

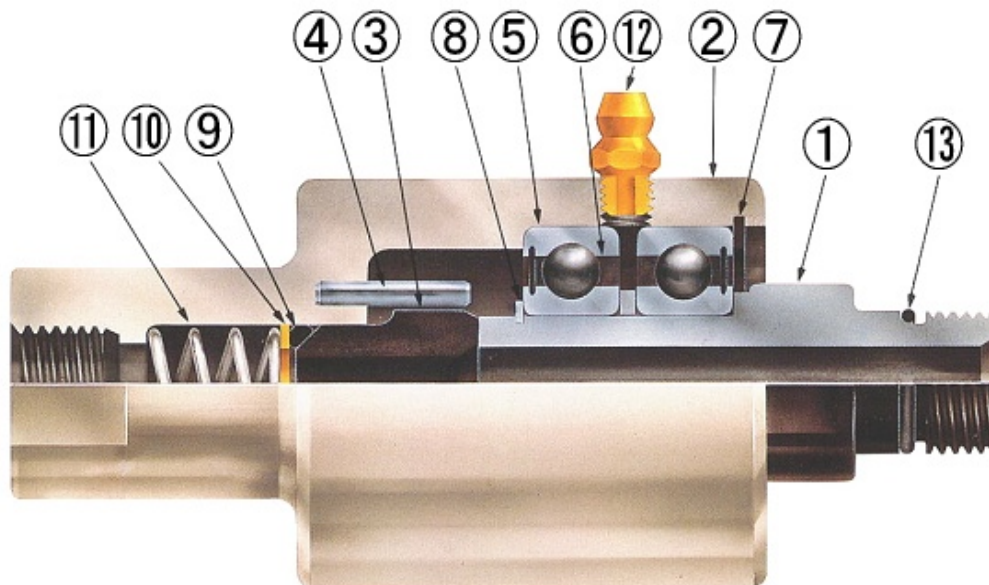
Pearl Rotary Joints

FOR COOLANT SUPPLY OF MACHINE TOOLS ***SXO Series***

FEATURES

1. This joint is mainly served for drilling and boring operations of various machine tools.
2. Under high pressure or high rotation speed, SXO operates efficiently due to its accurate machined rotor and advanced seal technology.
3. In addition to standard "Carbon Graphite to Hardened Tool Steel" seal, SXO offers "Tungsten Carbide to Ceramic" (TCC) seal for longer service life.

CONSTRUCTION



① ROTOR ② CASING ③ SEAL RING ④ PIN ⑤ BALL BEARING ⑥ SPACER ⑦ SNAP RING ⑧ SNAP RING ⑨ O-RING ⑩ WASHER
 ⑪ SPRING ⑫ GREASE NIPPLE ⑬ O-RING
 (IMAGE: STRAIGHT THRU TYPE)

SERVICE CONDITIONS: STRAIGHT THRU TYPE /RIGHT ANGLE TYPE

Fluid	Machining Oil, Water, Oil
Max. Temperature	120 degrees C
Max. Pressure	6.9MPa
Max. Rotation Speed	10000min ⁻¹

Operation at Max.pressure combined with Max. speed should be avoided.

The joint should not run dry (without liquid).

