GV-780 SERIES

Ultra Performance Vertical CNC Turning Centers

THE ULTIMATE MACHINING POWER

GV

GOODWAY VERTICAL TURNING CENTERS

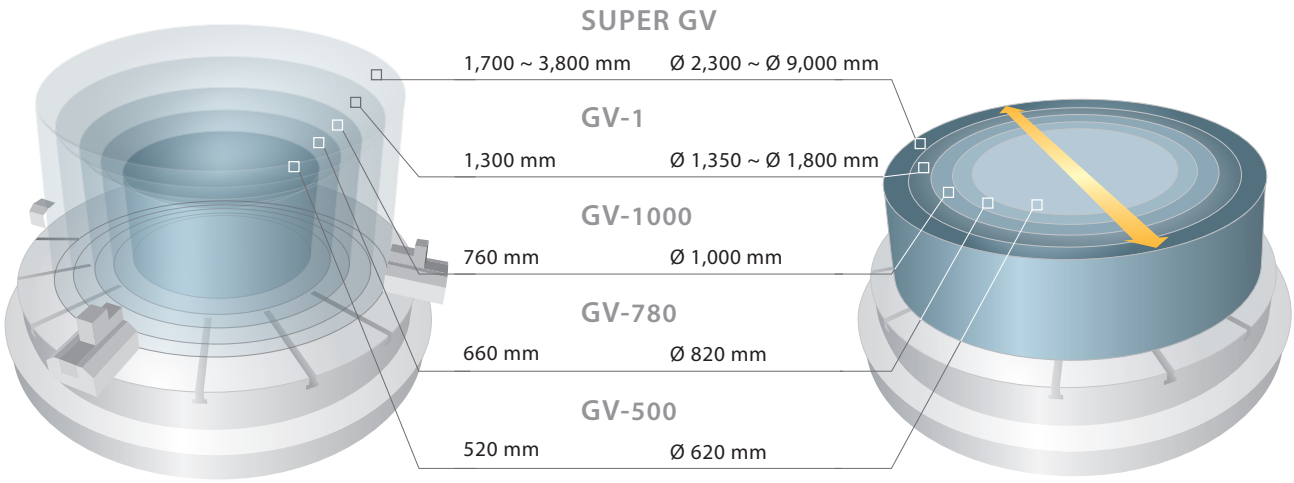
TRUSTWORTHY MACHINES GO BEYOND EXPECTATIONS

With 40 years of trust and faith from each of our customers, you can now hold on to the present and future by experiencing Goodway's latest state-of-the-art vertical turning center.

The all new SUPER GV series, gives you more than you can imagine.

Max. Turning Length

Max. Turning Diameter



ULTRA PERFORMANCE VERTICAL CNC TURNING CENTER

Packed with the latest machine tools technology and high precision turning capabilities, the GOODWAY GV-780 series ultra performance vertical CNC turning center combines a super-rigidity structure and precision roller linear guideways with a servo indexing turret and powerful spindle (max. torque up to 1,050 N-m). These series features a compact machine size with heavy duty turning capabilities. The optional live tooling turret, C-axis, dual-face turning holders and work-piece balancing analyzer allows the GV-780 series to be able to complete turning, milling, drilling, tapping, dual-face machining and work-piece balancing analyzing in one single machine.

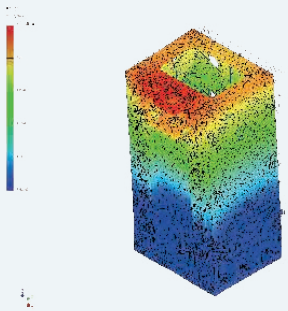
- Spacious machining range with advanced multi-tasking capabilities can meet the needs of all sorts of machining applications.
- The rear discharge type chip conveyor provides excellent chip removal efficiency while increasing floor space usage.

(GV-780 Model shown.)

Available with G. LINC intelligent system (OPT)

Available with Workpiece Balance Analysis (WBA) (OPT)

Available with live tooling turret and C-axis (OPT)



- By using Finite Element Methods (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-780 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 casting components are of " MEEHANITE " casting.

- X & Z axes uses high rigidity roller linear guideways which provides rigidity for heavy cutting and fast movement low abrasion advantages. The rigidity and controllability are greatly increased.

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

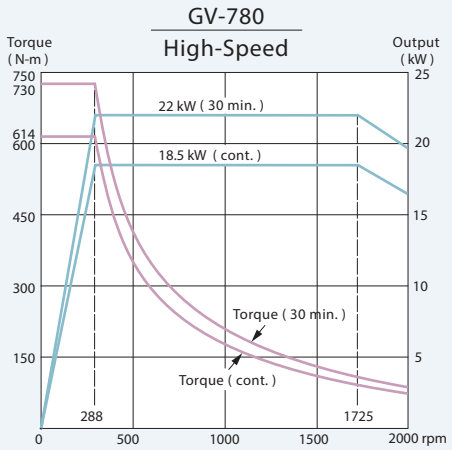
- Contact surfaces on the bed and column are precision hand scraped to provide maximum assembly accuracy, structural rigidity and load distribution.

