


AFLEX[®]



PRODUCT CATALOGUE



Australia's Leading Metal Bellows Manufacturer

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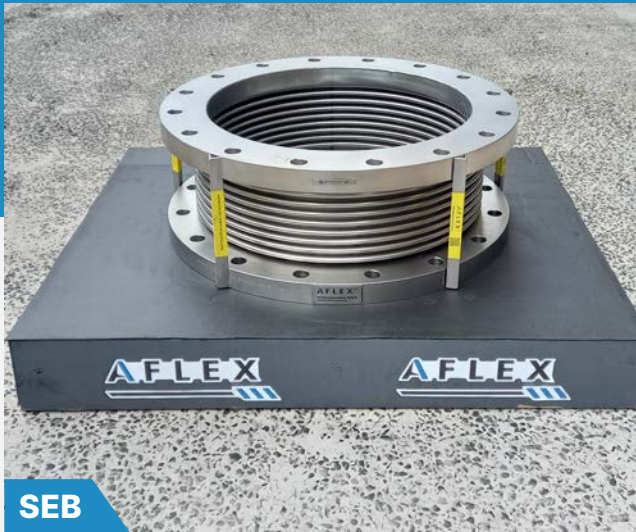
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SEB – SINGLE EXPANSION BELLOWS



SEB

A Single Expansion Bellows (SEB) is the simplest product Aflex offers, capable of accommodating small amounts of axial, lateral, and angular deflection – or a combination of all three.

An SEB is an unrestrained bellows and therefore will exert pressure thrust onto the system. The amount of force a bellows generates is determined by the pressure of the system, and therefore in high pressure pipelines this force must be restrained. To contain this pressure thrust the pipeline must be properly restrained by implementing correct guides and anchors.

SEB – Single Expansion Bellows	
Applications	Common Pressure
Air ducts	10kPa
Exhaust pipes	10kPa
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa (PN16)
Pump connections	1600kPa
Drainage	10kPa
MRI vent lines	700kPa
Generators	10kPa
Data centre piping	1400kPa

UEB – UNIVERSAL EXPANSION BELLOWS



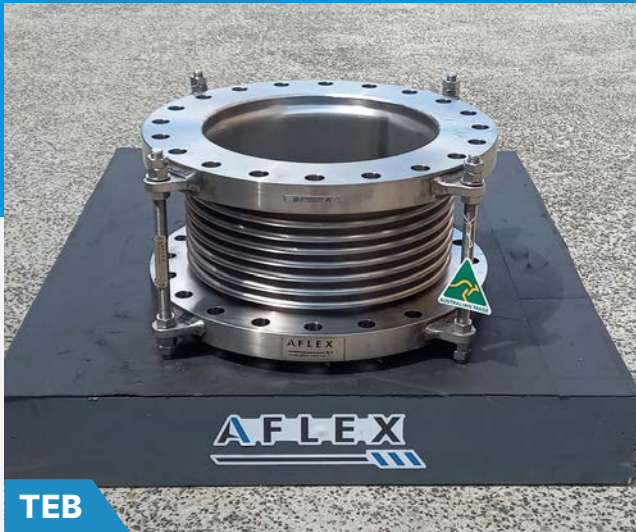
UEB

Aflex Universal Expansion Bellows (UEB) consist of two bellows welded to a centre pipe which is then fitted with flanges. This configuration allows for moderate axial, angular and lateral deflections in any direction, to suit the movement of a pipeline.

At high pressures, a UEB has a lack of column stability, meaning they should only be used for low pressure applications. Although they are used in low pressure systems, adequate anchors and guides must be in place to absorb the pressure thrust, as UEBs are unrestrained bellows.

UEB – Universal Expansion Bellows	
Applications	Common Pressure
Air ducts	10kPa
Exhaust pipes	10kPa
Drainage	10kPa
MRI vent lines	700kPa
Generators	10kPa
Marine and ship building	10kPa

TEB – TIED EXPANSION BELLOWS



TEB

Aflex Tied Expansion Bellows (TEB) consist of a standard bellows assembly fitted with multiple threaded tie rods which are designed to restrain the bellows pressure thrust force. The tie rods on the assembly ensure that only spring rate forces are transposed onto any adjoining equipment/pipework.

