

FLUOR-O-FLO® XPress
PTFE Clamp-Joint Piping System
Installation Instructions

The following information is intended to assist users of the FLUOR-O-FLO® XPress PTFE Piping System (FOF-XP)* in achieving trouble free installation of system components. This bulletin covers the following aspects of installation:



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*Refer to U.S. Patent Number 6,976,712

Cutting Pipe

To make proper joints, the tube end needs to be cut square, with no roughness, chips or strings. To accomplish this, we recommend using the REED No. TC3QP Tube Cutter with the REED 30-40P cutter wheel.*

Beveling Pipe

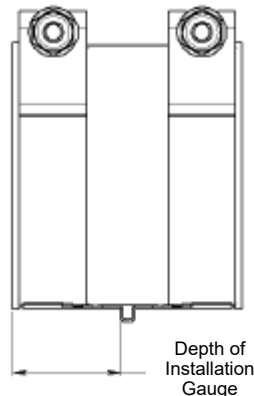
To ensure the tubing fits smoothly into the FLUOR-O-FLO® XPress Coupling-Clamp without damage to the clamp's o-rings, the ends of the tubing should be beveled. For this, we recommend using the REED No. DEB4 Deburring Tool.*

Pressure Rating

Maximum pressure in service not to exceed 15psi (or 35 feet of water) at ambient temperatures.

Joints: FOF-XP Coupling Clamps

Step 1: The patented Coupling-Clamp contains a built-in gauge to show the depth of installation - the distance from the step in the stainless steel strap to the open end of the coupling is the proper depth (see diagram). Hold the step against the open end of the pipe and mark the installation depth on the pipe with a fine-point ink or china marker.



Step 2: Smear the tube end with Formula-8® Teflon® PTFE paste sealant available from Micromold.*

Step 3: Push the Coupling-Clamp over the tube end until it “hits bottom”. Using the ink or china mark, confirm that the tube is installed full depth.

Step 4: Tighten the clamp nut to a torque of 70 inch-lbs.

This clamp pressure will deform the o-ring seals. It will also deform the tube slightly creating a slight bell-shape behind the open end. This pressure and deformation will hold the tube firmly in place and provide a leak-tight joint that does not require retorquing.

*Installation tools and supplies shown are commercial items that can be obtained from MICROMOLD PRODUCTS. They are also widely available from plumbing supply houses or industry catalogues. Instructional videos are available at <https://micromold.com/clamp-joint-piping-video.html>



Joints: Other

- **PVC or PVDF Flanged Adapters** – Adapters supplied by Micromold that incorporate PVC or PVDF flanges include a back-up, non-sealing, elastomer o-ring. These flanges should be tightened in accordance with the manufacturer's recommended torque as shown on the flange. Because the back-up o-ring compensates for PTFE's creep, these joints do not need retorquing.
- **Stainless or Plain Steel Flanged Adapters** – Adapters incorporating steel or stainless flanges should be tightened in accordance with standard procedures for PTFE lined pipe, including retorquing.
- **Other Joints** – All other joints should be retightened 24 to 48 hours after initial installation.

Testing

The FOF-XP system should be tested in accordance with applicable code requirements. All sections should be tested at a minimum 10 foot head of water (4.3 psi) and a maximum 35 foot head of water (15 psi). To be sure that normal creep is allowed for, we recommend testing be deferred until 24 hours after installation. (See **JOINTS – Other** above.) The system should not be tested with compressed air or gas.

Pipe Support

PTFE has a lower tensile strength than metals or most other plastics so, for horizontal runs, hanger supports must be placed closer together than with other materials. The simplest solution is usually to place the piping on a continuous support such as a stainless steel, aluminum, or fiberglass angle. For gravity flow systems, a minimum slope of 1/8" per foot should be provided. Vertical runs should be supported at the base and at each connection. Supports should be of a type that will not constrain normal movement caused by lengthwise thermal expansion and contraction of the piping (see below).

Thermal Expansion

PTFE has an unusually high coefficient of thermal expansion. For example, when heated from 50°F to 77°F, an unconstrained 100 foot length of PTFE pipe will lengthen almost 7 inches, 30 times more than steel. Installations should be designed accordingly. Approximate linear expansion of PTFE pipe, in units of inches of expansion per 10°F temperature change per 100 feet of pipe, is as follows:

Temperature Range (°F)	Coefficient of Linear Expansion (in./10°F/100feet)
-300° to 50°	0.4
50° to 68°	1.1
68° to 77°	5.3
77° to 500°	1.2

Expansion can often be taken-up sufficiently by relying on the inherent flexibility of PTFE that already exists in a system where direction changes. For long straight runs, changes in direction can be added to serve as expansion loops. For further information, please contact the factory.