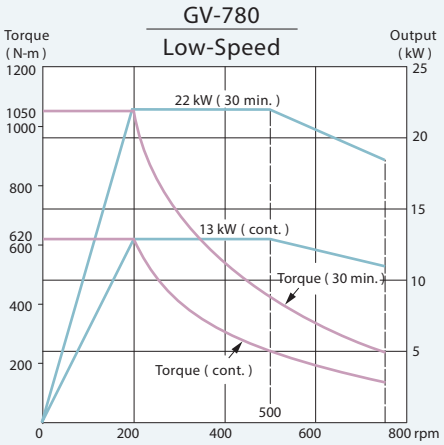
(Casting structute of GV-780 series model shown.)

ULTIMATE TURNING POWER

- P4 grade double row roller bearings and angular ball 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 A/C, constant output, wide-range FANUC α P40 series motor can generate twice the torque output of standard motors. This double bind 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.
- Maximum horse power can reach up to 22 kW (30 HP) [30 min.] which provides heavy cutting capabilities.

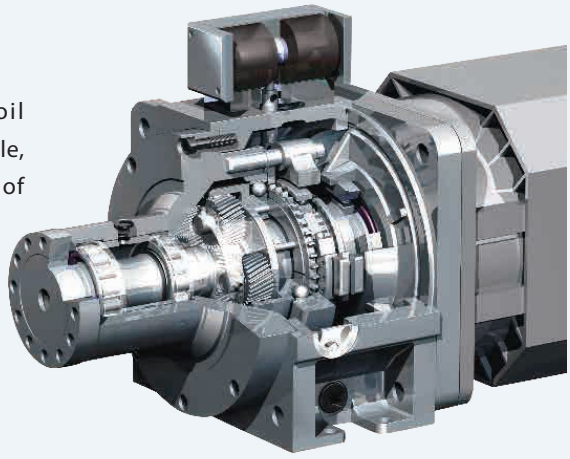
Spindle Output

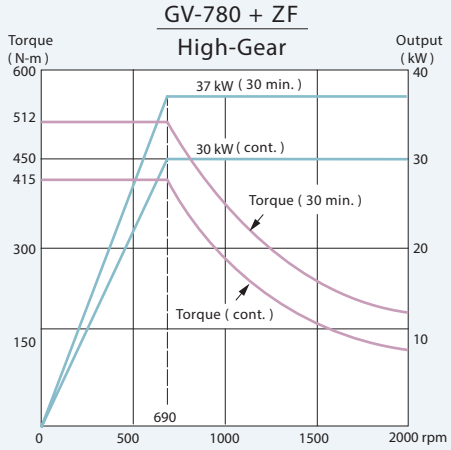


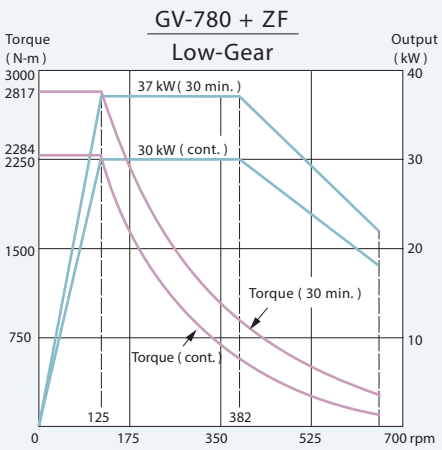


Optional ZF Gear Box Output

- Optional GERMAN made oil bath gear box is also available, providing maximum torque of 2,817 N-m.







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 flank which are superior to traditional curvic couplings and are greatly used in our products.

Optional Live Tooling Turret

- Live tooling turret and C-axis control capabilities on the GV-780 series allows the machine 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.
- Each station of the live tooling turret can be equipped with live tooling (live tooling tools rotate in working position only) and features a non-lifting turret disk.
- Goodway's live tooling turret utilizes advanced servo indexing technology to achieve 0.2 second indexing for adjacent stations and 0.5 second for stations at the opposite end of the disk.

Optional Dual-face Turning Holder

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 flexibility to various working conditions, overcoming hydraulic driven disadvantages, thus, saving tool adjustment time and increasing production efficiency.

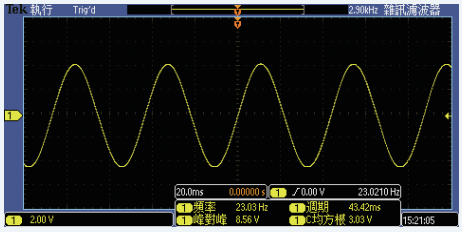
WORK-PIECE BALANCING ANALYZER (WBA)

High efficiency, High precision, Suitable for short / thin workpieces

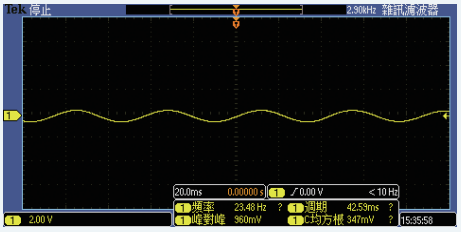
Increasing productive efficiency and streamlining operations have always been Goodway's research and development concept. The Goodway Work-piece Balancing Analyzer (WBA) is based on the developing foundation of our multi-tasking turning centers and University - Industry Cooperation. And now we combine them together to accomplish for a higher level of efficiency and streamlining.

