THE ULTIMATE MACHINING POWER

GOODWAY®

GV-800 SERIES

Vertical CNC Turning Centers

GOODWAY MACHINE CORP.

HIGH PERFORMANCE VERTICAL CNC TURNING CENTER

With 30 Years of experience in the manufacture of lathes. Goodway are pleased to introduce our GV-800 CNC Vertical Turning Center, which combined ultra high power performance, super rigid construction and high speed machining. The GV-800 provides turning and milling capacity for the dynamic demands of todays market and onward into the future.

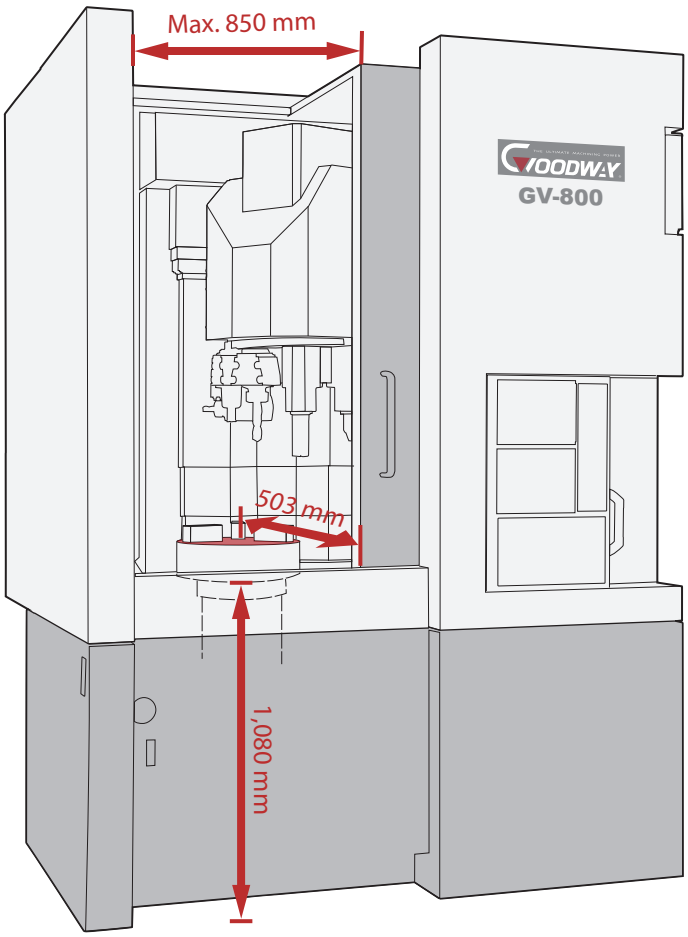
With a maximum turning diameter of 820mm by 650mm long, the GV-800 is ideal for the machining of large parts and heavy cutting conditions. The 'C' Axis and a live tooling turret enable " One Hit Manufacturing" of suitable components.

GV-800 SERIES

Model	GV-800	GV-800M
Max. swing diameter	Ø 850 mm	
Max. turning diameter	Ø 820 mm	
Max. turning length	650 mm	
Live tooling turret / C-axis	—	Std.

(GV-800M model shown with optional accessories)

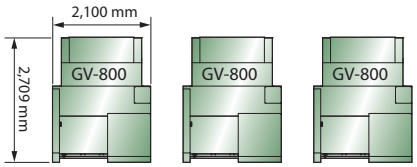
- Full surrounded guarding for a clean environment.
- The use of slide-way covers protect all the bed-ways.
- Environmentally friendly lube system provides the lubrication for the slide-ways and ball-screws.
- Machine Design is based on Ergonomics, all so known as Human Factor Engineering is the science of refining the design of products to optimise machine for human use. This principle has been fully integrated into the design, from the ease of operation to the compact floor space, which gives a floor space saving of up to 50% over a conventional turning center design.



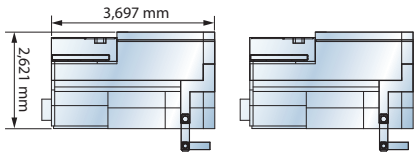
- Designed for the easy loading of parts, the spindle nose to floor = 1,080 mm & the spindle center line to the operator door = 503 mm

The compact body design and working area make the GV-800 Foot Print one of the smallest in its class.

*only **5.7** m² floor space*



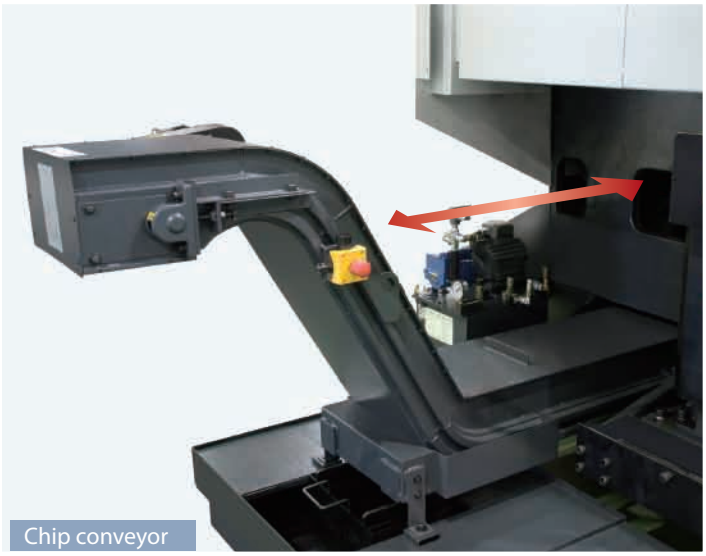
Vertical turning centers



Horizontal turning centers

Coolant tank

- Easy maintenance independent coolant system and chip conveyor.



