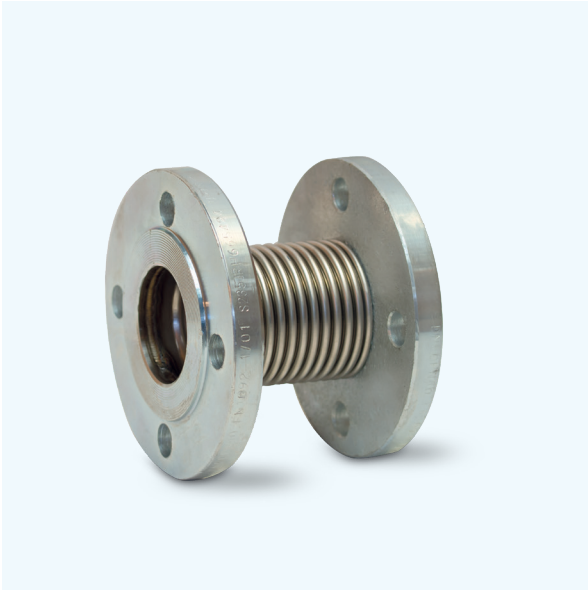


# AXIAL EXPANSION JOINT

## FAF5100

5100



### Features

- FAF Axial Expansion Bellows have been designed to control vibration, reduce noise, relieve stress, prevent system shock and compensate for misalignment and movement.
- Absorbs dimensions differences and vibrations occurs due to thermal differences.
- With the liner option, it prevents the erosion on the bellows that could occur at high flow velocities with vibration and abrasion.
- Use of braided metal connectors for applications such as pumps, compressors, and other mechanical equipment will enhance the overall operation of the system.
- Allows balancing of the pipeline lateral and angular movements.
- Provides easy installation due to rotary flanges.
- Dampens mechanical vibrations and reduce sound conducted through solids on pumps and compressors.
- Compensates for thermal movements and vibrations in flue gas ducts of boilers and engines.
- As assembly aids for pumps, fittings and plate heat exchangers.
- Expansion joints are used in lots of applications, where it concerns safety, health, environment, durability and lifetime. Bellows are made from stainless steel strip which is first welded to a thin walled tube and formed to a bellow afterwards.
- It can be manufactured as rotary flanges (FAF5110), Welding Ends (FAF5120), Fixed Flanges (FAF5130).
- Stock piled for quick delivery.

### Temperature

- -20, +430 °C

### PRODUCTION STANDARTS

DN32 → DN600  
PN 16

<b>Design</b>	DIN 30681
<b>Connection</b>	Flanged End EN 1092-1 / ISO 7005-1 Welding End EN 12627
<b>Face to Face</b>	DIN 30681
<b>Marking</b>	EN 19 / DIN 30681
<b>Tests</b>	DIN 30681

### Product Description

FAF 5100 Axial Expansion Joints removes vibration and variation that expansion and contraction arising from temperature differences in pipelines.

### Purpose

- Absorbs and isolates troublesome pipeline vibrations
- Smooths out force-pump system pulsations
- Tranquillize jittering compressor pipelines
- Also absorbs pipeline expansion, compensates for misalignment, eliminates piping stresses.
- Ends costly failure and downtime caused by pipeline vibration transmissions
- Customized to solve the vibration problem

### Versions

- Type: universal, lateral and angular expansion joints
- Pipe connection type: flanged, threaded
- Rubber quality of the bellows: rated to the media transported in the pipes
- Bellows structure: rated to the pressure and temperature load

### Scope of Application

- Hot & cold water
- Industrial applications
- Central heating
- Heat exchangers
- Vacuum technology
- Ship building and exhaust systems
- Pumps & compressors

### Advantages

- Inexpensive
- Absorbs all three types of movement
- Easy to install
- Low maintenance

