FLANGED SPHERICAL PIPE JOINTS

- Elastomeric Expansion Joints / Flexible Connectors

Spherical moulded type expansion joints / flexible connectors with epoxy powder coated floating steel flanges for easy alignment. Large radius arch design permits movements over a large range.

Product Application

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

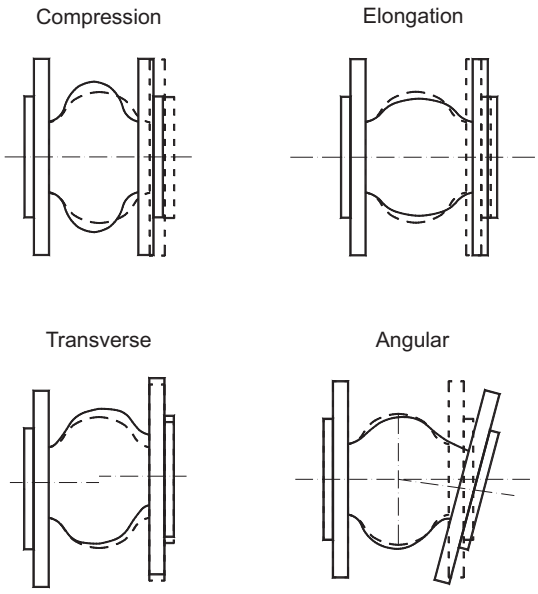
- Compensate for axial, transverse and angular pipe movements - thereby protecting the system from stresses due to thermal pipe expansion / contraction, minor pipe misalignment and hydraulic surge effects.
- Significantly reduce noise and vibration transmitted in the system through pipe walls.
- Allow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

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.
- Captive steel floating flanges facilitate alignment with pipe during installation. These are grooved in order to accommodate the bellow end-beads. Floating flanges are epoxy powder coated for corrosion resistance.
- Substantial steel-reinforced moulded beads at each end of bellow eliminate the need for gaskets.
- Each unit is individually tested at 150% of rated maximum working pressure before leaving works.
- Elastomeric expansion joints offer many advantages over metal joints *(as per ASHRAE, FSA literature)*. Some important ones are :
  a) Noise Attenuation - metal bellows are completely ineffective acoustically.
  b) No Hardening or Fatigue Failure from Extended Cycling or Aging. These problems are common with metal joints, whose service life is a few thousand cycles. Elastomeric joints, in contrast, can absorb practically infinite stress reversals.
  c) Better Shock Resistance.
  d) Simultaneous axial and lateral deflection.



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..

WEICCO®

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SPECIFICATIONS	
Construction	
Bellow	
Inner Tube	Neoprene
Reinforcement	Multi-ply Nylon tire cord fabric and spring-steel wire
Outer Cover	Neoprene
Flanges	Steel, epoxy powder coated Drilled to BS4504 PN16
Performance Data	
Working Pressure	*- as per table below -*
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** - FJFF rated for higher pressures can be supplied. Specify required rating.
- **Bellow Material** - Neoprene (standard), EPDM (for temperature rating up to 121°C), NR, SBR, CBR, special elastomer suitable for Drinking Water. Suffix name of the elastomer (or 'DW' for drinking water).
- **Flange Drilling** - BS4504 PN16 (standard); any other standard such as ANSI, JIS (specify by name).
- WEICCO BMF bimetallic counter-flanges are available for connection to copper pipe.

Compliance - ASTM F 1123-87 (2004); all units are tested as per BS 5150 : 1974

SELECTION TABLE FOR FLANGED SPHERICAL PIPE JOINTS

Model	Steel Pipe Nominal	Overall Length	Working Pressure*	Maximum Allowable Movement			
				Compression	Elongation	Transverse	Angular
FJFF50	2"	130mm	16 kg/cm^2	13mm	10mm	13mm	15°
FJFF65	2½"	145mm	16 kg/cm^2	13mm	10mm	13mm	15°
FJFF80	3"	145mm	16 kg/cm^2	13mm	10mm	13mm	15°
FJFF100	4"	152mm	16 kg/cm^2	19mm	13mm	13mm	15°
FJFF125	5"	152mm	16 kg/cm^2	19mm	13mm	13mm	15°
FJFF150	6"	152mm	16 kg/cm^2	19mm	13mm	13mm	10°
FJFF200	8"	165mm	16 kg/cm^2	19mm	13mm	13mm	10°
FJFF250	10"	205mm	16 kg/cm^2	25mm	16mm	19mm	10°
FJFF300	12"	215mm	16 kg/cm^2	25mm	16mm	19mm	10°
FJFF350	14"	230mm	10 kg/cm^2	25mm	16mm	19mm	5°
FJFF400	16"	250mm	8 kg/cm^2	25mm	16mm	19mm	5°
FJFF450	18"	250mm	8 kg/cm^2	25mm	16mm	19mm	5°
FJFF500	20"	250mm	8 kg/cm^2	25mm	16mm	19mm	5°

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

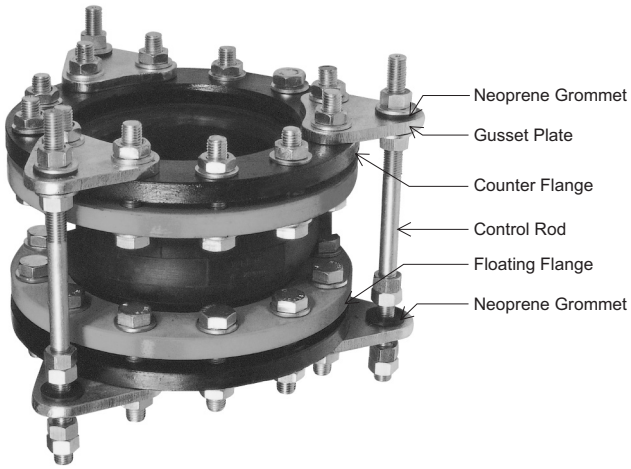
Control Units (FJCU)

WEICCO control units are designed to absorb the static pressure thrust developed at the expansion joint and protect it from damage due to excessive pipeline motion, while permitting its allowable movements to take place.

Each FJCU set comprises - 2 to 4 (depending on size) threaded bolt rods with 6 nuts each and epoxy powder coated MS gusset plates fitted with neoprene grommets for acoustic isolation of bolts. FJCU may be ordered with the same numerical model numbers as FJFF.

Installation is recommended where :

- Rated movements of joint are likely to be exceeded, even if piping system is anchored on both sides.
- Piping is unanchored at one or both sides of the joint and pressure exceeds the limits in table on right.
- The joint is connected to spring mounted equipment and pressure exceeds the limits in table on right.
- FJFF with working pressure ratings higher than standard are used, in any situation.



Connector Size	Operating Pressure
up to 5"	14 kg/cm^2
6" to 12"	10 kg/cm^2
14"	7 kg/cm^2
16" to 20"	4 kg/cm^2

Please refer overleaf for product application and features..