and cycle time, while reducing accuracy lost, which will occur if the part is moved from machine to machine.
- The 12-station GOODWAY live tooling turret offers 12 stations available for live tooling (live tooling tools rotate in working position only) and features a non-lifting turret disk.

Dual-Face Turning Holder (Opt.)

The GOODWAY dual-face turning holder allows both sides of a work-piece to be machined at the same time while ensuring parallel precision of the surface, which is applicable for disk brakes or automotive related components.

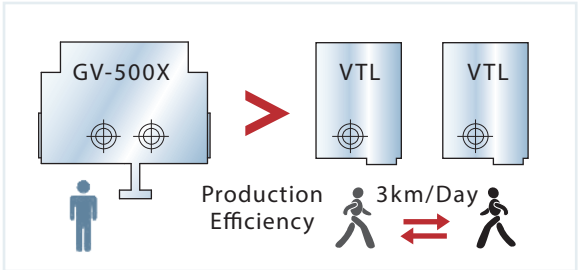
- The cutting time is 50% shorter than when using regular tools.
- The servo motor driven dual face tool holder provides more exibility to various working conditions, overcoming hydraulic driven disadvantages, thus, saving tool adjustment time and increasing production efficiency.



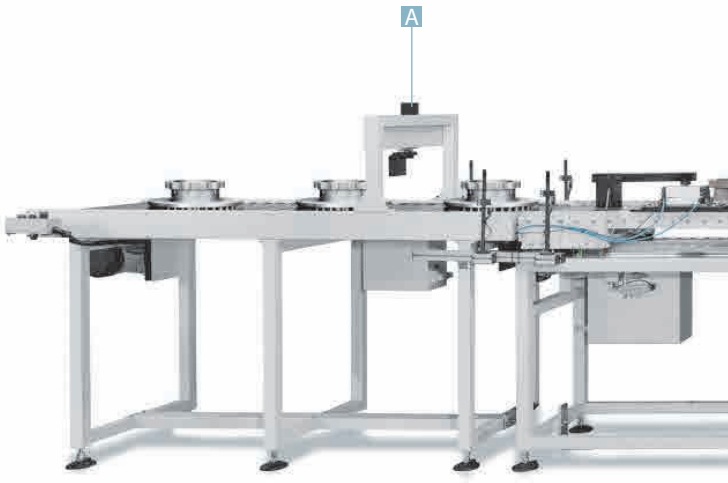
GV-500X TWIN SPINDLES & TWIN TURRETS VTL

