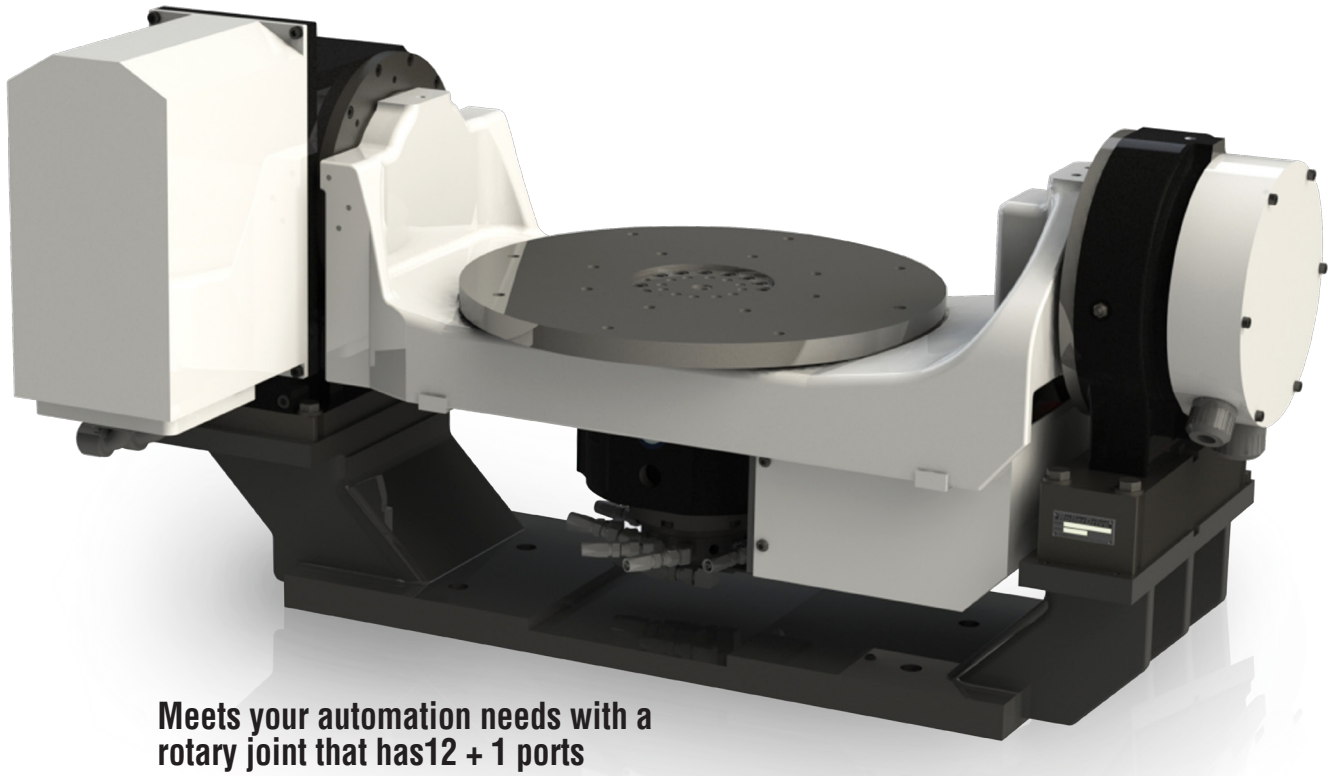
SANKYO SEISAKUSHO CO.