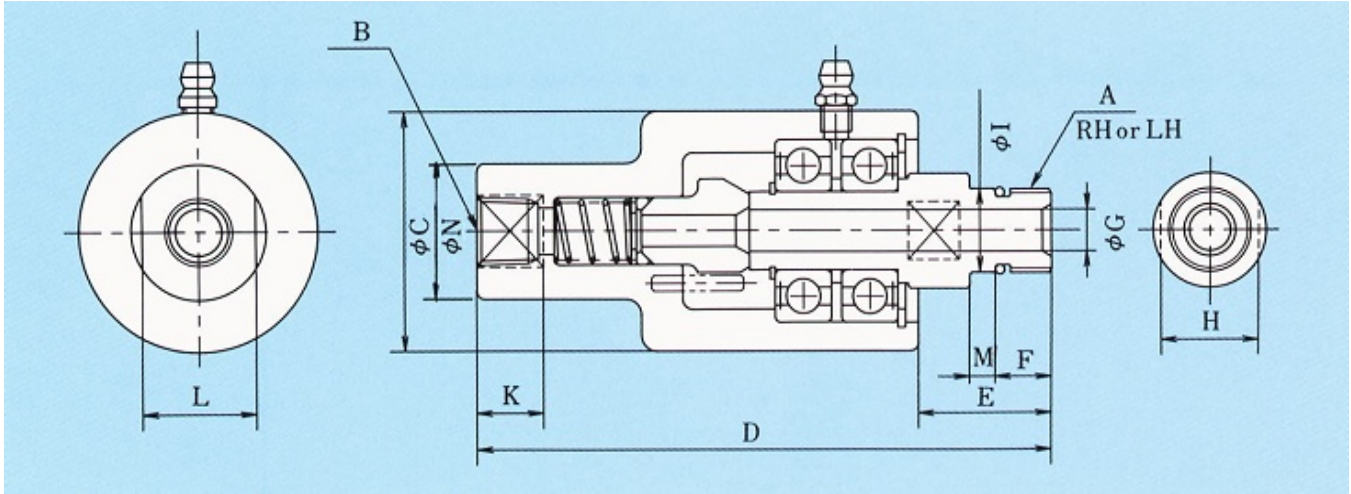
Install the proper strainer when fluid handled contains solid foreign materials.

