



PTFE Bellows Joint/Pump Connector (T1C, T2C, T1R, T2R)

OPERATION, INSTALLATION AND MAINTENANCE INSTRUCTIONS

General: The PTFE Bellows Joint is an PTFE expansion joints / pump connector with ductile iron flanges, integrated control rods, and a PTFE Vanstone bellows. The joint is designed to be used as a pump connector or bellows expansion joint to isolate vibration, absorb thermal expansion, and allow for minor pipe misalignment. Consult the T1C, T2C, T1R, T2R, factory submittal for specific performance specifications.

Application:

1. PTFE Bellows expansion joints can be used for axial, lateral, or angular movements. They can also be used as a pump connector to eliminate vibration from a piping system that is caused by rotating equipment. These joints are not suitable for applications that result in torque on the joint.
2. All expansion joints require guiding and anchoring in accordance with EJMA (Expansion Joint Manufacturers Association) guidelines. Joints being used as a pump connector located within 10 pipe diameters of the pump suction or discharge and no more than 10 ft of pipe on the opposing end of the joint prior to a change in direction of the pipe do not need to be guided.
3. Install only one joint between anchors.
4. When internally pressurized joints are used for applications with flow over 10 feet per second or with abrasive materials in the line, a liner should be installed to protect the bellows.
5. Location of expansion joints should be reviewed to insure proper operation.

Joint Preparation

1. Before installation check the interior, exterior and flange faces of the expansion joint for cuts or gouges.
2. Care must be used when pushing the joint into the breach between the mating flanges so as not to roll the leading edge of the joint out of its flange groove.
3. It is acceptable (but not necessary) to lubricate the expansion joint flanges with a thin film of graphite dispersed in glycerin or water to ease installation and disassembly.

Installation:

PTFE Bellows Used as an Expansion Joint

1. Inspect joint for shipping damage DO NOT use gaskets between the sphere and the flange surface.
2. Installation of expansion joint and anchors must be made as close to the design ambient temperature as possible. Using plated steel washers between the nut and the flange is recommended.
3. PTFE Joint is to be installed in its neutral position. Do not compensate for flange or pipe misalignment by putting torque, compressive, or extension force on the joint. Metraflex recommends that a mating flange remain unwelded until the opposite flange is bolted up.
4. No gasket is required between the PTFE joint and mating flanges.
5. Do not test before the installation of guides and anchors.

PTFE Bellows Used as an Expansion Joint

1. Inspect joint for shipping damage, ensure that the shipping bar is intact.
2. It may be necessary to remove one of the pre-installed control rods prior to installing the MPTRVS. Care should be taken to reinstall the control rod with adequate space between the nut and flange so the MPTRVS does not exceed the rated maximum extension
3. PTFE Joint is to be installed in its neutral position. Do not compensate for flange or pipe misalignment by putting torque, compressive, or extension force on the joint. Metraflex recommends that a mating flange remain unwelded until the opposite flange is bolted up.
4. No Gasket is required between the PTFE joint and mating flanges.
5. Do not test the system before control rods have been properly set





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Testing:

1. Joint may be one-time pressure tested to 1.5 times the maximum rated working pressure as published on the factory submittal for each specific joint.
2. Metraflex recommends a hydrostatic test with all air in the system removed. If an air test is performed, appropriate safety precautions must be made.
3. Do not test until joint is properly anchored and guided per EJMA. The shipping bar is not designed to restrain the hydrostatic end load that will be developed by the expansion joint under pressure.

Precautions:

1. Joint will develop hydrostatic end loads equal to pressure time effective area and must be included in anchor load calculations. Effective area for each specific joint can be found on the factory submittal.
2. Do not exceed maximum pressure or temperature during operation.

Large Joint Handling:

Do not lift with ropes or bars through the bolt holes. If lifting through the bore, use padding or a saddle to distribute the weight. Make sure cables or forklift tines do not contact rubber. Do not let joints sit vertically on the edges of the flanges for any period of time.

Maintenance:

Expansion joints must be easily accessible to allow for periodic inspection. Bellows should be inspected for any signs of damage such as cracking or scores. Damaged expansion joints should be replaced immediately. Metraflex PTFE expansion joints have no serviceable parts and do not require maintenance.