RollerDrive® RTG series

NEW

Tilting Rotary table for small MCs



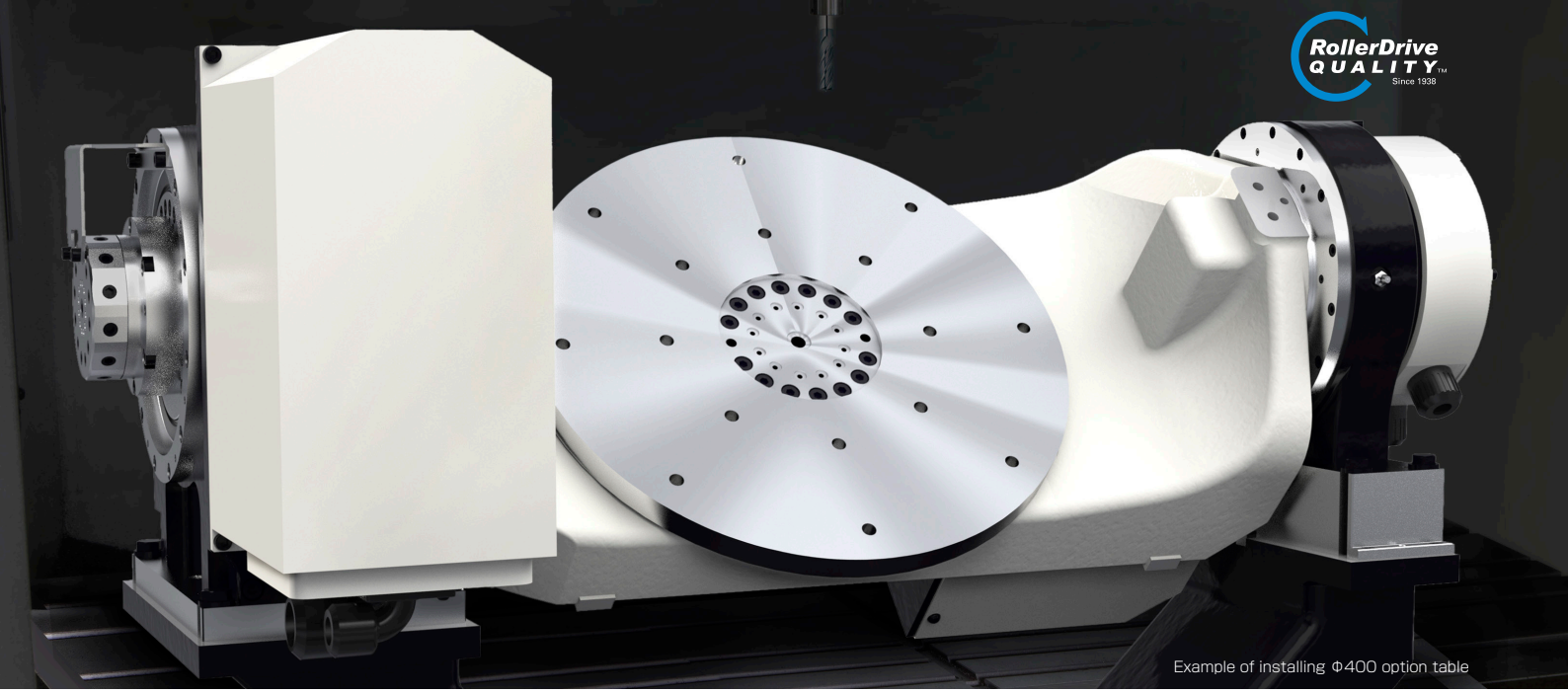
Meets your automation needs with a rotary joint that has12 + 1 ports

RTG500

Tilting Rotary table for small MCs

RollerDrive® RTG series

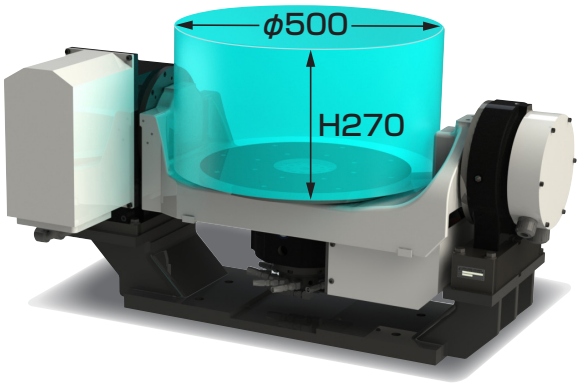
The RTG is a compact, lightweight, tilted rotary table that makes it possible to respond to the increasing number of machining needs of small MCs, the increasing complexity of workpieces, and the increasing size of workpieces.
By using the RTG series equipped with A and C axes you can take advantage of process aggregation, efficient machining postures and tool selection, even when machining workpieces that had previously required multiple processes. In addition, in order to meet the needs of unmanned machines and enjoy the benefits of robots, rotary joints with up to 13 (12 +1) ports are available for automatic installation and removal of workpieces with seating confirmation.
Furthermore, the use of a RollerDrive mechanism eliminates the need for clamping during machining, thus reducing the positioning time by approximately one-third, compared with conventional worm gear rotary tables that use clamps. The RollerDrive mechanism can be operated continuously, with only a short break to change the lubrication oil. It eliminates the need for periodic backlash readjustments like the conventional worm gear rotary tables.
This contributes to significantly reduced equipment maintenance. The RTG is ideal for small MCs, while automating operations and improving productivity.