"Tungsten Carbide to Ceramic" (TCC) seal



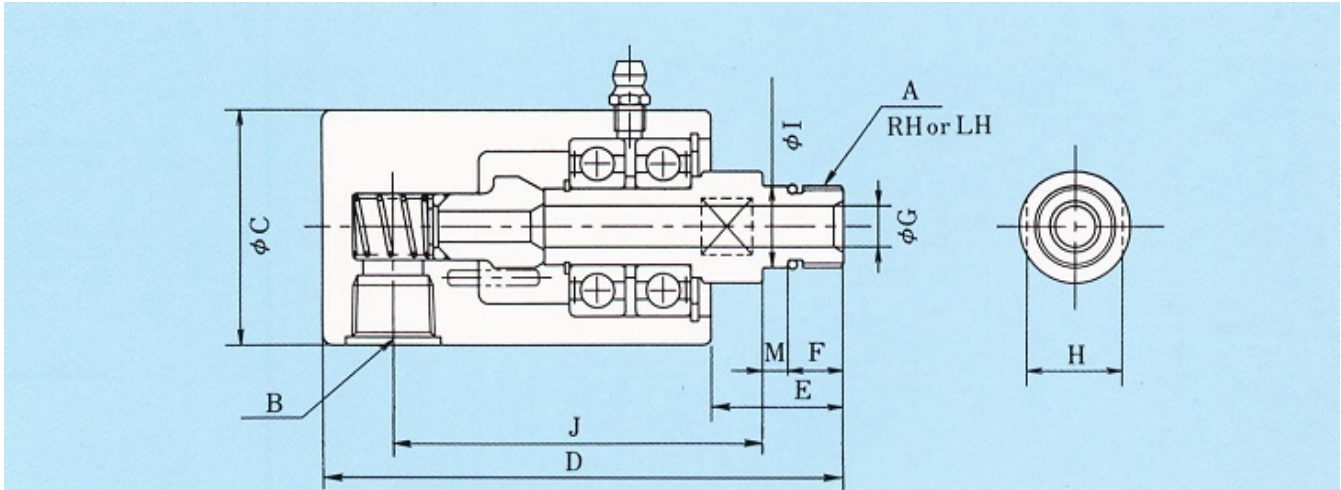
DIMENSIONS

SXO-180 Straight Thru Type Simplex, Thread Connection



Standard Seal	TCC Seal	A	B	C	D	E	F	G	H	I	K	L	M	N
SXO-180	SXO-180-1	M16x1.5	NPT1/4	46	112	26	11	8	19	16.025 16.007	13	22	5	26
SXO-180-2	SXO-180-3	M16x1.5	NPT3/8	46	112	26	11	8	19	16.025 16.007	13	27	5	31
SXO-181	SXO-181-1	M16x1.5	Rc1/4	46	112	26	11	8	19	16.025 16.007	13	22	5	26
SXO-181-2	SXO-181-3	M16x1.5	Rc3/8	46	112	26	11	8	19	16.025 16.007	13	27	5	31
SXO-182	SXO-182-1	5/8-18UNF	NPT1/4	46	109	23	10.3	8	19	15.872 15.860	13	22	2.4	26
SXO-188	SXO-188-1	5/8-18UNF	NPT1/4	46	115.4	29.4	14.3	6.5	19	16.650 16.637	13	22	4.8	26

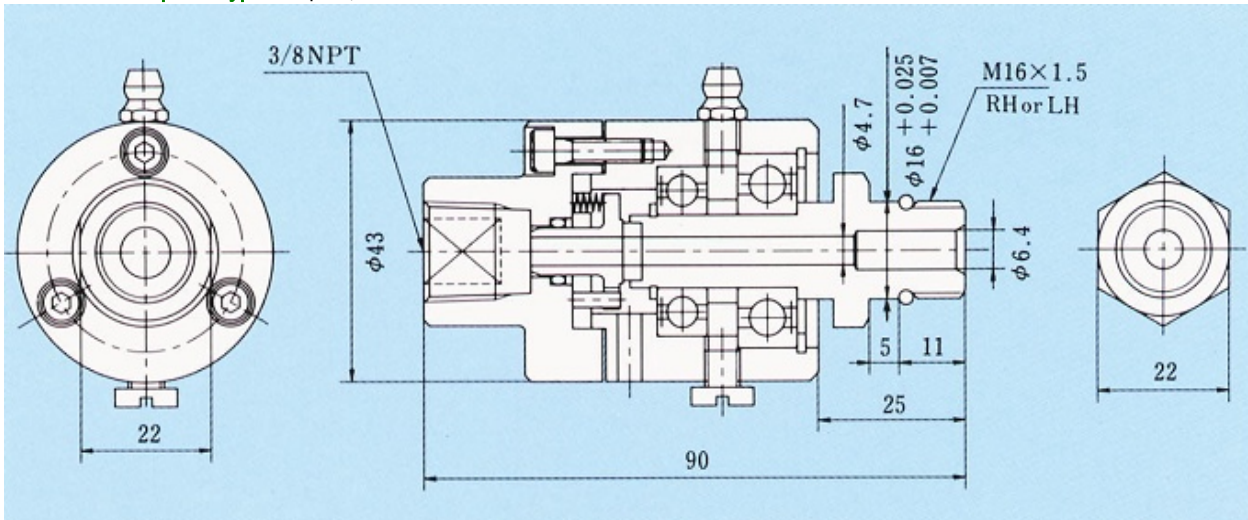
SXO-090 Right Angle Type Simplex, Thread Connection



Standard Seal	TCC Seal	A	B	C	D	E	F	G	H	I	J	M
SXO-090	SXO-090-1	M16x1.5	NPT3/8	46	103	26	11	8	19	16.025 16.007	73	5
SXO-091	SXO-091-1	M16x1.5	Rc1/4	46	103	26	11	8	19	16.025 16.007	73	5
SXO-091-2	SXO-091-3	M16x1.5	Rc3/8	46	103	26	11	8	19	16.025 16.007	73	5
SXO-092	SXO-092-1	5/8-18UNF	NPT3/8	46	100	23	10.3	8	19	15.872 15.860	73.3	2.4
SXO-098	SXO-098-1	5/8-18UNF	NPT3/8	46	106.4	29.4	14.3	6.5	19	16.650 16.637	73.3	4.8

