

Spherical moulded elastomeric expansion joints / flexible connectors with epoxy powder coated floating ductile iron flanges for easy alignment. Long radius arch bellow design permits substantial movements in all planes.

### Product Application

Installation of FJFF is recommended as expansion joints within the piping system and at connection points of piping with mechanical equipment. These :

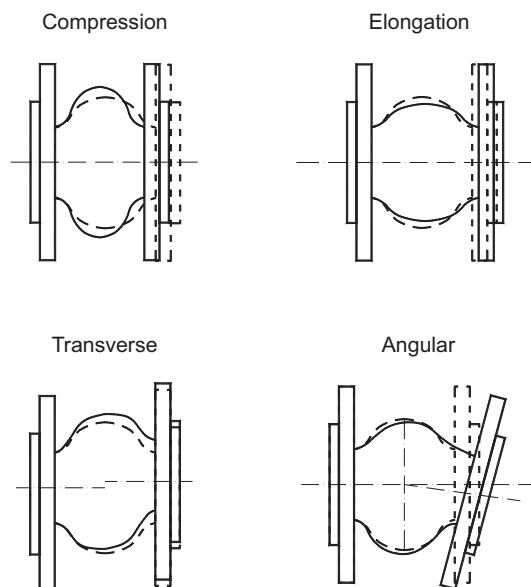
- Compensate for axial, transverse and angular pipe movements - thereby protecting the system from stresses and damage due to thermal expansion and contraction of piping, minor pipe misalignment and hydraulic surge effects.
- Eliminate need for pipe expansion loops that are expensive and require considerable space.
- Significantly reduce noise and vibration transmitted in the system through pipe walls.
- Allow vibration isolators to function properly, by providing flexibility at equipment connection.
- Cushion water hammer by expanding volumetrically, thus protecting against sudden startup / surge forces or shocks.

### Typical examples of usage include :

- At inlet and outlet of HVAC equipment - Pumps, AHUs, Chillers, Cooling Towers, HEX, Condensers.
- In HVAC chilled / hot water piping - risers, circulation lines, across building expansion joints.
- Process Piping, Power Plants, Water Distribution etc.

### Product Features

- The bellows are moulded under high pressure and impregnated with multi-ply nylon tire cord and spring-steel wire reinforcement. This makes them suitable for both positive pressure and vacuum applications.
- Long radius arch bellow design provides excellent axial, transverse and angular deflection capability.
- Spherical shape of bellow ensures smooth flow of fluid, resulting in negligible pressure drop across the joint.
- Substantial steel-reinforced moulded beads at each end of bellow eliminate the need for gaskets.
- Captive floating flanges facilitate alignment with pipe during installation. These are grooved in order to accommodate the bellow end-beads.
- The floating flanges are epoxy powder coated for corrosion resistance.
- Each unit is individually tested at 150% of rated maximum working pressure before leaving works.



**Movement Illustrations**

### Installation

Pipe Joint (FJFF) and Control Units (FJCU) packing cartons contain detailed installation guides.

*Please refer overleaf for selection table, control unit information etc..*

SPECIFICATIONS	
Construction	
Bellow	
Inner Tube	Neoprene
Reinforcement	Multi-ply Nylon tire cord fabric and spring-steel wire
Outer Cover	Neoprene
Flanges	Ductile iron, epoxy powder coated Drilled to BS EN 1092 PN16
Performance Data	
Working Pressure	16 kg/cm <sup>2</sup>
Vacuum	650 mmHg
Temperature Range	-20°C to 105°C
Burst Pressure	appx. 4 times working pressure
Working Fluids	Water, weak Acids / Alkalies, Air

### Options Available

- **Pressure Rating** - 16 kg/cm<sup>2</sup>, tested at 24 bar (standard); 20 kg/cm<sup>2</sup>, tested at 30 bar (suffix '20B'); 25 kg/cm<sup>2</sup>, tested at 37.5 bar (suffix '25B').
- **Bellow Material** - Neoprene (standard), EPDM (for temperature rating up to 121°C), NR, SBR, CBR.
- **Flange Drilling** - BS EN 1092 PN16 (standard); any other standard such as ANSI, JIS (specify by name).
- **Flange Material** - Ductile iron (standard), Stainless Steel (grades 304, 316, 321).
- WEICCO BMF bimetallic counter-flanges are available for connection to copper pipe.

