



Manufacturer of **Expansion Bellow**
and **Storage Tank**



MES

MAHANTAM

— ENGINEERING & SERVICES —

www.MES.com



About us

Mahantam Engineering & Services is one of the fast-growing company engaged in the manufacture of wide range of high-quality Expansion Bellow, Storage Tank and Industrial Dampers. Mahantam Engineering & Services has comprehensive quality management system in place with continuously improving quality objectives to assure the product meets or exceeds customer expectation and requirements.

Our aim is to meet client satisfaction to the fullest. This is why we are a name of repute in the national as well as global market.

We have employed skilled professionals who are not only efficient in their work, but also dedicated.

We also focus on extensive research for the continuous improvement of our products and services.

Mission & Vision

Mahantam key mission is to set the standard in the expansion bellow industry. We aim to solve our clients' problems in a creative, innovative and professional way. We believe it is important to provide our clients with the best possible product that fits their request.

We keep our prices competitive, but we will never sacrifice quality for low cost. We attach the greatest importance to the durability and quality of our products.

Our good and durable relationships with both customers and partners are a key component of our business. By maintaining a good relationship with our partners, we ensure that the products we deliver to our clients are of the highest quality.

In-House Design & Engineering

Bellows offered by us are designed based on E.J.M.A. guidelines and our standard range comprises of Bellows from 25 NB to any given size, in single & multi-ply construction for different working temperatures, pressures & movements. An expansion bellow is a specialized product. It needs to fulfil the intended function safely and reliably. Interchangeability is rare in expansion bellow, & as a matter of fact, each unit is custom-made for an intended application. It is necessary to provide accurate information regarding the condition of design that the expansion joint will be

subjected to. For all flexible elements to perform efficiently, it is imperative that the Bellow component of the integrated assembly is designed to meet the application conditions. While designing the Bellow, the actual working parameter which includes, diameter of the pipeline (or dimensions of the duct in the case of rectangular joints), flowing medium, pressure, temperature & movement is taken into consideration. Faulty design of the Bellow would invariably lead to premature failure & hence it is directly linked to the performance of the flexible element assembly.

Mahantam Designs According to the following Standards

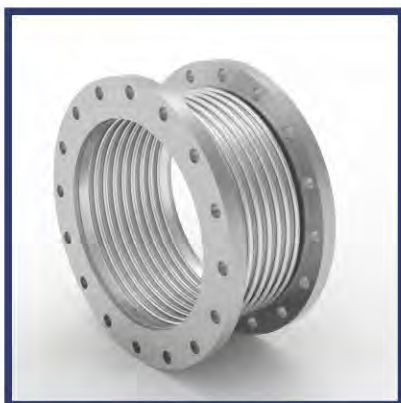


EJMA 10th latest Edition | ASME Sec. VIII, Div. I
ASME Sec IX | ASME B31.1 | ASME B31.3

Function of Expansion Bellow

- Absorb thermal expansion and vibrations in pipeline.
- Significantly improves the service life of pipelines and connected equipment.
- Best solutions for where flexible components for the pipeline are required, as it allows movements and prevent damages in pipelines.
- Economically advantageous as components absorb several levels of movements than their substitutes.
- Resistance towards pressure, temperature and corrosion.
- Zero maintenance, heat losses.
- Perfect balance of strength & flexibility.
- High motion capabilities for offset, misalignment & vibratory condition.

Types of Metallic Expansion Bellow



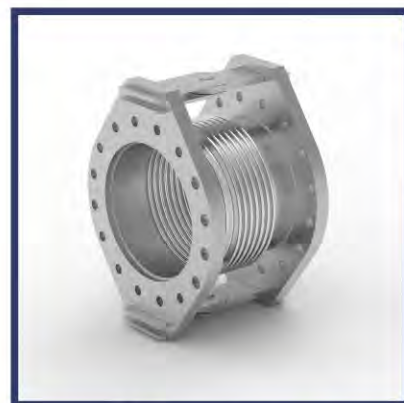
Single Expansion Bellow

It is the most economical solution where small thermal movements and low internal pressures are involved and where proper anchoring and guiding is feasible. The expansion bellow consists of a single bellows capable of absorbing axial movements and small lateral, angular, vibration and combined movements in a single plane.



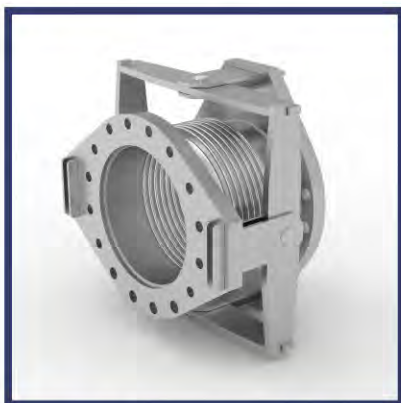
Universal Expansion Bellow

It consists of two single bellows connected by a centre tube and is suitable for absorbing large lateral movements in any direction. They are usually restrained by tie rods to control pressure thrust, eliminating the need for main anchoring.



