



Operation Manual

PRODUCT NAME

FLOATING JOINT

MODEL/ Series

J C S E R I E S

SMC Corporation

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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)^{*)}, and other safety regulations.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots
etc.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



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.

1. 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.
2. 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.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.



Safety Instructions

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

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

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. 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.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) 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

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Warning

(1) Confirm the application.

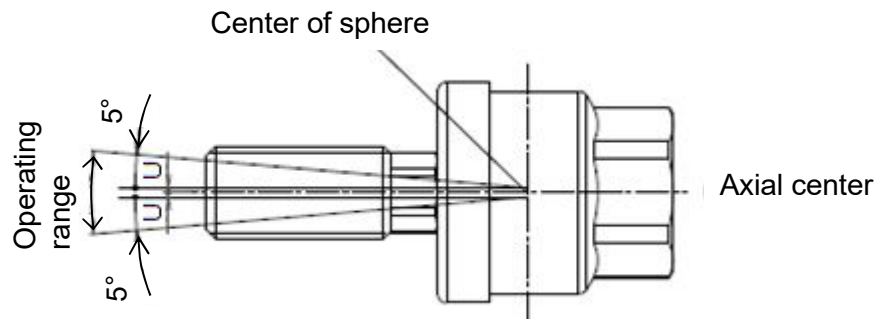
This product is a shaft coupling for linear reciprocating motion used to absorb a slight mis-alignment of the workpiece and the cylinder during linear motion. It is not a shaft coupling for rotation. Do not use it for an application in which rotation or oscillation are applied.

(2) Confirm the specifications.

Refer to the catalogue for specifications and dimensions of products. 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. Play approx. 0.06mm in axial center direction.

(3) Play in the axial direction

JC series has play in the axial direction. (Default: 0.06 mm or less) When positioning the driven object, avoid the influence of play using a knock pin or external stopper.



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

When a driven object is stopped, be sure to prevent the impact force of the object being transferred to the product by using the cushion mechanism of a cylinder or other cushioning devices such as a shock absorber. Otherwise, the impact force may exceed the maximum tensile and compressive force of the product, resulting in damage to the product.

(5) When using this product, ensure the kinetic energy is 25% or less of the maximum allowable kinetic energy for the SMC cylinder it is attached to.

Installation



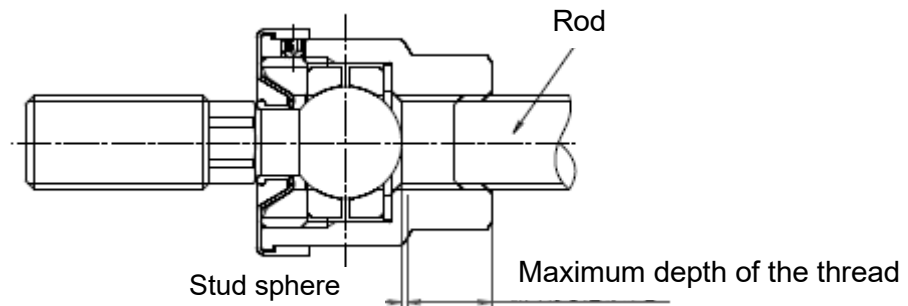
Warning

(1) Maintenance space

Allow sufficient space for maintenance and inspection.

(2) When screwing the male threads of the rod into the female threads of the socket or the case, make sure that it does not contact the stud sphere.

When the rod is screwed into the socket or case female thread, mount the rod end so that it does not contact the stud sphere. If the floating joint is used with a rod contacting the stud sphere, the stud will not be able to float, causing damage. As a guide, loosen the rod 1 to 1.5 turns from the position where the stud sphere was contacted.



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

The dust cover may stick to the stud. Move the dust cover at the base of the stud with fingers, or twist the stud right and left gently to free them. When screwing the stud or socket, or case in the driven object, make sure to remove the dust cover from the case. If it is screwed without removing the dust cover, the dust cover might be broken.

(4) 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.

(5) Do not paint the product.

Models or specifications printed or marked on the product should not be erased, removed or covered up. Do not paint resinous parts, as this may have an adverse effect due to the solvent in the paint.

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

(7) Do not disassemble or modify the product.

This may cause human injury and/or an accident.

(8) Do not wipe the product using chemicals.

Operating Environment

Warning

- (1) Avoid using in a location where the product could be splashed by liquids such as coolants and water. Also, avoid locations where exposed to a large amount of dust or foreign matter.**

If liquid or dust gets inside the floating joint from the gap of the dust cover, it may cause a malfunction. Install a protective cover if the product is directly splashed by liquids or foreign matter can be accumulated.