# AXIAL EXPANSION JOINT

## FAF5100

5100

PRODUCTS MODEL CODES	
FAF5111	AXIAL EXPANSION JOINT Rotating Flanged, L= 30mm, With liner
FAF5112	AXIAL EXPANSION JOINT Rotating Flanged, L= 30mm, Without liner
FAF5113	AXIAL EXPANSION JOINT Rotating Flanged, L= 360mm, With liner
FAF5114	AXIAL EXPANSION JOINT Rotating Flanged, L= 60mm, Without liner
FAF5121	AXIAL EXPANSION JOINT Welding End, L= 30mm, With liner
FAF5122	AXIAL EXPANSION JOINT Welding End, L= 30mm, Without liner
FAF5123	AXIAL EXPANSION JOINT Welding End, L= 60mm, With liner
FAF5124	AXIAL EXPANSION JOINT Welding End, L= 60mm, Without liner
FAF5131	AXIAL EXPANSION JOINT Fixed Flanged, L= 30mm, With liner
FAF5132	AXIAL EXPANSION JOINT Fixed Flanged, L= 30mm, Without liner
FAF5133	AXIAL EXPANSION JOINT Fixed Flanged, L= 60mm, With liner
FAF5134	AXIAL EXPANSION JOINT Fixed Flanged, L= 60mm, Without liner
FAF5000	RUBBER EXPANSION JOINT - LONG TYPE
FAF5200	EXTERNALLY PRESSURIZED EXPANSION JOINT
FAF5300	ANGULAR EXPANSION JOINT
FAF5400	DILATATION EXPANSION JOINT
FAF5500	VIBRATION EXPANSION JOINT
FAF5600	DECORATIVE EXPANSION JOINT

### MATERIAL SELECTION

**Body** 1.4301 - AISI 304 Stainless Steel  
1.4401 - AISI 316 Stainless Steel  
1.4541 - AISI 321 Stainless Steel

**Flange** 1.0037 - ST 37 Steel  
1.4301 - AISI 304 Stainless Steel  
1.4401 - AISI 316 Stainless Steel

**Liner** 1.4301 - AISI 304 Stainless Steel  
1.4401 - AISI 316 Stainless Steel  
1.4541 - AISI 321 Stainless Steel

### VALVE TEST PRESSURE (Bar)

MAX. OPERATING PRESSURE	BODY / SHELL TEST	SEAT TEST
10	15	11
16	24	17,6

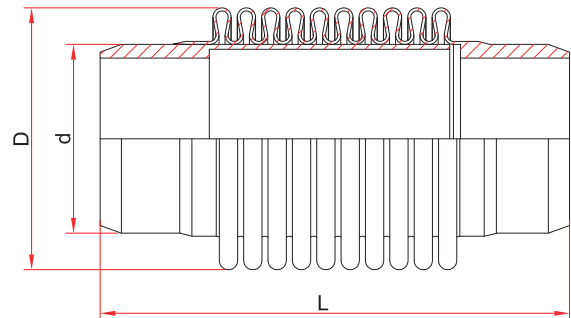
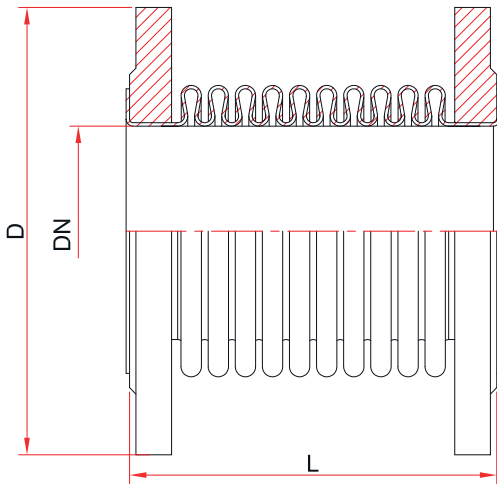
100% of the valves are subjected to hydrostatic tests at FAF facilities.

### Note

- For proper use and safety precautions please follow the installation and operating instructions.

# AXIAL EXPANSION JOINT FAF5100

## Technical Details & Drawing, Dimensions



ROTARY / FIXED FLANGED					
DN	DIMENSION			RATINGS	
mm	D	L +/-5	Expansion Range	Effective Area cm <sup>2</sup>	Weight kg
32	140	125	-20/+10	21	2,8
40	150	125	-20/+10	24	3,4
50	165	125	-20/+10	36	4,8
65	185	130 185	-20/+10 -40/+20	57	5,9 6,4
80	200	130 185	-20/+10 -40/+20	77	7,2 8,6
100	220	130 190	-20/+10 -40/+20	126	8,0 9,1
125	250	130 200	-20/+10 -40/+20	180	11,5 12,10
150	285	135 200	-20/+10 -40/+20	263	13,4 15,9
200	340	140 210	-20/+10 -40/+20	434	18,5 20,1
250	405	145 215	-20/+10 -40/+20	670	26,8 28,5