Hinged Expansion Bellow

Pressure thrust is not transmitted to the system and they are able to allow angular movements in one plane by the use of a pair of pins running through plates attached to the expansion bellow ends. Normally used in combinations of two or more pieces, they can support the dead weight of the system, transmit external loadings and prevent bellows squirm.



Gimbal Expansion Bellow

Pressure thrust is not transmitted to the system and the expansion bellow is designed to permit angular rotation in any plane by the use of two pair of hinges affixed to a common floating gimbal ring.



Pressure Balanced Expansion Bellow

They are used when the system cannot withstand the pressure thrust and can accept axial, lateral and angular movements by neutralizing the thrust of the bellows by internal pressure. Anchors are not required.



Rectangular Expansion Bellow

Mahantam provides rectangular expansion bellow subjected to axial, Lateral, angular movements or any combinations of these as the same with the metallic circular expansion bellow.

We can supply single mitered corner, double mitered corner, camera corner & round corner in case that especially specified.

Applications:

Gas turbine exhaust systems, turbine / condenser connections, boiler breaching, forced draft fans, Flue gas ducts, regenerators, precipitators & other hot gas, large volume ducting systems.

Materials:

Mahantam use following material on bellows fabrication.



The essential component of an Expansion Bellow resides in the degree flexibility of its bellows and this depends upon the design of its convolution and the materials used during the production process. The choice of metals to be used in manufacturing the bellows, being the basic component of the Expansion Bellow, is made taking the following criteria into account:

Temperature
resistance

Resistance
to corrosion

Forming
capacity

Mechanical
characteristics

Resistance
to fatigue

Flexibility
when in use

Materials used in manufacturing are basically

- ASTM A240 T304
- ASTM A240 T304L
- ASTM A240 T316
- ASTM A240 T316L
- ASTM A240 T321
- Carbon steel
- Incoloy

Rubber Expansion Bellow

Rubber expansion bellows can be used for both suction and delivery (discharge) due to its excellent stability and pressure capacity. Rubber Expansion Bellow are generally used as connectors between vessels operating at widely different temperatures ranging up to 115°C. The sizes range from 25 mm to 2000 mm including a wide variety of different flanges and materials. Most common available materials are; EPDM ,Neoprene, Buna/Nitrile, Hypalon, Butyl and natural rubber.

Rubber expansion Bellow are generally used in heating and air conditioning systems, marine environments, sewage plants, industrial systems and for mild chemicals and oils. Rubber expansion bellow permit the necessary motion and flexibility in a 'working' ship's piping system. The compactness, resilience and low stress features make them ideally suited for shipboard piping systems. Sewage treatment plants, water treatment plants and air scrubber systems all employ the use of general rubber expansion joints. Sludge pumps, raw and secondary sewage lines, centrifugal air blowers and scrub stacks use expansion bellow due to their resistance to abrasion and corrosion, as well as their flexibility, making them well suited for these applications.



Nuclear and fossil fuel plants use rubber expansion bellow to compensate for thermal expansion and contraction on condense lines, steam turbine exhaust lines, condensate lines, cooling water lines and aeration systems.

They have been also successfully installed in demanding industrial ducting systems where flutter, heavy vibration, wet or dry corrosive materials are encountered. Rubber expansion joints reduce noise and vibration caused by forces in pumps or centrifuges by acting as a shock absorber in systems.

Fabric Expansion Bellow

Fabric expansion bellow offer almost unlimited flexibility (taking up movements in several directions simultaneously) and numerous design possibilities as they are manufactured in any shape or dimension: circular, square, rectangular, oval, conical or combinations. Furthermore, they are easy to handle and install. They also provide an excellent resistance against high temperatures and corrosion and large insulating and sealing capacity. They prove to be good for suppression of vibration and noises.

Our manufacturing comprehends textile flexible elements either independently in open or closed belts with or without flanges or mounted on metal frames, adapting ourselves to all kind of specifications as we have our own metal workshop.



- Metallic parts that hold the fabric part of the joint together and connect the dilated metallic elements.

Areas of application

- High temperature dirty flue gas
- Turbulent air , flue gas and wet gas
- Low temperature wet flue gas
- High temperature clean air

In piping, apparatuses and machines they are primarily used for:

- Compensation of expansions and movement
- Reducing the transfer of noise, vibration and oscillations
- Compensation of installation inaccuracies

Each layer has a specific function:

1. Supporting layer : Holds the insulating layer during all operating phases
2. Insulating layer : Provides a thermal barrier and reduces condensation problems
3. Gas seal layer : Provides a chemical and sealing barrier (usually PTFE)
4. Cover layer: Provides protection from the external environment especially from solar UV, acts also as a complementary gas seal layer
5. Flange reinforcements: Provides thermal and mechanical protection

Metallic and Non-Metallic Flexible Hoses

Mahantam offers a wide range of hoses made of a variety of materials and connecting parts. Mahantam hoses can be used in a variety of areas, e.g. for bottling, filling or conveying various media (e.g. compressed air, steam, water, aggressive media, etc.) or as vibration dampers for cooling and air conditioning systems. Mahantam also develops special solutions and offers hoses with special connectors.



