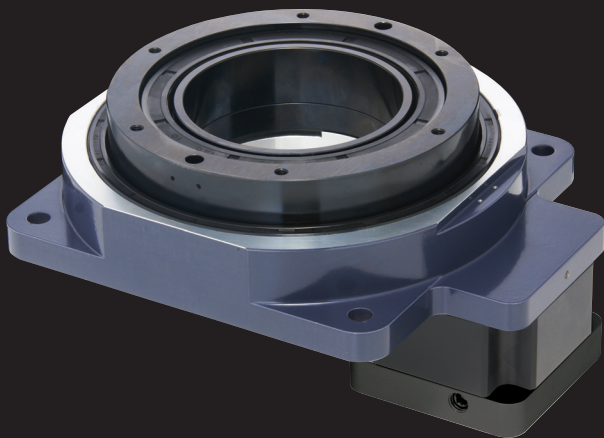




Hollow Rotary Table

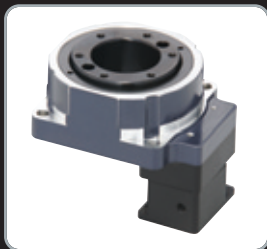
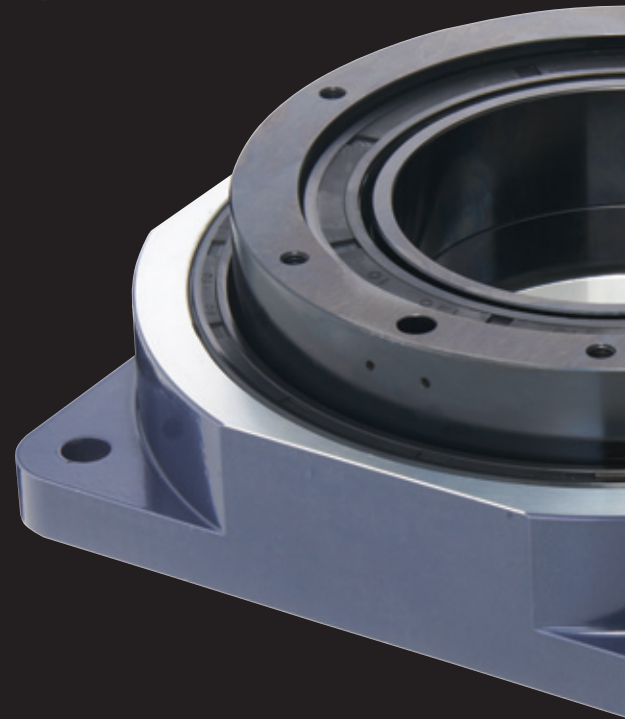
SHA Series



Hollow Rotary Table SHA Series

SPG Hollow Rotary Table is developed for Stepping Motor and Servo Motor to provide various system configurations.

In addition, it seeks flexibility and convenience of machine design because the large diameter of hollow shafts is able to process complicated wiring and piping simply.



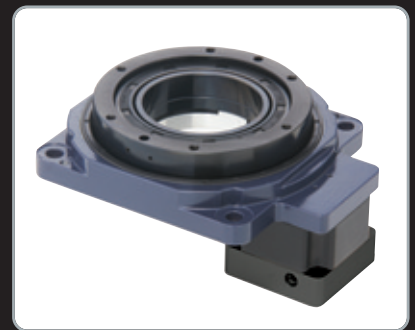
SHA 060

- ▶ Permissible Torque : 0.9N·m
- ▶ Frame Size : □60mm
- ▶ Dia. of Hollow Section : 28mm



