

# SHIGIYA

CNC Universal Grinder

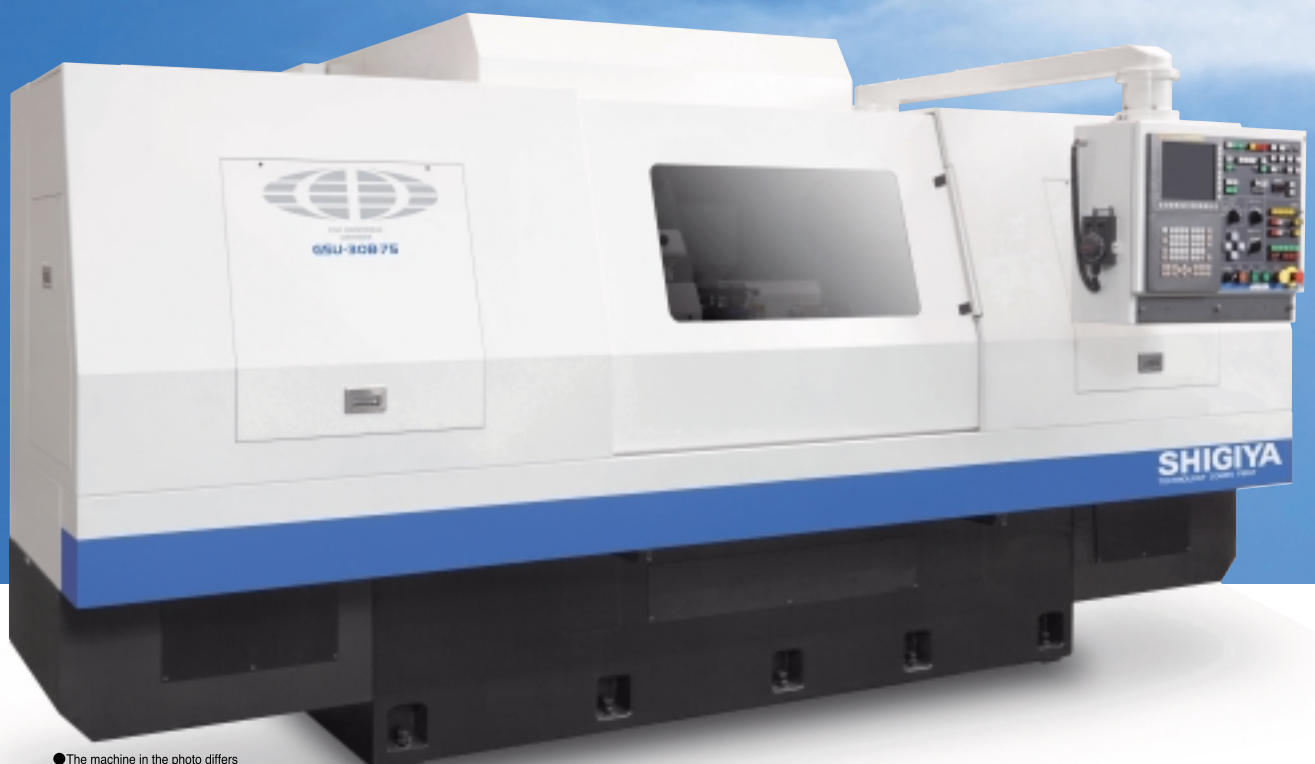
**GSU-30B**  
**-40B**



Pursuing “higher accuracy grinding with easier operation,” SHIGIYA has infused GSU-30B (GSU-40B) with its own, cutting-edge technologies in order to create universal grinders with uncompromising quality and performance. The greatest feature of the grinder is the wheelhead NC swivel function, which enables the customer to select from 9 different wheelhead installation patterns. In addition, the operator can perform eccentric O.D. and non-concentric O.D. grinding (polygonal grinding) using the C-X axis control if specifications such as a closed