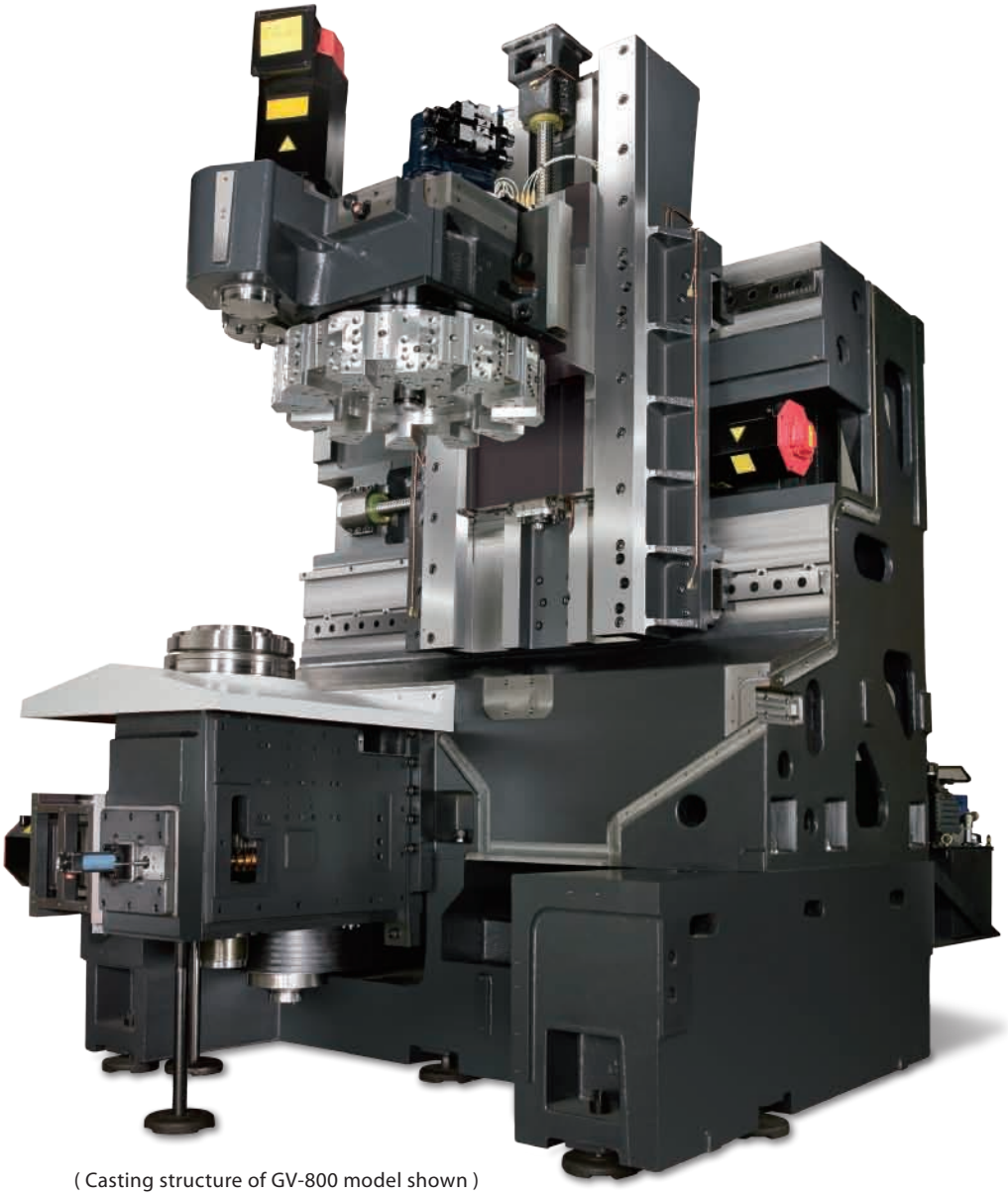
Chip conveyor

- The spindle gear box lubrication integrity is monitored by flow.