Type of Hose : Stainless steel Hose | Rubber Hose | PTFE Hose | Composite Hose

Areas of application for hoses

- Connection between stationary and moving units
- Absorption of lifting movements
- Absorption of heat expansions
- Compensation of parallel pipe offset
- Super-heated steam
- Coolant lines
- Fuel and oil burner lines

Media

- Fluids
- Acids
- Alkalies
- Steam
- Sea water
- Fuels
- Compressed air

Storage Tank, Mitered Elbows and Pipe Spools



Mahantam has been supplying tanks and vessels to industrial markets accordance with the ASME Sec.VIII and ASME Sec. IX. We are experts in heavy manufacturing and we invest in people, efficient processes and equipment, with automatic and robotic solutions to deliver craftsman quality stainless and high alloy tanks and vessels.

Capabilities: Diameter: 6" to 14'-0"

Length: Up to 20'-0"

Material: Carbon Steel, Stainless Steel(Type 304, 304L, 316 and 316L)

Capability, Capacity, Commitment

Mahantam has facilities strategically located to serve our core markets in the India. Our team works with the tools and latest technology to help build the customized products required in today's world. Steps are constantly being made to keep Mahantam on the cutting edge. Even in economic times when many companies are cutting Back and downsizing, Mahantam is committed to our clients. We have even added a brand-new facility, which will allow us to build larger, heavier tanks and vessels that are in demand. This new facility is just one more reason why Mahantam remains the leader in steel tank manufacturing.



Mitered Elbows and Pipe Spools

We produce mitered elbows & pipe spools in a verity of configurations to meet all kind of customer requirements and operating conditions.

We specially design mitered elbows & pipe spools in accordance with the procedure of ASME sec VIII & ASME sec. IX based on customers specialized needs.

Capability: Up to 3000 NB.

Industrial Damper

At Mahantam, we manufacture reliable industrial dampers to meet a variety of different standard and custom applications. Our industrial dampers are designed to reduce overall maintenance and improve efficiencies for customers across many industries. We can design and fabricate industrial dampers to meet the individual requirements of the installation and operating conditions.



Butterfly Damper

Butterfly dampers are the ideal option for round duct work where low leakage isolation, flow control, or both is required. This type of industrial damper is available in both single and multi-blade designs, which provide low cost isolation and flow control of flue gases.

APPLICATIONS

- Scrubber Systems
- Stack isolation
- Control air systems
- Balancing systems
- Incinerators
- Baghouse



Multi Louver Damper

Multi Louver dampers provide quick response, zero leakage, and fast operating cycles, making them the perfect solution for many different applications. This type of industrial damper is specifically engineered for precise flow control and isolation in even the most demanding work environments.

APPLICATIONS

- Stack Isolation
- Pre-spinning of duct air
- Pressure relief applications
- Modulating of airflow



Guillotine Damper

Guillotine dampers are ideal for creating flow isolation, especially during an inspection or maintenance. With the ability to provide a tight shut-off and complete isolation without taking up a significant amount of space, this type of industrial damper is perfect for a wide range of different industries.

APPLICATIONS

- Biotech labs
- Pharmaceutical facilities
- Hospital isolation areas
- Military and nuclear facilities



Inlet Vane Damper

Inlet vane dampers are best suited for applications where fan shut-off and volume control is required. This type of industrial damper is available in two different configurations (center hub design and cantilever design) and can be custom designed and engineered to meet your specifications.

APPLICATIONS

- Pumping operations
- Blowing operations
- Mixing operations

Quality Control



Expansion Bellows fall under high engineering products, therefore our quality Control Department carefully monitors each step involved in the production process, right from the time of raw material purchase to the final controls and tests carried out on each and every Expansion bellow which come off our production line.

All of the quality controls and tests we carry out are based on our Quality Control Manual, approved under ISO 9001:2015, as well as our Quality procedures.

Non-Destructive Testing

- Radiographic Test
- Liquid Penetrant Test
- Ultrasonic Test
- Magnetic Particle Test
- Pneumatic Pressure Test & Leak Detection Test
- Hydraulic Pressure Test
- Chemical & Mechanical Analysis

Testing of Expansion Bellows

All of our expansion bellows undergo a series of controls and tests at each stage in the manufacturing process and before the dispatch from factory. Every expansion bellow is submitted to a final Dimensional check, leak detection check and pressure test.



Engineering Applications

Expansion Bellow have a wide range of application and each expansion bellow is designed based on its unique environmental and Installation conditions, pressure, temperature, movements, space and/or corrosion etc.

The applications of our expansion bellow include the following

Oil Refineries Industry | Chemical and Pharmaceutical Industry | Fossil Fuel Power Generation
Nuclear Power Plant | Desalination Power Plant | Petrochemical Industry
District Heating | Iron and Steel Mills | Pressure Vessel Manufacturing
Automotive Industry | Instrumentation Industry | Waste water Treatment
Cryogenics Industry | Marine Application | Pulp and Paper





MAHANTAM

— ENGINEERING & SERVICES —

Unit 1

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Unit 2

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Khodiyar Nagar, New VIP Road, Vadodara.