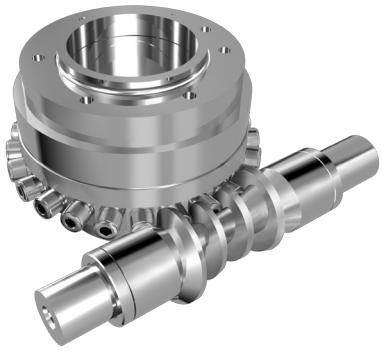


Example of installing Φ400 option table

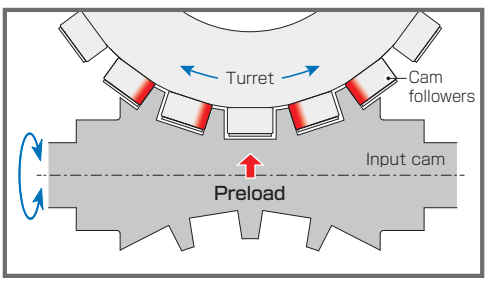
Features

- Built-in, no-backlash RollerDrive mechanism
- Clampless processing drastically increases the ratio of cutting to non-cutting time
- Lightweight and compact, and can be mounted on the #30 vertical MCs
- Provides a large jig area of ϕ 500 x H270
- Rotary joint is equipped with up to 12 + 1 ports
- Routine maintenance is just an oil change, nothing else.





Exclusive Backlash Zero Structure

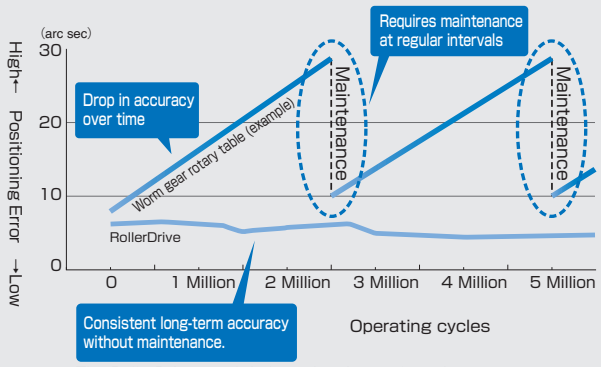


Multiple roller followers, come into contact from both sides (in pairs) without gaps to provide efficient rolling transmission without backlash.

No Maintenance and Excellent Price Performance

Consistent long-term accuracy without maintenance.

Positioning Accuracy Aging Test



The RollerDrive graph is based on internal testing.
(Center distance of test unit: 170)

■ Worm gear models

Accuracy declines over time. Requires maintenance to achieve initial accuracy.

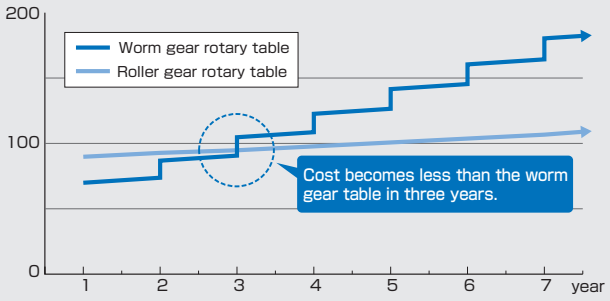
■ RollerDrive

Accuracy is consistent with no maintenance even after 5 million operation cycles.