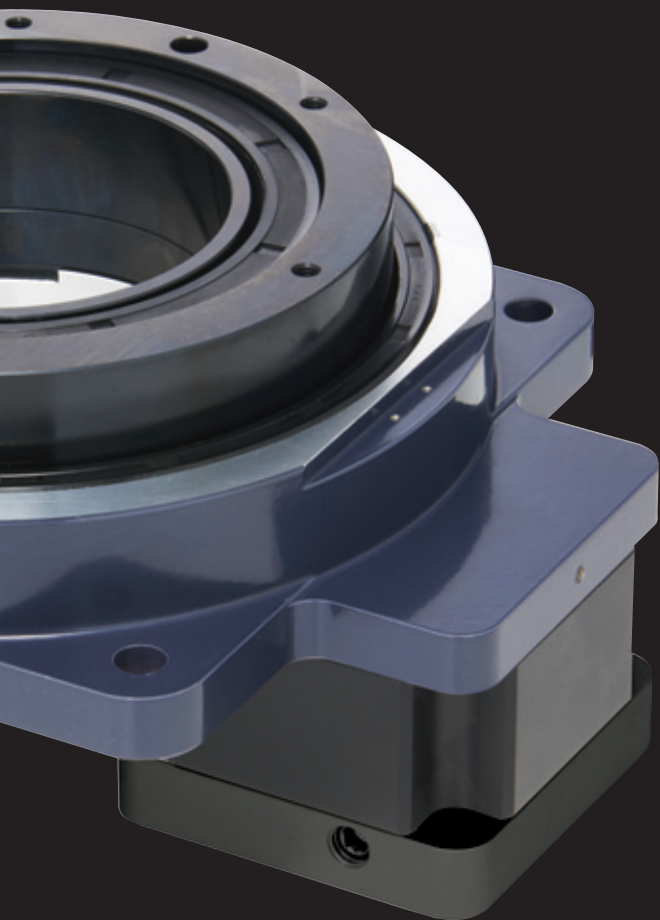
SHA 085

- ▶ Permissible Torque : 2.8N·m
- ▶ Frame Size : □85mm
- ▶ Dia. of Hollow Section : 33mm

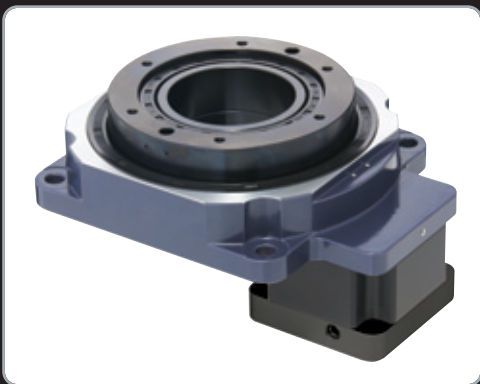


SHA 130

- ▶ Permissible Torque : 12N·m
- ▶ Frame Size : □130 mm
- ▶ Dia. of Hollow Section : 62mm

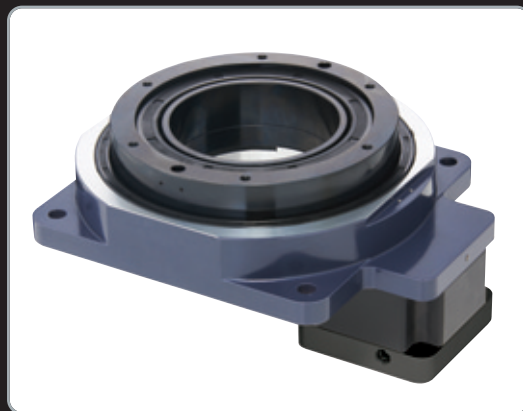


- Hollow Rotary Index Table
- Accurate Helical Gear Driven
- High Precision
- High Rigidity
- High Torque
- High Reduction Ratio
- Easy to Use



SHA 170

- ▶ Permissible Torque : 30N·m
- ▶ Frame Size : □170mm
- ▶ Dia. of Hollow Section : 72mm



SHA 200

- ▶ Permissible Torque : 50N·m
- ▶ Frame Size : □200mm
- ▶ Dia. of Hollow Section : 100mm

Structure & Feature Overview

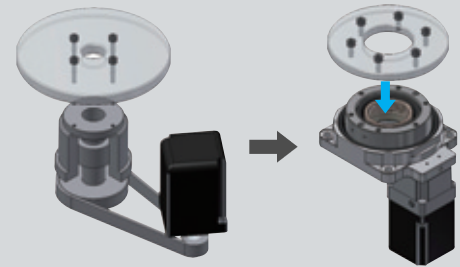
● Large-Diameter, Hollow Output Table Makes Simple Wiring and Piping Possible

The diameter of the driven gear has been increased with the use of a single-stage reduction gear mechanism, resulting in a hollow hole of sufficiently large diameter with respect to frame size. This helps reduce the complexity of wiring and piping, thus simplifying your equipment design.