Although Aflex TEBs are more suited to accommodate for lateral movements, they can also be modified to compress and deflect axially. However, once a TEB experiences axial movement, the Tie rods will no longer contain the pressure thrust, and the pipeline would need to be fitted with thrust bearing anchors.

TEB – Tied Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa (PN16)
Pump connections	1600kPa
Tank settlement	100-1600kPa
Fire pump systems	1600kPa

TUEB – TIED UNIVERSAL EXPANSION BELLOWS



TUEB

An Aflex TUEB functions in the same manner as a TEB but incorporates a central pipe spool with a bellows element on each end, providing increased lateral flexibility/settlement. These assemblies are able to absorb large amounts lateral deflection in both single-plane and multi-plane piping configurations.

TUEB assemblies are suitable in low-medium pressure ranges, as the tie rods will restrain the pressure thrust from the bellows. This prevents the pressure thrust force being transmitted onto the piping, anchors and adjacent equipment.

TUEB – Tied Universal Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa (PN16)
Pump connections	1600kPa
Tank settlement	100-1600kPa
Fire pump systems	1600kPa

HEB – HINGED EXPANSION BELLOWS



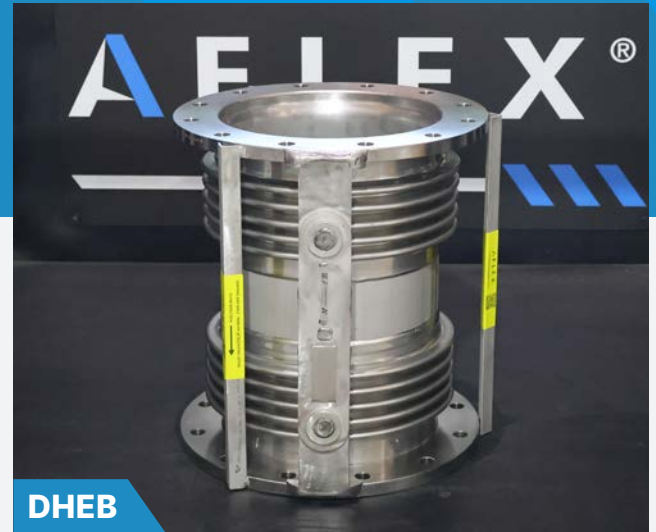
HEB

An Aflex Hinged Expansion Bellows (HEB) consists of a bellows fitted with flanges and hinge hardware. This hinge hardware fully restrains the bellows and only allows for angular rotation in a single plane around its hinges.

HEB are usually used in sets of two or three to absorb large amounts of lateral deflection, due to the thermal expansion of the pipeline. They are designed in a way that their hinges restrain the full pressure thrust from the bellows and only low load anchors are required to suit the spring rate of the bellows.

HEB – Hinged Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa
Tank settlement	100-1600kPa
Data centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

DHEB – DOUBLE HINGED EXPANSION BELLOWS



DHEB

Aflex Double Hinged Expansion Bellows (DHEB) consist of two bellows elements welded to a centre pipe. These are then fitted with flanges and joining hinge hardware which restrains the bellows pressure thrust force. DHEB assemblies only transmit low lateral spring forces, allowing the system to be designed with low load anchors.

Due to the hinge hardware, a DHEB cannot compress or extend axially, but instead is designed to accommodate for large lateral movements around a 90° pipe leg. The hinges restrict the assembly to only move on one plane and can be designed to ensure the assembly is stable at high pressures.

DHEB – Double Hinged Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa
Tank settlement	100-1600kPa
Data centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

GEB – GIMBAL EXPANSION BELLOWS



GEB

An Aflex Gimbal Expansion Bellows (GEB) consists of a bellows fitted with flanges and gimbal hardware. The gimbal hardware fully restrains the bellows and allows for only angular rotation on two planes simultaneously.

Commonly, two GEB units are installed on a pipe leg to absorb large amounts of lateral deflection in multi-plane piping systems. The Gimbal structure also restrains the pressure thrust generated by the bellows, meaning the pipeline does not require high load anchors, as the GEB only generates low forces on the piping system.

GEB – Gimbal Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa
Data centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

DGEB – DOUBLE GIMBAL EXPANSION BELLOWS



DGEB

Aflex Double Gimbal Expansion Bellows (DGEB) consist of two Gimbal Expansion Bellows welded to a middle section of pipe. The Gimbal structure absorbs the pressure thrust generated by the bellows, meaning the pipeline does not require high low anchors as the DGEB only generates low forces on the piping system.