The WBA is mainly applied to "Dissymmertical parts" and "work-pieces that needed to be balanced after machining" . The sensor installed inside the machine can pick up the vibration signal caused by the centrifugal force under high speed rotation from the work-piece. For dissymmertical parts, the machine is able detect the unbalanced position and weight and provide information for the user to design the appropriate tooling. For work-pieces that needed to be balanced after machining, by using our multi-tasking turning centers (more than 3 axes machines), the unbalanced position and weight can be detected online and be eliminated by the live tooling turret during the machining.

Before / After correction comparison chart



▶ Before WBA correction



▶ After WBA correction

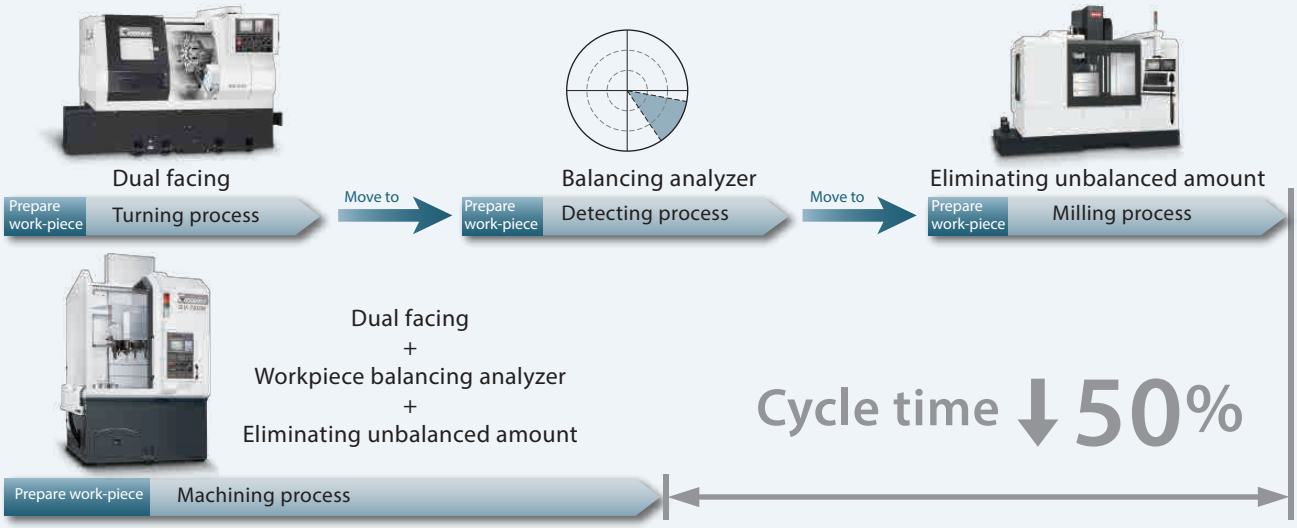
Vibration

↓88%

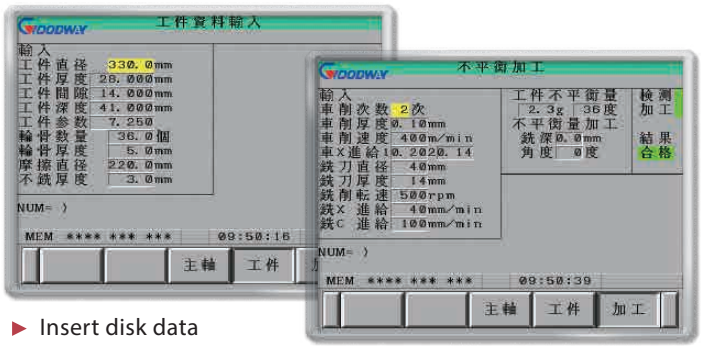
Applications

Take disk brake as an example, most companies use offline balancing analyzer method, which the machine needs to be stopped after the disk is finished, then move to the balancing analyzer for detection. When the detection is done, then move the disk to a machining center to eliminate the unbalance amount. It costs unwanted time by just loading and unloading the disk from one place to another, it can also cause accuracy error.

Therefore, we created the concept of installing the WBA into the vertical multi-tasking turning center. When the disk brake is finished, it can be evaluated online, then use C-axis to eliminate the unbalanced amount. This can save lots of loading and unloading time and also prevent accuracy error from the process. With the combination of the WBA and multi-tasking turning procedure, we can bring multi-tasking advantages into the next level.



The interface of the WBA can be customized based on customer's needs, which is easy to use. Take disk as an example, the standard work-piece only takes 2 minutes to setup. First insert the disk data, then insert machining parameters. After the setup is done, it only needs one button to begin the entire procedure (turning, detecting, milling) which the cycle time is only 3 ~ 4 minutes.