Model	Frame Size [mm]	Diameter Hollow Section [mm]
SHA 060	60	Ø28
SHA 085	85	Ø33
SHA 130	130	Ø62
SHA 170	170	Ø72
SHA 200	200	Ø100

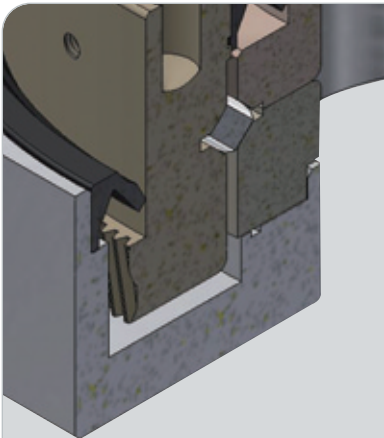
● Simple with Direct Coupling

Equipment tables and arms can be installed directly on the output table.



● High Output, High Rigidity

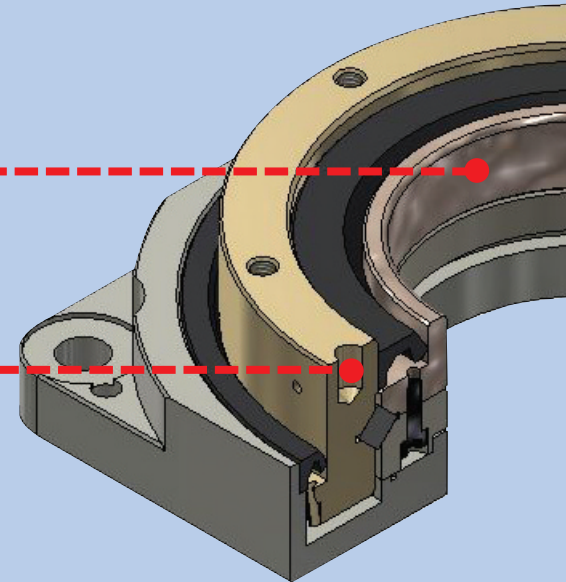
The output table uses a high rigidity cross-roller bearing for SHA 085, SHA 130, SHA 170, SHA 200 model, and deep-groove ball bearings (two pieces) for the SHA 060 model. This structure improves the permissible thrust load and moment load while maintaining high torque.



● Accurate Positioning

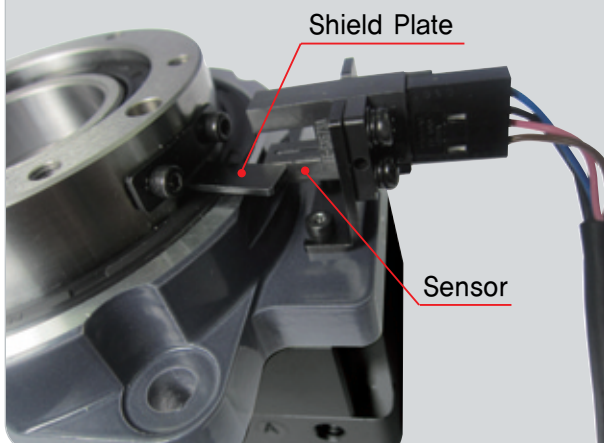
The gear-reduction mechanism employs precision gear along with a proprietary adjustment mechanism that eliminates backlash.

- Repetitive Positioning Accuracy : $\pm 15 \text{ sec. (}\pm 0.004^\circ\text{)}$
- Lost motion : $2 \text{ arcmin (}0.033^\circ\text{)}$



● "Home Sensor Set" is Available as an Accessory

Since the sensor set comes with all the parts required for the return-to-home operation, less time is spent designing, fabricating and procuring parts related to sensor installation.



