SHIGIYA

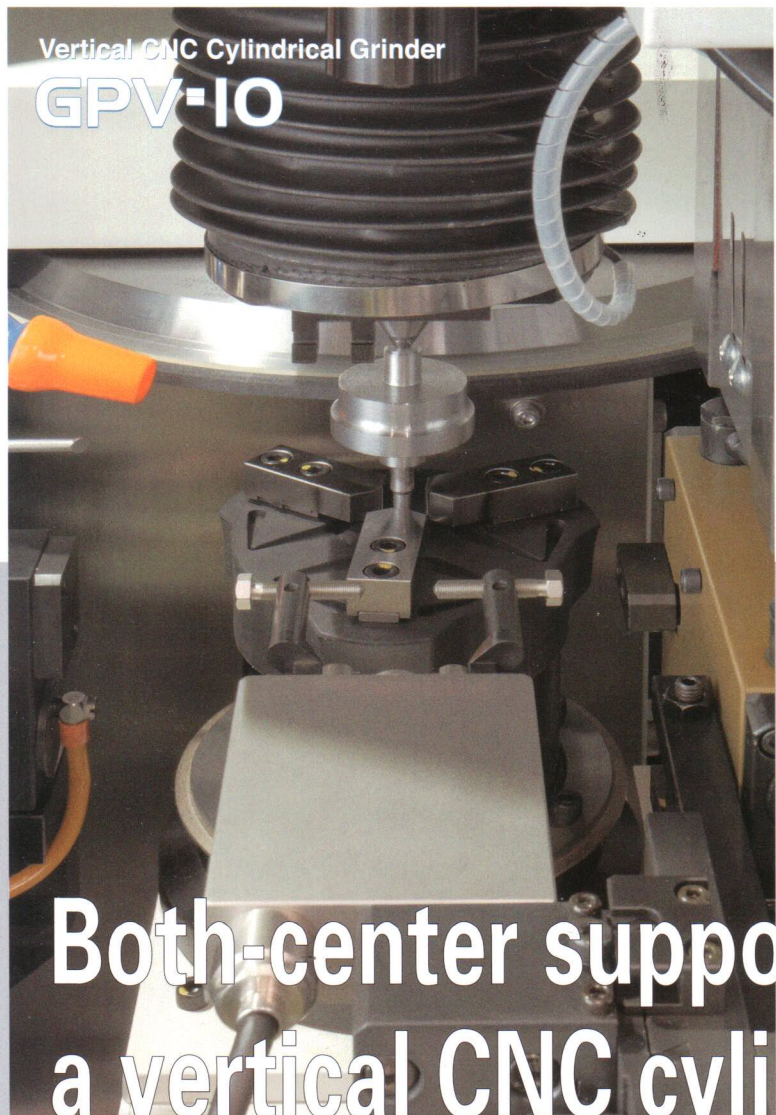
Vertical CNC Cylindrical Grinder

GPV-10

Vertical CNC Angular Cylindrical Grinder

GAV-10

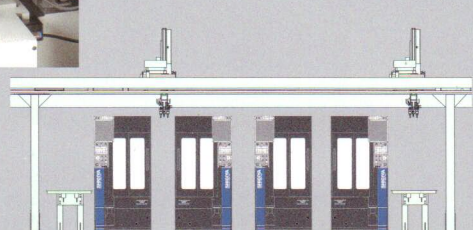
The GPV-10/GAV-10, developed with an eye to the next generation, will be the standard models for vertical CNC cylindrical grinders.



Both-center support in a vertical CNC cylindrical grinder, for optimum grinding of small workpieces.

■**Flexibly fits in various production line layouts.**
The concept of greater compactness contributes to reducing the space requirements for the production line.

Built-in loader



Gantry loader

GPV-10·20L　　GAV-10·20R

Robot

SHIGIYA

GPV-10·20R

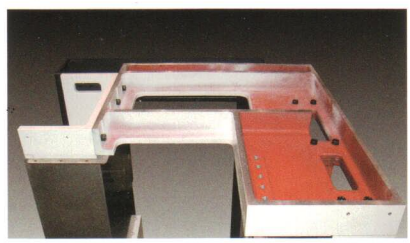
- indicates Type R: Right operation panel spec. / L : Left operation panel spec.
- indicates Distance between centers
- indicates Swing over table
- indicates Kind of machine GPV : Vertical CNC cylindrical grinder / GAV : Vertical CNC angular cylindrical grinder

■Innovative gate structure that ensures high quality and high precision grinding by thorough countermeasures against vibration, thermal displacement and noise, and easier maintenance.

