

## Expansion Joints

FLEXIBLE ENGINEERING

# A900 expansion joints designed for performance and durability A range of large bore hand-built rubber joints and bellows

### Product description

A900 expansion joints are designed and custom-built to withstand the toughest environments to suit a wide range of industrial applications and working conditions.

### Applications

- Pump isolation
- Noise abatement
- Stress relieving
- Static misalignment
- Axial compression
- Axial elongation
- Lateral movement
- Angular deflection

### Reinforcement

Multiple layers of high-strength synthetic cord give shock-resistance and stability under pressure. High-tensile steel rings give maximum vacuum resistance and optimum flexibility for axial and angular movements.

### Steel components

Steel components are produced in-house at our computer-controlled machine shop (welding to ASME IX / BS EN 287 - 1:2004 A1/2 2008).

### Types



900-D: D-section arch: Allows for high axial movements and maximum angular deflection.



900-F: Filled arch: Restricts movement, suitable for vibration isolation.



900-T: Tapered arch: Allows transition between pipe sizes.



900-S: Spherical arch: Prevents build-up of solid matter and allows high axial movements.

### Lining and cover

Elastomer qualities are formulated to offer maximum resistance to abrasive and corrosive substances as well as external protection from sunlight exposure and weathering.

### Custom-built

A900 is a standard range, but many joints are manufactured specifically to requirement.

- Custom hand-built bellows
- Optimum strength and flexibility
- Ideal for abrasives and corrosives
- Fixed or swivel flange designs

### Coupling systems

#### Integral flange

Reinforcing fabric layers; encapsulated in rubber, continue at right angles against the expansion joint body; forming a flange with a fluid tight seal. The rubber and fabric flange is supported with a vulcanised or movable steel backing flange; creating a one-piece unit.

#### Double-action integral flange

A further development of the integral flange; integrates a steel plate within the flange. This resolves problems related with pressure pulsation and/or end stretching. This reduces flange bending and loss of sealing at higher pressures, especially on flanges with a wide pcd.

#### Beaded end swivel flange

A tapered steel ring is fully encapsulated in rubber and cord to create a bead. The one-piece swivel flange sits on the body of the hose against and on top of this bead; enabling increased end-loading.

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### Nominal physical data†

Bore size		Working pressure bar	Overall length mm	Axial compression mm	Axial extension mm	Lateral deflection mm	Angular movement degrees
Inch	mm						
10	250	10	200	30	25	25	12
12	300	10	200	30	25	25	12
14	350	10	200	40	25	25	10
16	400	10	200	40	25	25	10
18	450	10	250	45	25	30	10
20	500	10	250	45	25	30	10
24	600	10	250	45	25	30	8
28	700	10	250	45	25	30	6
30	750	10	300	45	25	30	6
32	800	10	300	45	25	30	5
36	900	10	300	50	30	30	5
40	1000	10	300	50	30	30	4

### Applications and use

#### Expansion absorption

Absorbing pipe or duct expansion due to thermal changes.

#### Static misalignment

Accommodate misalignment in plant where settlements have occurred between pipework.

#### Abrasion resistance

Rubber is one of the best materials for abrasion resistance and special compounds can be formulated for various abrasive media. The lining can be made a suitable thickness for the particle size.

#### Tapers and offsets

Flexible connectors can be made to accommodate different pipe diameters at each end; useful for applications with solids where any flow discontinuity would lead to erosion. Transition from one flange rating to another is also available.

† Nominal physical data is based on A900-D

#### Maintenance

In installations where large items of plant are surrounded closely by other machinery and removal is difficult, expansion joints can fulfil a useful maintenance function. The joint can be disconnected and compressed using tie bars to the point where it is possible to lift out of the plant cleanly.

#### Pump isolation

In many plant designs the pumps are mounted on isolators. These allow the pumps to move, particularly during start-up and shut-down. Without a flexible connector between the pump and the pipe work the movement is transmitted to the pipe work and can cause excessive vibration.

#### Noise abatement

Both pump vibration and fluid motion are sources of noise transmitted into pipe work.

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