● Dynamic balanced clamp ring mechanism

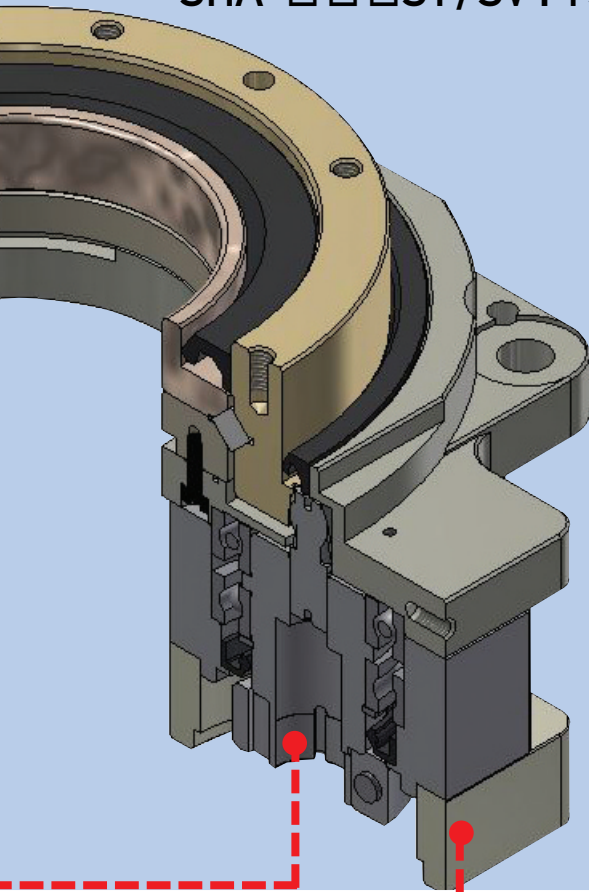
Error-free installation and balanced clamping system allows higher input speeds and no backlash for power transmission.



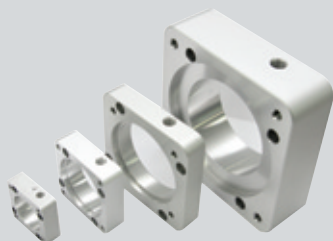
- **Quiet operation Helical gears**
Contribute to reduce vibration and noise.



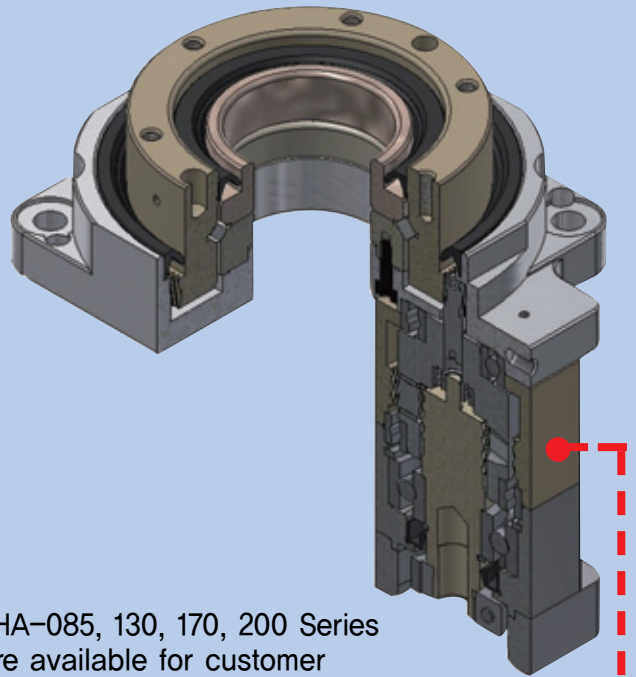
SHA □□□ST/SV : 1 Stage



- **Universal mounting motor flange**
Allows quicker delivery and easier mounting to any stepping motor and servo motor.