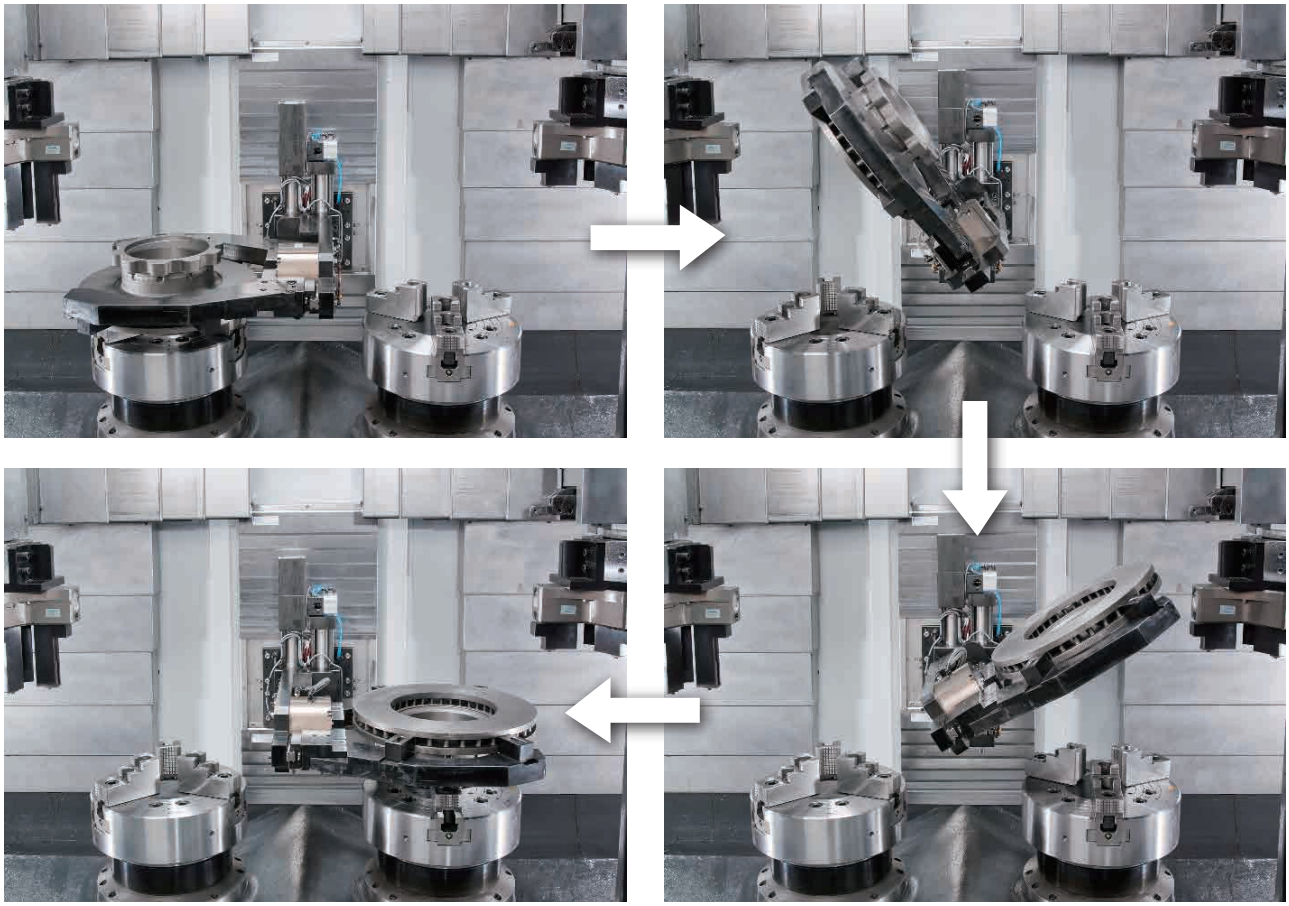
The design concept for GV-500X series is based on a "combining two operating process into one machine". Therefore, the 1st spindle and 2nd spindle can work independently on two different work pieces or work on the 1st and 2nd process of one work piece, efficiently lowering the demand on manpower and increasing factory space usage.

- GV-500X series optional loading & unloading systems and work-piece flipping device. The work-piece from feeding, processing, flipping, processing and discharging can be completed at once, which saves manpower, increase efficiency and reduces setting error.



- The GV-500X series combines two work process into one to reduce operating time (when working on two machines) and increase production efficiency.