- (2) Do not use in an environment where corrosive gases, chemicals, sea water, water or steam are present.**
- (3) Do not operate in a location subject to vibration or impact.**
- (4) Use a protective cover, etc. to shield the product from direct sunlight.**
- (5) Shield the product from radiated heat generated by nearby heat sources.**
- (6) Employ suitable protective measures in a location where there is contact with oil or welding spatter, etc.**

Maintenance and Inspection

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.**

Before performing maintenance, confirm that measures are taken to prevent sudden action and protect workers.

- (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.

- (4) Do not reuse if disassembled.**

High strength adhesive is applied to the portion of the connection that is threaded to prevent it from loosening, and it must not be disassembled. If it is forcefully disassembled, it could lead to damage.

2. Specifications

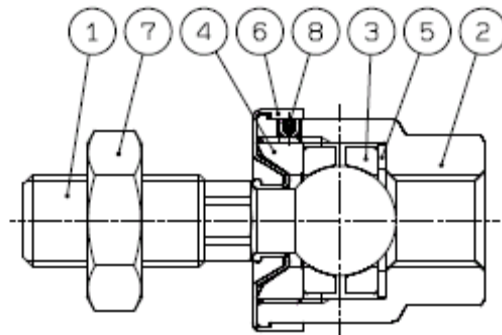
JC series

Model	Applicable bore size I.D. mm	Applicable cylinder nominal thread size	Maximum operating tension and compression force N	Allowable eccentricity U mm	Rotating angle
Standard					
JC20-8-125	20	M8×1.25	300	0.5	+/-5°
JC30-10-125	25 · 32	M10×1.25	800	0.5	
JC40-14-150	40	M14×1.5	1250	0.75	
JC63-18-150	50 · 63	M18×1.5	3100	1	
Semi-standard					
JC20-8-100	20	M8×1	300	0.5	+/-5°
JC25-10-150	25	M10×1.5	800	0.5	
JC32-10-100	32	M10×1	800	0.5	
JC40-12-125	32 · 40	M12×1.25	1250	0.75	
JC40-12-150	40	M12×1.5	1250	0.75	
JC40-12-175	32 · 40	M12×1.75	1250	0.75	
JC50-16-150	50	M16×1.5	3100	1	
JC63-16-200	50 · 63	M16×2	3100	1	

Operating pressure	Pneumatic cylinder: 1MPa or less
Operating temperature	-10 to 70 °C

3. Construction

JC20 to JC63



No.	Item	Material	Note
1	Stud	Steel	Black
2	Case	Aluminum alloy	Chromated
3	Ring	Steel	
4	Cap	Steel	Black zinc chromate
5	Washer	Steel	
6	Dust cover	Synthetic rubber	
7	Rod end nut	Steel	Zinc chromated
8	Set screw	Steel	Zinc chromated

4. Replacement part

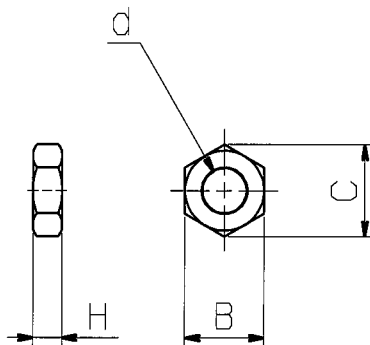
(1) Dust cover

When the dust cover is broken or deteriorated, please order the replacement with part number below.
Only the basic type dust cover is replaceable.

Part no. for dust cover	Applicable models
P215215	JC20
P215225	JC25,JC30,JC32
P215235	JC40
P215245	JC50,JC63

(2) Rod end nut

Model	Part number	d: Nominal thread size	H	B	C
JC20-8-100	DA00207	M8×1	5	13	15
JC20-8-125	DA00169	M8×1.25	5	13	15
JC32-10-100	DA00141	M10×1	6	17	19.6
JC30-10-125	DA00142	M10×1.25	6	17	19.6
JC25-10-150	DA00140	M10×1.5	6	17	19.6
JC40-12-125	DA00145	M12×1.25	7	19	21.9
JC40-12-150	DA00146	M12×1.5	7	19	21.9
JC40-12-175	DA00143	M12×1.75	7	19	21.9
JC40-14-150	DA00148	M14×1.5	8	22	25.4
JC50-16-150	DA00151	M16×1.5	10	24	27.7
JC63-16-200	DA00150	M16×2	10	24	27.7
JC63-18-150	DA00153	M18×1.5	11	27	31.2



Revision history
A: Revision to (3) and addition to (4) on page 5, Revision to (1) and part numbers corrected in (2) on page 9
B: Change of the note on the Safety Instructions. 2024.3

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
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