

## 1 - Safety instructions

This manual gives information on using in safety conditions TURIAN's Rotary Joints.

For your safety and the safety of other people please read this instruction manual throughout, paying your utmost attention.

This manual refers only to rotating joints manufactured by TURIAN, even if in the following text the TURIAN tradename will be omitted. This manual is fully a part of the rotating joints to which it is referring to; make sure all your personnel is aware of the instructions listed in this manual. Always use the last version available, which may be downloaded from the website [www.turian.it](http://www.turian.it).

Users are not allowed to make changes to this manual, without TURIAN's approval.

For correct installation refer to the following instructions.

### - Allowed usage

GR type rotary joints may be used with water, air, vacuum, diathermic oil and steam (short period of times). Gr rotary joints **CANNOT** be used in potentially explosive environments and with flammable fluids. Details about working conditions are available in catalogues and personalized drawings. Typical assembly drawings may be downloaded from [www.turian.it](http://www.turian.it) website. Standard rotary joints belonging to GR line may be used up to temperatures as below listed

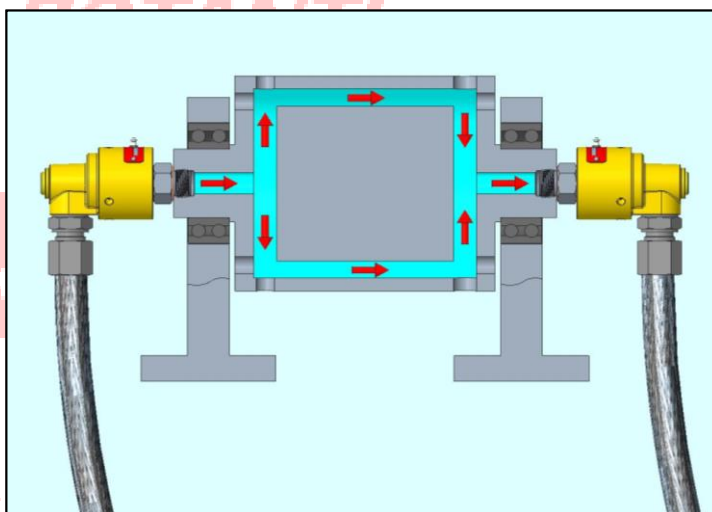
WATER	STEAM	HOT OIL
140°C	120°C	170°C

### - one way execution

For the one way execution, externally mounted types are available; pocket mounted ones, inside the cylindrical shaft of the machines, are also available.

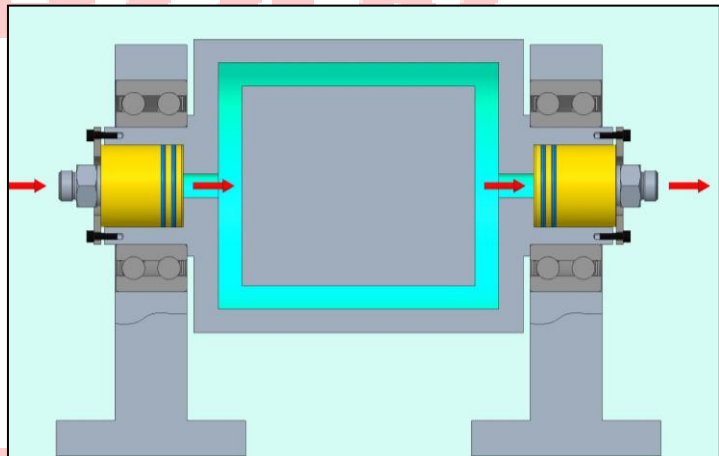
**Fig.1: Typical installation for an externally mounted, one way joint**

In the one way execution, the rotary joint is installed at both shaft ends. Rotary joint at left-hand side in the picture above is transferring the handled fluid inside the shaft; the one at the right-hand side is transferring the handled fluid from the exit of the roll to the machine's piping.



