Doc. no. J**-OMG0142-A

Operation Manual

PRODUCT NAME

FLOATING JOINT

MODEL/ Series

JS SERIES

SMC Corporation

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Floating joint
Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage.
These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger."
They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), Japan Industrial Standards (JIS)*1) and other safety regulations*2).

*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems
ISO 4413: Hydraulic fluid power -- General rules relating to systems
IEC 60204-1: Safety of machinery -- Electrical equipment of machines (Part 1: General requirements)
ISO 10218-1992: Manipulating industrial robots -- Safety
JIS B 8370: General rules for pneumatic equipment.
JIS B 8361: General rules for hydraulic equipment.
JIS B 9960-1: Safety of machinery – Electrical equipment for machines. (Part 1: General requirements)
JIS B 8433-1993: Manipulating industrial robots - Safety. etc.

*2) Labor Safety and Sanitation Law, etc.

Caution	Operator error could result in injury or equipment damage.
Warning	Operator error could result in serious injury or loss of life.
Danger	In extreme conditions, there is a possibility of serious injury or loss of life.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1) Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2) Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3) An application which could have negative effects on people, property, or animals requiring special safety analysis.

4) Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Floating joint Safety Instructions

⚠ Caution

The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

The warranty period of the product is 1 year in service or 1.5 years after the product is delivered.*3) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***3) Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

When the product is exported, strictly follow the laws required by the Ministry of Economy, Trade and Industry (Foreign Exchange and Foreign Trade Control Law).

Design

⚠ Warning

(1) Confirm the application.

This product is a shaft coupling for linear reciprocating motion used to absorb slight misalignment of the workpiece and the cylinder during linear motion. It is not a shaft coupling for rotation.

Do not use it for an application in which rotation or oscillation are applied.

(2) Confirm the specifications.

Usage/operation under conditions of temperature, load and operating range outside of the specified range may lead to breakage and operation failure of the product.

(3)Provide a shock absorbing mechanism in order to prevent impact load when the work piece is stopped.

Provide a shock absorbing mechanism such as a cushion or shock absorber in order to prevent impact load from being generated due to inertia when the work piece stops at the stroke end, etc.

Mounting

⚠ Warning

(1) Maintenance space

Allow sufficient space for maintenance and inspection.

(2) Operate the stud by hand to make it move smoothly before mounting the product to the driven object.

The dust cover can get stuck to the stud after storage for a long period of time. Operate the stud by hand to make it move smoothly before screwing the stud or the socket or the case into the driven object.

(3) When tightening, only hold the hexagon head part.

When connecting the driven object to the cylinder rod with a floating joint, hold the hexagon head with a spanner and tighten the lock nut to the appropriate torque for the screw size to fasten it securely. The floating joint may be broken if parts other than the hexagon head are gripped or rotated with pliers or a wrench, etc. If there is a risk of equipment damage or injury in the case of equipment running out of control or dropping of the driven object due to loosening of the lock nut, take countermeasures such as using pins or adhesive to prevent the loosening.

(4) Painting on product

Models or specifications printed or marked on the product should not be erased, removed or covered up. Contact SMC if paint is to be applied to resin parts, as this may have an adverse effect due to the paint solvent.

(5) Transportation, installation, piping, wiring, operation, handling, and maintenance should be performed by personnel with sufficient knowledge and experience.

There is a risk of electric shock, injury or fire.

(6) Do not disassemble or modify the product.

There is a risk of injury and damage. Contact SMC for repairs and maintenance of the product.

(7) Do not wipe the product using chemicals.

Operating environment

⚠ Warning

(1) Do not use in an environment where corrosive gases, chemicals, sea water or steam are present.

(2) Do not operate in a location subject to vibration or impact.

(3) Use a protective cover, etc. to shield the product from direct sunlight.

(4) Shield the product from radiated heat generated by nearby heat sources.

(5) Employ suitable protective measures in a location where there is contact with oil or welding spatter, etc.

Maintenance

⚠ Warning

(1) Removal of equipment, and supply/exhaust of compressed air.