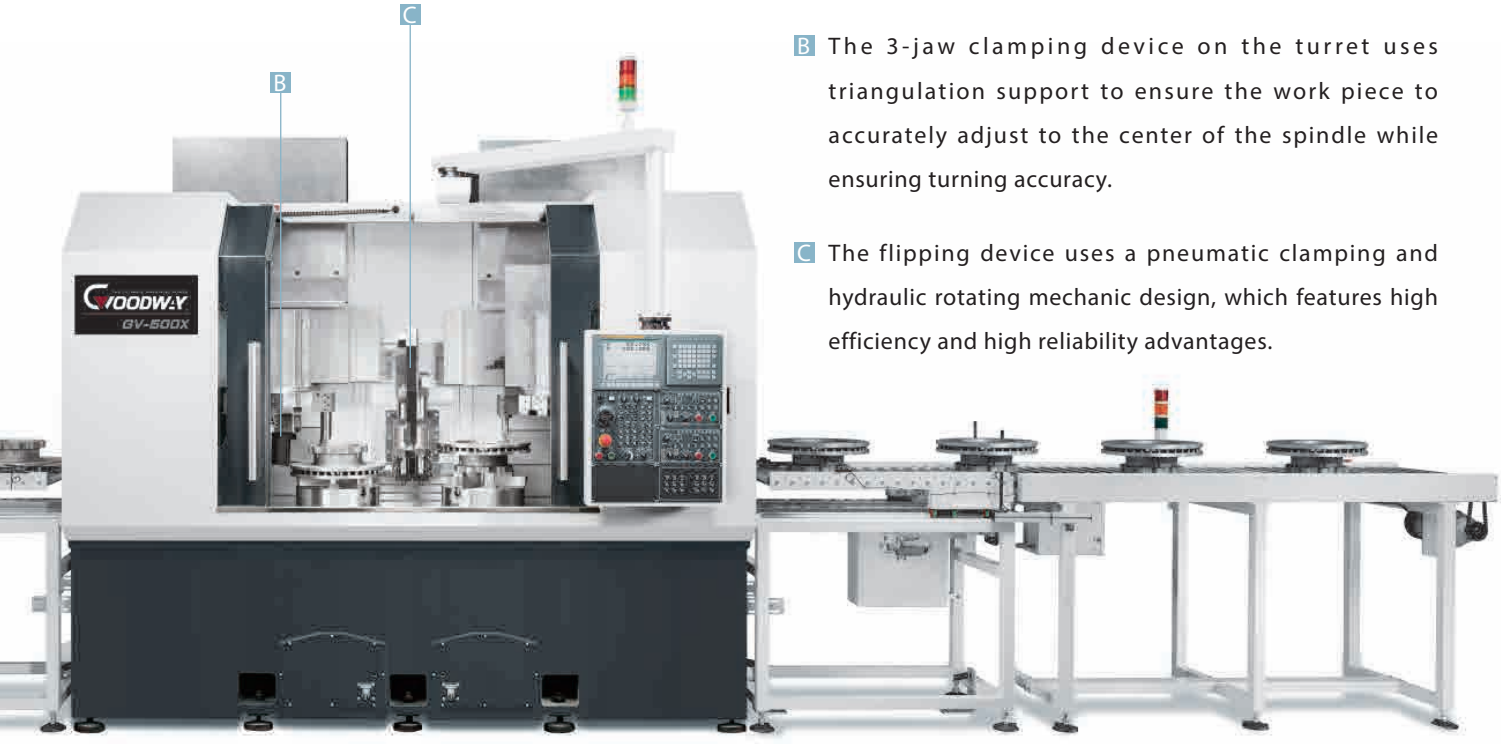




A When the detection gate on the bar feeding conveyor detects a work piece passing through, it will close immediately to prevent another work piece from entering the back rail, providing high reliability and safety.

B The 3-jaw clamping device on the turret uses triangulation support to ensure the work piece to accurately adjust to the center of the spindle while ensuring turning accuracy.

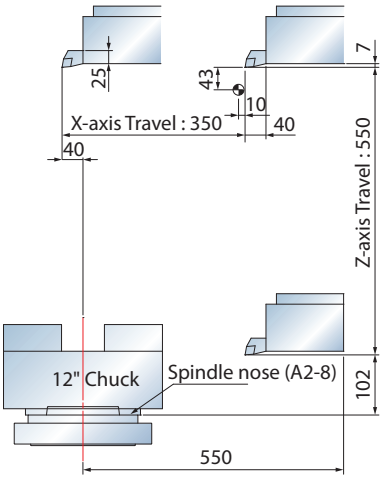
C The flipping device uses a pneumatic clamping and hydraulic rotating mechanic design, which features high efficiency and high reliability advantages.



