

STEEL PIPE AND COPPER TUBE ALIGNMENT GUIDES

(Freight Regulations require all damages from shipping be reported to shipping carrier within five (5) days of delivery)

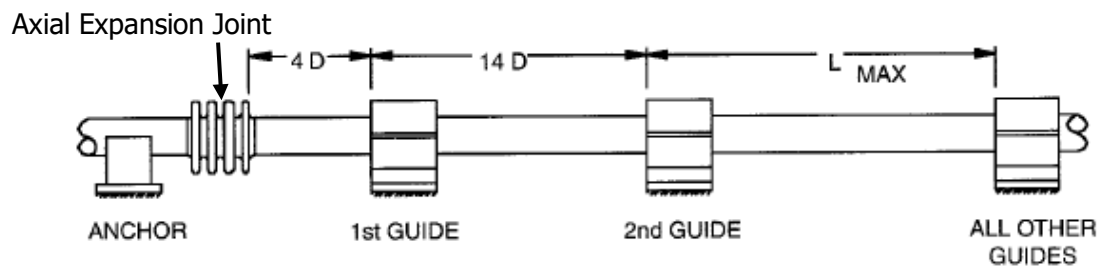


APPLICATION & INSTALLATION PROCEDURE FOR AXIAL EXPANSION JOINTS

Hyspan Series 9500 Alignment Guides are designed to be installed adjacent to axial expansion joints and as intermediate guides in steel pipe and copper tube runs to maintain the centerline of the pipe/tube. They are also used in pipe loop systems to provide stability and motion direction control. Alignment guides, supports, and anchors are required for safe operation and warranty.

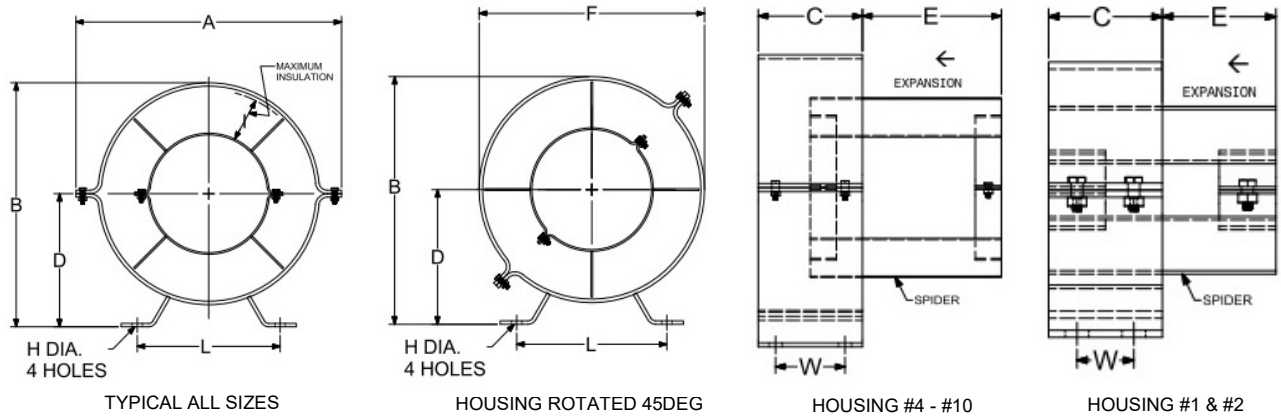
Pipe or copper tube systems that incorporate expansion joints, ball joints, or loops to absorb expansion must include three additional major elements: main and/or intermediate anchors, supports, and alignment guides. Main anchors are required in systems that include unrestrained expansion joints to react pressure thrust, the expansion joint spring or friction force, and the friction force of the guides and supports. Intermediate anchors are required in systems where pressure thrust is restrained, but the expansion joint or loop spring or friction force, guide, and support friction forces must be reacted. Supports must be designed to react to the weight of the pipe/tube and media. Alignment guides are required to maintain the pipe/tube centerline axis to expansion joints and throughout the intermediate portion of the run to also prevent bowing and resist buckling.