When equipment is serviced, first confirm that measures are in place to prevent dropping of driven objects and or equipment running out of control, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.

When the equipment is to be started again after remounting, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment can operate normally.

(2) Implement regular inspections as necessary when starting-up, etc. to confirm that there is no external damage or loosening of the connection with the driven object.

(3) If the gap in the shaft direction increases or the stud does not operate properly, stop operation.

Unexpected motion can cause injury and equipment damage.

2. FEATURES

Floating joint is shaft coupling for linear reciprocating motion. it contains a mechanism that allows oscillating motion and radially sliding motion.

Used as a linking element between an actuator such as an air cylinder and an object to be actuated,it offers the following features.

(1)Facilitates cylinder connection job,reducing working hours.

(2)Eliminates the need for expensive high precision machining which is required for shaft alignment.

(3)Diminishes forces exerting on shafts and races,lengthening service life.

(4)Offers longer service life because the joint is provided with a dust cover.

(5)withstands high thrust load even though compact in size

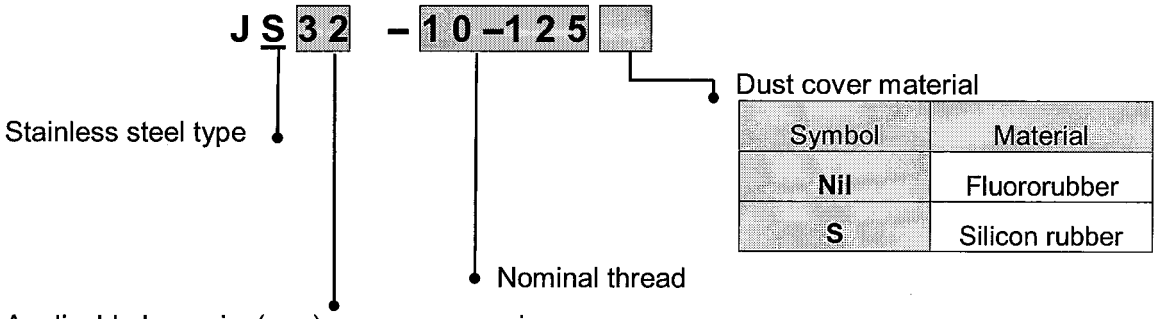
Model	Applicable(1) bore size (mm)	Applicable cylinder nominal thread size	Maximum operating tension and compression force(N)	Allowable eccentricity U(mm)	Operating pressure	
					Air pressure cylinder	Hydraulic cylinder
JS10-4-070	10	M4x0.7	80	0.5	1 MPa or less	—
JS16-5-080	10,16	M5x0.8	210	0.5		
JS20-8-125	20	M8x1.25	1100	0.5		3.5 MPa(2) or less
JS32-10-125	25,32	M10x1.25	2500	0.5		
JS40-14-150	40	M14x1.5	6000	0.75		
JS63-18-150	50,63	M18x1.5	11000	1		

Note 1)Think of applicable bore size as a guide. For details, confirm the rod end thread diameter of a cylinder to be used in the catalog.

Note 2)For 3.5 MPa hydraulic cylinders,operate within the maximum tension and compression force.

Note 3)Ambient and fluid temperature:-5 to 70℃

4. How to order



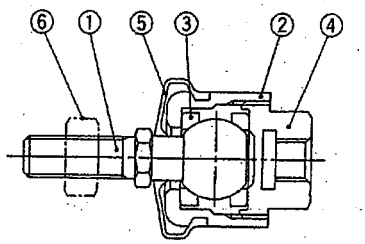
Symbol	Material
Nil	Fluororubber
S	Silicon rubber

Symbol	Applicable bore size(mm)
10	10
16	10,16
20	20
32	25,32
40	40
63	50,63

Symbol	Applicable cylinder nominal thread size
4-070	M4x0.7
5-080	M5x0.8
8-125	M8x1.25
10-125	M10x1.25
14-150	M14x1.5
18-150	M18x1.5

