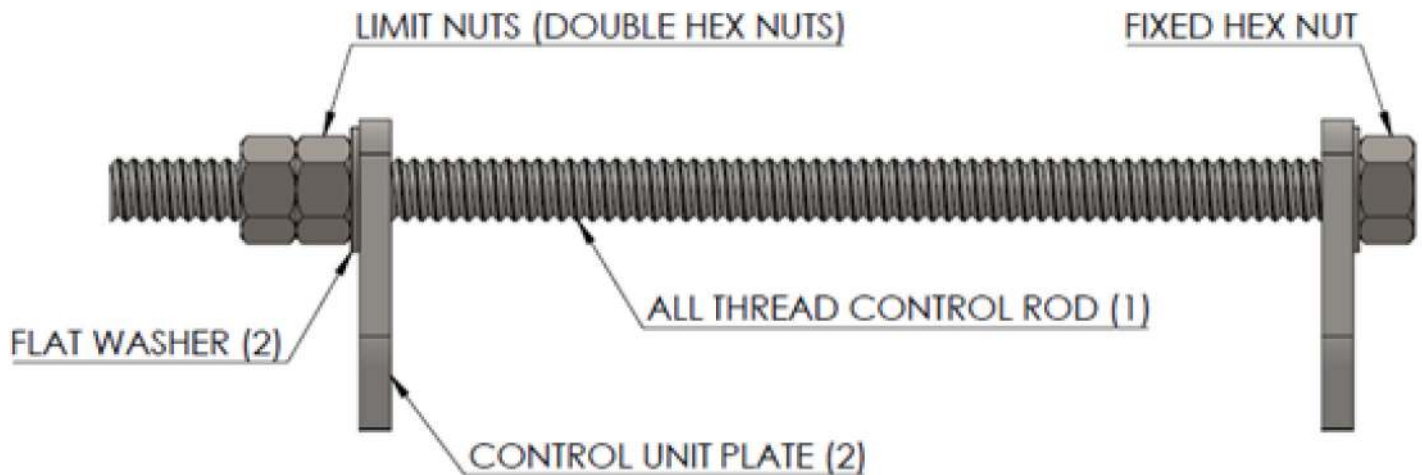


Control rods are used to restrain and limit the movement of rubber joints. Rubber joints are available in a wide range of styles and construction, each with their own range of allowable movement. The function of the control rod is to limit the movement of the joint to prevent it from exceeding the rated movement. Control rods are designed to restrain the hydrostatic end loads developed by the rubber joint due to internal pressure.

Crucial to a successful control rod installation is to understand how much movement to allow when setting the limit nuts on the control rod. For pump connector applications, it is typical to set the limit nuts on the rod at the neutral length of the rubber joint. For other applications consult Metraflex Engineering.

Control rods are also known as limit rods, tie rods and control units.

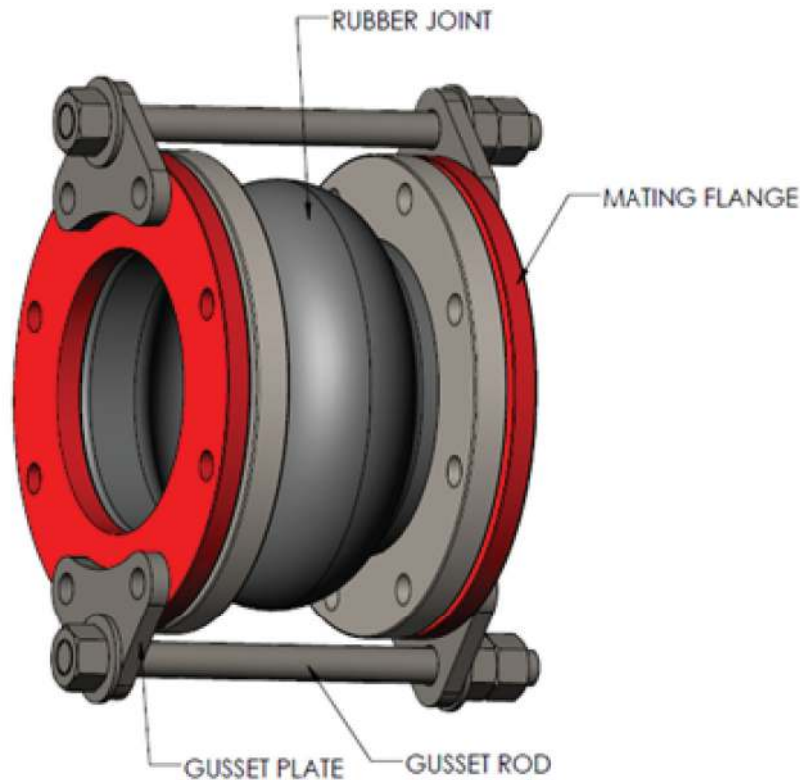


Control Rod Installation steps for Pump Connectors

1. Ensure that the correct number in control rods are being used. See table below.
2. Install the "Control Unit Plate" (gusset plate) behind the mating flanges as shown on the detail. Do not install the Control Unit Plates on the inside of the rubber joints flanges. These locations will require longer than standard flange bolts.
3. Control Unit Plates must be evenly installed on the flange. For a 2-rod set they must be installed 180°, for 3 rod sets they must be installed 120° apart.
4. Always use the correct bolt torque for the rubber joint being used.
5. After the connecting flange bolts have been properly torqued, slide the control rod through Control Unit Plates.
6. Determine the neutral length of the rubber joint being installed.
7. Set the "Limit Nuts" to the neutral length of the rubber joint. Set the limit nuts by jamb tightening the nuts against each other.
8. Ensure that the control rods do not interfere with adjacent materials and the joint.
9. After 24 hours, re-torque the flange bolts to the correct bolt torque for the rubber joint being used. We also recommend rechecking the bolt torque after 3 weeks

Control Unit Dimensions and Ratings					
Joint NPS Size Inch	Gusset Plate Thickness	Rod Diameter	Max. Pressure PSI		
			2-Rods	3-Rods	4-Rods
2	0.375	0.625	225	-	-
2.5	0.375	0.625	225	-	-
3	0.375	0.625	225	-	-
4	0.375	0.625	225	-	-
5	0.375	0.625	225	-	-
6	0.5	0.625	186	225	-
8	0.5	0.75	163	225	-
10	0.75	0.875	163	225	-
12	0.75	1	160	225	-
14	0.75	1	112	125	-
16	0.75	1.125	113	125	-
18	0.75	1.125	94	125	-
20	0.75	1.125	79	118	125
24	1	1.25	74	110	125

Based on Fluid Sealing Association Guidelines



Contact Metraflex or your local Metraflex Representative with any questions.