# The wheelhead has an NC swivel

## This all-round machine offers multi-grinding and reduction of processes.



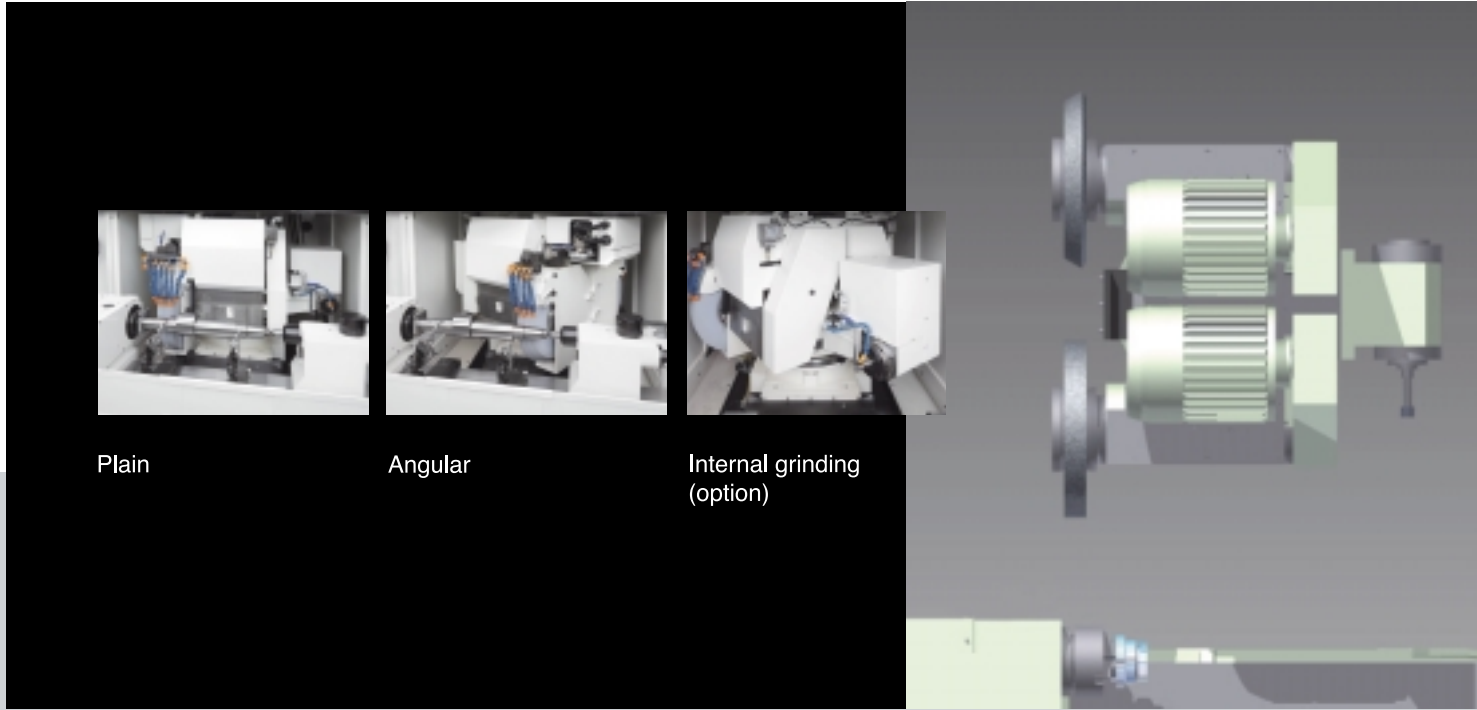
● The machine in the photo differs from the standard specifications.  
**GSU-30B·75**

type hydrostatic slide wheelhead feed and a work spindle rotation direct drive etc. are added. By selecting the right wheelhead installation pattern and specification, the operator can perform a variety of multi-grinding tasks and reduce the number of processes. The GSU-30B (GSU-40B) is an all-round machine equipped with SHIGIYA's "interactive automatic programming system" which has received high praise for its user-friendliness and offers a CNC universal grinder that gives the freedom to select what is needed.

## function.

# GSU-30B(GSU-40B)

The wheelhead is swiveled at high-speed by a direct drive system, and provides high positioning accuracy without backlash.



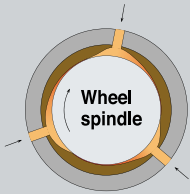
Plain

Angular

Internal grinding (option)

### Non-concentric hydrodynamic bearings provide high-precision rotation of the wheel

The non-concentric hydrodynamic bearings use hydrodynamics to secure the optimal wedge angle. The bearings are ground with a high degree of precision with a grinder that SHIGIYA has developed exclusively for bearings, thus creating high-rigidity bearings and high-precision rotation.