5.Construction

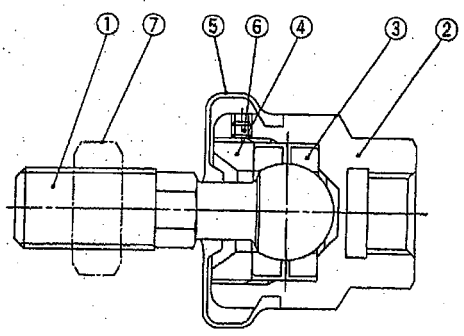
JS10,16



Component Parts

No.	Description	Material	Note
1	Stud	Stainless steel	
2	Case	Stainless steel	
3	Ring	Stainless steel	
4	Socket	Stainless steel	
5	Dust cover	Fluororubber / Silicon rubber	
6	Rod end nut	Stainless steel	

JS20～63



Component Parts

No.	Description	Material	Note
1	Stud	Stainless steel (Thread parts) /steel ball	Electroless nickel plated
2	Case	Stainless steel	
3	Ring	Chromium molybdenum steel	Electroless nickel plated
4	Cap	Carbon steel	Electroless nickel plated
5	Dust cover	Fluororubber / Silicon rubber	
6	Set screw	Carbon steel	
7	Rod end nut	Stainless steel	

<Description of Construction>

(1) Stud(1) is provided with male thread to be used for connecting an object to be actuated.

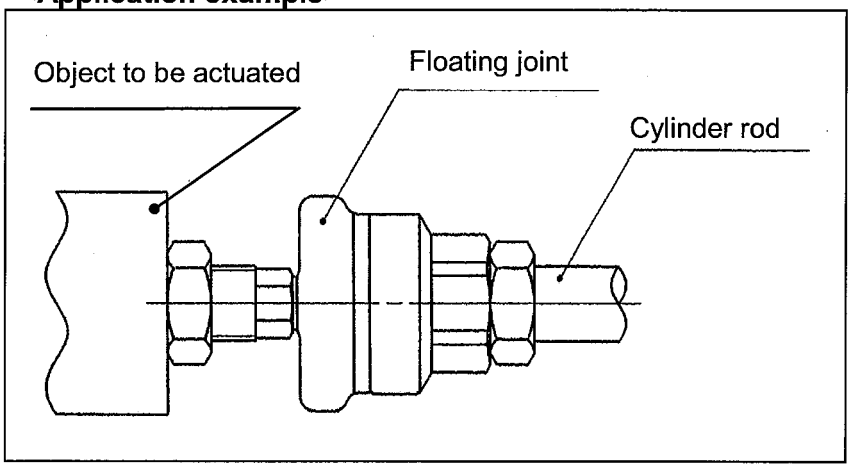
(2) Case(2)(Socket(4)) is provided with female thread to be used for connecting the rod of an actuator.

(3) Radial sliding is allowed in such a manner that stud(1) slides radially between case(2) and cap(4) along with rings(3)

(4) Oscillating motion is given in such a way that the sphere of stud(1) rotates between rings(3)

(5) Dust cover(5) always ensures perfect dusr-tightness during floating movement of stud(1) .

<Application example>



6. Replacement Parts

Dust cover

When the dust cover is damaged and deteriorated, order with the part number as shown below.

Model	Part no. for dust cover	
	Fluororubber	Silicon rubber
JS10	P21530511	P21530512
JS16	P21530521	P21530522
JS20	P2153151	P2153152
JS32	P2153251	P2153252
JS40	P2153351	P2153352
JS63	P2153451	P2153452

Rod end nut

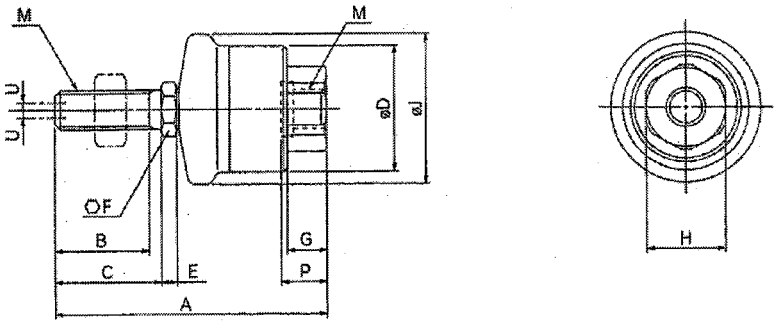
Rod end nut (1 pc.) is attached to the standard type of Series JS.