Flow Detector

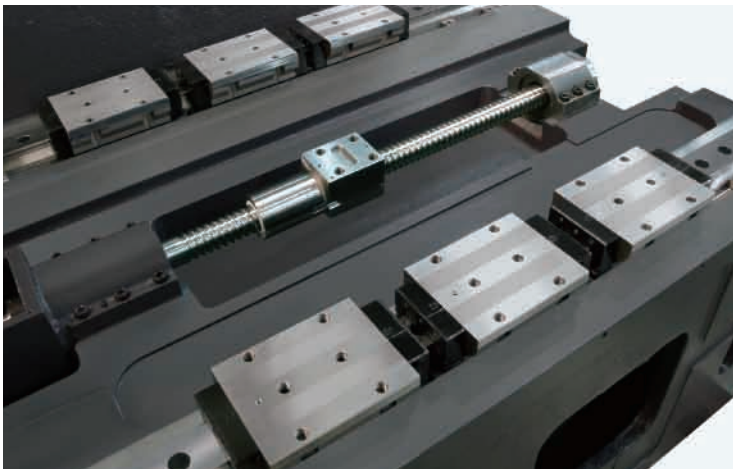
HIGH RIGID CONSTRUCTION

- The base and column construction has been made by computer generated design which has increased the stability by 30% over traditional design.
- Meehanite grade castings, rib and reinforced provide excellent stability, good thermal expansion and performance for the vertical column.



(Casting structure of GV-800 model shown)

- Fanuc alpha i series AC servo motors are fitted to all axes. The alpha i intelligent servo motor with its compact size and super high resolution αi series pulsecoder (standard 1,000,000/rev) are the perfect partner in this machine tool.
- X & Z axes motors are fitted with absolute encoders thus eliminating the need for reference returning the axis before machining.

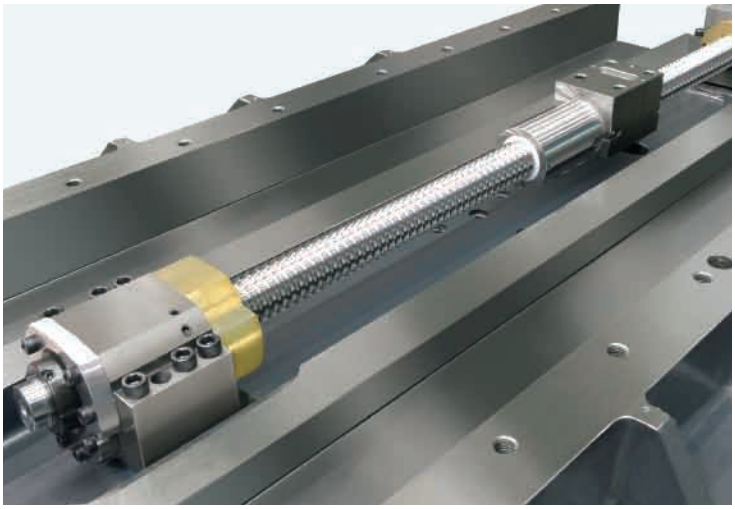


X Axis Linear Rails

- Japan made linear rails (roller type) provide excellent stability in operation.

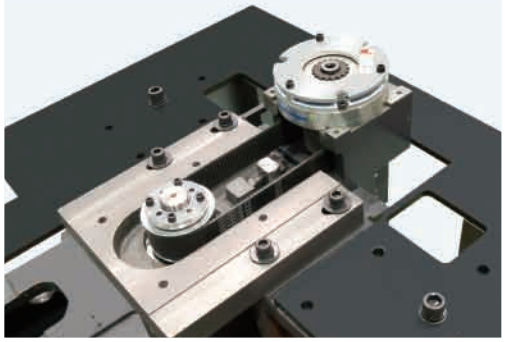
Ball Screws

- C3 class ball screws (with a pitch accuracy of 12.7μ / 300 mm) are fitted with pre-load to X and Z axes.

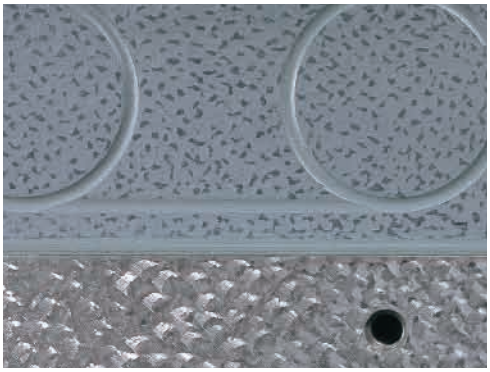


Built for Safety

- The Z axis is fitted with an independent Japan made brake system.

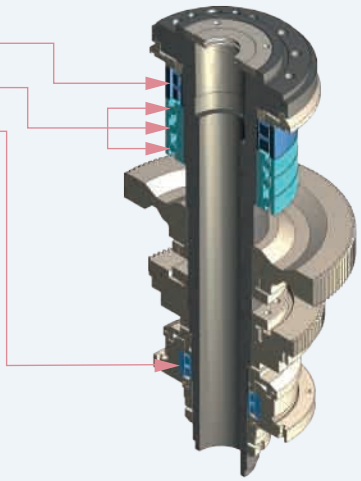


- Contact surfaces of all slide, turret and ball screw bearing housings with the machine bed are precision hand scraped to provide maximum assembly precision, structural rigidity, and load distribution.