DIMENSIONS

SXO-200 Compact Type Simplex, Thread Connection



Standard Seal	TCC Seal
SXO-200	SXO-200-1

SERVICE CONDITIONS: COMPACT TYPE

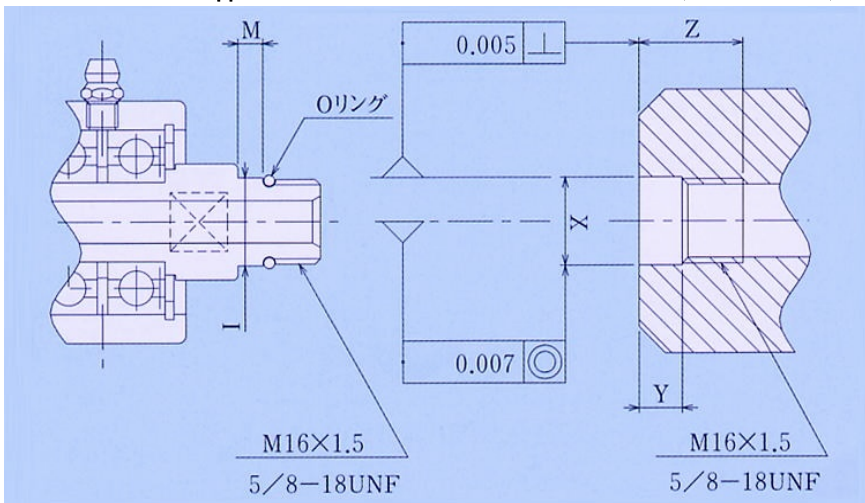
Fluid	Machining Oil, Water, Oil
Max. Temperature	120 degrees C
Max. Pressure	10.3MPa
Max. Rotation Speed	15000min ⁻¹

Operation at Max. pressure combined with Max. speed should be avoided.

The joint should not run dry (without liquid).

Install the proper strainer when fluid handled contains solid foreign materials.

Dimensions of the apparatus to which a SGK thread is attached (For reference)



	Rotary spigot		Connecting shaft processing dimensions		
	I	M	X	Y	Z
ISO Metric	16.025	5	16.037	8.5	17
	16.007		16.027		
UNF	15.872	2.4	15.885	8.5	17
	15.860		15.875		
	16.650	4.8	16.663	8.3	20
	16.637		16.653		

Table of SXO series

		Simplex					
		Straight Thru Type					
		Standard Seal			TCC Seal		
Type	Name	Our Code	Type	Name	Our Code		
Thread Connection	SXO-18*	RJ-SXO-180 LH	SX10018002	SXO-18*	RJ-SXO-180-1 LH	SX10018012	
		RJ-SXO-180 RH	SX10018001		RJ-SXO-180-1 RH	SX10018011	
		RJ-SXO-180-2 LH	SX10018022		RJ-SXO-180-3 LH	SX10018032	
		RJ-SXO-180-2 RH	SX10018021		RJ-SXO-180-3 RH	SX10018031	
		RJ-SXO-181 LH	SX10018102		RJ-SXO-181-1 LH	SX10018112	
		RJ-SXO-181 RH	SX10018101		RJ-SXO-181-1 RH	SX10018111	
		RJ-SXO-181-2 LH	SX10018122		RJ-SXO-181-3 LH	SX10018132	
		RJ-SXO-181-2 RH	SX10018121		RJ-SXO-181-3 RH	SX10018131	
		RJ-SXO-182 LH	SX10018202		RJ-SXO-182-1 LH	SX10018212	
		RJ-SXO-182 RH	SX10018201		RJ-SXO-182-1 RH	SX10018211	
		RJ-SXO-188 LH	SX10018802		RJ-SXO-188-1 LH	SX10018812	
		RJ-SXO-188 RH	SX10018801		RJ-SXO-188-1 RH	SX10018811	