Cost Comparison with a Worm Gear Rotary Table

Offers Long-term Use without Maintenance

Initial Cost versus Annual Maintenance Costs



①Worm gear rotary tables require maintenance twice a year.
②Assumes an annual running cost of 3% (oil changes, etc.) for both types.
Cost simulations are based on a table diameter of about 200 mm.

■ Worm gear models

Maintenance costs occur once or twice a year to adjust the backlash.

■ RollerDrive

Long-term use is possible without any mechanical maintenance.
Beats the cost of a worm gear even after adding annual running costs to the initial investment cost. Price performance continues thereafter.

Based on internal calculations.

Extended Accuracy

Compared against a worm gear for over 5 million indexes.

■ Test conditions

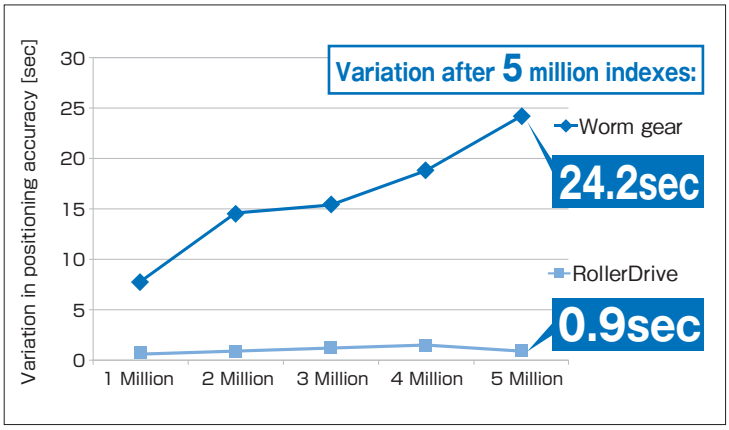
- Table size: Output table diameter: 170 mm
- Load inertia: 0.5 kgm²
- Index period: 36° (unidirectional)
- Indexing time: 0.35sec

■ Results after 5 million indexes:

Item	Worm gear	RollerDrive
Variation in positioning accuracy	24.2sec	0.9sec
Backlash (measured at R60)	18μm (15μm→33μm)	—

Based on internal testing data.

■ Variation in positioning accuracy



Shorter positioning time

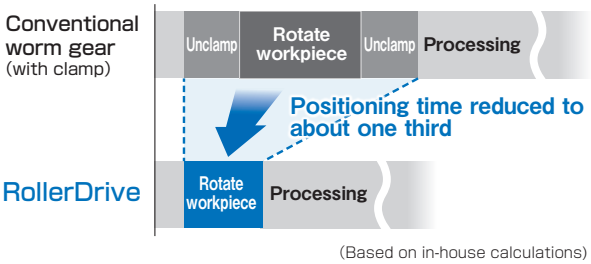
Time comparison for 90° positioning

■ Conventional worm gear

Clamping using hydraulic pressure or air pressure is required to suppress backlash.

■ RollerDrive

Zero backlash and high rigidity eliminate the need for clamping.
Compared to the worm gear type,
positioning time is reduced to about one third.



(Based on in-house calculations)

Product code

Rotary table

1 RTG500 – 2 A – 3 J 4 T

1
Model
RTG500

2	
Servo Motor	
A	FANUC(With brake)
D	BROTHER(With brake)
X	Others

3		4	
Option Rotary joint		Option Table	
J	Number of ports 12+1	T	ϕ400 tap
Blank	None	Blank	None

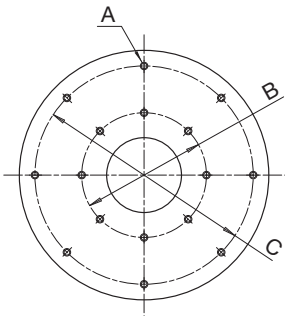
– 5 W – 6 X

5	
Motor supplied, yes/no	
W	Motor supplied by Sankyo
Blank	Motor supplied by customer

6	
Standard / custom order	
Blank	Standard
X	Custom order

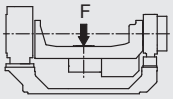
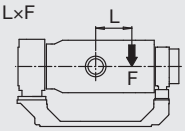
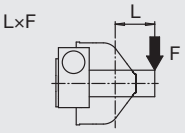
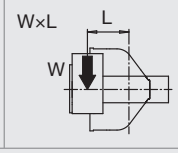
Table shape