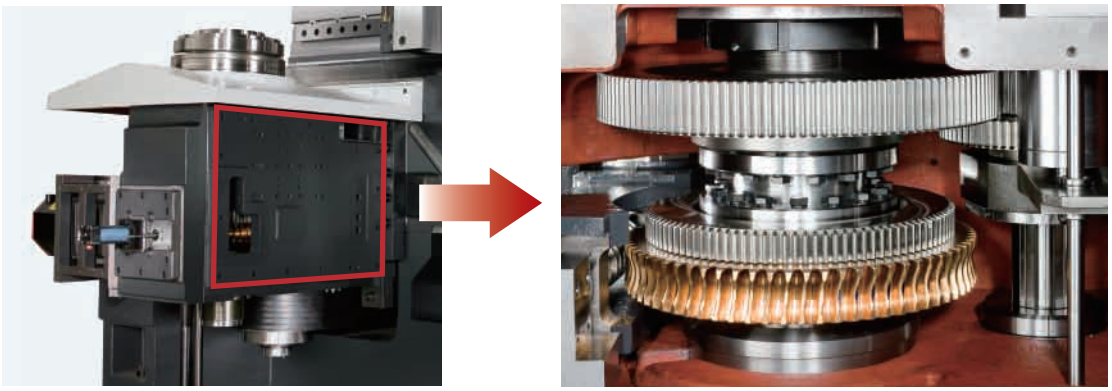
ULTIMATE TURNING POWER

- Bearing configuration : Front – Double roller × 1
  Angular contact × 3
  Rear – Double roller × 1



- P4 grade (Class 7) super-high precision bearings are directly assembled for maximum level of support and precision. Bearing configuration is designed for super heavy-duty cutting with ultra-smooth performance and long term durability with a higher level of accuracy.

- The 2-step gear box produces 30 Kw of output.
- With over 3,138 N-m of torque available on the low speed of the 2-speed gear head, turning tough material with big diameter is now a simple task.



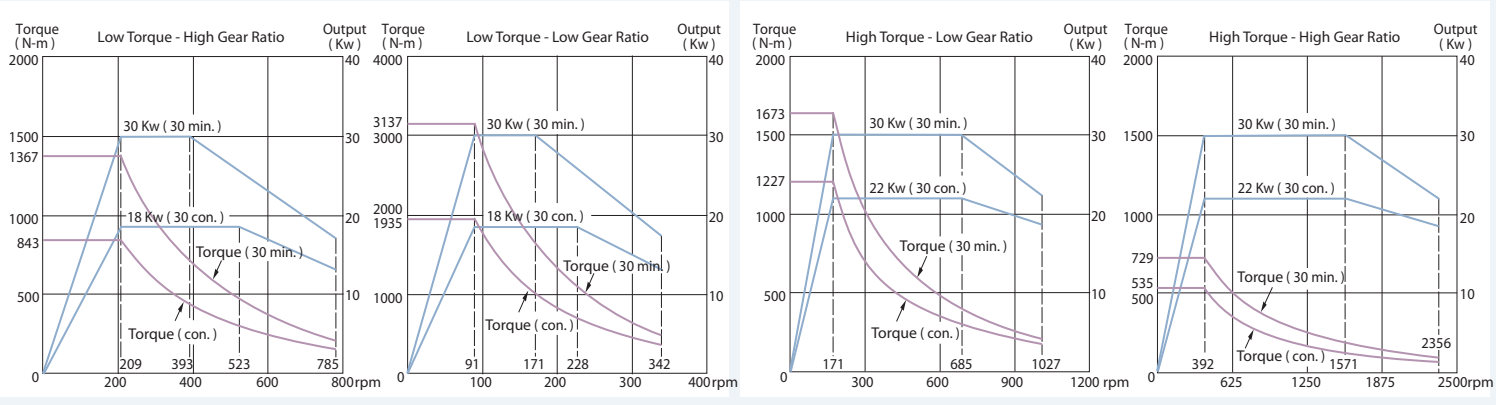
- Generating twice the torque output of standard motors, the A/C, constant output, wide-range Fanuc α P60 high-torque i series motor is rated at 30 KW (40 HP, Peak). This doublewound motor is designed to reach full output at 1/2 the RPM of standard motors, providing the ability to take heavier cuts in the lower RPM ranges.

- Standard spindle orientation feature allows the spindle to stop at desired programmed position. Useful in broaching and manual part loading applications where a fixed spindle position is required.