**Fig. 2 Typical installation for a pocket mounted, one way joint**

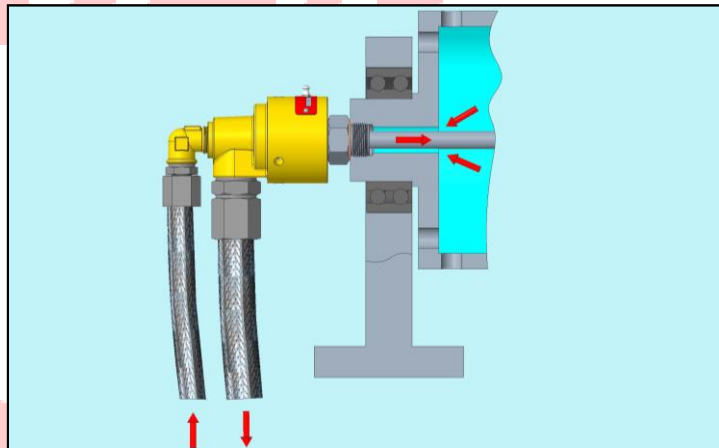
Rotary joint at left-hand side in the picture above is transferring the handled fluid inside the shaft; the one at the right-hand side is transferring the handled fluid from the exit of the roll to the machine' piping.



**- Two ways Rotary Joint**

**Fig. 3 Typical installation for an externally mounted two ways joint**

For the two ways execution, the rotary joint is equipped with an elbow, connected to a syphon pipe, which is transferring the fluid inside the roll; the way back of the fluid to the machine' piping takes place thru the same joint by way of the radial connection.



**- Wrong usage**

Rotary joint are **NOT** planned for use in the following areas and applications  
Their usage in such areas and applications is forbidden

Usage is **forbidden** in these listed areas

**Areas with possible explosion risk**

GR type rotating joints **CANNOT** be used in potentially explosive areas; they are NOT approved and built to work to requirements of these areas. Operating them here, may cause explosions

**Food industry**

Food leftovers, cleaning and sanitation products are difficult to remove from the GR rotary joints.

**It is forbidden to use GR rotary Joints in transferring flammable fluids and, generally speaking, all hydrocarbons**

Flammable fluids and hydrocarbons may be a source of fire and explosions

*Exception is made for heat transfer oils, when used within given temperature limitations. Refer to safety profile of the product being used*

**Use in a process operating at too high pressure**

If an excessive pressure is put to the rotary joint, it is possible a blow out of the connecting piping, thus causing possible injuries and material damages. Take care to avoid using the joint at maximum allowed pressure with maximum speed and temperatures.

**Operation with no lubrication**

Dry (with no fluid) operation may lead to damage of the seal(s)

**Connections using rigid piping**

Connections with rigid piping may cause leakages and damage to the roller bearings

**Use of too hot fluids**

If fluids exceed maximum acceptable working temperatures, gaskets may be damaged and leakages may appear with high risks of injuries for operation personnel.

*This list will be regularly updated, as a result of new evidences when product is in use*

**- Safety instructions**

Dangers when using Rotary Joints are herewith listed

**- Dangers due to hot surfaces**

Rotary Joints are heated up by the fluids. Contacts with external surfaces of the joint may cause an injury  
Use safety gloves and other protections against heat  
Apply visible danger signals close to the rotary joints to warn of the danger

**- Dangers due to use of unsuitable pipes**

When connecting the rotary joint to the machine, you need to choose flexible piping, suitable to fluid being used; pipes need to comply to applicable specifications  
Wrong pipes may cause injuries to personnel and/or damages to the machine.  
Use always flexible pipes and fittings supporting maximum pressure and maximum temperature

**- Dangers due to fluid (being used)**

Contamination to skin or eyes may take place when working on the joint.  
Always acknowledge specific handling instructions on the fluid being used

**- Dangers due to wrong installation**

If the rotary joint is installed the wrong way, leakage from fittings and/or pipes may take place  
Depending from the type of fluid being used, injuries may occur to peoples and/or machines may be damaged.

Make sure, before starting the joint, that pipes are not pressurized

Connect rotary joint using always and only flexible pipes to avoid unnecessary stresses to the joint itself.