T



A	(16)M12, 20DP		
B	200	C	350

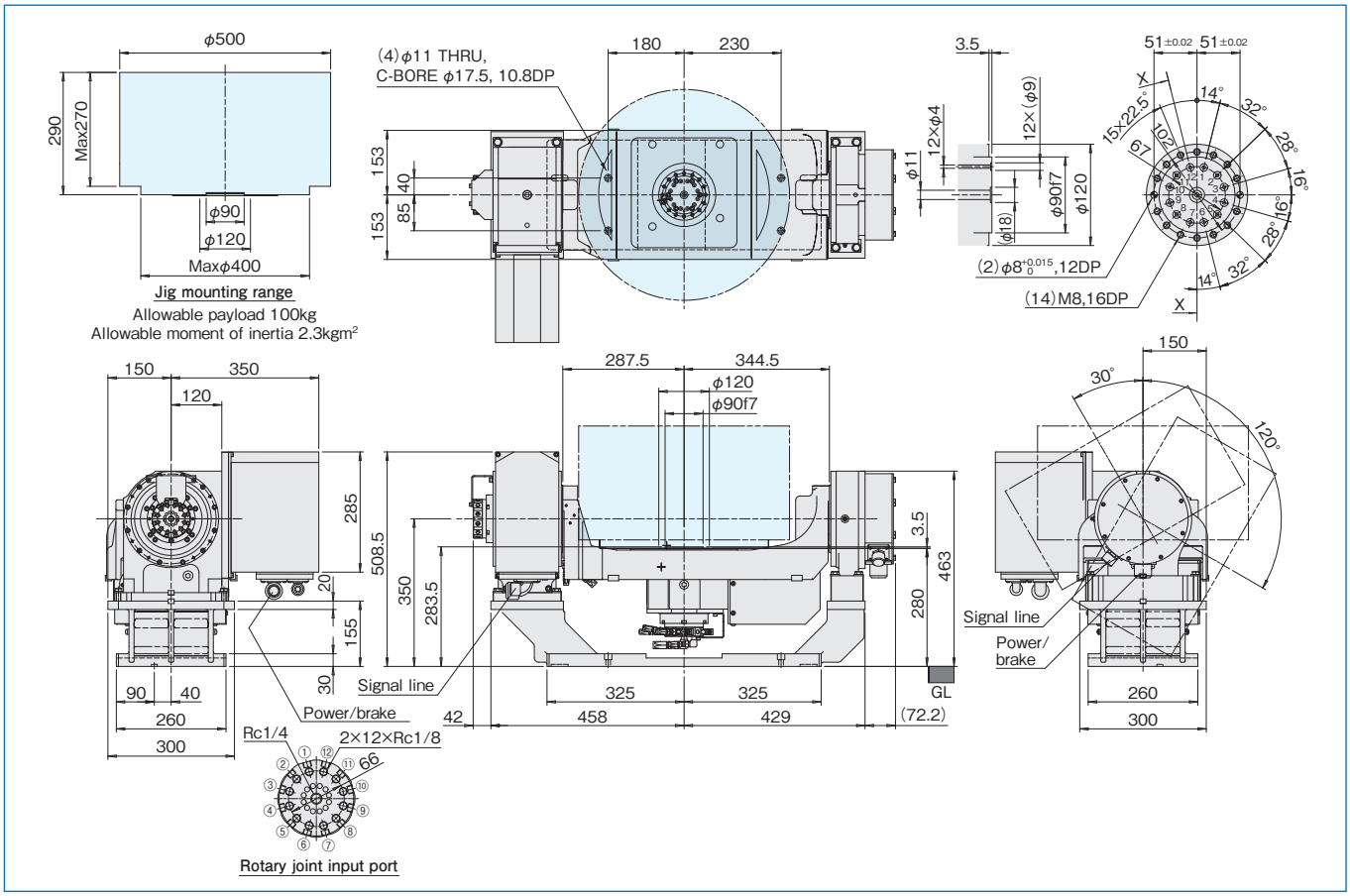
Specifications

Specifications			RTG500			
			Rotating axis		Tilting axis	
Tilting angle		deg	-30 to +120			
Table diameter		mm	ϕ120			
Table pilot bore diameter*1		mm	$\phi 90^{+0.035}_{0}$			
Center height at tilted axis +90°		mm	350			
Tabletop height at 0° tilted axis		mm	280			
Guide block width		mm	$14^{0}_{-0.018}$			
Total gear ratio			1/72		1/72	
Motor shaft equivalent inertia *1 *2 *3		×10⁻⁴kg·m²	1.41 (1.43)		6.22 (6.97)	
Motor used (FANUC・BROTHER)			αiF4/5000-B (A06B-2223-B300)	R2AAB8100F～	αiS8/4000-B (A06B-2235-B300)	R2AA13180H～
Maximum table rotational speed		min⁻¹	69		55	48
Indexing accuracy		arc.sec	±15		±30	
Repeatability		arc.sec	8		8	
Net weight		kg	248			
Net weight (when joints are rotary joint is installed)		kg	270			
Allowable payload		kg	100			
Maximum jig work diameter		mm	500			
Allowable workpiece inertia		kg·m²	2.3			
Maximum radial load		N	23000			
Allowable continuous holding torque		N·m	259	254	—	—
Allowable maximum holding torque*4		N·m	415	318	—	—
Allowable continuous holding torque		N·m	—	—	518	648
Allowable maximum holding torque*4		N·m	—	—	835	713
Internal eccentric load torque*5		N·m	0		112	
Lubrication method			Oil bath (and grease for the support unit)			