Work Piece Shown

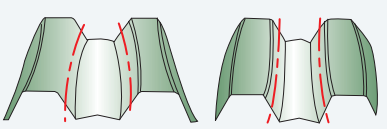
Flywheel	Brake disc	Wheel	Gear Box Body
			
Carbon Cast Iron	Cast Iron	Aluminium	Cast Iron

Spindle motor output

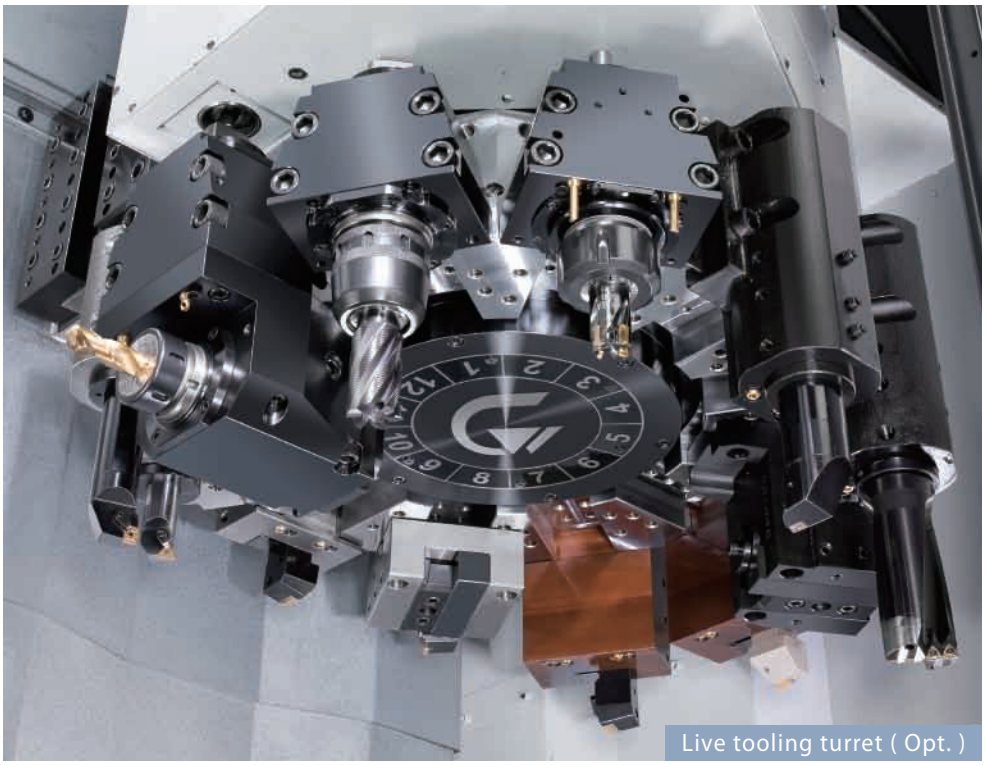


ADVANCED TURRET TECHNOLOGY

- The index position of the turret is by the large 320mm Diameter Curvic Coupling.
- Available with straight and 90° Live Tooling Tool Holder.
- Live tooling drive by Fanuc Servo Motor.



Curvic Coupling

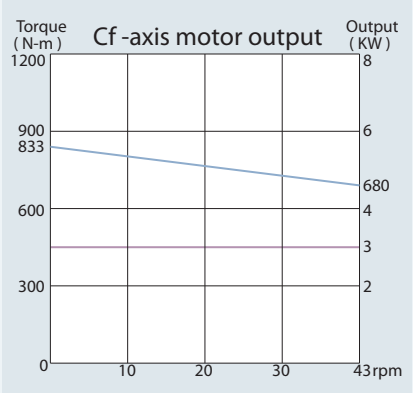


Live tooling turret (Opt.)

ADVANCED TURRET TECHNOLOGY

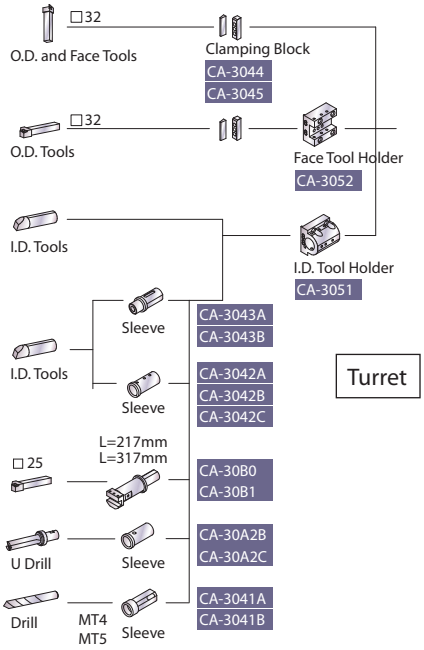
- GV-800 Cf-axis with Fanuc αi Servo Motor with Fanuc 1.0 million pulse super high resolution αi series pulsecoder provides ultimate performance for the C axis and with worm-gear drive an accuracy of 0.001° can be attained.
- Working with the live tooling turret, the Cf-axis and disk brake system enables the machine to perform multiple tasks, such as drilling, tapping, and milling operations, including cylindrical and polar coordinate interpolations, resembling a 4th-axis rotary table on a machining center.

