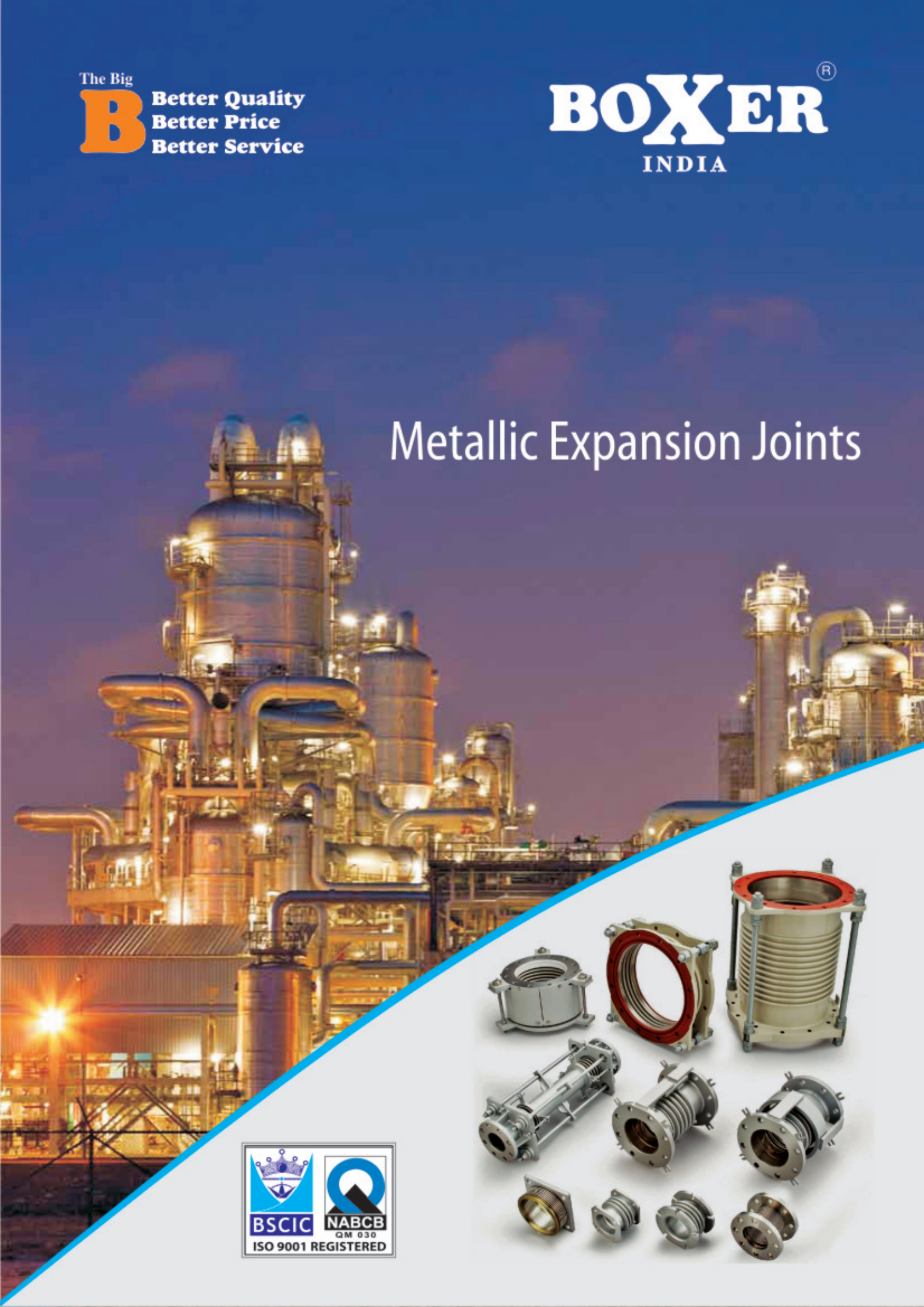
The Big **B**

Better Quality
Better Price
Better Service

BOXER®
INDIA

Metallic Expansion Joints



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ISO 9001 REGISTERED

About us

BOXER INDIA is one of the fast growing company engaged in the manufacture of wide range of high quality **flexible hose assemblies**, **metal hoses, expansion joints/ bellows and Hydraulic fittings. Boxer India is an ISO 9001:2008 Certified Company,** which has a comprehensive Quality Management System in place with continuously improving quality objectives to assure the product meets or exceeds customer expectations and requirements.

Bellows are a flexible piping element. The corrugation of the expansion joint is designed to be flexible in order to absorb pipe expansion and contraction due to changes in temperature. The number of corrugation of bellows is decided according to the displacement amount and the expansionary and contracting force that the bellows have to absorb. Bellows have to be strong to the design pressure and operating pressure of piping and installation and they also have to be flexible to absorb thermal movement. The thrust force of the flow in the piping has to be buttressed by things other than bellows.

Bellows are designed and manufactured as per the latest additions of EJMA, ASME, GIS, BS, DIN and IS standards under the supervision of highly qualified team of engineers and technocrats. Our Bellows are made from tested S. S. 316/321/304 stainless steel material.

Purpose

Steel compensators are used in appliances,
machines, apparatus and pipe systems where space is restricted

- to compensate for movement
- to compensate for expansion
- to reduce tension
- to absorb noise and oscillation transmission
- to compensate for ground and foundation settlement
- as adapters to compensate for installation inaccuracies
- as dismantling pieces for fittings

Steel compensators are flexible pipe connection elements and are used in a variety of industrial applications :

- Machine engineering
- Domestic industry
- Chemical industry
- Process plant engineering
- Gas and water supply
- Exhaust technology

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FEATURES

- Bellow Expansion Joints are employed in piping systems to absorb differential thermal expansion while containing the system pressure.
- Size is available from 25A (1") to 4000A (160")
- Typical working pressure varies from full vacuum to 1000 psig (66 bar) and temperature from -420 F (-215 C) to 1800 F (982 c) that refer from EJMA Organization.
- Standard design of movement and material maximizes the productivity wihil the custom design maximizes the suitability for special applications.
- Computer designed bellows element complies with EJMA criteria.
- All Products are tested before delivery according to relevant code or ISO quality control system.