Oil type/quantity			Mobile SHC629 / 0.7L		Mobile SHC629 / 1.4L	
Rotary joint (number of ports)			12+1			

*1 Values when a rotary joint is not installed.
*2 Values in parentheses ( ) are when a rotary joint is installed
*3 The specified motor shaft equivalent inertia does not include the inertia of the motor shaft.
*4 Maximum holding torque shall be a maximum of 30 seconds at a 40% duty cycle.
*5 This is the value of the unbalanced torque of the rotating shaft acting on the tilt axis at a tilt angle of +90°. (0.112 m x 102 kg x 9.8)

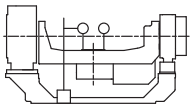
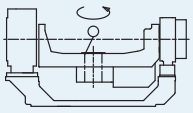
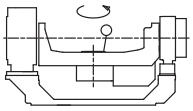
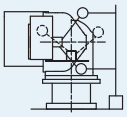
Dimensions

Unit : mm



*Specifications and dimensions are subject to change without notice. Consult Sankyo sales before ordering.

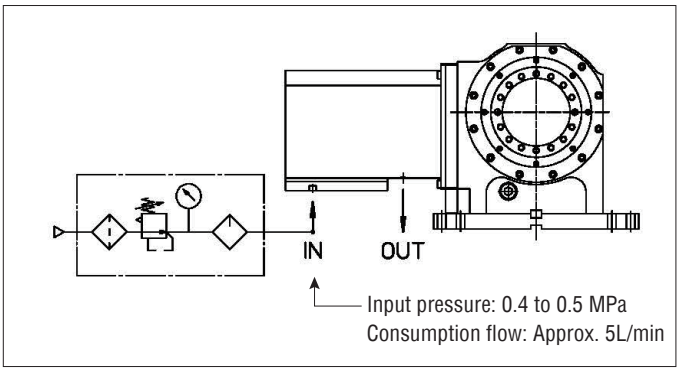
Precision Rating

Measurement		Method	RTG500
Parallelism between table top and bottom surface of base			0.02mm
Runout of table top			0.01mm
Runout of table reference bore			0.01mm
Parallelism between tilt axis center line and bottom surface of base			0.02mm
The degree at which the rotation axis intersects the tilt axis			±0.01mm
Indexing accuracy	Rotary axis		±15arc.sec
	Tilt axis		±30arc.sec
Repeatability	Rotary axis		8arc.sec
	Tilt axis		8arc.sec