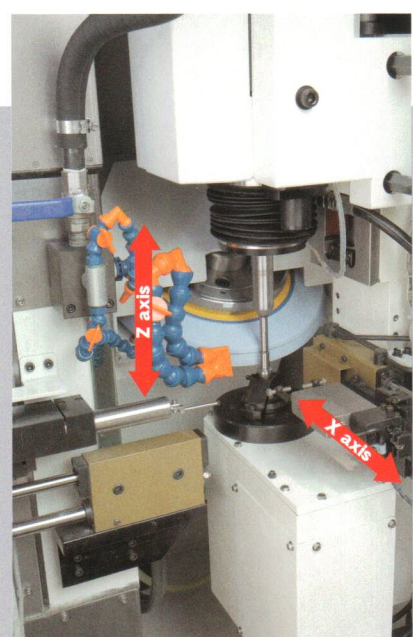
GAV-10·20R

●The machine in the photo differs from standard specifications.

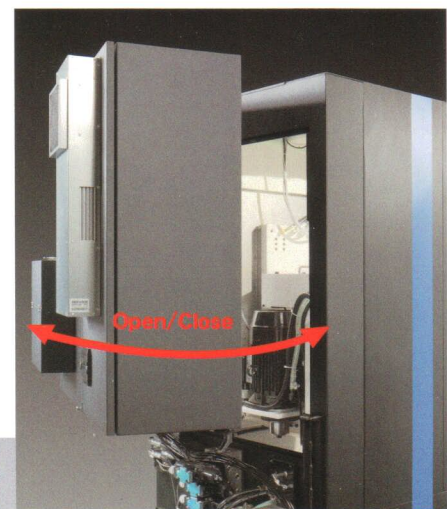
The wide opening allows for flexible automation of loading/unloading and easy maintenance.



Problems of existing column-type machine tools are solved by securely connecting the upper part of two columns with a top beam.



Infeed is performed by the table moving toward the wheel. High-rigidity type is selected for the guide. Mounted on the wheel side of the wheelhead is SHIGIYA's original non-concentric hydrodynamic bearing for the wheel spindle, which utilizes low temperature hydrodynamic bearing that keeps the processing heat relatively low by optimizing the bearing clearance and the wedge angle.



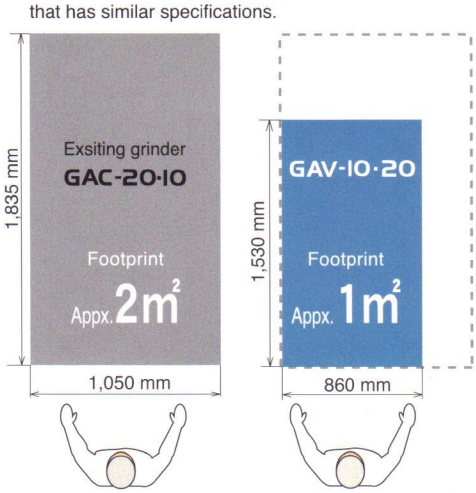
The electrical control panel hinged on the rear side can be swung open wide to secure enough working space for easy wheel change.

Wheel Changer (For GAV-10 only)

Our Wheel Changer promises smooth wheel change. Removal and attachment of the grinding wheel are performed by the vertical movement of an air cylinder, and the arm can be manually moved to back and forward with ease. Its improved design provides less operator fatigue and better workability. (The grinding wheel of GPV-10 is not angled and can be changed without using a changer.)

■Space-saving, compact design

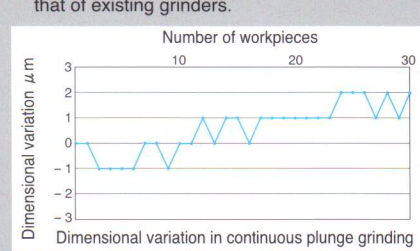
The footprint of main body is roughly half of that of the exsiting SHIGIYA GAC-20•10 (horizontal type) that has similar specifications.



■Superior rigidity allows for high and stable dimensional accuracy from a cold-start, even during postprocess grinding.

Tested M/C	GAV-10•20R	
Workpiece	Dimensions	ø 15 x 60 mm
	Material	SCM435H
	Hardness	HRC58
Grinding wheel	Size	ø 355 x 25 x ø 127 mm
	Type	3SGF80J
	Peripheral speed	45 m/sec
Grinding conditions	Infeed amount	ø 0.1 mm
	Spark-out	10 rotations
	Grinding time	6.7 secs.

Below is the result of continuously grinding 30 workpieces without using an in-process gauge. Dimensional variation is limited to ignorable amount, achieving an accuracy far exceeding that of existing grinders.



