

# Installation instructions for rotary union type Z

Please follow your company' safety procedures whenever working on Johnson-Fluiten rotary unions and read all of the instructions completely before proceeding. Please refer to the engineer drawings of your Johnson-Fluiten rotary union for part identification. If you have any question, please contact your sales representative or Johnson-Fluiten directly.

## GENERAL DESCRIPTION

The Rotary joint type "Z" is composed of a seal floating ring pushed rotor by means of a spring against the rotor which is supported by two sintered graphite bushings.

All is contained into a cast iron body.

The joints are available in three different base versions:

- Single passage joint
- Double passage fixed siphon
- Double passage rotary siphon

## PRELIMINARY CHECKS

The following checks are recommended before proceeding with assembly:

**Rotor housing:** Diameter and thread depth

**Mating flange** (eventual): Number, dimension and circular C.L. of coupling holes

**Geometrical tolerances** (See Table 5): Concentricity between threaded hole (or flange) and shaft.

**Perpendicularity** between threaded hole (or flange) and shaft.

**Joint connection:** Verify that fittings are suitable for connection with the rotary joint.

**Concentricity** between shaft and seal sleeve.

**Perpendicularity** between base flange and shaft.

**Flushing system:** Verify that foreseen fittings are suitable for connection with the joint.

## INSTALLATION INSTRUCTIONS

- Apply lubricant on joint connection (a fluid mineral oil is recommended)
- Put the rotary joint in a clamp
- Assemble the joint on the shaft and engage the antirotation ribs in a fixed point.
- Carry out a hand rotation of the shaft and verify that the rotation is smooth.

### Mounting to journal:

- **Threaded rotor:** lubricate connections using recommended fluid mineral oil, thread the rotor into journal
- **Quick release rotor:** place grafoil gasket in journal flange recess. Slide the quick release flange over the rotor with the taper facing away from the union. Place splitwedges into the rotor recess, then slide the quick release flange over it. Position union/flange into journal flange and tighten the fasteners evenly. NOTE: there will be a 3-5mm gap between the journal flange and the quick release flange.
- **Integral flanged rotor:** place gasket on rotor flange and place on journal with studs extending through rotor flange. Tighten nuts evenly in a star pattern to seal flange surfaces and minimize run out.



## ! WARNING INSTALLATION NOTES

- Take special care when mounting union over siphon pipe as internal seals can be damaged
- Siphon pipe can be guided looking through the inlet connection
- Pay attention on length of siphon pipe. excess length can cause flow to be cut off against interior of body
- Avoid locking of fittings with the rotary joint installed on journal. Locking forces could get deformed rotor or damage sealing and/or guides
- The connection of the Rotary joint type Z must be carried out exclusively by means of flexible hoses. Avoid tight radius bend on the flexible hoses that could damage the joint bearings.
- Apply soft pads to the clamp. Do not tighten the joint more than its torque value to avoid damages to the body.

## FLEXIBLE HOSE CONNECTIONS

Depending on your application, choose metal braided hose, with ratings able to sustain the flow media. When connecting the rotary union to the fixed piping, the flexible hose should be installed as close to the union as possible, in a relaxed condition, neither stretched or compressed. If you have unusual long run of hose, it is strongly suggested you to support the hose so s not to overload the bearings. Refer to Table 2 to determine the correct length of flexible hose needed to isolate the rotary union from piping stresses and to Table 3 for correct examples of installation.

## FUNCTIONAL TEST

It is not possible to define in detail the functional test which will depend on the type of installation., some general suggestions are specified below:

Start the machinery and operate for 5 minutes verifying:

- Absence of leakage
- Absence of vibration or abnormal noises produced by rotary joint
- Absence of excessive heating of rotary joint, in particular in the area of support guides

## Johnson-Fluiten Warranty

Johnson-Fluiten products are built to a high standard of quality. Performance is what you desire: that is what we provide. Johnson-Fluiten products are warranted against defects in materials and workmanship for a period of one year after date of shipment. It is expressly understood and agreed that the limit of Johnson-Fluiten's liability shall, at Johnson-Fluiten's sole option, be the repair or resupply of a like quantity of non-defective product.



