

NEWS LETTER-32

CRYOGENIC SUPPORTS

- Cryogenic systems are those that have low sub-zero operating temperatures
- These systems figure in industries for the production, transport and distribution of liquefied gases such as LPG, LNG, ethylene, nitrogen and Ammonia.
- They are insulated to achieve the following:
 - Mitigate condensation by keeping the surface temperature above the dew point of the surrounding air
 - Conserve refrigeration / Limit heat gain
 - Personnel protection from cold burn
- These systems are classified into two types based on the operating temperature
 - Cold service- Systems with operating temperature below ambient up to -200°C
 - Dual service – Systems with operating temperature from -200 to 350°C
- Insulating material for cold and dual service
 - Both PUF (Poly Urethane Foam) and PIR (Polyisocyanurate) are suitable for Cold service
 - For Dual service the suitability of the material is based on the maximum temperature and is as follows:
 - PUF is suitable for maximum temperature up to 120°C
 - PIR I suitable for maximum temperature up to 150°C
 - For temperatures greater than 150°C Cellular Glass is used
- The supports for these systems include clamps, along with the cold insulation, which is fixed to the clamp. The clamp would be outside the insulation in the case of cold shoe supports, as against hot insulated systems where the clamp is inside the insulation, and hence subjected to the medium temperature.
- Components of Cryogenic Supports:
 - High Density PUF/PIR- The main component of the cryogenic support is the high density PUF/PIR made of fire retardant CFC-free material. PUF is formed by mixing Polymeric Methylene Diphenyl Isocyanate (PMDI) with Polyol with a blowing agent. The density of the foam specified is 160 , 200, 320 and 500 kg/m³. The PUF is provided as a single layer or as multiple layer for higher thicknesses. The maximum thickness of each layer is normally 75 mm.
 - Clamp for cryogenic support- Carbon steel or Stainless steel clamps are used which have to be designed for the specified loads. Carbon steel clamps are hot dip galvanised or painted. The bolts of the clamps have disc spring washers to maintain the clamping force even after the PUF shrinks due to the low temperature of the pipe.

- In order to protect the PUF from moisture intrusion, the PUF is covered with a vapour barrier which is made up of Mylar foil protected by a metallic jacket of Aluminium.
- Pipe thrust rings are provided to prevent the clamp from sliding along the pipe, if axial loads are specified.
- Cryogenic mastic applied to cut ends
- Resilient blanket for longitudinal expansion gaps made of fibre glass or nitrile rubber
- Adhesives for bonding PUF layers, Mylar foil to PUF and longitudinal gap filler to PUF.



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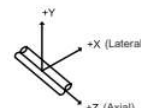
About Pipe Hangers:

A Global Solution to Spring Hangers and Supports

We are the leading manufacturer of spring hangers, supports & accessories. Over the past 39 years we have supplied to major power plants, refineries, nuclear installations & process industries in India & several International projects.

Pipe Hangers & Supports Private Limited

Ordering Information



- 1) Hot Load (Operating Load) in Kgs : _____
- 2) Thermal Movement / Travel (Direction + or -) in mm : UP (+) _____ mm
- 3) Type of Hanger Variable / Constant /Rigid : VariableEffort Support
- 4) For Constant Add Over Travel : Yes No
- 5) For Variable Springs Max Allowable % Load Variation : _____ %
- 6) Horizontal / Lateral Movement (If any) : 'X' Dir _____ mm / 'Z' Dir _____ mm
- 7) Hydro Load (If any) : _____ Kgs
- 8) Model & Type of Support : _____
- 9) Assembly Length (From BOS/TOS to Pipe CL) : _____ mm
- 10) Operating Temperature : _____ Deg C
- 11) Pipe Insulation Thk : _____ mm
- 12) Pipe Material : _____
- 13) Require Pipe Shoe for Foot Mounted Support : Yes No
- 14) For Foot Mounted Support Match Height : Yes No
- 15) Attachments like Lugs, Cleats Welded to Pipe in Scope : Yes No
- 16) Operating Load includes Wt of Accessories like Clamp, Tie Rods, Cleats, Lugs etc. : Yes No
- 17) Preferred Surface Protection / Painting : _____
- 18) For 'G' Type / Double / Trapeze type Hanger the Load Given above is for 1 assembly consisting of 2 Hangers / Individual Hanger : Yes No

