

# Installation Instructions

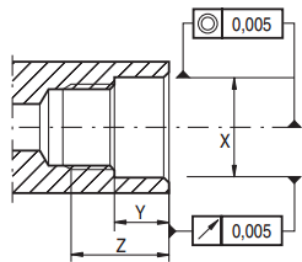
## For Rotary Union Type GFR - GFL – GFS - GFP

### SAFETY INSTRUCTIONS

Please follow your company's 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.

### PRELIMINARY ASSEMBLY (see figure 1)

- Clamp slightly the rotary union body
- Thread a 300mm or longer flexible metal hose into the rotary union port and tighten using a torque of 50Nm
- Connect the hose with a compressed air source and carry out three test cycles as defined below
- Closure
- Maintain the pressure for 30 sec.
- Opening
- Verify there is no leakage through the hose fitting
- Check the spindle face: it must be clean and free from dents and chips to ensure a proper installation. Using a dial indicator, check the flatness of the spindle face and confirm it is perpendicular to the pilot bore centerline within 0,005mm TIR. The spindle pilot bore should be concentric to the centerline of the spindle within 0,005mm TIR.



**WARNING** It is important to connect the hose to the rotary union prior to installing it onto the spindle to prevent damage to the rotary union's ball bearings races.

### INSTALLATION

Connect the drain line to the union with one of drainage holes in the body using the drain fitting supplied together with the union. Select

a drain hole that will help gravity drainage. Plug all remaining drain holes with the plugs provided.

- Apply a minimum torque on plugs and drain fitting in order to avoid any deformation on the union.

### NOTICE

It is suggested to use a transparent drainage line to monitor any leakage from the union. It shall be downwards bent and siphons curves shall be avoided to guarantee a satisfactory drainage (see figure 1)

- Lubricate the rotor o-ring with a non-petroleum based o-ring lubricant. Mount the union rotor in its housing of the spindle and tighten with a torque of 60Nm.

### 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.

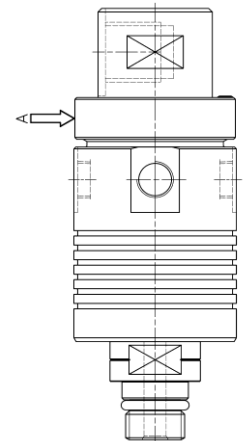


- Connect the flexible hose to the coolant supply. Be sure to install the piping to avoid any side loading of the rotary union. Side loading, or other excessive forces, will lead to premature failure.
- Final check of installation of rotary union, flexible hose and drain line. Make sure the rotary union is able to move freely and there is no side loading from the flexible hose installation.

The installation is now complete!

### PRELIMINARY TEST

- Fit the rotary union onto the machinery, then manually rotate the shaft and using a dial indicator (pos.A) verify the union is within 0,03mm TIR.
  - Start the machine and verify, at maximum speed, there are no vibrations which could damage the union.
- This is a dry run test and should be carried out for just few seconds.



### FUNCTIONAL TEST WITH COOLANT

- Introduce coolant into the rotary union (verify pressure and PV diagram accordingly to our catalogue or table drawing if using a custom union) and verify the correct commutation of the joint. It shall be almost instantaneous, leakage during commutation shall be as low as a few drops.

**WARNING** The service life of the seal and the perfect operation of the rotating union is largely determined by filter quality: we recommend a filtering of 50 µm

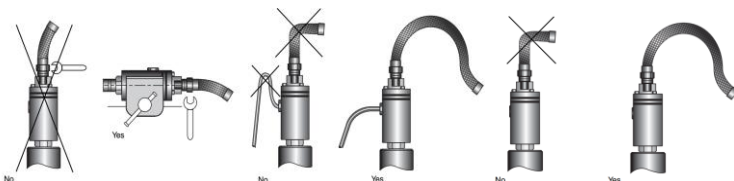
**NOTICE** This test should last less than 5min, then you can start with RUN-IN PROCEDURE

**WARNING** The temperature measured on the union body shall not exceed 50°C during the test. Eventual leakage shall not be more than 0.2ml/min (1ml is about 20/30 drops)

#### FUNCTIONAL TEST WITH AIR

- Introduce air into the rotary union (verify pressure and PV diagram accordingly to our catalogue or table drawing if is a custom union)
- Run this pressure test for 5 minutes
- Verify there is no excessive leakage of air.
- Shut off the pressure
- Repeat several commutations verifying the correct functioning.

**Figure 1: proper flexible hose and drain line installation**



To detect leakage when using air, it is recommended to use a sensitive gauge on the drain line. If it is not possible, slight leakage can be detected by closing the drain holes for few seconds and then verifying if the drainage chamber is pressurized.

#### RUN-IN PROCEDURE

**NOTICE** After correctly mounting of rotary union, the ball bearings need to be run-in. Utilizing the proper run-in procedure will maximize bearing and grease life.

Rotor dimension			Spindle connection		
Rotor	Pilot	C	X	Y	Z
M16 X 1,5	18	17,994/17,983	18,007/17,997	8,5	17
M16 X 1,5	16	15,994/15,983	16,007/15,997	8,5	17
M14 X 1,5	15	14,994/14,983	15,007/14,997	8,5	23
M12 X 1,25	14	13,994/13,989	14,005/14,000	8,5	17
M10 X 1	11	10,994/10,989	11,008/11,000	5,5	15

RUN-IN PROCEDURE					
phase	Type	Run-in speed	Conditions	Important	
1	GFR/GFRA GFL/GFLA GFS/GFSA GFP/GFPA	15min at 5.000rpm	P=0 barg NO fluid	If the temperature exceeds 50°C during run-in, stop rotation and wait until bearing temperature returns to ambient. Then repeat the phase  Do not run-in the bearings of the rotary union at higher rpm than the maximum operating conditions  Reach to speed limit of each phase in about 2 minutes	
2	GFR/GFRA GFL/GFLA GFS/GFSA GFP/GFPA	15min at 10.000rpm	Cool down rotary union bearings to ambient temperature between each phase		
3	GFL/GFLA GFS/GFSA GFP/GFPA	15min at 15.000rpm			
4	GFS/GFSA	15min at 20.000rpm			

If you don't find your union in this table, please contact Johnson-Fluiten

TROUBLESHOOTING		
Problem	Possible Cause	Action
High vibrations/noise	Rotor connection is not tight	Verify rotor and loosened rotor connection
	Damaged bearings	Replace rotary union
Leakage through drain holes during service	Wearing or damage of seal faces	Replace rotary union
Overheating	Lack of cooling liquid	Verify coolant is flowing to the rotary union. Dry running at highest speed could cause failure in short time
	Damaged bearings	Replace rotary union

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