MATERIAL

- AUSTENITIC GRADE (sa 240 gr 304,304L,304H,310S,310H,316L,316H,316TI,321 904L & 309S)
- Duplex (SAF 2205 UNS S31803, 253MA UNS S30815 etc...)
- NIckel Alloy (Inconel/Incolly-600,601,625 (UNS NO 6600,6601,6625) 800,800HT,825-No880,8810.8811,8825)
- Nickel-Copper Alloy (Monel)-UNS No4400
- Titanium GR1
- Carbon Steel / Mild Steel

Testing

Non Destructive Testing

1. Radiography Test Examination
2. Liquid penetrant Test Examination
3. Magnetic Particle Test Examination
4. Ultrasonic Test Examination
5. Halogen Leak Test Examination
6. Mass Spectrometer Test Examination
7. Air jet Leak Test Examination
8. Pressure Test Examination (Hydro or Pneumatic Test)

Destructive Testing

1. Fatigue Cyclic Life Test
2. Squirm Test
3. Meridional Yield Rupture Test

Design of Expansion Joint

We design the Metal Expansion Joint as per the Expansion Joint Manufacturers Association (EJMA) and The American Society of Mechanical Engineers (ASME) code, Section VIII, Division 1, Appendix-5 and Appendix 26.

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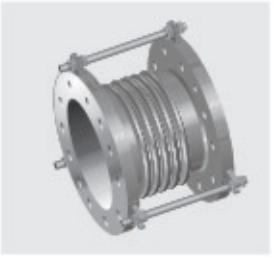
TYPE OF EXPANSION JOINT

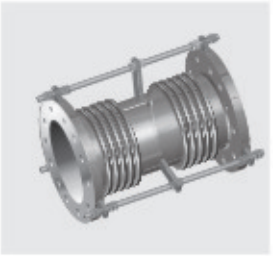
SINGLE EXPANSION JOINT

The simplest form of Expansion Joint, of single bellows construction, for the purpose of absorbing any combination of the three basic movments of the pipe section in which it is installed.



DOUBLE EXPANSION JOINT

A double Expansion Joint consists of two bellows joined by a common connector which is anchored to some rigid part of the installation by means of an anchor base. The anchor base may be attached to the common connector either at installation or at time of manufacture. Each bellows acts as a single Expansion Joint and absorbs the movement of the pipe section in which it is installed independently of the other bellows. Double Expansion Joints should not be confused with universal Expansion Joints.



UNIVERSAL EXPANSION JOINT

A universal Expansion Joint is one containing two bellows joined by a common connector for the purpose of absorbing any combination of the three basic movements: axial movement, lateral deflection and angular rotation. Universal Expansion Joints are usually furnished with control rods to distribute the movement between the two bellows of the Expansion Joint and stabilize the common connector. This definition does not imply that only a universal Expansion Joint can absorb combined movement.

HINGED EXPANSION JOINT

Hinged units offer movements in one plane only and operate by angulating the bellows. The pressure load is contained by the hinges and therefore this type of assembly is ideal where it not practical to install robust guiding or strong anchors. Single Hinged Bellows are usually used in pairs to give lateral movement in one plane.

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TYPE OF EXPANSION JOINT

GIMBAL EXPANSION JOINT

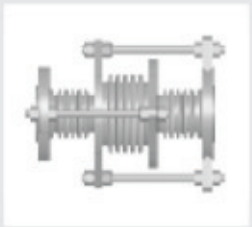
Gimbal Bellows are designed to allow angular rotation in any plane using two pairs of hinges fixed to a common floating gimbal ring. The gimbal ring and hinge parts are designed to restrain the end thrust of the expansion joint due to internal pressure and any external forces which are imposed on the joint.

PRESSURE BALANCED EXPANSION JOINT

A pressure balanced Expansion Joint is designed to absorb axial movement and/or lateral deflection while restraining the pressure thrust by means of tie devices interconnecting the flow bellows with an opposed bellows also subjected to line pressure.

IN-LINE PRESSURE BALANCED EXPANSION JOINT

An in-line pressure balanced Expansion Joint is designed to absorb axial movement and/or lateral deflection while restraining the pressure thrust by means of tie devices interconnecting the line bellows with outboard compensating bellows also subjected to line pressure. Each bellows set is designed to absorb the axial movement and usually the line bellows will absorb the lateral deflection. This type of Expansion Joint is used in a straight run of piping.



EXTERNAL PRESSURIZED EXPANSION JOINT

The external pressurized Expansion Joint is designed so that the pressure is external to the bellows whilst the inside is at atmospheric pressure and it has many convolutions to allow a large amount of axial movement. But under external pressure the bellows will retain its shape completely stable. Besides external pressurized bellows is protected from external damage by a heavy wall shroud and is isolated from flow impingement by an internal sleeve

Application areas:

- Blowers and fans
- Cement industry
- Chemical industry
- Glass industy
- Incinerators
- Metal finishing
- Offshore industry
- Paint-spray lines
- Plant engineering
- Paper industry
- Power stations
- Railed vehicles
- Refineries
- Shipbuilding
- Steel mills
- Sugar industry
- Water pipes
- Desalination plants
- Compressors

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