**JOHNSON-FLUITEN**

Table 1

Size	description	Dimension	Key	Torque (N*m)
Z019	Rotor	3/4" G-ISO228	27	
	K flange screw	M8	13	
	Seal plate screw	M8	13	24,6
Z025	Rotor	1" G-ISO228	30	
	K flange screw	M8	13	
	Seal plate screw	M8	13	24,6
Z031	Rotor	1-1/4" G-ISO228	41	
	K flange screw	M10	17	
	Seal plate screw	M10	17	50
Z038	Rotor	1-1/2" G-ISO228	46	
	K flange screw	M10	17	
	Seal plate screw	M10	17	50
Z050	Rotor	2" G-ISO228	60	
	K flange screw	M12	19	
	Seal plate screw	M12	19	85
Z064	Rotor	2-1/2" G-ISO228	75	
	K flange screw	M12	19	
	Seal plate screw	M12	19	85
Z076	Rotor	3-1/2" G-ISO228	95	
	K flange screw	M16	24	
	Seal plate screw	M12	19	85
Z102	Rotor	4" G-ISO228	110	
	K flange screw	M16	24	
	Seal plate screw	M16	24	205

For materials other than specified the torque value shall be calculated as follows:

$$Ms = Ms_{tab} * Rs_{new\_material} / Rs_{material\_tab}$$

Example:

$Rs_{new\_material} = 500 \text{ Mpa}$  ;  $Rs_{material\_tab} (8.8) = 640 \text{ Mpa}$  ;  $Ms_{tab} (M12) = 85 \text{ N*m}$

$$Ms = 85 * 500 / 640 = 66.4 \text{ N*m}$$

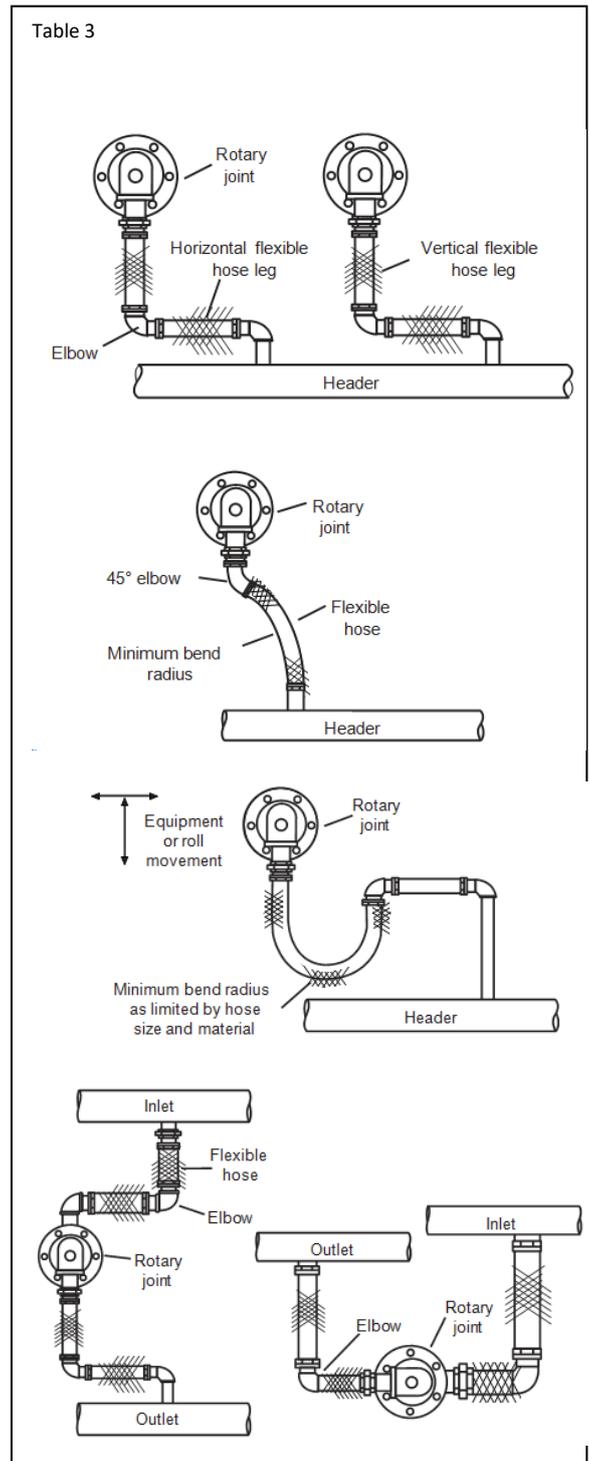
Table 5 – GEOMETRIC TOLERANCES

COMPONENT	JOINT DIMENSION	CONCENTRICITY	PERPENDI CULARITY
Threaded / flanged connection	Z019 a Z050	0.15	0.1
Threaded/flanged connection	Z064 a Z102	0.3	0.2

Table 2

RECOMMENDED MINIMUM HOSE LENGHT	
1/4"	200 mm
3/8"	250 mm
1/2"	250 mm
3/4"	300 mm
1"	380 mm
1-1/4"	450 mm
1-1/2"	450 mm

Table 3



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