### Wheel spindle lubrication oil tank

To avoid thermal displacement in the machine caused by a rise in the lubrication oil's temperature, the wheel spindle lubrication oil is stored in an isolated tank. The wheel spindle begins to rotate only after the pressure switch has confirmed that the lubrication oil is supplied to the spindle unit. This eliminates the chance of seizure on the spindle due to a lack of lubrication oil.



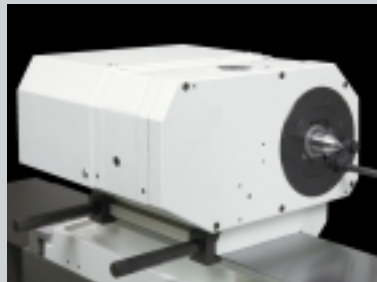
### Wheel dressing device mounted on the lower table

A dressing tool holder is mounted onto the lower table. There is no need to change the dressing coordinates (except when you change the wheel or the dressing tool) because the diamond stays in the same position even when the upper table swivels for changing the target workpiece, taper grinding or taper adjustments.



### Non-swivel dead spindle workhead, with high rigidity and low vibration

The grinder can change the speed steplessly on the AC servo motor within a range of 15 to 600 min<sup>-1</sup>. Furthermore, the interactive automatic programming system can automatically determine the optimal rotational speed for each particular workpiece.



### Manual tailstock for high-precision heavy grinding

High-precision heavy grinding is made possible by mounting the tailstock with a large-diameter spindle that has been very precisely processed. The workpiece's heat expansion during grinding is offset by the helical compression spring, and the pressing force against the workpiece's center can also be adjusted to any level you want.



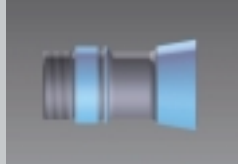
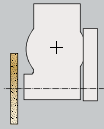
### Compact specification that reduces the machine width by approximately 20%

Models with up to 750 mm center-distance come standard equipped with a compact workhead and tailstock units. Increasing the distance between both centers reduces the machine width by approximately 20% when compared to previous models.

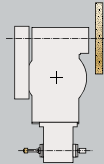


## 1-head specification

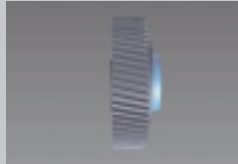
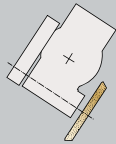
1 Plain



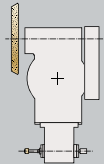
2 Plain  
+Internal grinding  
(option)



3 Angular

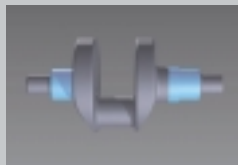
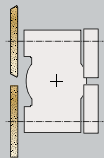


4 Angular  
+Internal grinding  
(option)

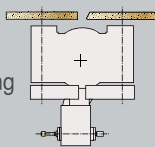


## 2-head specification

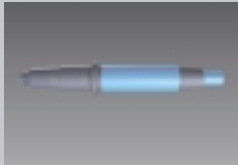
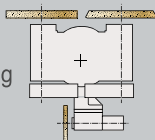
5 Plain  
+Angular



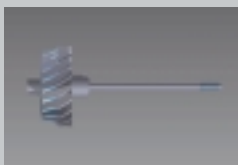
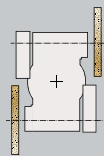
6 Plain  
+Angular  
+Internal grinding  
(option)



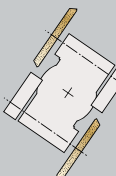
7 Plain  
+Angular  
+Thread grinding  
(option)