		Simplex					
		Right Angle Type					
		Standard Seal			TCC Seal		
Type	Name	Our Code	Type	Name	Our Code		
Thread Connection	SXO-09*	RJ-SXO-090 LH	SX10009002	SXO-09*	RJ-SXO-090-1 LH	SX10009012	
		RJ-SXO-090 RH	SX10009001		RJ-SXO-090-1 RH	SX10009011	
		RJ-SXO-091 LH	SX10009102		RJ-SXO-091-1 LH	SX10009112	
		RJ-SXO-091 RH	SX10009101		RJ-SXO-091-1 RH	SX10009111	
		RJ-SXO-091-2 LH	SX10009122		RJ-SXO-091-3 LH	SX10009132	
		RJ-SXO-091-2 RH	SX10009121		RJ-SXO-091-3 RH	SX10009131	
		RJ-SXO-092 LH	SX10009202		RJ-SXO-092-1 LH	SX10009212	
		RJ-SXO-092 RH	SX10009201		RJ-SXO-092-1 RH	SX10009211	
		RJ-SXO-098 LH	SX10009802		RJ-SXO-098-1 LH	SX10009812	
		RJ-SXO-098 RH	SX10009801		RJ-SXO-098-1 RH	SX10009811	

		Simplex					
		Compact Type					
		Standard Seal			TCC Seal		
Type	Name	Our Code	Type	Name	Our Code		
Thread Connection	SXO-2**	RJ-SXO-200 10A LH	SX10020002	SXO-2**	RJ-SXO-200-1 10A LH	SX10020012	
		RJ-SXO-200 10A RH	SX10020001		RJ-SXO-200-1 10A RH	SX10020011	

Precautions for Use

1. Use caution not to allow foreign matter to enter the sealed area.
 2. When installing a joint that has a fluid leakage inspection hole, be sure to direct the inspection hole downward.
 3. For joints having a fluid leakage inspection hole: When fluid leaks from the inspection hole, it is time to replace the joint.
 4. For screw-in connection types: The screw must be allowed to tighten freely against the direction of rotation.
The left-hand screw is used when the roll or drum rotates clockwise (when viewed from the rotary joint installation position); the right-hand screw is used when the roll or drum rotates counterclockwise.
 5. Avoid installing piping that would cause the rotary joint to bear the weight of the valve, etc.
 6. Use a flexible tube for connecting the rotary joint and piping.
Do not bind the joint by connecting it directly to the steel pipe.
 7. Do not give the rotation stopper on the rotary joint any excessive restraint for stopping the rotation of the joint.
 8. Lubrication is required where ball bearings are used for high-temperature operation.
Supply grease at regular intervals (the interval differs depending on the operation frequency).
 9. Do not operate the rotary joint at the maximum rotation speed under the maximum allowable working pressure.
 10. When supplying grease, remove the plug, and then top off grease.
 11. The joint should not run dry (without liquid). When air service, mix oil mist into the air to avoid dry operation.
 12. Do not leave the rotary joint at rest for long periods of time. This may cause fluid leaks due to the formation of rust.
 13. In the event of any failure, repair or replace the rotary joint promptly.
- ⚠ Continued operation with fluid leakage may cause major accident.

Causes of Failure

A sign of failure often appears as a premature fluid leakage from the sealing part. This can be found by checking whether any fluid is leaking from the inspection hole in the main body or through the gap between the rotor and casing.

In many cases, the failed joint can be re-used by repairing or replacing certain parts. Please take appropriate measures before the internal parts are damaged.