But if it is needed additionally, order it as follows. For details, refer to page 10.

Example.....Nut for JS40

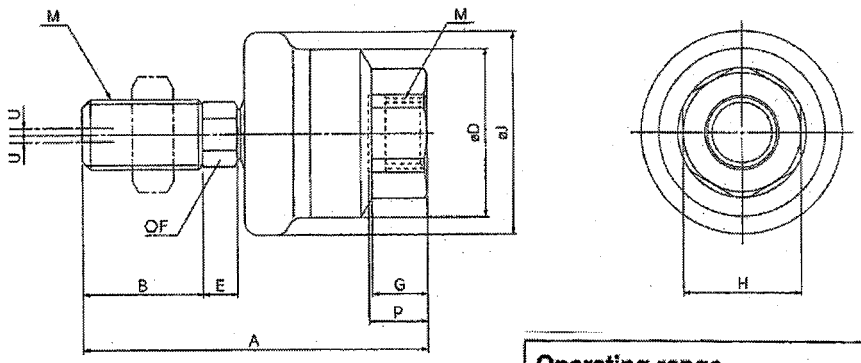
7. Dimensions

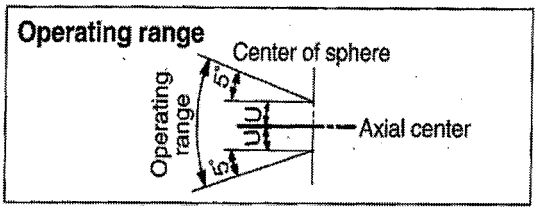
JS10,16



*Use the precision spanner for clock 4 mm in the case of mounting male thread of JS10.

JS20～63



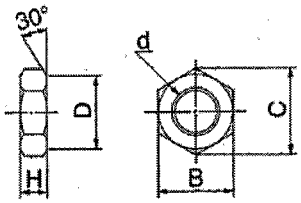


(mm)

Model	M	A	B	C	D	E	F	G	H	J
JS10-4-070	M4x0.7	26	8.5	9.5	12	1.5	4	4	7	14.4
JS16-5-080	M5x0.8	34.5	12	13.5	16	2	6	5	10	19
JS20-8-125	M8x1.25	43.9	15.5	-	21	4.5	7	7	13	24.8
JS32-10-125	M10x1.25	49.5	17.5	-	24	5	8	8	17	29
JS40-14-150	M14x1.5	60	18.5	-	31	5	11	11	22	38.4
JS63-18-150	M18x1.5	74.5	23	-	41	7	14	13.5	27	49.2

Model	Center of sphere **R**	Max. thread depth **P**	Allowable eccentricity **U**	Maximum operating tension and compression force (N)
JS10-4-070	17	4.7	0.5	80
JS16-5-080	23	5.8	0.5	210
JS20-8-125	29.9	7.3	0.5	1100
JS32-10-125	33.5	8.5	0.5	2500
JS40-14-150	38	11.6	0.75	6000
JS63-18-150	47.5	14.3	1	11000

Rod end nut



(mm)

Description	d: thread nominal size	H	B	C	D
JS10 nut	M4x0.7	3.2	7	8.1	6.8
JS16 nut	M5x0.8	4	8	9.2	7.8
JS20 nut	M8x1.25	5	13	15	12.5
JS32 nut	M10x1.25	6	17	19.6	16.5
JS40 nut	M14x1.5	8	22	25.4	21
JS63 nut	M18x1.5	11	27	31.2	26

Revision history

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