Install flexible pipes in such a way to avoid to stress them

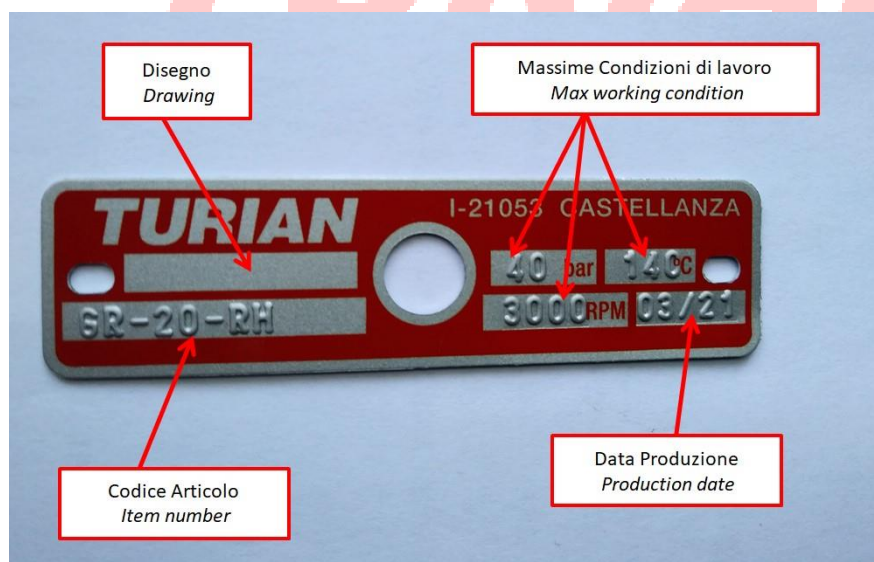
Install the rotary joint in such a way that the eventual leakage may exit to atmosphere from the lowest point of the rotary joint and that the drain line is done in a way that will facilitate the drainage.

Install pipes and fittings on the joint BEFORE installing the joint on the machine

The latest updated version of this manual may be downloaded from the website [www.turian.it](http://www.turian.it)

Use always the last version of this manual

**2 – Notes about the name plate**



**3 – Suggestions for designing**

This section is providing leads that will have positive influence on the maximization of life, when operating the Rotary Joint.

**- Cleanliness of the fluid**

An efficient filtration of the fluid will help limiting wearing out of the seals, extending the working life of the joint; suggestion is made to install upstream filters that will remove particles equal or in excess of 50 µm.

**- Available executions for installation**

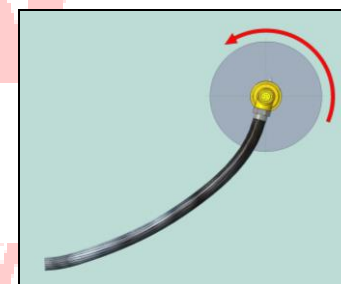
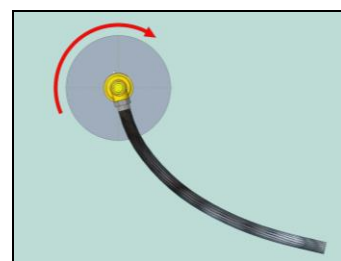
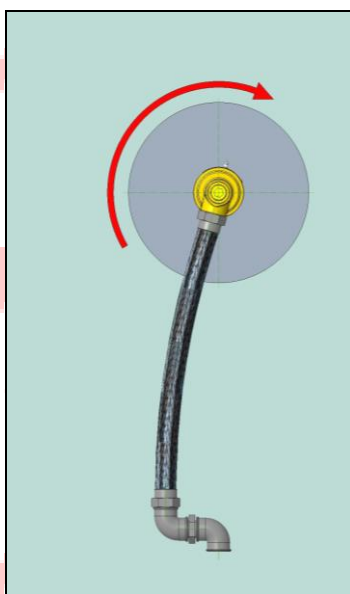
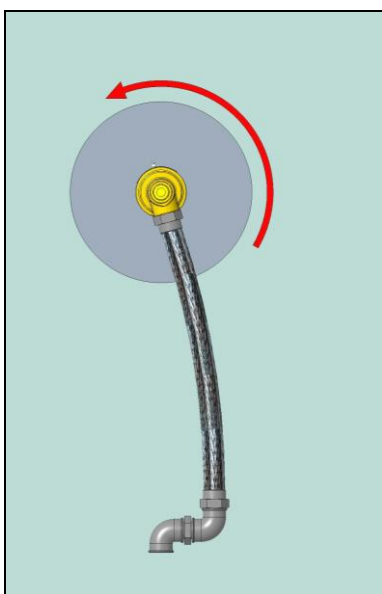
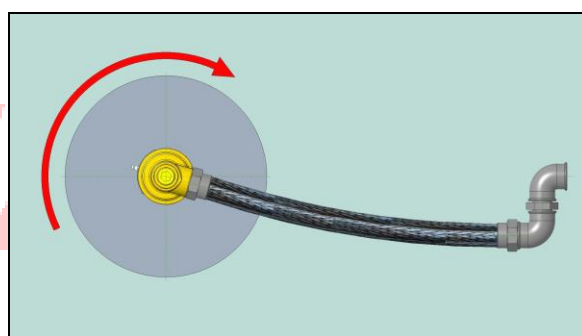
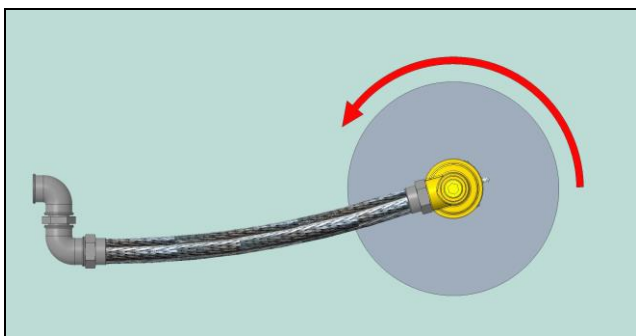