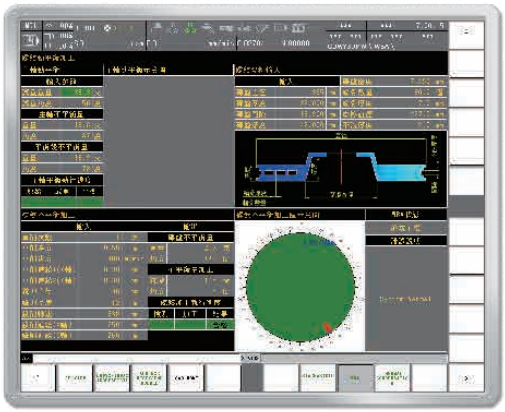
▶ Insert disk data

▶ Insert machining parameters

Work-piece balancing analyzing specifications

Capacity	WBA
Disk diameter	Ø 286 ~ 355 mm
Disk thickness	28 ~ 32 mm
Disk friction surface	60 mm
Correction method	Single side correction
Unbalance amount	1,650 ~ 14,850 g-mm
Sensitivity	0.001g
Balancing grades	ISO 1940, G2.5

Specifications are subject to change without notice.



▶ WBA displayed in G.LINC 350 (opt.)

G.LINC 350

Option

Makes Your Machine Smarter

- Advanced Hardware
- Outstanding Operability
- Streamlined Programming
- High Security and Shortened Machining Setting
- Reliable Continuous Operation
- Shortened Troubleshooting Time
- Improved Utilization Rate
- 3D cutting simulation preview

Significant Production Efficiency

General Production Process: Setting → Test-Run → Actual Production

Using 3D Simulation Inspection: Setting → Test-Run → Actual Production

Utilization Rate ↑ 30 %

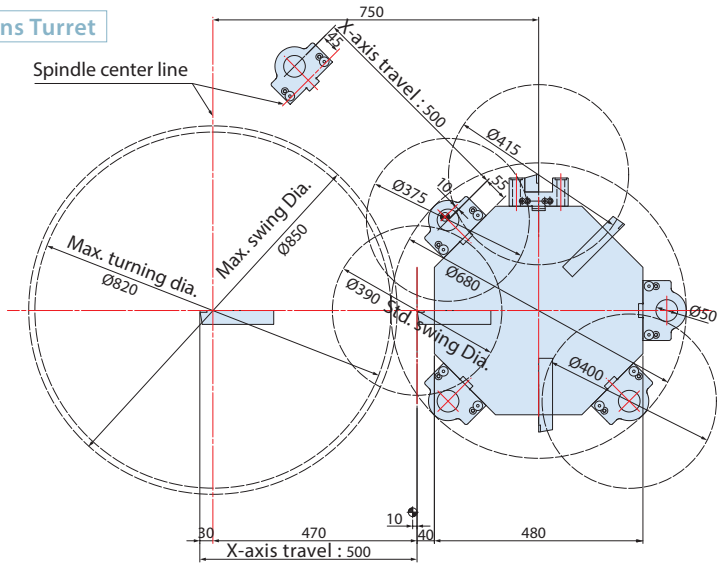
Comprehensive Functions

Programming	Setting	Test-Run	Actual Production	Daily Used
Dynamic graphic display	3D advance tool path and cutting simulation	Tool load monitor	Tool load monitor	Safety signal viewer
Program management		Program check	3D Real-time cutting simulation	Fast alarm check productivity
Friendly programing environment		Smart balance etection	Interference check (31*i* option needed)	Productivity management
Programming auxiliary		3D Real-time cutting simulation	Load monitoring	Twin operation system switch
Manual Guide *i*		Interference check (31*i* option needed)		Maintenance management
Embedded E-manual				NFC apply authority management and record