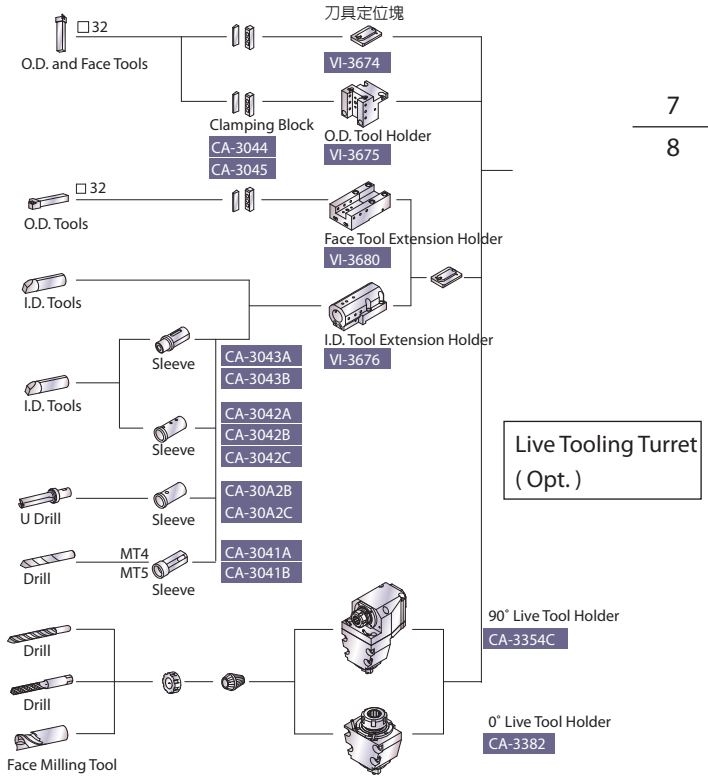
Worm gear transmission system



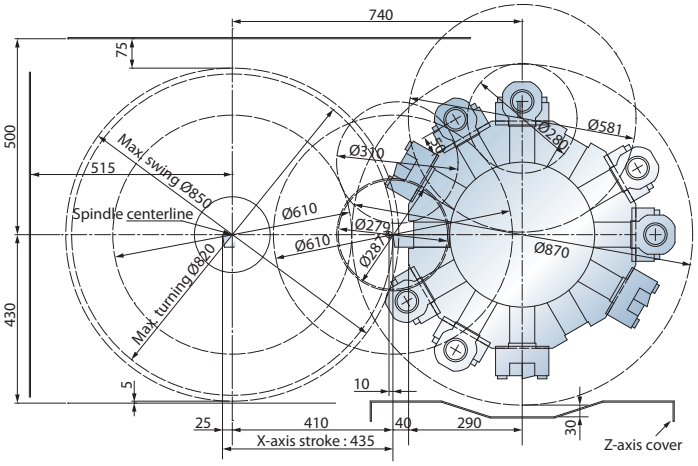
- With the Fanuc servo motor generating an ultra high resolution of 1.0 million pulses per spindle rotation and 833 N-m (614 ft-lb.) of spindle torque (Con.), machined surface finishes are much superior than Cs-axis (driven by spindle motor) equipped machines. Plus, dynamic accuracy is within ± 0.02° even under heavy cutting loads.

