

## Cautions for Handling Spherical Rolling Joints

The spherical rolling joint is a precision device and must be handled correctly and carefully. When handling or installing it, observe the following cautions:

1. Cautions for Use - Use spherical rolling joints under these conditions:
  - a. At normal atmosphere/under normal pressure
  - b. Within an environmental temperature range of 5 to 40 degrees C
  - c. Loading, oscillation frequency, working angle range and other dynamics should be within the stated specifications of the product.
  - d. The spherical rolling joint was originally designed on the assumption that load is applied in the axial direction. Do not apply load in any other direction with the shaft inclined for a long duration.
  - e. Continuous loads should be at 80% or lower of basic dynamic load rating (C)
  - f. Tension loading should only be applied axially. Limit tensional loads to 30% of the dynamic compressive load specification. Requests for applications requiring greater tensional are welcome.
  - g. Avoid rotating the shaft if possible.
  - h. The retainer may become misaligned during use. If misalignment occurs, remove any load and reset the retainer to its correct orientation. Continuous use without correcting the retainer position could damage the SRJ.
2. Protection from contamination from particulates/foreign matter.
  - a. Intrusion of particulates/foreign matter. adversely influences the performance and service life of the product. Maintain clean environmental conditions during installation and operation. Provide adequate measures, such as a cover, as required.
3. Protection from impact
  - a. Dropping or impacting on to the product could scratch or dent the ball or housing, resulting in failure of the product.
4. Cautions for mounting tools
  - a. Always use proper mounting tools appropriately. Avoid using any makeshift tools. Standard tightening torques for SUS bolts are shown below:

Size	Torque (Nm)
M1.6	0.09
M2.5	0.36
M3.0	0.63
M4.0	1.50

Size	Torque (Nm)
M 5	3.0
M 6	5.2
M 8	12.5
M10	24.5

5. Cautions for rust prevention
  - a. Our spherical rolling joints are made of high carbon chromium steel. Submerging in water or exposure to condensation, sweat or corrosive environments could cause rust to form on the product.
  - b. Store the product at normal temperature (20 @ 15<sup>^</sup>C) and humidity of 60%RH or under.

## 6. Restrictions on product modification

- a. The spherical rolling joint is adjusted and assembled precisely. Do not loosen the housing assembly bolts (4 or 6 cap screws) or overhaul or modify the product. Doing so will reduce product accuracy and/or damage the product.
- b. Please consult us should you need to loosen the assembly bolts at the housing, or overhaul or modify the product.

## 7. Cautions for installation

- a. Before installing a spherical rolling joint, always check the mounting face to see that it is free from foreign matters, burrs, or misalignment of the tapped holes. After installation, check that the housing of the joint is not distorted. Note that failure to do so could impair accuracy or function, or cause damage to the product.
- b. When installing a spherical rolling joint, take care to avoid exerting a lateral or longitudinal load exceeding the basic static load rating or applying an oscillating angle beyond the product specifications. It is recommended to install it at right angles under no load condition.
- c. Note that any scratch or dent in the ball or housing made during installation could lead to damage the joint

## 8. Cautions for lubrication

- a. The product is coated with rust preventive oil at the time of delivery. Prior to use, remove rust preventive oil and apply grease or oil.
- b. Spherical rolling joints require good lubrication during use. Operation without lubrication could cause premature wear of the joint. Be sure to provide lubrication appropriate for the working condition in order to maintain the function and accuracy of the spherical rolling joint for a long period of time.
- c. An appropriate greasing cycle varies depending on the working conditions and environment. Under ordinary operating conditions, apply grease to the product at a rolling distance of 50 km or every 6 months.

### Types of lubricant

Lubricants	Types	Product Name
Grease	Lithium grease Urea grease	AFB Grease (THK), Alvania Grease No. 2 (Shell) or equivalent
Oil	Sliding surface oil	Daphne Super Multi 32-68 (Idemitsu) or equivalent

### Lubrication under special environments

Working Environment	Characteristics	Product Name
Vacuum	Fluorinated vacuum grease	FOMBLIN Grease (Ausimont)
Clean room	Low dust generation grease	AFF Grease (THK)
Minute strokes	Fretting resistant grease	AFC Grease (THK)