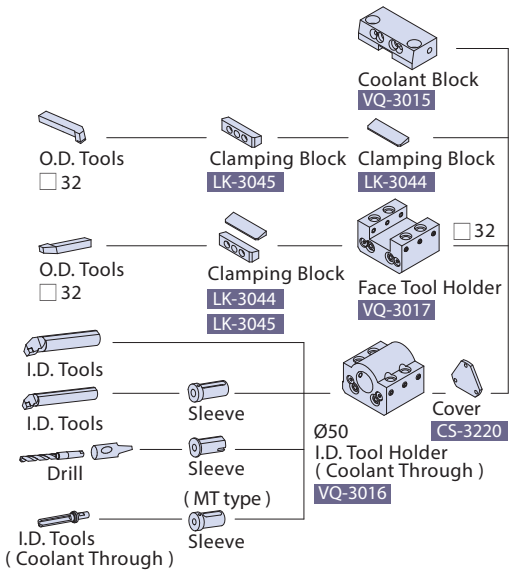
GENERAL DIMENSION Standard Turret

Interference Diagram

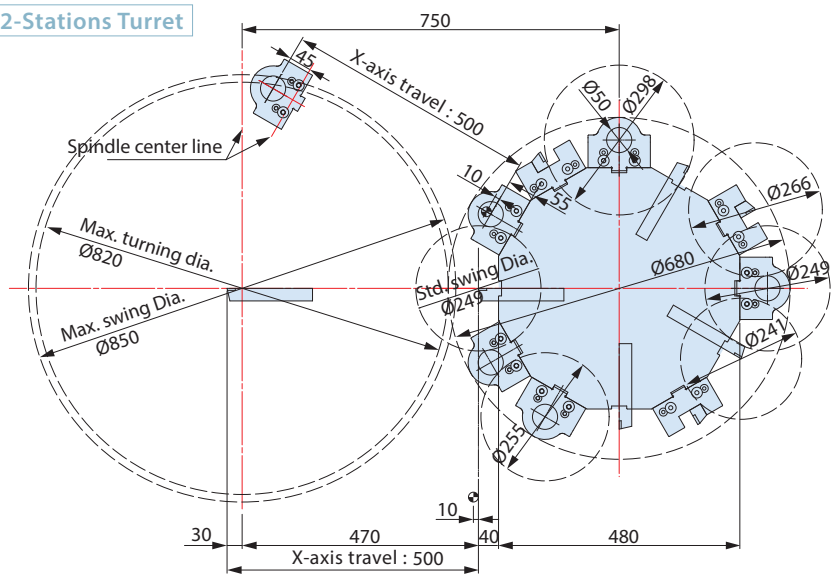
8-Stations Turret

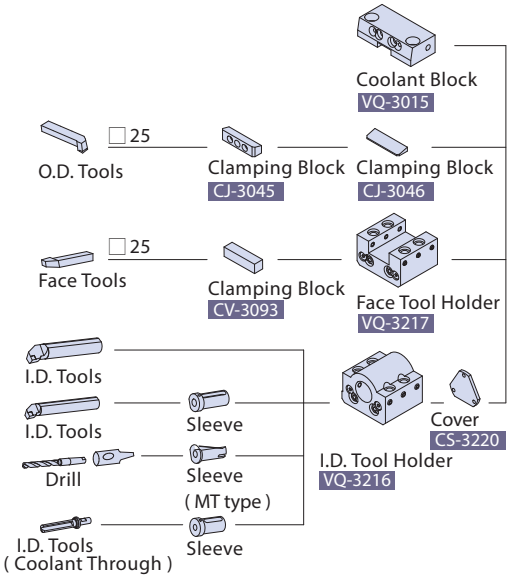


Tooling System



12-Stations Turret

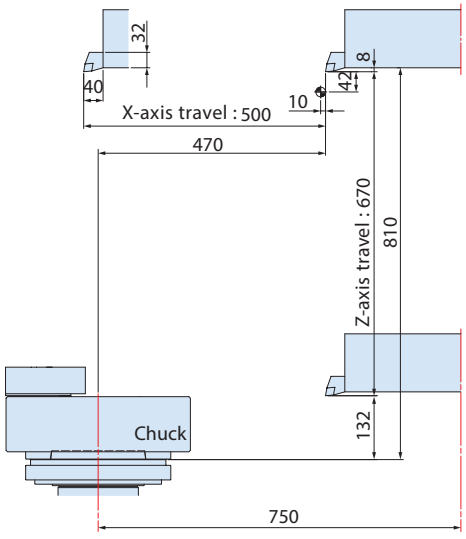




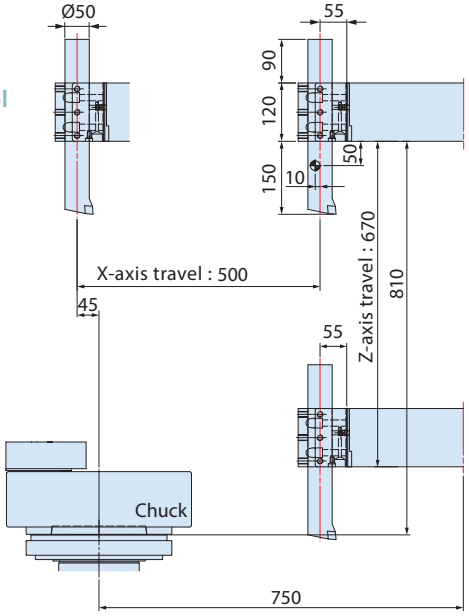
Work Range

8-Stations Turret / 12-Stations Turret

O.D. Tool



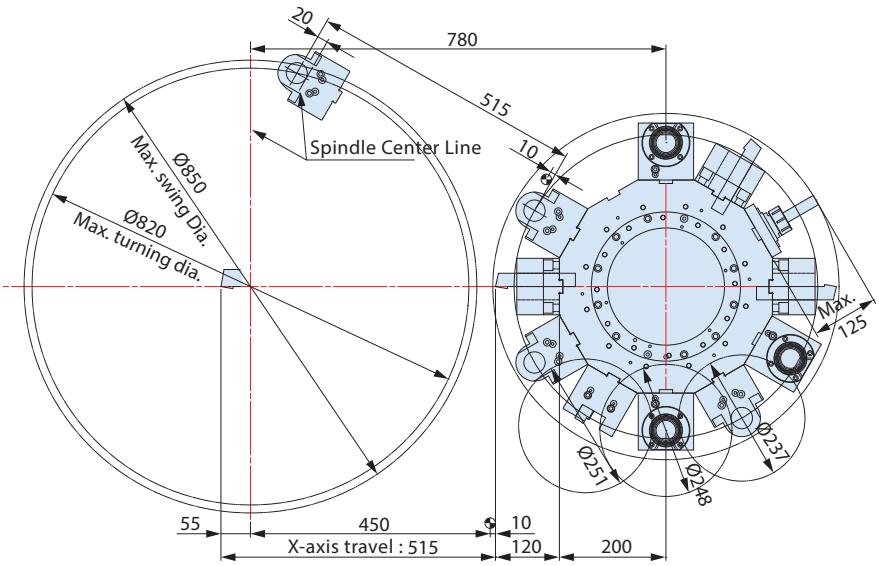
I.D. Tool



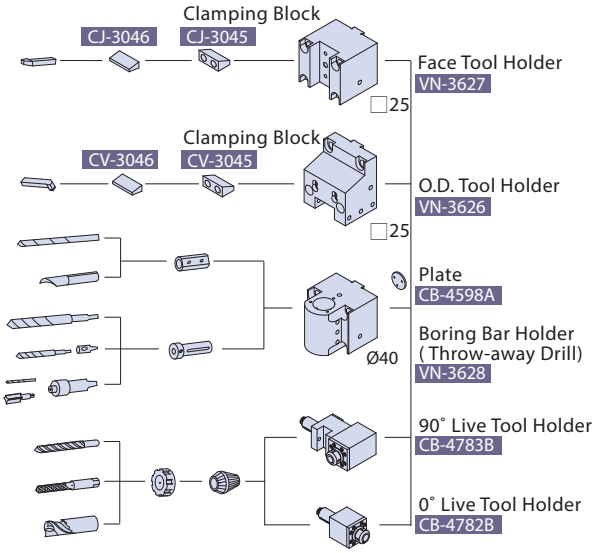
GENERAL DIMENSION Live Tooling Turret

Interference Diagram

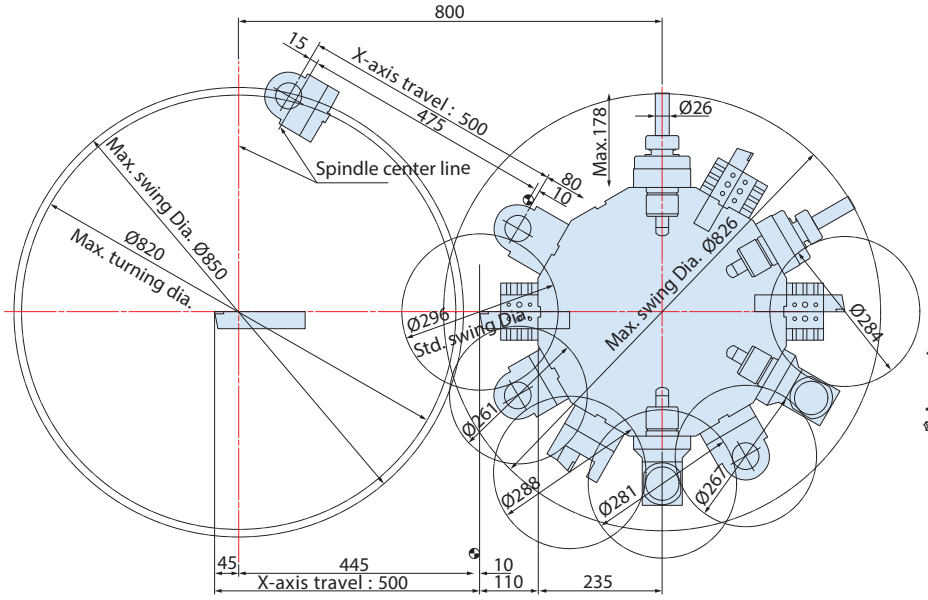
ER32

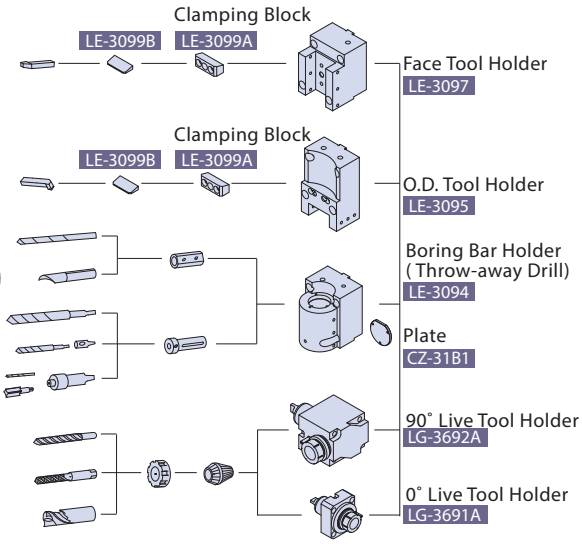


Tooling System



ER40



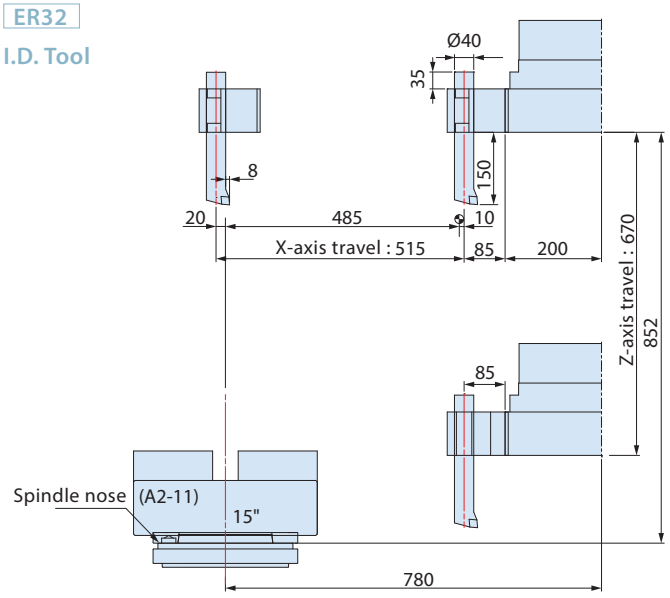


Unit : mm

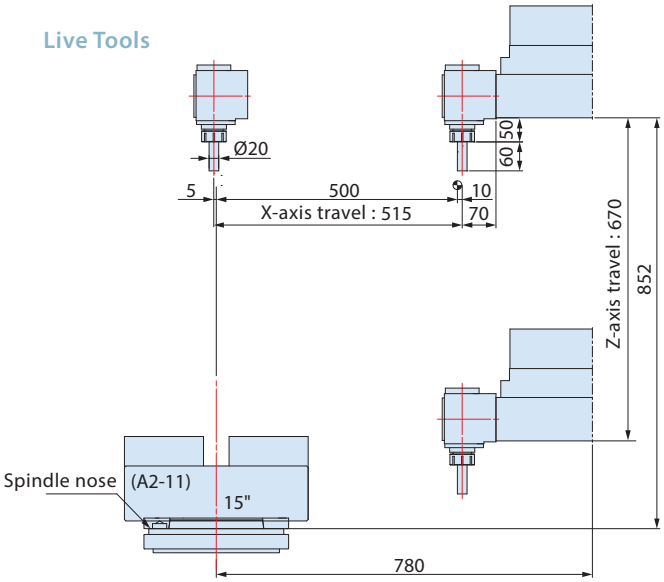
Work Range

ER32

I.D. Tool

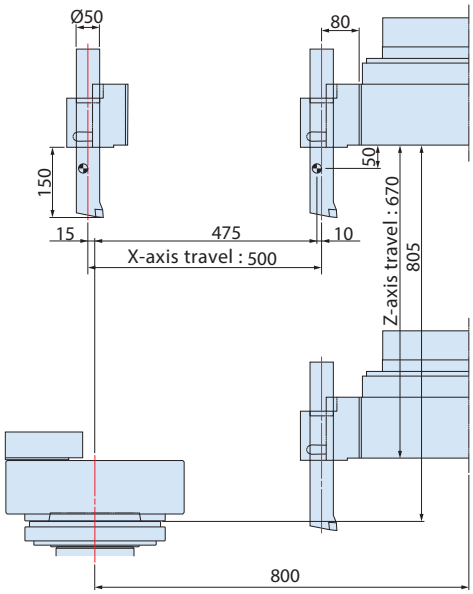


Live Tools

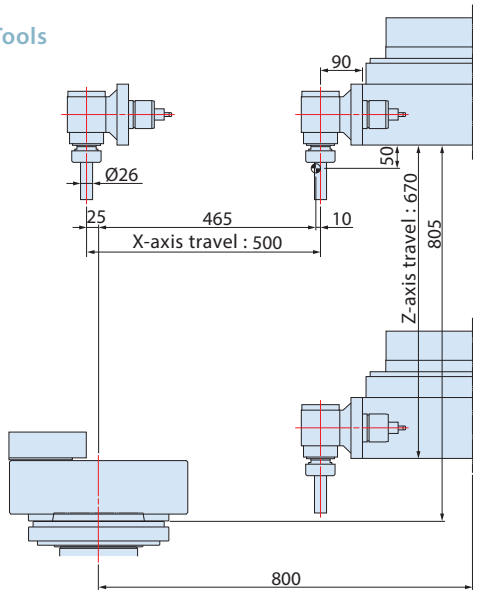


ER40

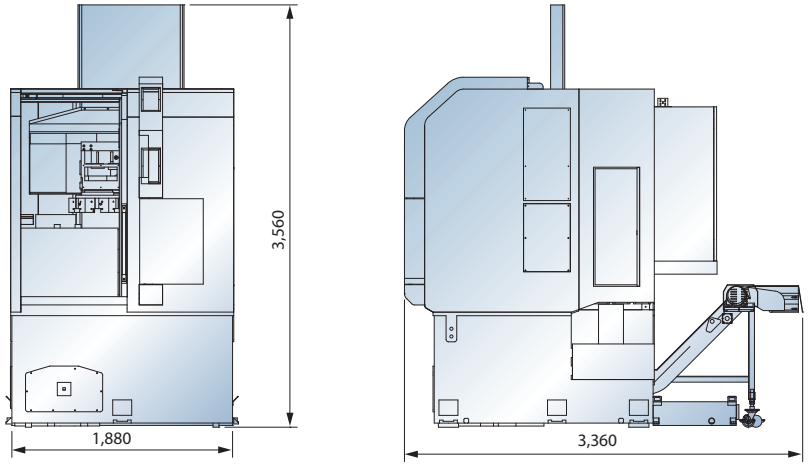
I.D. Tool



Live Tools



Machine Laylout



Unit : mm

STANDARD & OPTIONAL FEATURES

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

		GV-780
SPINDLE		
Main spindle configuration	Two-speed	S
ZF gear box		O
Rigid tapping		S
Cs-axis & disk brake for main spindle		O
WORK HOLDING		
Solid 3-jaws chuck & hydraulic solid cylinder for chuck	15"	S
	18"	O
Manual chuck		O
Hard jaws	1 set	O
