

EXPANSION JOINTS/EXPANSION BELLOWS

Pipe Expansion Joints are necessary in systems that convey high temperature substances such as steam or exhaust gases, or to absorb movement and vibration. A typical joint is a bellows of metal (most commonly stainless steel), plastic (such as PTFE), fabric (such as glass fiber) or an elastomer such as rubber.

A bellows is made up of a series of convolutions, with the shape of the convolution designed to withstand the accept axial, lateral, and angular deflections. Expansion joints are also designed for other criteria, such as noise absorption, anti-vibration, earthquake movement, and known as "compensators", as they compensate for the thermal movement. Typical pump and piping layout using expansion joints.

Expansion joints is a specially engineered product inserted in a rigid piping system to achieve one or more of the following.

1. Compensate for misalignment
2. Absorb pipe movement/stress
3. Reduce system / mechanical noise
4. Prevents stress due to expansion / contraction
5. Insulate against the transfer of noise and vibration
6. Greater recovery from movements
7. High resistance to shocks

Application areas

- Cement industry
- Chemical industry
- Glass Industry
- Metal finishing
- Offshore industry
- Paint-spray lines
- Plant engineering
- Power Station
- Pulp and paper industry
- Refineries
- Shipbuilding
- Steel mills
- Sugar Industry
- Heating and cooling devices
- Materials handling technologies
- Water Pipes
- Desalination plants
- Compressors
- Wood processing Industries



Expansion Joints - Fabric

Fabric expansion joints perform a function of compensating for duct misalignment and duct thermal growth typical in power plants and other ducting systems

- Composite layer bellows
- Anatomy bellows
- Single Type layer bellows



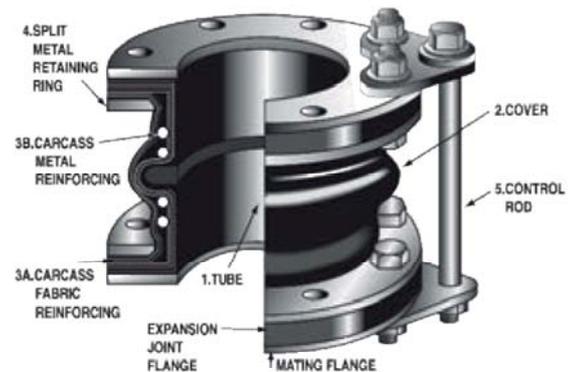
- Proven design & construction for continuous high temperature environment, even up to 1000 °C.
- High resistance to corrosion.
- Size as large as 6000mm dia. and any transportable size in rectangular as total assembly.
- Expertise to develop and supply for every end use in Power. Metallurgical and process plants.

Expansion Joints - Rubber

Rubber expansion joints, designed by engineers and fabricated by skilled craftsmen, are used in all systems conveying fluids under pressure and or vacuum at various temperatures.

- Single spool wide arch
- Multiple arch type
- Filled arch type
- Wide arch type
- Spool type double arch
- Rectangular / Circular / Square bellows

- Test pressure up to 24 bar (up to 300NB)
- Cyclic movement test for 5000 cycles under design pressure conducted on sizes 1600NB, 2100NB and 2200NB bellows.
- Manufactured sizes up to 3600mm (144 inches)*.
- Safety factor built in upto4:1.
- Low spring rates.
- Galvanized carbon steel or stainless steel split backup rings.



Expansion Joints - Metal

(Also called compensators) are compensating elements for thermal expansion and relative movement in pipelines, containers and machines. They consist of one or more metal bellows, connectors at both ends, and tie rods that depends on the application.

- Round Single layer bellows
- Round Multiple layer bellows
- Rectangular Single layer bellows
- Universal Pipe expansion joints
- Inline Pressure Balanced
- Temperature range of media -40 to 300°C
- Good resistance to milling, heat aging and corrosiveness and long service life
- Shock absorption and noise decrease, heat and dust insulation
- Economical end usage.

- Provides lower initial costs in piping & construction work
- Low movement forces required
- Reduce fatigue factor and heat loss
- Differentiated according to the three basic types of movement: Axial, Angular and Lateral expansion joints