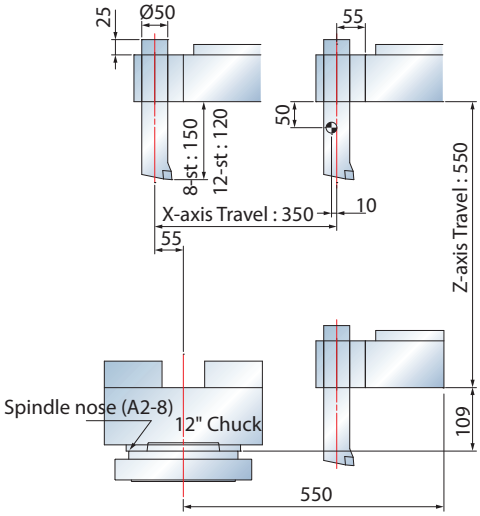
GENERAL DIMENSION

Work Range

【 Standard 8 / 12-Station Turret 】

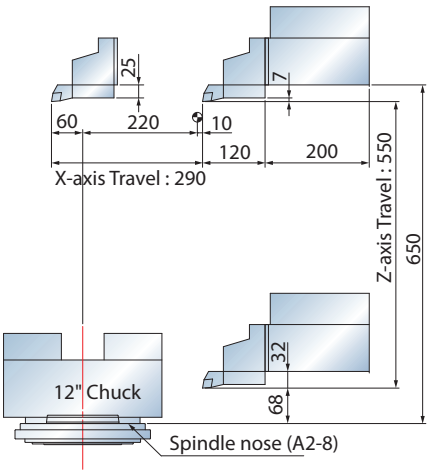


O.D. Tools □25 mm

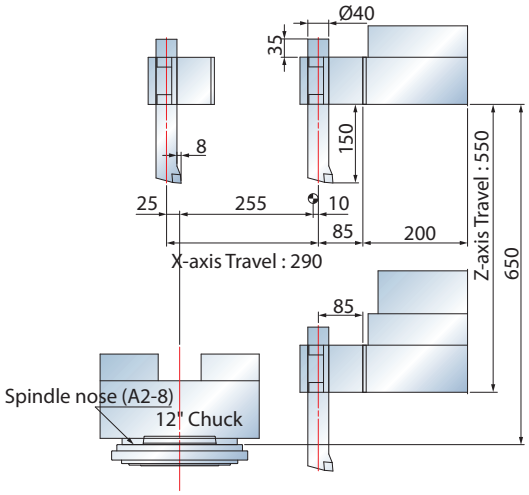


I.D. Tools Ø50 mm

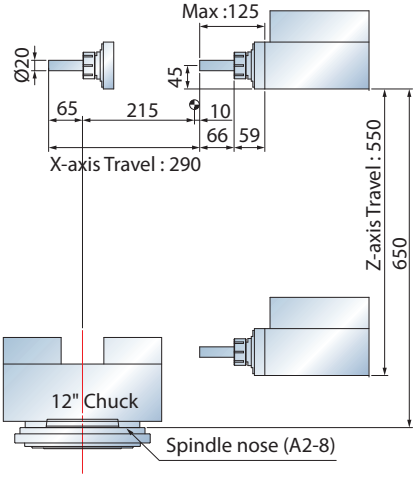
【 Optional 12-stations Live Tooling Turret 】