Soft jaws	1 set	S
Special work holding chuck		C
Foot switch for chuck operation	Single	S
	Double	O
TURRET		
8-station turret		O
12-station turret		S
12-station live tooling turret		O
Tool holder & sleeve package		S
Dual-Face Turning Holder		O
Live tooling tool holders		O
MEASUREMENT		
Tool presetter		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 level switch		O
Coolant intercooler system		O
CHIP DISPOSAL		
Chip conveyor with auto timer		S
Chip cart with coolant drain	Rear discharge	O
Coolant gun		O
Oil mist collector		O
AUTOMATIC OPERATION SUPPORT		
Auto door		O
Automatic load & unloading system		—
Parts flipping device		—
SAFETY		
Fully enclosed guarding		S
Door interlock (incl. Mechanical lock)		S
Impact resistant viewing window		S
Chuck cylinder check valve		S
Low hydraulic pressure detection switch		O
Over travel (soft limit)		S
Load monitoring function		S
OTHERS		
Tri-color operation status signal light tower		S
Florescent 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

FANUC CONTROL FUNCTIONS		Oi-TF	31i
Display	8.4" color LCD	S	–
	10.4" color LCD	–	S
Graphic function	Standard	S	–
	Dynamic*1	O	S
Part program storage size Oi-TF : each path 31i : total	512K bytes	S	–
	1M bytes	–	S
	2M bytes	O	O
	4M bytes	–	O
	8M bytes	–	O
Registerable programs Oi-TF : each path 31i : total	400	S	–