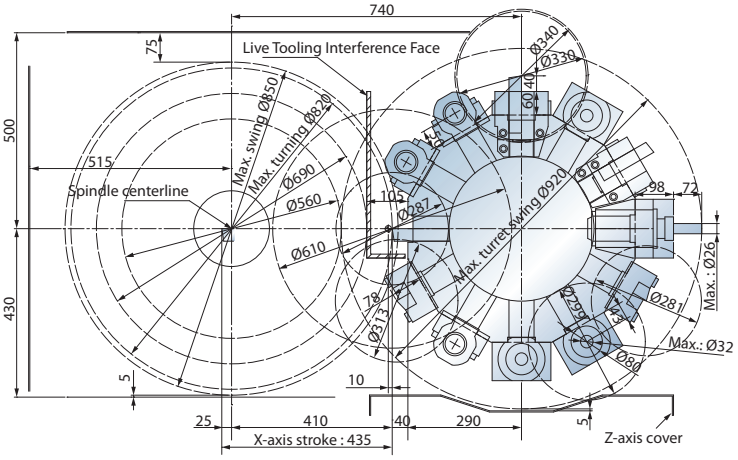
Tooling System





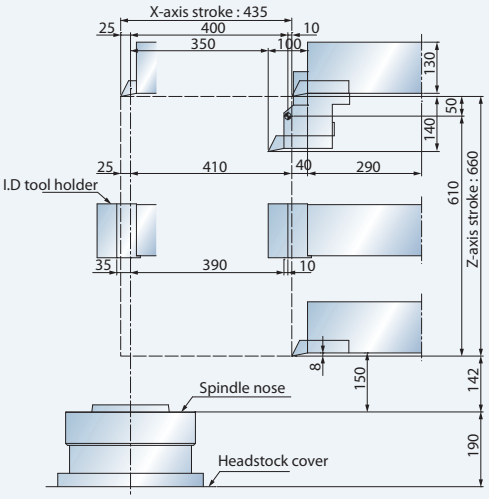
Interference Diagram

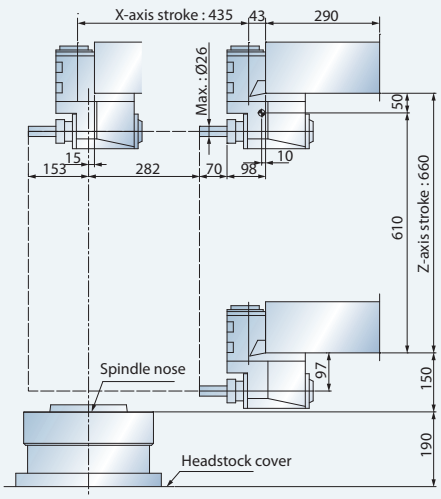


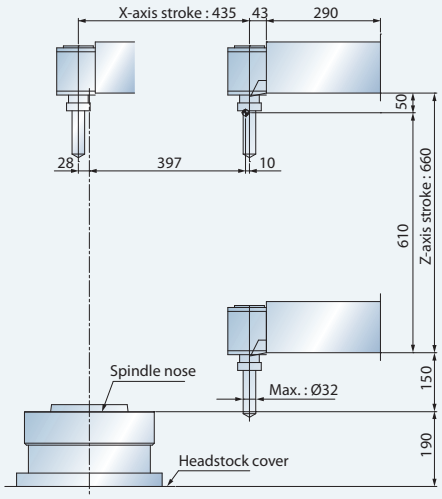


Unit : mm

Work Range







FEATURES

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

		GV-800
SPINDLE		
Main spindle configuration	Two-speed	S
Rigid tapping		S
Cf-axis & disk brake for main spindle		O
WORK HOLDING		
Solid 3-jaws chuck & hydraulic solid cylinder for chuck	15"	S
	18"	O
	24"	O
Manual chuck		O
Hard jaws	1 set	O
Soft jaws	1 set	S
Collect chuck		O
Special work holding chuck		O
Foot switch for chuck operation	Single	S
	Double	O
TURRET		
12-station turret		S
12-station live tooling turret		O
Tool holder & sleeve package		S
Live tooling tool holders		O
MEASUREMENT		
Goodway tool presetter	Hydraulic drive arm	O
COOLANT		
Coolant pump	5 Kg/cm²	S
High-pressure coolant system	20 Kg/cm²	O
Roll-out coolant tank		S
Oil skimmer		O
Coolant flow switch		O
Coolant level switch		S
Coolant intercooler system		O
CHIP DISPOSAL		
Chip conveyor with auto timer		O
Chip cart with coolant drain	Rear discharge	O
Coolant gun		O
Oil mist collector		O
AUTOMATIC OPERATION SUPPORT		
Auto door		O
SAFETY		
Fully enclosed guarding		S
Door interlock (incl. Mechanical lock)		S
Impact resistant viewing window		S
Chuck cylinder check valve		O
Low hydraulic pressure detection switch		O
Over travel (soft limit)		S
Load monitoring function		O

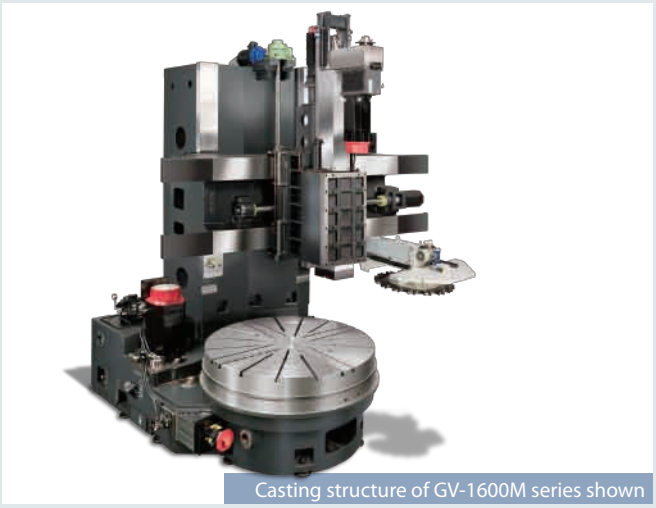
		GV-800
OTHERS		
Tri-color machine status light tower		S
Work light		S
Electrical cabinet	Heat exchanger	S
	A/C cooling system	O
Complete hydraulic system		S
Advanced auto lubrication system		S
Emergency maintenance electrical part package		S
Operation & maintenance manuals		S

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

FANUC CONTROL FUNCTIONS		0*i*-TD	18*i*-TB
PMC system	SB7: 0.033 μ sec/step	S	S
Display	8.4" color LCD	S	–
	10.4" color LCD	O	S
Graphic function		O	S
Full keypad	Small - 44 key	S	–
	large - 56 key	–	S
Part program storage length	640m	S	O
	1,280m	–	S
	2,560m	–	O
Registerable programs	400	S	S
	1,000	–	O
Tool offset pairs	64	S	S
	99	–	O
	400	–	O
	999	–	O
Servo control	HRV2 (3)	S	S
Conversational programming	Manual Guide O*i*	S	–
	Manual Guide *i*	–	S
	CAP *i*-T	–	O
Servo motors	Beta *i*	–	–
	Alpha *i*	S	S
Spindle motors	Beta *i*	–	–
	Alpha *i*, *i*P	S	S
Run hour & parts counter		S	S
Auto power off function		S	S
Custom macro B		S	S
RS-232 port		S	S
Memory card input/output		S	S
Ethernet		–	S
Fast ethernet		O	O