8 Plain  
+Plain



9 Angular  
+Angular



# GSU-30B(GSU-40B) SPECIFICATIONS

Machine Specifications						
Model		GSU-30B (GSU-40B)				
		50	75	100	150	
Capacity	Swing over table	ø 300 (ø 410) mm				
	Distance between centers	GSU-30B	500 mm	750 mm	1,000 mm	1,500 mm
		GSU-40B	470 mm	720 mm	970 mm	1,470 mm
	Max. grinding diameter	ø 300 (ø 325) mm				
	Workpiece mass when using both centers	150 kg				
Wheelhead	Swivel angle	15 to -225°				
	Swivel angle min. input increment	0.0001°				
	Wheel size	O.D. x W x I.D.	ø 510 × 50 × ø 127 mm			
	Max. wheel peripheral speed	45 m/sec				
	Rapid feed amount	40 mm				
	Feed speed	ø 0 to 20,000 mm/min				
	Min. input increment	ø 0.0001 mm				
Workhead	Swivel angle	Non-swivel				
	Work spindle	Dead spindle				
	Rotational speed	15 to 600 min <sup>-1</sup>				
	Taper hole	MT. No. 4				
Tailstock	Type	Manual lever type				
	Tailstock spindle stroke	30 mm				
	Taper hole	MT. No. 4				
Table	Swivel angle	Small amount				
	Feed speed	0 to 10,000 mm/min				
	Min. input increment	0.0001 mm				
Motor	Wheel spindle *	7.5 kW 4 P				
	Work spindle	AC servo	1.4 kW			
	Wheelhead swivel	AC servo	2.8 kW			
	Wheelhead feed	AC servo	1.4 kW			
	Table traverse	AC servo	1.6 kW	4 kW		
	Wheel spindle lubrication oil pump *	0.1 kW 4 P				
	Hydraulic pump	0.75 kW 4 P		0.4 kW 4 P		
	Coolant pump	0.18 kW 2 P				
Tank capacity [Viscosity grade]	Wheel spindle lubrication oil tank *	29 L [ISO VG5]				
	Hydraulic oil tank	20 L [ISO VG68]		30 L [ISO VG68]		
	Coolant tank	400 L				
Center height from floor		1,105 mm				
Mass of machine		Approx.	6,000 kg	6,500 kg	7,000 kg	8,000 kg

\* The 2-head specification comes with 2 motors. However, there is only one wheel spindle lubrication oil pump and tank used for both wheel spindles. The mass of the machine is increased by 100 kg. ( ) denotes the dimension for the GSU-40B series.

## CNC Specifications (FANUC)

Item	Specifications	Remarks	Item	Specifications
No. of registerable workpiece in interactive display	31 pcs.	Max. 30 different diameters per pc.	Tool function	Tool nose radius compensation
Program capacity	512 KB		Editing operation	Program protect
Display	8.4-inch color LCD		Setting and display	Self-diagnosis function
Operation	Single block			Alarm history display
Program input	Custom macro B		Data input/output	Help function
	Circular interpolation by R programming			Memory card

● The specifications are subject to change without prior notice.

## Standard Accessories and Specifications

Item	Quantity
Wheel flange *1	1 set
Wheel flange extracting nut	1 pc.
Carbide tipped center *2	2 pcs.
Dressing tool holder *2	1 set
Jack bolt & Foundation plate	Necessary pcs.
Tool set	1 set
Machine full cover	1 set
Wheelhead swivel motor oil cooler *3	1 set

- \* 1 The 2-head specification comes with 2 sets.
- \* 2 These do not come with the Grinder, depending on its specifications.
- \* 3 The wheel spindle lubrication oil cooling system is used on both sets.
- No oil or lubricant comes with the Grinder. Please prepare for yourself in advance.

## Optional Accessories

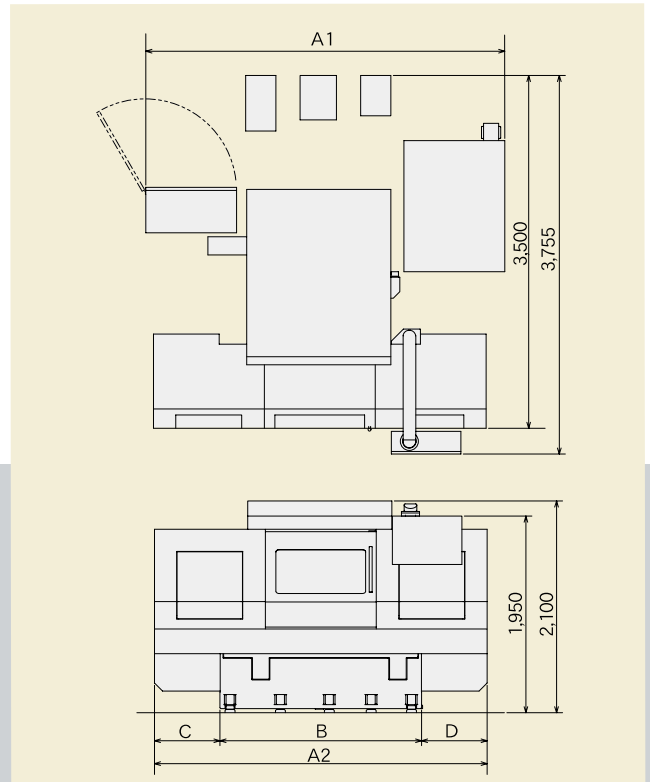
Item	Remarks
Wheel balancing stand	Wheel size: $\phi 510 \times 120$ mm [Type 7]
Wheel balancing arbor	Length: 280 mm
Wheel lifting tool	Screw fix type
Spare wheel flange	$\phi 510 \times 32$ to $50 \times \phi 127$ mm
Dressing tool holder for both faces dressing	
Dressing tool	Straight / Forming
Table swivel angle measuring device	
2-point steady rest	$\phi 10$ to $130$ ( $\phi 10$ to $200$ ) mm
3-point steady rest	$\phi 20$ to $130$ ( $\phi 20$ to $200$ ) mm
Work rest	$\phi 20$ to $130$ ( $\phi 20$ to $200$ ) mm
Scroll chuck set	#5 / #6 / #7
Work driving dog set	S-1 to S-6
Manual oil pump	