	1,000	O	S
	4,000	–	O
Tool offset pairs Oi-TF : each path 31i : total	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
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
Spindle speed fluctuation detection		S	S
Embedded macro		O	O
Spindle synchronous control		S	S
Run hour and parts count display		S	S
Tool radius / Tool nose radius compensation		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
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 Dynamic graphic display conflict to MANUAL GUIDE *i*, only can choose one to have.
MANUAL GUIDE *i* is standard on 31*i* controller.

*2 10.4" LCD option needed

Specifications are subject to change without notice.

MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

CAPACITY	GV-780
Max. swing diameter	Ø 850 mm 33.46"
Swing over saddle	Ø 660 mm 25.98"
Max. turning diameter	Ø 820 mm 32.28"
Std. turning diameter	Ø 390 mm 15.35"
Max. turning length	660 mm 25.98"
Hydraulic chuck size	15" (Opt.18")
SPINDLE	
Spindle bearing diameter	Ø 160 mm 6.29"
Spindle nose	A2-11
Motor output (cont. / 30 min.)	18.5 / 22 kW 25 / 30 HP (30 / 37 kW 40 / 50 HP , Optional ZF Gear box)
Motor full output speed	575 rpm
Spindle drive system	Belt-drive
Spindle speed range	2,000 rpm
Spindle full output speed	288 rpm
Spindle torque (cont. / 30 min.)	620 / 1,050 Nm 457 / 774 lb-ft (2,817 Nm 2,077 lb-ft, Optional ZF Gear box)