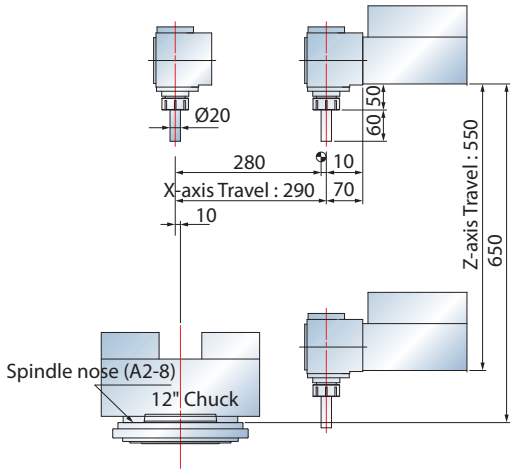
O.D. Tools □25 mm



I.D Tools Ø40 mm



Live Tooling

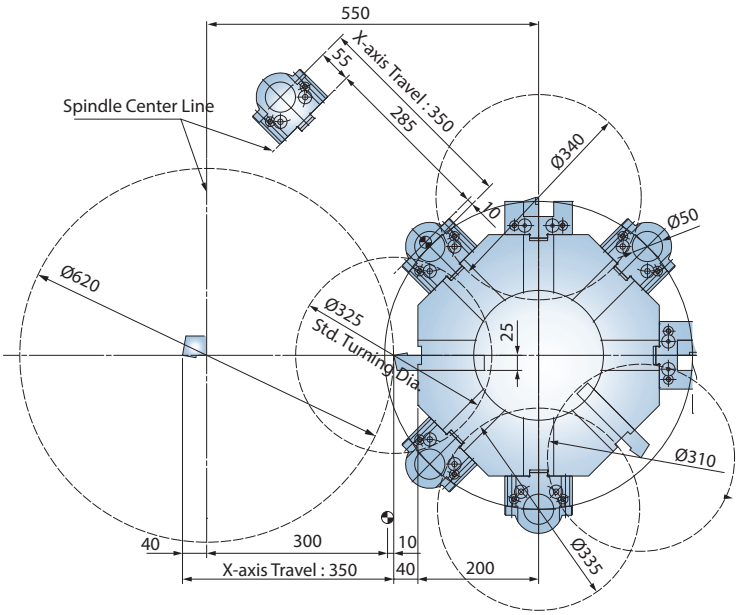


Live Tooling

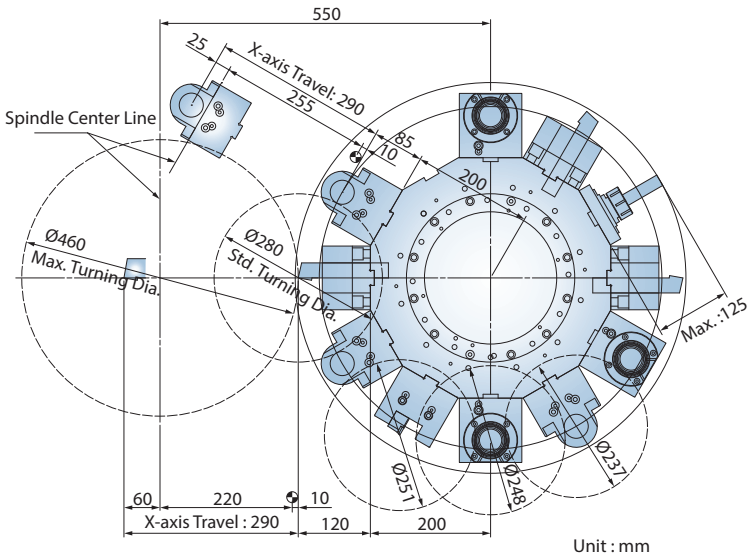
Unit : mm

Interference Diagram

【 Standard 8-Station Turret 】

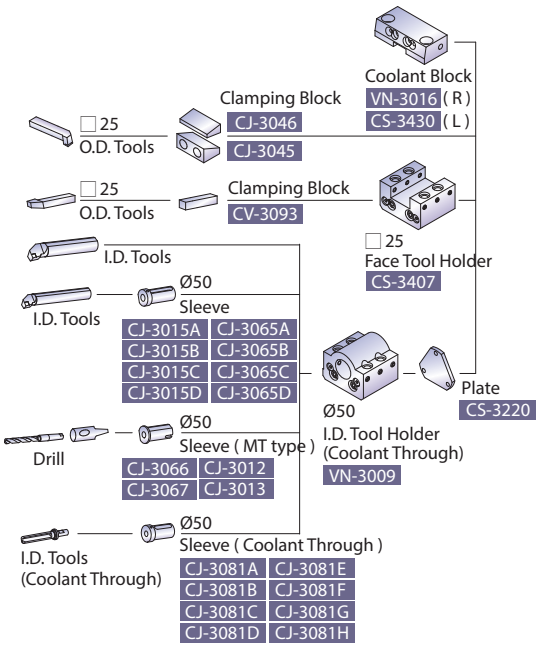


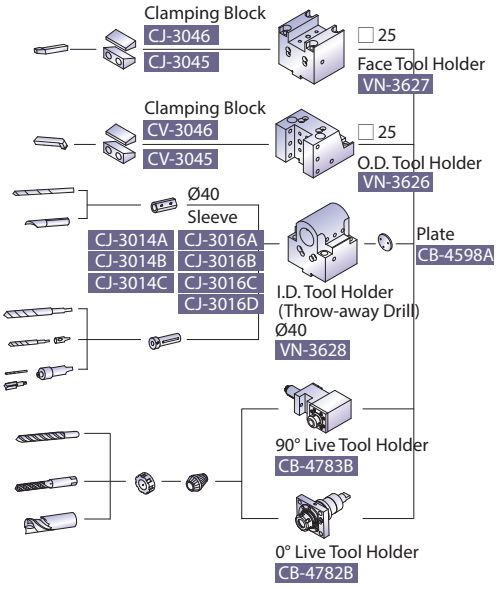
【 Optional 12-station Live Tooling Turret 】



