EVR Products A DEVJO COMPANY

EXPANSION JOINTS & FLEXIBLE CONNECTORS

INSTALLATION, OPERATION, & MAINTENANCE INSTRUCTIONS

SERVICE CONDITIONS

Ensure that the expansion joint ratings for temperature, pressure, vacuum*, movements, and the selection of elastomeric materials match the system requirements. Contact Elasto-Valve Rubber Products if the system requirements exceed those of the expansion joint selected.
**Vacuum service for spherical rubber connectors: Vacuum rating is based on neutral installed length, without external load. These products should not be installed "extended" on vacuum applications).*

Ensure that the pipelines are depressurized and drained before installing, removing, or servicing an expansion joint or flexible connector.

ALIGNMENT

Standard expansion joints are not designed to make up for piping misalignment errors. Custom engineered expansion joints can be provided for these applications. Pipe misalignment should be no more then 1/8" in any direction. Misalignment of an expansion joint will reduce the rated movements and can induce severe stress on the material properties, thus causing reduced service life.

ANCHORING

Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to anchor points. If an anchoring system is not used, it is recommended that control units be installed on the expansion joint to prevent excessive movements from occurring due to pressure thrust of the line.

PIPE SUPPORT

Piping must be supported so expansion joints do not carry any pipe weight.

CONTROL UNITS

Control units are intended to restrict joint movement to the maximum allowable rated movements of the expansion joint. Nuts can be positioned on the control rods to restrict the maximum extension of the joint, while sleeves on the rods can be used to restrict compression.

Control units are not recommended for use on plastic pipes. Please contact Elasto-Valve Rubber Products for further information on these installations.

When control units are required, install the gusset plates to the outboard side of the mating flange at the same time as the Flange Bolt installation. The number and distribution of the control rods must meet Elasto-Valve Rubber Products' approved design or specified minimums. The Fluid Sealing Association (FSA) Technical Handbook minimums shall apply if not otherwise specified (see FSA Technical Handbook, paragraph 2.1).

Install the control rod through the remaining hole in the gusset plate. If required, install a compression sleeve at the time of the control rod insertion in the control rod plate. Place the rubber and metal washers on the control rods and position the nuts to restrict the expansion to the allowable movement of the joint. Use jam-nuts to lock the control rod nuts in place. Please see Figure 1.

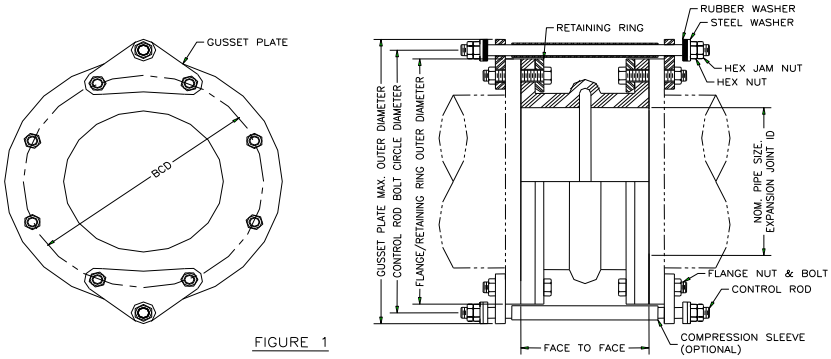


FIGURE 1

FLANGED JOINTS

Install the expansion joint against the mating pipe flanges and install the bolts so that the bolt head is resting against the retaining ring and compressing the expansion joint flange (see Figure 1). Face-to-face dimensions of the expansion joint must match the breach opening. A spherical rubber connector must be compressed 1/8" to 3/16" during installation to obtain a correct installed face-to-face dimension. Ensure that the mating flanges are clean and are flat-faced type. When attaching expansion joints to mating pipe flanges that have a raised face of more than 1/16", the use of ring gaskets are required to prevent the metal flange faces from cutting into the rubber flange during installation and operation. Washers are required for bolts installed along the split-line between retaining ring sections.

Never install expansion joints next to wafer type check valves or butterfly valves. Serious damage to the flange can result due to lack of a flange mating surface and/or bolt connection. Unless otherwise specified, bolt holes are marked straddling at 12 o'clock & 6 o'clock

Tighten bolts in two or three successive stages with a crisscross pattern (see Figure 2). Use the torque values in Figure 3 as a loose guideline for flat full-faced rubber flanges. EVR recommends starting with a bolt torque less than shown in Figure 3 and increasing the torque value as necessary to seal the flanges. When the flanges are properly torqued, there should be a slight bulge in the elastomer at the outside edge of the retaining ring. The flange bolts should be retorqued after approximately one week of operation and then checked periodically.