X / Z AXES	
Slide way type	Roller linear guideways
Max. X-axis travel	500 (+10 ~ -490) mm 19.68" (+ 0.39" ~ -19.29")
Max. Z-axis travel	670 mm 26.37"
X / Z axes rapids	20 / 20 m/min. 788 / 788 IPM
X / Z axes servo motor	3 / 4 kW 4 / 5 HP
TURRET	
Stations	8 / 12 (Opt.)
Index speed	0.2 sec. (Adjacent)
O.D. tool shank size	□ 32 mm 1-1/4"
I.D. tool shank size	Ø 50 mm 2"
LIVE TOOLING TURRET (OPT.)	
Stations	12
Live tooling drive motor	4.5 kW 6 HP (Opt. 7 kW 9 HP)
Index speed	0.2 sec. Adjacent / 0.5 sec. 180 degrees (Single step)
O.D. tool shank size	□ 25 mm 1" (□ 32 mm 1-1/4")
I.D. tool shank size	Ø 40 mm 1-1/2" (Ø 50 mm 2")
Live tooling shank size	ER 32 (ER 40)
Live tooling RPM range	40 ~ 4,000 rpm (30 ~ 3,000 rpm)
DUAL-FACE TURNING HOLDER (OPT.)	
O.D. tool shank size	□ 20 mm 3/4"
Distance between tool holders	7 ~ 100 mm 0.27~3.93"
B-axis drive motor	0.75 kW 1 HP
Disk turning length	100 mm 3.93"
GENERAL	
NC Controller	FANUC Oi-TF
Dimensions (L x W x H)	1,880 x 3,360 x 3,560 mm 75" x 133" x 141"
Machine weight	9,000 Kg 19,900 lb

Specifications are subject to change without notice.

THE ULTIMATE MACHINING POWER

GOODWAY®

GOODWAY MACHINE CORP.

GOODWAYCNC.com

Official distributor for Benelux

THOLITEC

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