( ) denotes the dimension for the GSU-40B series.

## Optional Specifications

Item	Remarks
Machine color as specified by customer	SHIGIYA Standard color: Munsell 5GY9/1
Internal grinding device	
Thread grinding device	
Closed type hydrostatic slide wheelhead feed specification	
In-process O.D. gauge	Accretech / Marposs
Workpiece shoulder locator	Mounting position: Wheelhead / Table
Automatic slide front door	
Dead-live spindle workhead with non-swivel	
Direct drive workhead with non-swivel	
Manual tailstock with manual fine taper adjustment	Adjustment: $\pm 0.05$ mm, Stroke: 30 mm
Oil-mist collector	
Magnetic coolant dust separator	60 L/min / 80 L/min / 120 L/min
Magnetic & Paper filter coolant dust separator	60 L/min / 80 L/min / 120 L/min
Machine lighting equipment	LED
Polygon grinding specification	Eccentric O.D. grinding can also be performed.

## Floor plan



( ) denotes the dimension for the GSU-40B series.

Model	A1	A2	B	C	D
GSU-30B-50	3,560	3,300	2,000	650	650
GSU-30B-75	3,560	4,100	2,500	800	800
GSU-30B-100	3,560	5,050	3,450	800	800
GSU-30B-150	3,560	6,050	4,450	800	800

Unit: mm

## Polygon (Non-concentric O.D.) grinding



- |              |                |
|--------------|----------------|
| 1. Diamond   | 2. Round       |
| 3. Drop      | 4. Triangle    |
| 5. Oval      | 6. Trapezoid   |
| 7. Track     | 8. Square      |
| 9. Hexagon   | 10. Rectangle  |
| 11. Single D | 12. Double D   |
| 13. Polygon  | 14. Coordinate |

## Eccentric O.D. grinding



- For the polygon grinding specification, the grinding wheel outer diameter is  $\phi 405$  mm with a lighter wheelhead. The closed type hydrostatic slide wheelhead feed and direct drive workhead are included.



# SHIGIYA

<http://www.shigiya.co.jp>

■ **SHIGIYA MACHINERY WORKS LTD.**

5378 Minoshima-cho, Fukuyama, Hiroshima, 721-8575 Japan Phone:+81-84-953-6631 Fax:+81-84-954-2574  
**Network** Tokyo / Ota / Nagoya / Hamamatsu / Osaka

■ **SHIGIYA (USA) LTD.**

406 Diens Drive, Wheeling, Illinois, 60090 U.S.A.  
Phone:+1-847-325-4800 Fax:+1-847-325-4218

■ **SHIGIYA (THAILAND) LTD.**

1999/65 M.6 Teparak Rd., Km.5.5 T.Teparak, A.Muang Samutprakarn, Samutprakarn 10270 Thailand  
Phone:+66-2754-7484,5 Fax:+66-2754-7486

■ **SHIGIYA (SHANGHAI) LTD.**

A7-202 Shanghai Jiahua Business Center, No.808 Hongqiao Road, Xuhui-qu, Shanghai, 200030 China  
Phone:+86-21-6447-9069 Fax:+86-21-6447-9062

■ **SF PRECISION CO., LTD.**

118-3 Sinchon-Dong, Seongsan-Gu, Changwon-City, Gyeongnam, Korea  
Phone:+82-55-284-7800 Fax:+82-55-284-7801

- 
- 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.