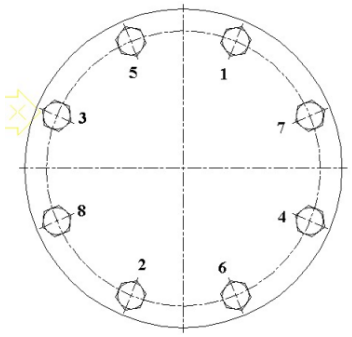


Figure 2

Nominal Bolt Torque For Full-Faced Rubber Flange		
Pipe Size Range	**Torque (ft-lbs)**	**Torque (Nm)**
1 – 2" (25-50mm)	30-50	40-68
2½ – 5" (60-125mm)	50-70	68-95
6 –8" (150-200mm)	90-120	120-160
10-12" (250-300mm)	110-140	150-190
14-16" (350-400mm)	130-160	175-215
18-24" (450-600mm)	150-200	200-270
26-40" (650-1000mm)	200-300	270-410
42-54" (1050-1400mm)	300-400	410-540
60-72" (1500-1800mm)	400-500	540-680

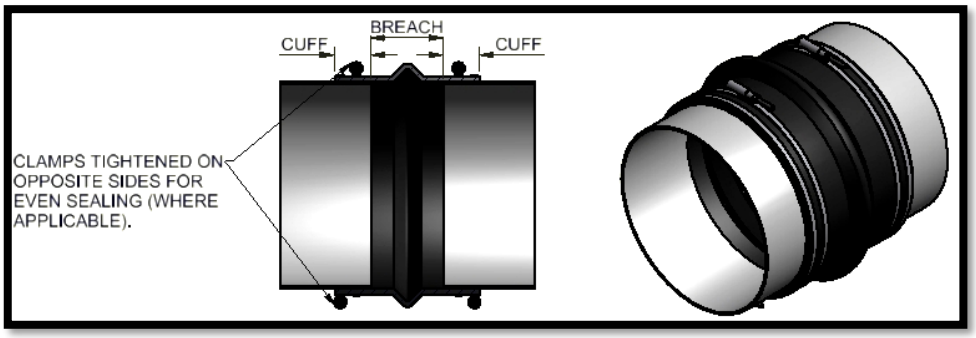
Figure 3

SLIP-ON JOINTS

Ensure that pipes are free of cuts or burrs that may damage the joint upon installation. To facilitate quicker installations, it is possible to loosely pre-install the clamps around the cuff section on each end of the joint. However, for small breaches, the clamps could get in the way, so they may need to be installed after the joint is in place.

It will be necessary to pre-compress the joint in order to slide it into the breach between the pipes. Start by working one end of the joint on to a pipe and then sliding it far enough that the other end can enter the breach. Work the other end back on to its pipe and centre the joint as per the drawing below. Ensure that the joint is sitting in its natural state (i.e. not compressed or extended) before tightening clamps. If more than one clamp is on each end of the joint, arrange the clamps such that they are tightened on opposite sides in order to ensure an even squeeze and seal to the pipes.

Clamps should be tightened snug, but not so much that the threads become damaged. The seal should be inspected for any leakage during regular operation and tightened as required.



LARGE JOINT HANDLING

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

STORAGE

Ideal storage is in a warehouse with a relatively cool and dry location, out of the sunlight. Joints should also be covered in a black poly film material to further assist in resistance to ozone and/or sun damage. If storage must be outdoors, place on wooden platform and ensure that the joints are not in contact with the ground. Cover with a tarpaulin.

Store flanges face down on a pallet or wooden platform. Joints without flanges can be stored in the same manner. Do not store other heavy items on top of expansion joints.

A ten-year shelf life can be expected with ideal conditions.

ADDITIONAL TIPS

- It is not recommended to insulate over a non-metallic expansion joint. However, if extreme environments demand the use of insulation, the insulation should be frequently removed to permit a detailed inspection of the joint.
- It is acceptable (but not necessary) to lubricate expansion joint flanges with a thin film of graphite dispersed in glycerin or water to ease disassembly at a later time.
- Do not weld in the near vicinity of a non-metallic joint.
- If expansion joints are to be installed underground, or will be submerged in water, contact Elasto-Valve Rubber Products for specific recommendations.
- If the expansion joint will be installed outdoors, make sure the cover material will withstand ozone, sunlight, etc.
- Check the tightness of flange bolts or clamps two or three weeks after installation and re-tighten if necessary.

WARRANTY

All products manufactured by Elasto-Valve Rubber Products Inc. (EVR) are guaranteed against defects resulting from faulty workmanship or materials for one (1) year from date of shipment to Buyer. If any such product is found to be defective by reason of faulty workmanship or materials, then upon written notice and return of the product, and at EVR's sole discretion, the defective product will be replaced or repaired by EVR free of charge at EVR's factory. Claims for labour costs and other expenses required to replace and/or transport such defective product or to repair damage resulting from the use thereof will not be allowed by EVR. Our liability does not include consequential damages and is limited to the price paid for the defective product.

EVR shall not be bound by any other warranty other than the above set forth unless such warranty shall be agreed in writing by EVR.

All EVR literature is published in good faith and is believed to be reliable at time of print; however, due to product design changes, EVR reserves the right to make alterations from published materials at any time. Formal approval drawings are available to confirm individual products upon request at time of order.

Elasto-Valve Rubber Products Inc.
1691 Pioneer Road, Sudbury, Ontario, Canada, P3G 1B2
Phone: 705-523-2026 *Toll Free:* 1-800-461-6331 *Fax:* 705-523-2033
www.evrproducts.com