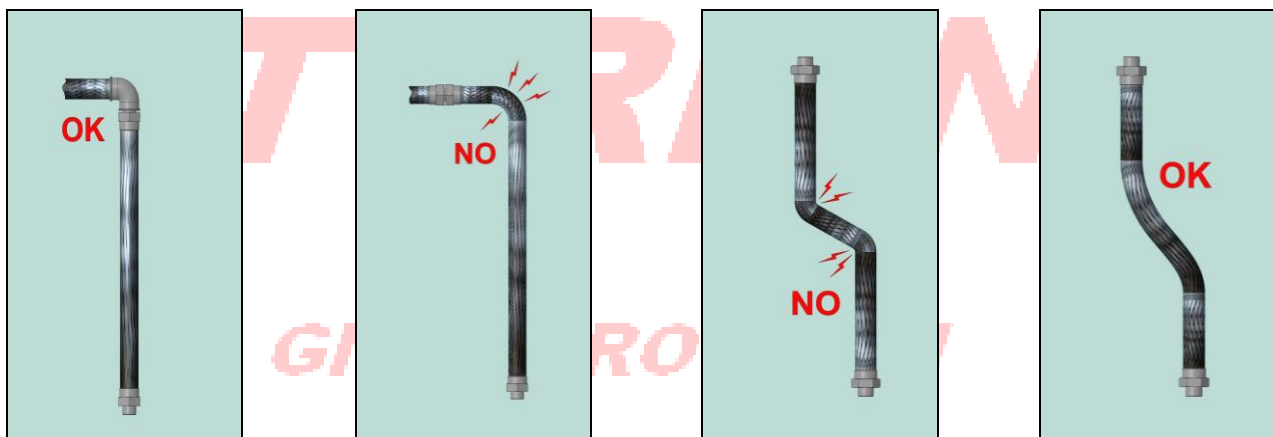
Rotary joints may be connected to shaft by a threaded execution (left-hand picture) or by a flanged one (right-hand one)

**- Connecting pipes**

The following schemes are examples of how to install flexible pipes to the rotary joints. By using these types of connections, the occurrence of pipes transmitting vibrations to the joints when the machine is in operation is avoided.

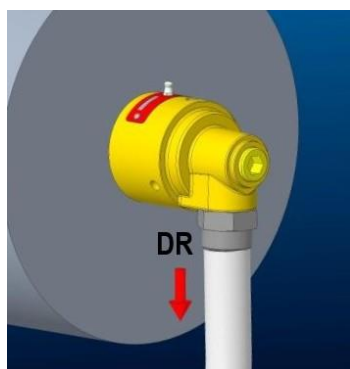
**Suggestioning is made to connect the flexible pipes as shown**





If the rotary joint is installed on shaft having ALSO an **axial** movement, pipes must not induce loads on either side of the pipe

**- Piping the drain line (optional)**



Possible only when an externally mounted joint is used  
 In order to avoid that surrounding equipment be damaged by leakage it is possible to connect to joint a drain line.  
 Rotary joints may be equipped with threaded drain holes (add the suffix PR at the end of the code identifying the rotary joint)  
 In polluted atmospheres, we advise to protect the drain hole(s) from contamination of dirt; it is possible to order sealing threaded taps with TURIAN. Note that if all other drain holes existing on the joints body are tapped, the eventual leakage may not be removed: a second open hole (to be protected) is required to have the necessary exit, to allow proper venting to atmosphere.  
 Place the rotary joint in a way that the drain line(s) are connected in the lowest possible point

