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### 1) Manufacturer's Declaration

We hereby declare that a swivel joint fitting is not a machine within the meaning of Article 2g of the EC Machinery Directive 2006/42.

### 2) Safety Guidelines

#### Designated Use



Swivel joint fittings are designed for installation in pipes and distributor plates of the food and beverage industry. They are especially suitable for the compensation of rotating and axial motion.

These swivel joint fittings shall be used according to their designated purpose and the Safety Guidelines and Technical Data specified in these Instructions for Use.

#### General Safety Guidelines



- Working on the swivel joint fitting is principally allowed only in depressurized and cooled condition
- When demounting the swivel joint fitting escaping liquid or gas may cause injury

### 3) Functional Description

Swivel joint fittings are used as a rotating and length-compensation pipe connection offering the following features:

- opposing rotation of the left and right pipe side (rotary swivel joint fitting)
- opposing rotation of the left and right pipe side and additional axial length compensation (extending rotary swivel joint fitting)

Swivel joint fittings can be passed with pigs and can be dismantled also when welded in place. They must be cleaned using the COP procedure (Cleaning Out Of Place) (see re. 8 Note on Cleaning). A leakage hole on the outer pipe serves for easy visual inspection.

### 4) Technical Data

Nominal sizes: DIN DN25 - DN100 / SMS DN25 - DN102

#### Versions:

- extending rotary swivel joint fitting
- rotary swivel joint fitting



#### Materials:

- Inox parts in contact with product: AISI316L (1.4404)
- Inox parts not in contact with product: AISI304 (1.4301)
- Steering ring: Dyneon™ TFM1600
- Slip ring: Dyneon™ TFM1600
- O-ring seal:

	Temperature	Short-term temp.
EPDM (Standard)	-40°C to 110°C	+140°C (+284°F)
FPM (Viton) (optional)	-20°C to 160°C	+180°C (+356°C)

#### Surfaces:

- in contact with product: Ra ≤ 0,8µm
- not in contact with product: Ra ≤ 1,6µm

#### Connections:

- Welded ends: DIN11850, SMS
- Clamp: Tri-Clamp (on request)

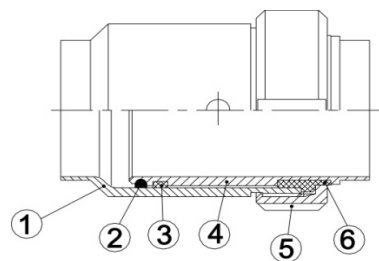
#### Pressure:

- Operating pressure: 10 bar max. (145 psi max.)

#### Temperature:

- Operating temperature: 110°C (230°F)
- Short-term temperature: 140°C (284°F)
- Cleaning temperature: 110°C (230°F)

### 5) Parts and Spare Parts List



Item	Designation	Qty.
1	Outer pipe	1
2	<b>O-ring</b>	<b>1</b>
3	<b>Slip ring</b>	<b>1</b>
4	Inner pipe	1
5	Groove nut	1
6	<b>Steering ring</b>	<b>1</b>

Parts list (spare and wear parts are in bold and italic type)

## 6) Installation Instructions



### General

- For self drainage the outer pipe (1) of the swivel joint fitting has to point downwards
- With installed swivel joint fittings, care must be taken to ensure that no radial forces act exclusively on the outer pipe (1) or exclusively on the inner pipe (4). The stressed pipe could alter its position related to the other pipe, thus causing a leak
- To meet 3A Standard rotary swivel joint fittings have to be installed in combinations with fittings according applicable 3A Sanitary Standards

### Welding Guidelines

- In order to avoid damage to O-ring, steering and slip ring, dismantle the swivel joint fitting before welding it in place in a piping system
- Thoroughly clean outer and inner pipe after welding (and before assembly), since possible impurities could damage the O-ring, steering and slip ring
- Welding to be performed using the TIG method and only by qualified personnel according to DIN EN 287-1
- Detailed recommendations on proper hygienic welding are described in EHEDG document no. 35 or American Welding Society AWS D18.1/D18.1M:2009

## 7) Demounting



1. **Never demount a pressurized swivel joint fitting**
2. Loosen the groove nut (5) with a hook wrench.
3. With a gentle turning movement by hand, remove the outer pipe (1) in axial direction from the inner pipe (4) while holding the inner pipe (4) with the other hand.
4. Push the steering ring (6) slightly apart on the disconnection point, and remove it in axial direction from the inner pipe (4).
5. Push the slip ring (3) slightly apart on the disconnection point, and remove it in axial direction from the inner pipe (4).
6. Remove the O-ring (2).

## 8) Maintenance

### Maintenance Intervals

The maintenance intervals are primarily dependent on the operating conditions (temperature, stress caused by rotating and axial motion, pressure, cleaning medium, etc.). The recommendation is to check the wear parts (O-ring, steering and slip ring) every 6 months, and to replace as necessary.

### Maintenance Activities

1. After demounting, completely clean all parts.
2. In the outer pipe's inner diameter (1) check the sealing face for damage, on which the O-ring seals the outer pipe (1) against the inner pipe (4).
3. Check the condition of the O-ring (2), the steering ring (6) and the slip ring (3), and replace as necessary.
4. Lubricate the O-ring groove and the square grooves (for steering and slip ring) with food-safe grease "Klüber Paraliq GTE703".  
For assembly of O-ring (2), steering ring (6) and slip ring (3) see re. 9.

### Recommended Lubricants

Male thread of outer pipe: Klüber lubricating paste UH1 84-201

All other parts and spots indicated above: Klüber paraliq GTE703 NFS H1

### Note on Cleaning

Manual cleaning in demounted condition, using the COP method (Cleaning Out Of Place). The operator is responsible for selecting the cleaning medium. For further information please contact LIAG.

## 9) Assembly

1. Check all components for cleanliness and proper condition prior to assembly of the swivel joint fitting.
2. Use a brush to slightly grease the inner diameter of the outer pipe (1) all around, until just before the diameter reduction (for lubricants see re.8 Recommended Lubricants).
3. Use a brush to slightly grease, all around, the O-ring groove and the two square grooves (for steering and slip ring) on the inner pipe (4) (for lubricants see re.8 Recommended Lubricants).
4. Push the steering ring (6) slightly apart on the disconnection point, and slip it in axial direction on the steering ring seat (wider square groove) of the inner pipe (4).

### Caution:

Position the steering ring (6) so that the smallest outer diameter of the steering ring (6) points to the next pipe end of the inner pipe (2).



5. Push the slip ring (3) slightly apart on the disconnection point, and slip it in axial direction on the slip ring seat (smaller square groove) of the inner pipe (4).
6. Lubricate the O-ring (2) with food-safe grease "Klüber Paraliq GTE703" and insert into the O-ring groove of the inner pipe (4).
7. Use a brush to slightly grease the outer pipe's (1) male thread all around (Klüber lubricating paste UH1 84-201).
8. Insert the inner pipe (4) by hand into the outer pipe (1) with a slight turning motion until the steering ring (6) contacts the outer pipe (1).

### Caution:

Insert the inner pipe (4), with the O-ring side first, into the outer pipe (1).



9. Screw the groove nut (5) on the outer pipe (1) and tighten slightly by hand.