Metal bellows elements
Metal Expansion Joints

Description
A sheet of metal rolled into a cylinder and seam welded using the GTAW (TIG) welding process. Convolutions (corrugations) are formed into the wall of the element. The element may be single ply or multi-ply, with two or more cylinders inside each other.

Applications
The element absorbs axial (longitudinal) and lateral (offset) movements through the change in shape of the convolutions as the element moves.
These are generally used in industrial and exhaust piping installations to absorb pipe movements and vibrations.

Materials of construction
The selection of the material is generally depends on the temperature and corrosion resistance requirements of the application.

Typical materials include:
- Stainless Steel grades 304, 316, 321;
- High Nickel Alloys such as Incoloy, Inconel, Monel, 253MA, Hastelloy C (registered trade names), nickel and carbon steel.

Methods of forming convolutions
Mechanical - pneumatically applied internal forming tools.
Rolling - repeated rolling of cylinder over forming wheels.
Hydraulic - controlled internal water pressure.

RADCOFLEX can form bellows elements by all three methods.

Bore size range
25 – 3800mm
The bore of the standard element is sized to slip over the outside of matching standard pipework to enhance flow characteristics.

Pressure capability
The pressure capability of the element is determined by the thickness of the material and the controls on its movement.

Movement capability
The amount of movement the element is capable of depends on the number, height, shape, and pitch of the convolutions in the element.

The type of movement is determined by the control hardware attached to the element and surrounding pipework, such as for example flanges, tie rods, hinge plates, anchors, etc…