WELDING END					
DIMENSION				RATINGS	
D	d	L +/-5	Expansion Range	Effective Area cm <sup>2</sup>	Weight kg
58	42,4	195	-20/+10	21	0,4
62	48,3	195	-20/+10	24	0,5
76	60,3	195	-20/+10	36	0,6
92	76,1	210 270	-20/+10 -40/+20	57	0,8 1,0
110	88,9	210 270	-20/+10 -40/+20	77	1,1 1,4
141	114,3	210 280	-20/+10 -40/+20	126	1,4 1,8
165	139,7	210 280	-20/+10 -40/+20	180	2,3 2,9
200	165,1	250 315	-20/+10 -40/+20	263	3,3 4,2
252	219,1	250 320	-20/+10 -40/+20	434	5,0 6,3
313	273	290 360	-20/+10 -40/+20	670	8,7 11

\* Valves can be produced with bigger sizes when requested.

# AXIAL EXPANSION JOINT

## FAF5100

### Installation

#### Preparation

##### Check compensator

- Check outside joint cover for damage

##### Check alignment

- Check the piping system for misalignment, as misalignment reduces the working range of the expansion joint

##### Check support

- Weight must not be carried by joint
- Support with hangers or anchors

##### Check flanges

- Clean all mating flanges surfaces
- Do not scratch or damage surfaces during cleaning

#### Inspection

- Stainless steel axial expansion joints should be inspected for any internal or external damage to the bellows convolutions.

#### Selection

- FAF Valve range of stainless steel axial expansion joints are designed to be used on a wide range of industrial applications. Check that the correct axial expansion joint has been selected for the operating conditions that exist. Temperature, pressure and movement should all be confirmed as the wrong selection may result in failure of the system. Check that the correct number of axial expansion joints are being installed to accommodate the total amount.

#### Installation

- Stainless steel axial expansion joints requiring Cold Draw will be supplied at their neutral length and should be extended on installation by up to 50% of their movement capability. If an expansion joint has been supplied with internal flow sleeve it should be installed with the in the correct flow direction. Bellows convolutions should be protected from damage during installation due to rotation or weld spatter etc. Stainless steel axial expansion joints should only be installed in straight pipework runs. Stainless steel axial expansion joints require anchors and guides to ensure their correct performance.
- Anchors and pipe guides are essential to ensure the correct performance of the axial expansion joints. Ensure that only one axial expansion joint is installed between anchors.
- Pipework should be correctly aligned with guides being installed to prevent buckling whilst allowing movement to be directed into the axial expansion joint. Remaining pipe guides should be installed as per specification or details given in guidance notes.

#### Test Pressure

If a hydraulic pressure test is to be carried out on a system containing axial expansion joints ensure that anchors and guides have been correctly fitted before the test is carried out. Ensure that the test pressure (usually 1.5 x working pressure) does not exceed the test pressure of the axial expansion joint being installed.

#### Anchoring

Axial expansion joints must be securely anchored and adequately guided to ensure their correct performance. Anchors must have sufficient strength to withstand the forces created by internal pressure, total pipe weight, thermal expansion and spring rate of the bellows. See guidance notes for details and calculations on anchoring of pipework. Anchors are used to divide the system into manageable sections. Anchors must be spaced to suit the axial expansion joints being installed.

#### Handling

- Do not lift with ropes or bars through the bolt holes. If lifting through the bore, use padding or a saddle to distribute the weight. Do not let expansion joints sit vertically on the edges of the flanges for any period of time.

#### Additional Tips

- If an expansion joint is to be installed underground, or will be submerged in water, contact the manufacturer for specific guidelines.
- If the expansion joint will be installed outdoors, make sure the cover material will withstand ozone, sunlight, etc. Materials such as Neoprene and Chlorobutyl are recommended. Materials painted with weather-resistant paint will give additional ozone and sunlight protection.
- Check the tightness of retaining rings two or three weeks after installation and retighten as necessary.

#### Service Conditions

Make sure the expansion joint rating for temperature, pressure, vacuum\*, movements and selection of elastomeric materials match the system requirements. Contact FAF Valve if the system requirements exceed those of the expansion joint selected.

#### Alignment

- Expansion joints are not designed to make up for piping misalignment errors. Pipe misalignment should be no more than 1/8" in any direction. Misalignment of an expansion joint will reduce the rated movements and can induce severe stress of the material properties, thus causing reduced service life.

#### Anchoring

- Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to anchor points. If an anchoring system is not used, it is recommended that control rods be installed on the expansion joint to prevent excessive movements from occurring due to pressure thrust of the line.

#### Pipe Support

- Piping must be supported so expansion joints do not carry any pipe weight.