SHA □□□SV : 2 Stage



※ SHA-085, 130, 170, 200 Series are available for customer diverse requirements

- **High torque and low backlash**
Helical gear type planetary gearing.
Improvement by gear heat treatment



- **Increased Service Life**
Full complement needle planet bearings.
(Solid uncaged needle roller bearings)



Applications & Coding System

■ Applications

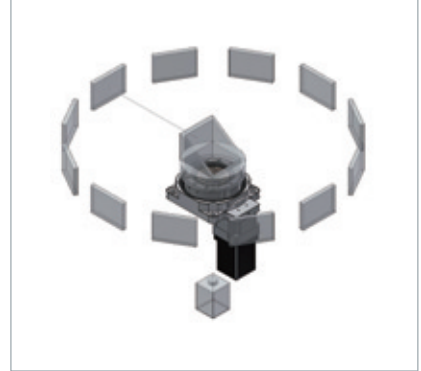
Applications subject to changing load inertia



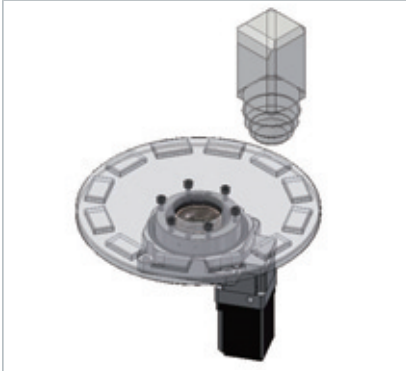
Applications where a moment load is applied



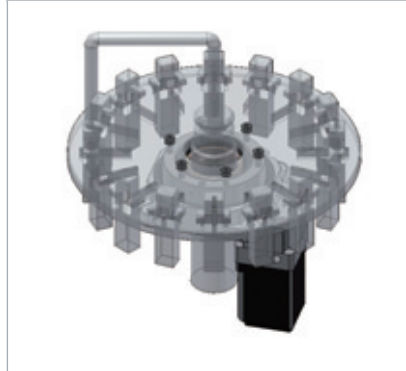
Optical applications using the hollow hole



High accuracy positioning applications



High accuracy positioning applications using the hollow hole



Air absorption applications using the hollow hole



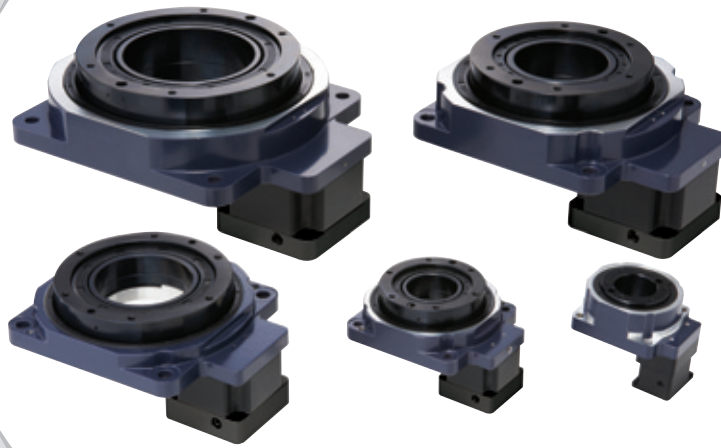
■ Coding System

SHA	130	SV	10	A
Series	Frame Size	Available Motor		Input Adapter Flange (Servo Motor Brand)
SHA Hollow Rotary Table	060 □60	ST Stepping Motor		A Mitsubishi, Yaskawa, Tamagawa, Higen, LS series
	085 □85	SV Servo Motor		B Panasonic series
	130 □130			C Rockwell series
	170 □170			
	200 □200			
			Gear Ratio [i] Stage	
			010 1/10 1	
			018 1/18 1	
			030 (1/30) 2	
			040 (1/40) 2	
			050 (1/50) 2	

Note) Some of these models may have different configurations, depending on motor brands. Therefore, make sure to check its specification again when you order them

※Reduction gear ratio in () is available only by special order
But, for SHA 060, only 1 stage is possible