The alignment guides requirements for Hyspan products are given in the Applications section of each product catalog. Expansion joints that do not include internal guides require an alignment guide to be located 4 diameters from the face of the expansion joint, and an additional guide 14 diameters from the first guide. Expansion joints with internal guides require only one alignment guide to be located 14 diameters from the expansion joint. Additional intermediate alignment guides are required for the rest of the pipe run, between anchors.



(For Lateral Expansion Joint applications consult Hyspan)

The maximum alignment guide spacing in the intermediate portion of the run is a function of the pipe/tube properties (modulus of elasticity and moment of inertia), the design pressure, and the expansion joint effective area and spring force. Refer to the Applications section of Hyspan expansion joint catalogs (or the Hyspan website) for more information for the individual product guiding requirements and consult the system design drawings and specifications to ensure the correct installation. If there is any doubt about the correct application, please contact the design engineer or Hyspan representative.

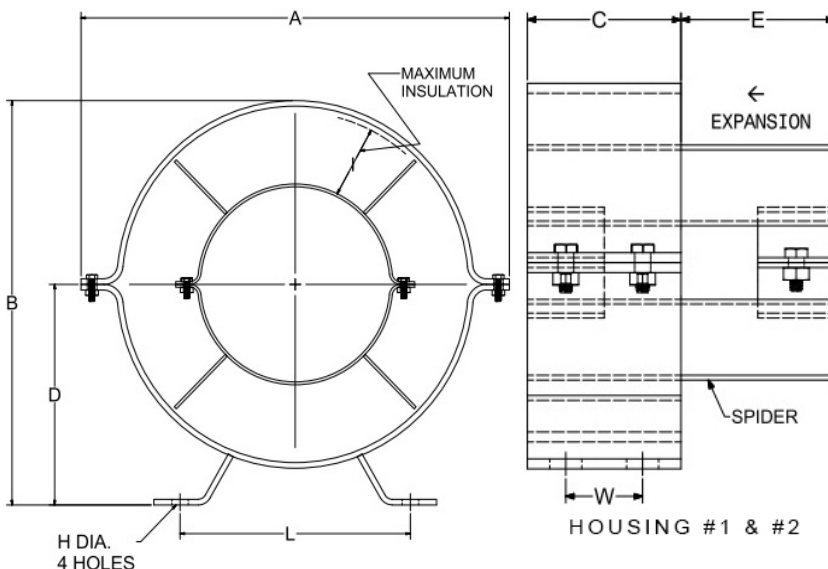


INSTALLATION PROCEDURE & CHECKLIST:

The following installation procedures should be complied with, and in the sequence listed below:

- 1. **PREPARATION:** Verify all piping system components are included. Does the piping system include alignment guides, supports, anchors, and traps (where applicable) in accordance with the system drawing?
- 2. **INSTALLATION:** Verify the piping is aligned, supported, and anchored. Align and support the piping adjacent to the expansion joint. Whenever possible, install all pipe, alignment guides, supports, and anchors prior to cutting the pipe opening to install the expansion joint. Bolt housing base, bottom half, to support pad. Align spider halves to correct position measuring from housing edge. Bolt spider halves together. Bolt housing top half to bottom half encapsulating the spider legs.
- 3. **INSPECTION:** Confirm the pipe guides, supports, and anchors are in accordance with the specifications and drawings provided for these items.
 - Confirm the alignment guides are positioned correctly to allow required movements as the pipe or tube expands and/or contracts.
 - Confirm spider bolts, housing bolts, and mounting bolts are correctly installed and tight.
 - Inspect anchors for bending, cracks, or other issues. Confirm support locations and pipe contact.

Alignment guides are intended to maintain the longitudinal position of the pipe or tube centerline without axial restraint. They are to be used in conjunction with hangers, rollers, or other supports that resist pipe and media weight.



Maximum temperature: 500°F (260°C).

For maximum axial expansion (heated system) install the spider into the housing as shown by the illustration. Refer to the ordering instructions for the allowable expansion. For axial contraction (chilled system) installation should be reversed from illustration, allowing pipe contraction to pull the spider into the housing from the opposite side.