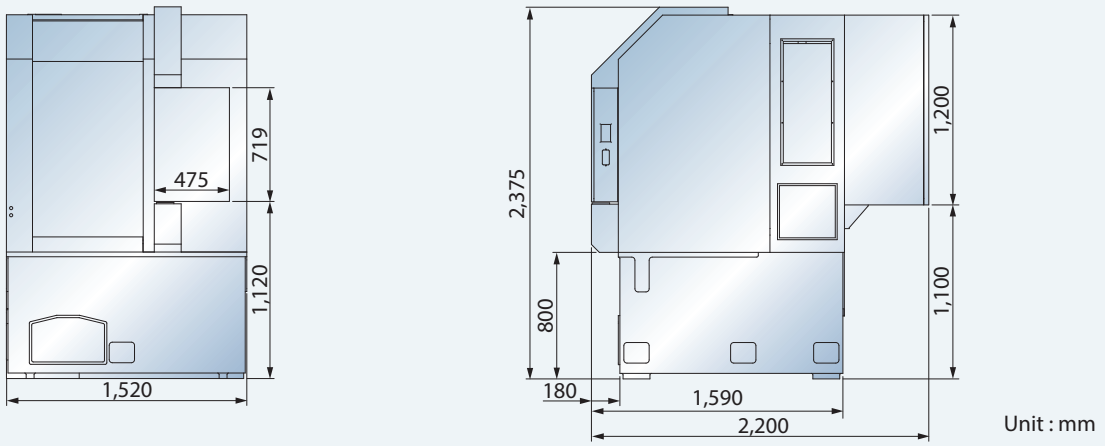
Unit : mm

Tooling System





Machine Layout



Unit : mm

FEATURES

S : Standard O : Option
– : Not available C : Contact GOODWAY

		GV-500	GV-500X
SPINDLE			
Main spindle configuration	Two-speed	S	S
ZF gear box		O	O
Rigid tapping		S	S
Cs-axis & disk brake for main spindle		O	O
WORK HOLDING			
Solid 3-jaws chuck &	12"	S	S
hydraulic solid cylinder for chuck	15"	O	O
Manual chuck		O	O
Hard jaws	1 set	O	O
Soft jaws	1 set	S	S
Special work holding chuck		C	C
Foot switch for chuck operation	Single	S	S
	Double	O	O
TURRET			
8-station turret		S	S
12-station turret		O	O
12-station live tooling turret		O	O
Tool holder & sleeve package		S	S
Dual-Face Turning Holder		O	O
Live tooling tool holders		O	O
MEASUREMENT			
Tool presetter		O	O
COOLANT			
Coolant pump	5 Kg/cm²	S	S
High-pressure coolant system	20 Kg/cm²	O	O
Roll-out coolant tank		S	S
Oil skimmer		O	O
Coolant level switch		O	O
Coolant intercooler system		O	O
CHIP DISPOSAL			
Chip conveyor with auto timer		O	O
Chip cart with coolant drain	Rear discharge	O	O
Coolant gun		O	O
Oil mist collector		O	O
AUTOMATIC OPERATION SUPPORT			
Auto door		O	O
Automatic load & unloading system		–	O
Parts flipping device		–	O
SAFETY			
Fully enclosed guarding		S	S
Door interlock (incl. Mechanical lock)		S	S
Impact resistant viewing window		S	S
Chuck cylinder check valve		S	S
Low hydraulic pressure detection switch		O	O
Over travel (soft limit)		S	S
Load monitoring function		S	S
OTHERS			
Tri-color machine status light tower		S	S
Work light		S	S
Electrical cabinet	Heat exchanger	S	S
	A/C cooling system	O	O
Complete hydraulic system		S	S
Advanced auto lubrication system		S	S
Emergency maintenance electrical part package		S	S
Operation & maintenance manuals		S	S

Specications are subject to change without notice .