Precautions

For pneumatic power supply

Our CNC circular tables are equipped with an air purge as standard equipment, in order to prevent the issues inside the motor case (such as condensation, rust caused by mixing of cutting fluid, and damage to electrical equipment) by the environment. The method of supplying the air for the air purge is shown in the figure on the right. Be sure to provide a clean air supply.
(The exhaust vents must never be blocked.)



Lubrication

High-performance lubricants are used. Although this lubricant is scientifically and thermally stable, to ensure a longer product life we recommend that you change the oil every 3,000 hours of operation.
However, even if the annual operating time is less than that, the oil should be drained and replaced once a year. The condition of the lubricant can be checked when checking the oil level.
Check it while the main unit is stopped. Check the quantity and color of the oil and replace it with new oil if it the oil is low or discolored, regardless of the operating time. In addition, fine air bubbles may enter the oil during operation, but this will not cause a problem with quality. When changing the oil, use the specified lubricants listed below. If other lubricants are used, the product life may be reduced, parts may deteriorate, or other problems may occur.
Specified lubricants: Mobil SHC629 (VG150)

For use in polishing machines

Use of our tables with a grinding machine may damage the outer seals in our tables, so they are not covered by our warranty.

Maximum rotation speed

The maximum table rotation speed listed in the specification table is the maximum rotation speed when used for indexing. If it is used in continuous rotation, the accuracy will deteriorate due to heat generation, the rotary joint will have problems prematurely, and the servo motor overload alarm will sound. Please contact us about this type of application.

Rotary joint

Use hoses for plumbing in the stationary sections. If oil film leaks from the pneumatic circuit, it will cause a serious problem. Install a bleed circuit between the two circuits. Avoid continuous rotation as it may cause heat buildup in the internal seals. The gasket port mounting surface (O-ring seal surface) should be a flat with a surface roughness not higher than Rz 6.3. The fluid used and the pressure must be within the following range.
Ports ① to ⑫: Hydraulic pressure; up to 7.0 MPa, pneumatic pressure; up to 1 MPa
Center port: Coolant; up to 1MPa

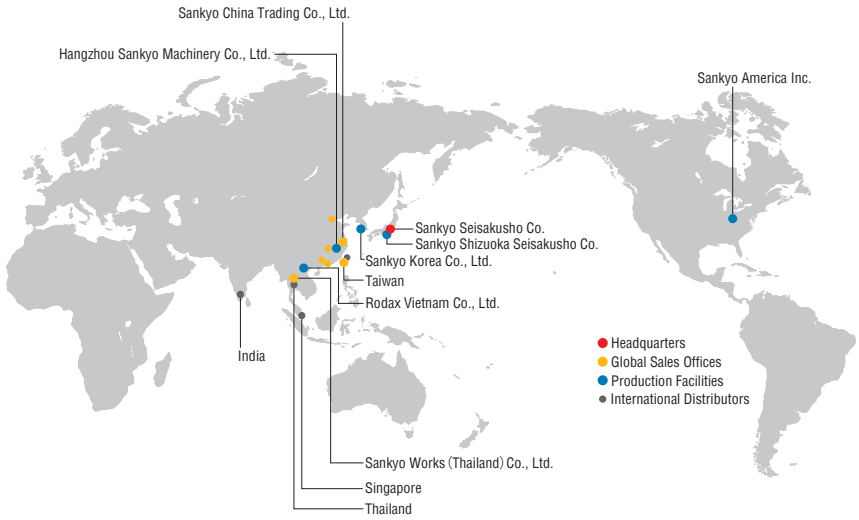
General

■ If this product is used outside of Japan, it may be subject to restrictions under the Foreign Exchange and Foreign Trade Act.

■ Specifications, dimensions and other product information in this catalog are subject to change without notice.

■ The information in this catalog is current as of October 2023.

Global network



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