※Limited to Servo Motor



Hollow Rotary Table SHA Series

- ▶ Large-Diameter, Hollow Output Table
- ▶ Accurate Helical Gear Driven
- ▶ High Output Torque, High Rigidity
- ▶ High Reduction Ratio
- ▶ Simple with Direct Coupling on the Output Table
- ▶ Diverse Stepping Motors and Servo Motors are Available

Hollow Rotary Table

Specifications

Description		SHA 060	SHA 085	SHA 130	SHA 170	SHA 200
Motor Type		Stepping Motor & Servo Motor				
Output Table Supporting Bearing		Ball Bearing	Cross Roller Bearing			
Permissible Torque [N • m]		0.9	2.8	12	31	50
Inertial Moment [J : kg • m ²]		3507x10 ⁻⁷	12593x10 ⁻⁷	81556x10 ⁻⁷	250202x10 ⁻⁷	361220x10 ⁻⁷
Stepping Motor	Gear Ratio [i]	18				
	Permissible Output Speed Of Table [rpm]	200	200	200	110	110
Servo Motor ⁽¹⁾	Gear Ratio [i]	10 (30, 40, 50)				
	Permissible Output Speed Of Table [rpm]	200	300	300	160	160
	Normal Input Speed [rpm]	3,000			2,000	
	Max. Input Speed [rpm]	4,000			2,500	
Repetitive Positioning Accuracy [sec]		± 15 (± 0.004°)				
Lost Motion [arcmin]		2 (0.033°)				
Permissible Thrust Load [N]		100	500	2,000	3,000	4,000
Permissible Moment Load [N • m]		2	10	50	75	100
Runout of Output Table Surface [mm]		0.03	0.015	0.015	0.015	0.015
Runout of Output Table Inner(Outer) Diameter [mm]		0.03	0.015	0.015	0.030	0.030
Parallelism of Output Table [mm]		0.05	0.030	0.030	0.030	0.050
Degree of Protection		IP64				
Operating Temp. ⁽²⁾ [°C]		-10 ~ +90				
Weight [kg]		0.5	1.0	2.3	6.6	8.8

(1) Reduction gear ratio in () is available only by special order.

(2) Temperature on surface of case and surrounding temperature range (-10°C ~ +40°C)

Cautions: Direction of rotation in the output table is opposite to that of the input motor's shaft .

※ Data in above specification table indicates representative values and its specification may be changed for improvement of performance without prior notification.

How to read specification

① Output Table Supporting Bearing

They are types of bearings used for the output table.

② Permissible Torque

It is a limit for mechanical strength in reducer's mechanical parts. Make sure to use this within the allowable torque as the load changes.

③ Inertial Moment

This is a limit for converted value of inertia moment from the rotary table and reducer's mechanical parts.

④ Permissible Output Speed of Table

This is the allowable rotation speed for output table depending on mechanical strength for reducer's mechanical parts.

⑤ Repetitive Positioning Accuracy

These are values indicating how much tolerance occurs when the position is repeatedly determined from the same location and the same direction.

⑥ Lost Motion

This indicates difference at stopped angles when the output table is determined by normal direction and reversed direction at a certain position.

⑦ Permissible Thrust Load

This indicates allowable value for thrust load given to the direction of shaft at output table.

⑧ Permissible Moment Load

If a load is given to eccentric position from the center of output table, a force to tilt the output table is exerted. In this case, this means the allowable value for moment is calculated by an eccentric amount from the center, X load.

⑨ Runout of Output Table Surface

This indicates the maximum swaying value on installed surface for the output table when it is rotated without load.

⑩ Runout of Output Table Inner(Outer) Diameter

This indicates the maximum swaying value on inner or outer diameter for the output table when it is rotated without load.

⑪ Parallelism of Output Table

This represents how much installation surface of output table is tilted against the machine on Hollow Rotary Table.

⑫ Degree of Protection

This is a classification for anti-dust and waterproof level from protective structure based on IEC60529, EN60034-5(= IEC60034-5)