FANUC CONTROL FUNCTIONS		0i-TF	31i
Display	8.4" color LCD	S	O
	10.4" color LCD	S*1	S
Graphic function	Standard	S	S
	Dynamic	O	O
Part program storage size	512K bytes	S	–
	1M bytes	S*1	S
	2M bytes	O	O
	4M bytes	–	O
	8M bytes	–	O
Registerable programs	400	S	–
	1,000	O	S
	4,000	–	O
Tool offset pairs	99	–	S
	128	S	–
	200	O	O
	400	–	O
	499	–	O
	999	–	O
	2000	–	O
Servo HRV control	HRV 3	S	S
Automatic data backup		S	S
Synchronous / Composite control		O	O
Superimposed Control*1		O	O
Inch / metric conversion		S	S
Polar coordinate interpolation		S	S
Cylindrical interpolation		S	S
Multiple repetitive cycle		S	S
Rigid tapping		S	S
Unexpected disturbance torque detection function		S	S
Spindle orientation		S	S
Constant surface speed control		S	S
Spindle speed fluctuation detection		S	S
Embedded macro		O	O
Spindle synchronous control		S	S
Background editing		S	S
Tool radius / Tool nose radius compensation		S	S
Multi-language display		S	S
Cs contouring control		S	S
Polygon turning		S	S
Helical interpolation		O	O
Direct drawing dimension programming		S	S
Thread cutting retract		S	S
Variable lead threading		S	S
Multiple repetitive cycle Ⅱ		S	S
Canned cycles for drilling		S	S
Synchronous / Composite / Superimposed control by program command*1		O	O
Tool nose radius compensation		S	S
Chamfering / Corner R		S	S
AI contour control Ⅰ		O	S
Multi part program editing*2		S	S
Manual handle retrace		O	O
Manual intervention and return		S	O
External data input		S	S
Addition of custom macro		S	S
Increment system C		S	S
Run hour & parts counter		S	S
Auto power-off function		S	S
RS-232 port		S	S
Memory card input / output (CF + USB)		S	S
Ethernet		S	S

*1 For GV-500X
*2 10.4" LCD option needed

MACHINE SPECIFICATIONS

CAPACITY	GV-500
Max. swing diameter	Ø 650 mm
Swing over saddle	Ø 520 mm
Max. turning diameter	Ø 620 mm
Std. turning diameter	Ø 325 mm
Max. turning height	520 mm
Chuck size	12" (Opt. 15")
SPINDLE	
Spindle bearing diameter	Ø 130 mm
Spindle nose	A2-8
Motor output (Cont. / 30 min.)	L : 11 / 18.5 kW ; H : 15 / 18.5 kW
Motor full output speed	L : 400 rpm ; H : 575 rpm
Spindle drive system	Belt
Spindle speed range	3,000 rpm
Spindle full output speed	L : 200 rpm ; H : 288 rpm
Spindle torque (Cont. / 30 min.)	L : 525 / 883 N-m ; H : 498 / 614 N-m
X & Z AXES	
Max. X-axis travel	350 mm
Max. Z-axis travel	550 mm
X / Z axes rapids	24 m/min.
Slide way type	Linear guide way
Feed rates	5 m/min.
X-axis servo motor	1.6 kW
Z-axis servo motor	3.0 kW
X-axis ball screw Ø / pitch	Ø 32 / 8 mm
Z-axis ball screw Ø / pitch	Ø 40 / 8 mm
X / Z axes thrust	644 / 958 Kgf
TURRET	
Stations	8 (Opt. 12)
Indexing drive	Servo motor
Indexing speed	0.2 sec. (Adjacent)
O.D. tool / I.D. tool shank size	□ 25 (Opt. □ 32) mm / Ø 50 mm
LIVE TOOLING TURRET (OPTIONAL)	
Stations	12
Live tooling drive motor	4.5 kW
Live tooling torque	22 N-m (Intermittent) AC Servo motor
Index speed	0.2 sec. Adjacent / 0.5 sec. 180 degree (Single step)
O.D. tool / I.D. tool shank size	□ 25 mm / Ø 40 mm
Live tooling shank size	ER 32
Live tooling RPM range	40 ~ 4,000 rpm
GENERAL	
Control	FANUC O*i*-TF
Voltage / Power requirement	AC 220 V / 40 KVA
Hydraulic / Coolant tank capacity	50 / 250 L
Coolant pump / pressure	Cutting Coolant : 0.48 kW / 10 Kg/cm² ; Washing Coolant : 0.76 kW / 5 Kg/cm²
Machine weight	GV-500 : 5,500 Kg GV-500X : 11,000 Kg
Dimensions (L × W × H)	GV-500 : 1,520 x 2,200 x 2,375 mm GV-500X : 3,100 x 2,200 x 2,375 mm

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THE ULTIMATE MACHINING POWER

GOODWAY®

GOODWAYCNC.com

GOODWAY MACHINE CORP.

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