More

Vertical Multi-Axis Turning Center



Casting structure of GV-1600M series shown

CAPACITY	**GV-1200**	**GV-1600**
Table diameter	Ø 1,250 mm	Ø 1,600 mm
Max.turning diameter	Ø 1,350 mm	Ø 1,800 mm
Max.turning length	1,300 mm	1,300 mm
Max.weight load	5,000 Kg	8,000 Kg
SPINDLE		
Spindle bearing diameter	Ø 423 mm	Ø 580 mm
Spindle motor type	Fanuc α 40 / 3,000*i*	
Motor output (Con. / 30 min.)	37 / 45 Kw	
Spindle speed range	25 ~ 350 rpm	25 ~ 250 rpm
Spindle full output speed	25 rpm	18 rpm
Spindle torque (Con. / 30 min.)	14,316 / 17,411 N-m	20,128 / 24,480 N-m
TOOL SPINDLE		
Spindle bearing diameter	Ø 90 mm	
Spindle motor type	Fanuc α 8 / 8,000*i*	

MACHINE SPECIFICATIONS

CAPACITY	GV-800
Max. swing diameter	Ø 850 mm
Max. turning diameter	Ø 820 mm
Std. turning diameter	Ø 330 mm
Max. turning length	650 mm
Hydraulic chuck size	15" ~ 24" (Opt.)
SPINDLE	
Spindle bearing diameter	Ø 160 mm (Front) ~ Ø 120 mm (Rear)
Spindle nose	A2-11
Spindle motor type	Fanuc α P60 / 4,500i (AC / Wide-range)
Motor output (Con.)	22 Kw
Motor output (30 min.)	30 Kw
Motor full output speed	400 rpm
Spindle drive system	Belt + Gear
Gear Step	2
Spindle speed range	20 ~ 2,000 rpm (15" , 18" chuck) 15 ~ 1,500 rpm (21" , 24" chuck)
Spindle full output speed	91 rpm
Spindle torque (Con.)	1,935 N-m
Spindle torque (30 min.)	3,138 N-m
X & Z AXES	
Max. X-axis travel	435 mm
Max. Z-axis travel	660 mm
X / Z axes rapids	24 / 20 m/min.
Slide way type	Z : box way / X : linear guide way
Feed rates	5 m/ min.
X-axis servo motor	4.0 Kw
Z-axis servo motor	6.0 Kw
X-axis ball screw Ø / pitch	Ø 45 / 12 mm
Z-axis ball screw Ø / pitch	Ø 45 / 10 mm
X / Z axes thrust (Con.)	1,173 / 2,438 Kgf

Specifications are subject to change without notice.

TURRET	GV-800
Stations	12
Indexing drive	Hydraulic index motor (opt. servo motor)
Indexing speed	1.5 sec. Adjacent
OD tool shank size	□ 32 mm
ID tool shank size	Ø 60 mm
LIVE TOOLING TURRET (OPTIONAL)	
Stations	12
Live tooling stations	12 (rotate in working position only)
Live tooling drive motor	3.7 / 5.5 Kw
Live tooling torque	59 N-m [Con.] / 88 N-m [Interminttent.]
Index speed	1.5 sec. (Adjacent)
OD tool shank size	□ 32 mm
ID tool shank size	Ø 60 mm
Live tooling shank size	ER 50 / ER 40 (0˚/ 90˚)
Live tooling RPM range	3,000 rpm
Cf AXIS	
Cf-axis drive motor	3.0 Kw
Cf-axis drive ratio	1 / 70
Cf speed range	30 rpm
Cf-axis torque output (Con.)	833 N-m
Indexing angle	± 0.02˚
Dynamic accuracy	± 0.01˚
GENERAL	
Control	Fanuc Oi-TD
Voltage / Power requirement	AC 200 / 220 + 10% to -15% 3 phase / 58 KVA
Hydraulic / Coolant tank capacity	20 / 250 L
Coolant pump / pressure	Cutting Coolant : 0.48 Kw / 10 Kg/cm^2 ; Washing Coolant : 0.76 Kw / 5 Kg/cm^2
Machine weight	12,500 Kg
Dimensions L × W × H	2,760 x 2,100 x 2,945 mm

Motor output (Con. / 30 min.)	7.5 / 11 Kw	
Spindle speed range	24 ~ 2,400 rpm	
Motor full output speed	450 rpm	
Spindle torque (Con. / 30 min.)	159 / 233 N-m	
X & Z AXES		
Max. X-axis travel	935 mm	1,160 mm
Max. Z-axis travel	900 mm	
X / Z axes rapid	12 / 10 m/min.	
Feed rates	5 m/ min.	
X-axis servo motor	7.0 Kw	
Z-axis servo motor	6.0 Kw	
X & Z axes ball screw Ø / pitch	Ø 63 / 10 mm	
X / Z axes thrust (Con.)	1,922 / 2,437 Kgf	
Cf AXIS		
Cf - axis drive motor	3.0 Kw	
Cf - axis speed range	13 rpm	9 rpm
Cf - axis torque output (Con.)	2,500 N-m	3,500 N-m
MAGAZINE		
Stations	16	
Tool Size	BT-50	
Max. tool size	280 x 150 x 400 mm	
Max. tool weight	50 Kg	
GENERAL		
Control	Fanuc Oi-TD	
Voltage / Power requirement	AC 200 / 220 + 10% to -15% 3phase / 100 KVA	
Hydraulic / Coolant tank capacity	130 / 400 L	
Machine weight	23,500 Kg	25,500 Kg
Dimensions L × W × H	3,660 x 3,870 x 5,395 mm	3,860 x 4,128 x 5,395 mm

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