

METAL EXPANSION JOINT

SINGLE UNRESTRAINED

SSO - SFO - SGO

OPERATION

The simple metal expansion joint (SSO, SFO and SGO) is mainly intended to absorb movements of axial expansion, both thermal and mechanical. In addition, to a lesser extent, it can absorb angular and lateral movements.

BELLOWS FORMING

This model is composed of a single bellow of several waves in the form of "U". These waves are made by one or more metal sheets longitudinally welded and hydraulically or mechanically-shaped.

PRESSURE STRESSES

Because of its configuration, the designer must bear in mind that these models transmit pressure stresses to the fixed points and guides of the piping system.

ADVANTAGES OF METAL EXPANSION JOINTS

- MINIMUM INSTALLATION COST
- LOW INSTALLATION SPACE REQUIRED
- DO NOT IMPLY PRESSURE DROPS INCREASING
- MINIMUM OPERATION COSTS DUE TO ENERGY LOSS OR ISOLATION. NO MAINTENANCE REQUIRED
- THEIR INHERENT FLEXIBILITY ALLOWS TO ABSORB MOVEMENTS IN MULTIPLE DIRECTIONS.

APPLICATIONS OF METAL EXPANSION JOINTS

- ABSORPTION OF AXIAL, ANGULAR OR LATERAL DISPLACEMENTS IN PIPES DUE TO CHANGES OF TEMPERATURE, EARTHQUAKES, SUBSIDENCE, DYNAMIC SYSTEMS, ETC.
- ABSORPTION OF VIBRATIONS
- CONNECTION TO ELASTIC FRAMES OR FRAGILE ELEMENTS (PUMPS, FURNACES, ETC).
- VACUUM INSTALLATIONS.
- ABSORPTION OF MOVEMENTS CAUSED BY THERMAL DILATIONS IN WELDED COMPONENTS



SSO

Axial metal expansion joint with welding ends.



SGO

Axial metal expansion joint with floating flanges.



SFO

Axial metal expansion joint with fixed flanges

DESIGN PRESSURE

From 0,5 barg to 40 barg.

DESIGN TEMPERATURE

From 10 °C to 800 °C.

STANDARD DIAMETERS

From DN25 to DN5500.

MATERIALS

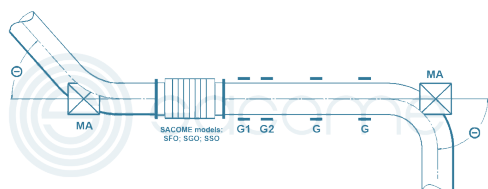
The usual materials are stainless steel 321, 309S and 316L. Other materials: Inconel 600, Inconel 625, Incoloy 800, Incoloy 800H, Hastelloy C-276.

MOVEMENTS

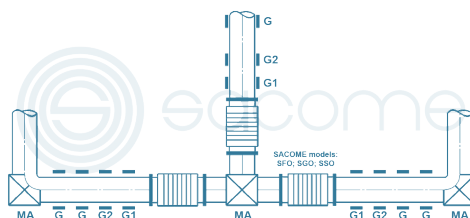
ITEM	MODEL	DOES IT TRANSMIT PRESSURE EFFORT	AXIAL MOVEMENT		LATERAL MOVEMENT		ANGULAR MOVEMENT	
			COMPRESSION	EXTENSION	1 PLANE	2 PLANES	1 AXIS	2 AXIS
SINGLE UNRES-TRAINED	SSO SFO SGO	YES	YES	YES	YES (*)	YES (*)	YES (*)	YES (*)

*WITH RESTRICTIONS

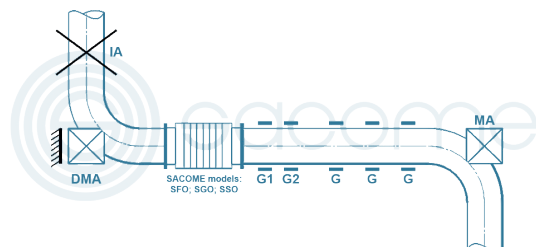
APPLICATIONS



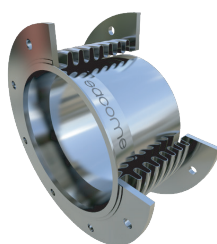
Example of using a simple unrestrained metal expansion joint to absorb axial line expansion.



T connection where 3 single unrestrained metal expansion joints have been used to absorb axial line movement.



Typical application of a single unrestrained metal expansion joint. Axial movement combined with lateral deflection is absorbed.



LEGEND