**Compliance** - ASTM F1123. Testing as per Fluid Sealing Association standard FSA-PSJ-701.

SELECTION TABLE FOR FLANGED SPHERICAL PIPE JOINTS							
Model	Steel Pipe Nominal	Overall Length	Working Pressure*	Maximum Allowable Movement			
				Compression	Elongation	Transverse	Angular
FJFF 65	2½"	110mm	16 kg/cm <sup>2</sup>	16mm	12mm	10mm	17°
FJFF 75	3"	135mm	16 kg/cm <sup>2</sup>	16mm	12mm	10mm	17°
FJFF 100	4"	135mm	16 kg/cm <sup>2</sup>	16mm	12mm	10mm	17°
FJFF 125	5"	160mm	16 kg/cm <sup>2</sup>	22mm	12mm	13mm	17°
FJFF 150	6"	155mm	16 kg/cm <sup>2</sup>	22mm	16mm	13mm	14°
FJFF 200	8"	155mm	16 kg/cm <sup>2</sup>	22mm	16mm	13mm	14°
FJFF 250	10"	215mm	16 kg/cm <sup>2</sup>	25mm	16mm	16mm	12°
FJFF 300	12"	220mm	16 kg/cm <sup>2</sup>	25mm	16mm	16mm	12°
FJFF 350	14"	250mm	16 kg/cm <sup>2</sup>	28mm	19mm	21mm	9°
FJFF 400	16"	250mm	16 kg/cm <sup>2</sup>	28mm	19mm	21mm	9°
FJFF 450	18"	265mm	16 kg/cm <sup>2</sup>	28mm	19mm	21mm	8°
FJFF 500	20"	285mm	16 kg/cm <sup>2</sup>	28mm	19mm	21mm	8°
FJFF 600	24"	285mm	16 kg/cm <sup>2</sup>	28mm	22mm	21mm	6°

\* Applicable till 77°C. For higher temperatures, please derate linearly, considering 30% reduction at upper end of temperature range.

### Control Units (FJCU)

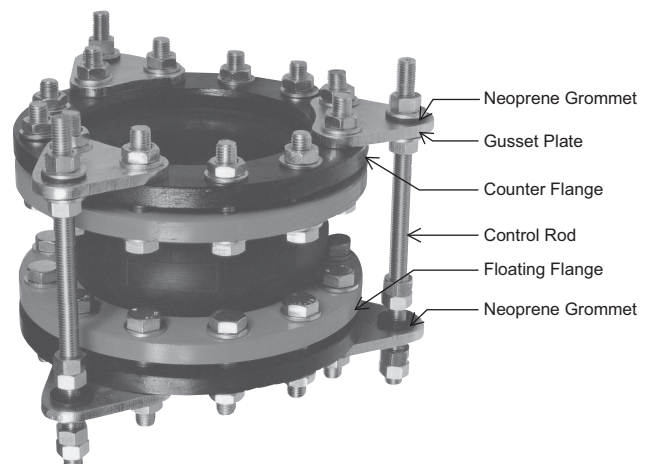
WEICCO FJCU control unit assemblies are designed to protect joints and adjacent equipment against potential damage in case of excessive pipeline motion. They can be adjusted so as to restrain FJFF movements to within the maximum allowed in all planes.

It is vital to provide control units in situations where:

- Pipeline segment in which the joint is installed is not rigidly anchored on both sides of the joint.
- Joint is connected to spring mounted equipment.

Each FJCU set comprises - 2 to 5 (depending on size) control rods with 6 nuts each and gusset plates fitted with neoprene grommets. All elements of the assembly have a rugged, heavy duty construction. The neoprene grommets have integral projecting bushes that ensure acoustic separation between the steel control rods and gusset plates.

FJCU may be ordered according to FJFF model.



**Please refer overleaf for product application and features..**