Main causes of failure are as follows:

- 1) Natural wear and abnormal wear on sealing surface or bearing area
- 2) Undue restraint of joint body
 - The rotation stopper is restrained.
- 3) The center of the machine is improperly aligned with the center of the rotary joint.
 - The end face of the axis of rotation of the machine is not at a right angle to the shaft.
 - The mating part (spigot) is improperly assembled.
 - The center of the mounting screw of the machine to be connected to is incorrectly aligned.
 - The screw direction is incorrect.
 - In the case of flange connection, bolts are not evenly tightened.

(After installation, be sure to operate it at low speed and make sure that centering is achieved).
- 4) The piping ahead of the joint is improperly installed.
 - The joint is connected to a steel pipe.
 - The flexible tube does not have adequate flexibility.
 - The bending direction of the flexible tube is inappropriate.
 - The joint is directly subjected to the weight of a valve, trap or other part.
- 5) The internal pipe is not appropriate.
 - The internal pipe and siphon pipe are too heavy and held just by the screw at the joint head.
 - The internal pipe is off-center.
- 6) Use of improper product type.
 - The diameter is too small.
 - The working temperature is too high.
 - The working pressure is too high.
 - The number of RPMs is too high.
 - Operated with an improper type of fluid.
 - Operated with no fluid running.
- 7) Problem with flowing fluid
 - Foreign matter remains in the flow path such as piping, roll, etc.
 - Improper solvent medium is deposited in fluid.
 - The design of the piping installation is not appropriate.
- 8) Others --- If a failure is detected, DO NOT disassemble the joint yourself. Contact us for repairs.

Frequently Asked Questions

Q: What is the difference between "RH/LH" (representing the screw direction of the rotor of the screw-in type rotary joint) and "R/L" (stamped on the rotary joint)?

A: There is no particular difference between "RH/LH" and "R/L". "RH" and "LH" are the abbreviation of "Right Hand" and "Left Hand", respectively. "R/L" is simply used instead of "RH/LH" on the faceplate of the product.

Q: What is the difference between AC Series and NC Series?

A: They are both high-temperature types but with different structure. The AC Series is a lubricating type using a ball bearing, while the NC Series is a non-lubricating type using a carbon bearing in a spherical sealing structure.

Q: What should I do to let a screw tighten freely against the direction of rotation?

A: When installing the joint, use a screw whose direction is opposite to the direction of rotation of a rotating body to which the joint is connected.

Q: Fluid is leaking from the inspection hole.

A: It is time to repair or replace the joint.

Q: Is it possible to use RXH type to run steam as fluid?

A: The standard products of RXH type cannot be used to run steam as a fluid. For this purpose, use AC Series or NC Series.

Q: A leakage occurred shortly after installation.

A: Check installation and use conditions. Impurities in the fluid and improper installation are two common causes of many leakage failures. Use of an improper product type may also cause leakage.

When this is a new order to us

Please specify the following information in your order.

○ If you are currently using our joint

A: In the case of a joint listed in this brochure

Model, size (and, in the case of duplex type, internal pipe size), and screw direction (when using a screw-in type)

B: In the case of a special product

Model, size, screw direction (when using a screw-in type)

Serial number, date of manufacture

Model names contain "OC", "ONC", "OKC", "RXS", etc.

For flange connection types, it is not necessary to specify the screw direction.

For screw-in types, please specify the screw direction.

Please select a left-hand screw when the roll or drum rotates clockwise (when viewed from the rotary joint installation position) and a right-hand screw when the roll or drum rotates counterclockwise.

○ When this is a new order to us

1. Fluid for use, pressure, temperature, number of revolutions and description of the machine to be connected
2. Direction of rotation of the machine to be connected (Direction of rotation when viewed from the joint installation position)
3. Connection type: Screw-in connection (screw direction) or flange connection
4. Connection piping port: Screw-in connection or flange connection
5. Size
6. Structure: Simplex type or duplex type (with stationary internal pipe or rotational internal pipe)
7. Frequency of operation and working shifts
8. Working environment (e.g., use in clean room)
9. Other special requests

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