**4 - Installation/ Operation instructions**

Installation of the rotary joint is described in another manual, to be asked for to TURIAN Supply to users the following additional information for a safe and correct installation of the joints  
 Location of the Rotary Joint in the machine  
 Piping layout for the flexible piping  
 Location of the drain line  
 Information about fluid(s)

**- information for an appropriate operation of the joint**

Damages are possible for lack of lubrication (dry running)  
 Mechanical seals in the joint are lubricated by the process fluid. If joints are put into service without having the operation fluid (dry operation), seal faces are not lubricated, with the result that faces will be damaged.  
 Make sure that fluid is present when the joint is running  
 Stop the machine/the process, if rotating joints are in service without fluid (dry)

**5 - Wharehousing**



Stock rotary joints in a dry location with temperature ranging from 0° to 40°  
 Stock joints for maximum two years

## 6- Maintenance

Follow this maintenance instructions to avoid early wear of rotary joints

Check visually, every day, tightness of connections of the joints

Make sure that lines are not pressurized, before taking any action

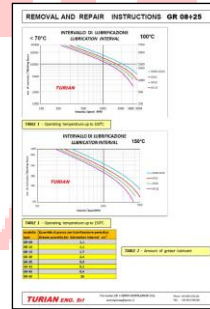
When you notice a leakage, check if it is coming from the rotary joint or if it is coming from a fitting.

If the joint is leaking, replace with a new one

Roller bearings need to be lubricated periodically

Remember: too much grease may damage the bearings

Maintenance instructions may be asked for to TURIAN.



## 7 - Bad performance

- Possible causes of malfunction and remedies

*Risk of injuries if the circuit is under pressure*

If you have to work on the Rotary Joint make sure that the supply line is **NOT** pressurized and that there is no residual pressure in the joint

FAILURE	POTENTIAL CAUSES	REMEDIES - ACTIONS
<b>Rotary joint leaks after installation</b>	Wrong installation	<ul style="list-style-type: none"> <li>- Stop the machine</li> <li>- Check piping for tightness</li> <li>- Check piping for absence of tensions</li> <li>- Check cleanliness of seal faces</li> </ul>
	Seals faces of mechanical seal are damaged	<ul style="list-style-type: none"> <li>- Pack the joint without disassembling</li> <li>- Ship joint to TURIAN for checking or repair</li> </ul>
	The rotary joint is defective	
<b>Life is less than expected due to leakage of the rotary joint</b>	Contamination of the fluid or the fluid is dirty	<ul style="list-style-type: none"> <li>- Stop the machine</li> <li>- Drain the fluid</li> <li>- Ship the joint to TURIAN for control or repair</li> <li>- Replace the filter</li> <li>- Flush the line with a clean compatible liquid</li> <li>- Fill up with fresh fluid</li> </ul>
	The rotary joint is not suitable to the required service	Contact TURIAN to source a suitable rotary joint
<b>The rotary joint is vibrating</b>	Thread and center are out of tolerance	<ul style="list-style-type: none"> <li>- Stop the machine</li> <li>- Remove the joint</li> <li>- Correct thread or re-center</li> </ul>
	The rotary joint is improperly installed	<ul style="list-style-type: none"> <li>- Re-install the rotary joint</li> </ul>

### **- Packing for transportation**

Protect properly the rotating joint from bumps and from humidity during transportation so that the joint may reach destination without being damaged

### **8 - Disposal**

Dispose packings (wooden or plastic) according to local laws  
Rotary joints are metal based and may be reused thru recovery  
In case of repair, TURIAN properly disposes the parts being removed

### **9 - Spare parts**

Rotary joints have its own life ad are using wearable components  
Parts subject to wear are excluded from guarantee,  
All sealing components, static or dynamic, of a rotary joint are considered parts subject to wear, including ball bearings of any type  
Ripear kits are available for all models and may be supplied by TURIAN  
*Special instruments and repair instructions may be asked to TURIAN*

*TURIAN has a repair service available upon request*

*GIUNTI ROTANTI*

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