The gimbal hardware allows the Double Gimbal Expansion Bellows to accommodate large lateral deflection in multi-plane piping systems. As a single, set-length unit, a DGEB offers a more compact and straightforward installation compared to using two individual Gimbal Expansion Bellows.

DGEB – Double Gimbal Expansion Bellows	
Applications	Common Pressure
Steam lines	1000kPa
Oil and gas	1200kPa
Water lines	1600kPa
Data centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

XB – EXTERNALLY PRESSURISED BELLOWS ASSEMBLY



Aflex Externally Pressurised Bellows Assemblies (XB) consist of a single bellows element welded to overlapping lengths of pipe, fitted with flanges. With this design, the pressure of the pipeline is applied externally to the bellows, with the inside remaining at atmospheric pressure. This allows for the bellows to have many more convolutions as it is more stable and also prevents the bellows from failing through squirm. An Aflex XB allows for large amounts of axial deflection in long straight pipe runs and no lateral or angular deflection.

XB assemblies are unrestrained, and will transmit pressure thrust onto the pipeline, therefore, it must be properly restrained by anchors and pipe guides to prevent damage to the pipeline and other equipment.

XB – Externally Pressurised Bellows Assembly	
Applications	Common Pressure
Steam lines	1000kPa
Water lines	1600kPa
Data centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

DXB – DOUBLE EXTERNALLY PRESSURISED BELLOWS ASSEMBLY



An Aflex Double Externally Pressurised Bellows Assembly (DXB) is similar to the XB assembly but allows for more axial movement. DXB assemblies utilise two bellows elements with an Intermediate Anchor to ensure the axial movement is distributed equally over both bellows.

The Aflex DXB is designed so that the pressure is applied externally to the bellows elements, which means the inside of the bellows remains at atmospheric pressure. With this design, when a pipeline expands, the DXB expansion joint compresses, stretching the bellows element. This allows for a large amount of axial movement as the bellows is completely stable due to the pressure being applied externally, not internally.

DXB assemblies are unrestrained, and will transmit pressure thrust onto the pipeline, therefore, it must be properly restrained by anchors and pipe guides to prevent damage to the pipeline and other equipment.

DXB – Double Externally Pressurised Bellows Assembly	
Applications	Common Pressure
Steam lines	1000kPa
Water lines	1600kPa
Data Centre piping	1400kPa
Cooling lines	1000-1600kPa
Heating lines	1000-1600kPa

PANTO – PANTOGRAPH BELLOWS ASSEMBLIES



PANTO

Aflex Pantograph Bellows Assemblies consist of two or more bellows elements connected by a system of guiding pantograph arms. The multiple bellows elements enable the assembly to absorb large axial movements, while the pantograph mechanism ensures that movement is evenly distributed across each bellows.

By maintaining equal loading, the pantograph arms prevent overextension of individual bellows elements, reduce instability, and contribute to improved cycle life. As the assembly is unrestrained, it will transmit pressure thrust onto the pipeline. To prevent damage or misalignment, the system must be correctly anchored and guided in accordance with EJMA.

GEB PANTO – DOUBLE GIMBAL PANTOGRAPH BELLOWS ASSEMBLIES



GEB PANTO

Aflex Gimbal Pantograph Bellows are a combination of a standard Pantograph Bellows section with Gimbal Bellows at each end. The gimbal mechanisms allow the assembly to accommodate for lateral deflection, while the central pantograph section provides significant axial flexibility.

The pantograph guiding arms are designed to distribute axial movement evenly across each bellows convolution. This balanced loading reduces the risk of an isolated failure point which increases the cycle life and improves overall stability of the bellows item.

As the assembly is unrestrained, it will transmit pressure thrust onto the pipeline. To prevent damage or misalignment, the system must be correctly anchored and guided in accordance with EJMA.

PANTO – Pantograph Bellows Assemblies	
Applications	Common Pressure
Drainage	Open to 10kPa
High movement applications	

GEB PANTO – Double Gimbal Pantograph Bellows Assemblies	
Applications	Common Pressure
Drainage	Open to 10kPa
Tank settlement	
High movement applications	

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