Dimensional variation in continuous plunge grinding

GPV-10/GAV-10 SPECIFICATIONS

Machine Specifications

Model			GPV-10·20	GAV-10·20
Capacity	Swing over table		ø 100 mm	
	Distance between centers		200 mm	
	Max. grinding diameter		ø 50 mm	
	Max. workpiece mass*		10 kg	
Wheelhead (Vertical axis)	Angle		0°	30°
	Wheel size	O.D. x W x I.D.	ø 355 x 25 x ø 127 mm	
	Max. wheel peripheral speed		33 m/sec	
	Feed speed		0 to 10,000 mm/min	
	Min. input increment		0.0001 mm	
Workhead	Swivel angle		Non-swivel	
	Work spindle		Dead spindle	
	Rotational speed		10 to 1,500 min^{-1}	
	Taper hole		MT. No. 3	
Tailstock	Type		Hydraulic operated type	
	Tailstock spindle stroke		30 mm	
	Taper hole		MT. No. 3	
Table (Horizontal axis)	Swivel angle		Small amount	
	Feed speed		ø 0 to 10,000 mm/min	
	Min. input increment		ø 0.0001 mm	
Motor	Wheel spindle		2.2 kW 4 P	
	Work spindle	AC servo	0.75 kW	
	Wheelhead feed	AC servo	1.2 kW	
	Table infeed	AC servo	0.75 kW	
	Wheel spindle lubrication pump		0.1 kW 4 P	
	Hydraulic pump		0.75 kW 4 P	
	Coolant pump		0.06 kW 2 P	
Tank capacity [Viscosity grade]	Wheel spindle lubrication oil tank		12 L [ISO VG2]	
	Tailstock spindle lubrication oil tank		2.7 L [ISO VG68]	
	Hydraulic oil tank		10 L [ISO VG32]	
	Coolant tank		90 L	
Distance from floor to workpiece bottom			930 mm	
Mass of machine		Approx.	1,950 kg	

*when using both centers

CNC Specifications (FANUC)

Item	Specifications	Remarks
No. of registerable workpiece in interactive display	47 pcs.	Max.20 different diameters per pc.
Program capacity	512 KB	
Display	8.4-inch color LCD	
Program input	Custom macro	
	Circular interpolation by R programming	
Setting and display	Self-diagnosis function	
	Alarm history display	
Data input/output	Memory card	

• The specifications are subject to change without prior notice.

Standard Accessories and Specifications

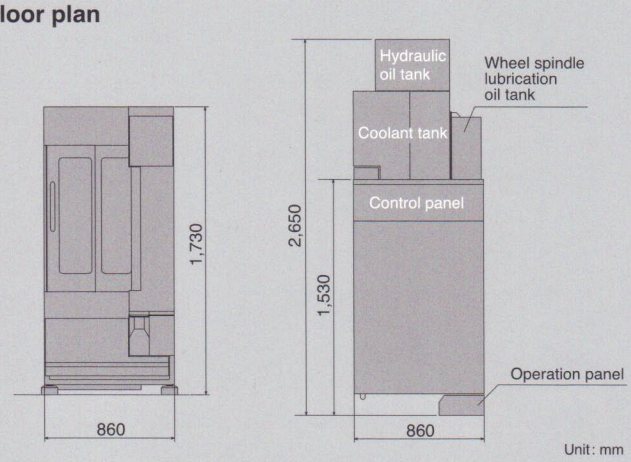
Item		Quantity
Wheel flange		1 set
Wheel flange extracting nut		1 pc.
Wheel changer	Not included in GPV-10	1 set
Carbide tipped center*		2 pcs.
Dressing tool holder*		1 set
Jack bolt & Foundation plate		4 sets
Tool set		1 set
Work rest*		1 set
Machine full cover	Front · side door: Manual slide type	1 set

*These do not come with the Grinder, depending on its specifications.
• No oil or lubricant comes with the Grinder. Please prepare for yourself in advance.

Optional Accessories and Specifications

Item	Remarks
Wheel balancing stand	
Wheel balancing arbor	
Spare wheel flange	
Specification change of wheel cover ø 355 x 50 [Type 5] mm, 33 to 60 m/sec, 2.2 kW / 3.7 kW(IPM) / 5.5 kW(IPM)	
Dressing tool	Straight / Forming
Rotary wheel dressing device	
Gap eliminator device	
In-process O.D. gauge (Max. ø 30 mm)	Accretech / Marposs
Workpiece shoulder locator	
Live spindle workhead with non-swivel	
Automatic center-distance adjustable tailstock	Stroke: 100 mm
Oil-mist collector	
Magnetic & Paper filter coolant dust separator	
Coolant fluid temperature control device	
Several kinds of loading/unloading device	

■ Floor plan



Unit: mm

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- Descriptions contained in this catalog are subject to change without prior notice. Some of the photos contained in this catalog are different from the standard specifications.
- The capacity ranges for the models in this catalog may be changed depending on the dimensions or shape of the wheel or workpiece, or due to the addition of special specifications. Please contact us for details.
- An export license from the Japanese government is needed to export a product that is considered to be a controlled substance (or technical information/service) under Japan's Foreign Exchange Law and/or Foreign Trade Law.
- This machine includes a device which detects the relocation of the machine (depending on the destination). In the case of relocating, reselling, or exporting the machine, you are required to contact Shigiya Machinery Works Ltd. in advance.
- Shigiya Machinery Works Ltd. may refuse to restart the machine after its relocation, if they determine that it is an unauthorized export of goods/technology or doing so would otherwise violate applicable export restrictions. Shigiya Machinery Works Ltd. shall have no liability for any losses or the service warranty as a result of the machine being disabled due to the abovementioned reasons.

Printed in Japan 1401-1401 0500(V)