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# INSTALLATION INSTRUCTIONS: EXPANSION COMPENSATORS

Piping should be lined up accurately before installing the compensator. Excessive misalignment, and/or torque, will cause shearing stresses and will severely limit the life of the compensator. **The system must be piped to eliminate misalignment.** Expansion compensators are designed for axial movement only; not lateral movement or misalignment

When installing threaded compensators, don't impose torque when making up to piping**. Use two wrenches with one of them backing up on the end fitting, not the shroud.** Don't let the compensator support any weight, other than its own. The system piping must be properly supported and hung. Don't stretch, compress, or force the compensator.

When installing copper sweat compensators, care must be exercised in making the sweat connections. Direct the flame away from the factory brazed joints. Use a soft solder. **Do not exceed 850° F installation temperature or you will weaken or damage the factory brazed joints.** After installation, clean all flux from the installed compensator to prevent possible corrosion and premature failure.

***Installer: Please note*** **. . .** *The manufacturer's warranty is null and void if the copper sweat compensator fails because the installing temperature exceeded 850° F, or if there is corrosion as the result of excessive flux or failure to clean the flux from the connector*

**Guiding:** Piping systems that contain expansion compensators, tend to buckle under the compressive forces in the system. Due to the flexibility of the compensator and internal pressure thrust loading, the pipe acts as a column that must be properly guided to prevent buckling.

The piping must be properly guided with at least two concentric pipe guides on each side of the compensator so neither the compensator nor the piping can squirm out of the piping centerline**. Pipe hangers and supports are not guides.** Guides are not for supporting piping.

**Anchoring:** Pipeline and/or expansion compensator failures can be caused by under designed and / or inadequate anchors on the piping system. Main anchors restrain the ends of the piping so that all expansion is directed into the compensator. Anchors must be able to withstand the pressure thrust load, the deflection forces, and the guiding frictional forces. **Anchors are required at each pipeline direction change, blind end, valve, major branch connection, or change in pipe diameter.**

Be sure all supports, guides, and anchors are properly installed before pressurizing the system**. Remove the retaining clip after installing the compensator, but before pressurizing the system.**

Never install a compensator where it's temperature, pressure, or axial movement ratings could be exceeded. **Be sure you know the ratings for the compensator and for the**

**system**.
***(4 X D = Four Pipe Diameters . . . 14 X D = Fourteen Pipe Diameters)***

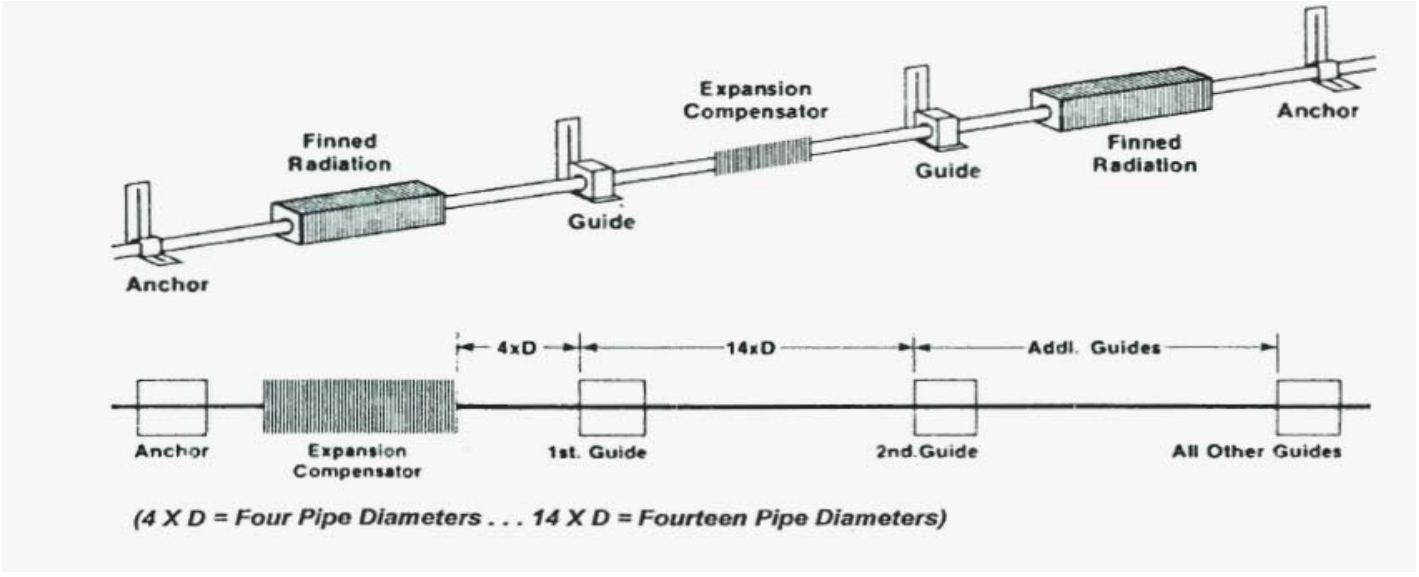
## Guide Spacing for Steel Pipe Systems **Data from Expansion Joint Manufacturers Association**

| Pipe/Tube Size | Distance to 1st Guide | Distance Between 1st & 2nd Guide | Distance Between Additional Guides @ 50 PSI | @ 150 PSI |
|---|---|---|---|---|
| 3/4” | 3” | 11” | 14 ft | 8 ft |
| 1” | 4” | 14” | 21 ft | 12 ft |
| 1 1/4” | 5” | 17” | 23 ft | 13 ft |
| 1 1/2” | 6” | 21” | 28 ft | 17 ft |
| 2” | 8” | 28” | 32 ft | 19 ft |
| 2 1/2” | 10” | 35” | 35 ft | 22 ft |
| 3” | 12” | 42” | 38 ft | 24 ft |
| 4” | 16” | 56” | 52 ft | 31 ft |

## Guide Spacing for Copper Tube Systems **Data from Heating, Piping, And Air Conditioning**

| Pipe/Tube Size | Distance to 1st Guide | Distance Between 1st & 2nd Guide | Distance Between Additional Guides @ 25 PSI | @ 50 PSI |
|---|---|---|---|---|
| 3/4” | 3” | 11” | 7 ft | 6 ft |
| 1” | 4” | 14” | 9 ft | 8 ft |
| 1 1/4” | 5” | 17” | 14 ft | 11 ft |
| 1 1/2” | 6” | 21” | 16 ft | 12 ft |
| 2” | 8” | 28” | 19 ft | 14 ft |
| 2 1/2” | 10” | 35” | 23 ft | 17 ft |
| 3” | 12” | 42” | 27 ft | 20 ft |

## RECOMMENDED POSITIONING OF GUIDES, ANCHORS, & COMPENSATORS




*(4 X D = Four Pipe Diameters . . . 14 X D = Fourteen Pipe Diameters)*