



**IOCS S.r.L.**

*Hoses & Ancillaries Equipment Supply for Oil & Gas Industry*



### **Rubber Expansion Joints**

- **Type W and WT**
- **Type F and FT**
- **Accessories and Special Design**





# Rubber Expansion Joints

Flange EN 1092-1 PN6, PN10, PN16 and ASME B 16.5 Class 150lb & 300lb

IOCS srl offers the most complete range of expansion joints to meet all type of applications.

Thermal growth, equipment movement, vibration or pressure pulsation may generate movement in a piping system. When this movements is not absorbed by the piping system itself, an Expansion Joints is the perfect solution.

LABEL COLOUR	INNER TUBE	OUTER TUBE	MAX TEMP. °C	APPLICATIONS
RED	EPDM	EPDM	90 °C	Hot water, cooling water with salt solution, chlorine solution, esters and ketones.
DOUBLE RED HT	EPDM HT	EPDM HT	130 °C	Hot water, vapour, hot air, etc. at temperature up to 130 °C
YELLOW	NITRILE®	NITRILE®	90 °C	Water, salt solutions, alkalis, mineral oils, vegetable or animal oils, oils aerosols, butane or propane gas, etc.
DOUBLE YELLOW HO	SPECIAL NITRILE®	SPECIAL NITRILE®	130 °C	Water, salt solutions, alkalis, mineral oils, vegetable or animal oils, oils aerosols, butane or propane gas, etc. up to 130 °C
WHITE	NITRILE® WHITE	NITRILE®	90 °C	Drinking water, food and beverages, including fats and oils.
GREEN	HYPALON®	NEOPRENE® CHLOROPRENE	90 °C	Strong and/or concentrated acids, etc. Compressed air that bears oil aerosols.
BLUE	SBR	NEOPRENE® CHLOROPRENE	90 °C	Wearing material such as sludge suspended stone, calcium.
PURPLE	VITON®	EPDM	90 °C	Highly aggressive chemicals (strong acids, aromatic solvents)
BLACK	NEOPRENE® CHLOROPRENE	NEOPRENE® CHLOROPRENE	90 °C	Water, warm water, sea water, air and weak acids.

**Fabric reinforcements** Nylon®, Polyester, Aramid or Kevlar®

**Metal reinforcements** Wire or solid steel strings are imbedded in the carcass and are used as strengthening members of the Expansion Joint.



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## ADVANTAGES OF THE EXPANSION JOINTS

- **Minimal face-to-face dimensions while absorbing large movements.**
- **Low Spring Rates due to inherent flexibility of rubber.**
- **Corrosion and Erosion resistance.**
- **No gaskets required for installation.**
- **Reduce fatigue factor.**



DN	Length mm	Compression mm	Extension mm	Lateral mm	Angular deg.	Working Pressure
32	130 & 150	30	20	20	30	16
40	130 & 150	30	20	20	30	16
50	130 & 150	30	20	20	30	16
65	130 & 150	30	20	20	30	16
80	130 & 150	30	20	20	30	16
100	130 & 150	30	20	20	25	16
125	130 & 150	30	20	20	25	16
150	130 & 150	30	20	20	15	16
200	200 & 130	30	20	20	15	16
250	200 & 130	30	20	20	10	16
300	200 & 130	30	20	20	10	16
350	200	30	20	20	10	10
400	200	30	20	20	10	10
450	200	30	20	20	10	10
500	200	30	20	20	10	10
600	200	30	20	20	6	10
700	275	40	25	30	5	10
800	275	40	25	30	4	10
900	300	40	25	30	3	10
1000	300	40	25	30	3	10

## CONSTRUCTION DETAILS

Rubber Expansion Joint is a flexible connector fabricated of natural or synthetic elastomers, fluoroplastic and fabrics and, if necessary, metallic reinforcements used to absorb movements in a piping system while containing pressure and a medium running through it.

Our rubber Expansion Joints are designed according to:

- **Pressure Equipment Directive PED 97/23/EC.**
- **FSA (Fluid Sealing Association) Non-Metallic Expansion Joints Division.**
- **ASTM F1123—B7(2010) Standard Specification for Non-Metallic Expansion Joints.**

IOCS srl Expansion Joints are manufactured considering:

- **Chemical and Temperature resistance of internal layers.**
- **Pressure-resistant reinforcing fabrics.**
- **Weather, Ozone and UV resistance of external layers.**



## Rubber Expansion Joints W / WT TYPE

Flange EN 1092-1 PN6, PN10, PN16 and ASME B 16.5 Class 150lb & 300lb

**Prod. Code: 500**



### W Series

These are the standard expansion joints, consisting of a molded body with high quality rubber incorporating galvanized carbon steel flanges.

#### **BODY MATERIAL TYPE:**

EPDM, EPDM HT, Nitrile®, Spec. Nitrile®, Nitrile® white, Hypalon®, SBR, Viton®, Chloroprene, etc.

#### **FLANGES:**

Zinc Plated carbon steel as standard. Also available in hot dip galvanized carbon steel, stainless steel etc. DN 32—DN 1000 with flanges drilled to EN 1092-1 PN 6, PN 10, PN 16 and ASME. On request flanges are also available drilled to JIS and AWWA standards.

### WT Series

AS W Series but incorporating control units/tie rod system. A control unit assembly is a system of 2 or more control rods placed across the Expansion Joint from flange to flange to set the maximum allowable expansion/contraction of the Expansion Joint and will absorb the pressure thrust. Recommended on most applications to prevent damage due to excessive pipe movements, each rod incorporates double nuts on each end to keep the Expansion Joint from over-elongating and spherical washers to allow Lateral, Angular and some Torsional movements as well as to accommodate moderate piping misalignments.



## Rubber Expansion Joints F / FT TYPE

Flange EN 1092-1 PN6, PN10, PN16 and ASME B 16.5 Class 150lb & 300lb

Prod. Code: 501



F Section



F Type



FT Type

### F Series

Expansion Joints with Full Face Rubber Flange. The Full Face flanges are integral with the body of the joint and drilled to conform the bolt pattern of the companion flanges of pipe line. These are high quality “custom-made” Expansion Joints supplied with split or fixed flanges in carbon steel as standard.

#### SIZE:

Any size up to 4000 mm diameter.

#### PRESSURE RATING:

Up to 40 bar. Higher pressure ratings available depending on size.

#### BODY MATERIAL TYPE:

EPDM, EPDM HT, Nitrile®, Spec. Nitrile®, Nitrile® white, Hypalon®, SBR, Viton®, Chloroprene, etc.

#### FLANGES:

Zinc Plated carbon steel as standard. Also available in hot dip galvanized carbon steel, stainless steel etc. DN 32—DN 1000 with flanges drilled to EN 1092-1 PN 6, PN 10, PN 16 and ASME. On request flanges are also available drilled to JIS and AWWA standards.

### FT Series

AS F Series but incorporating control units/tie rod system. A control unit assembly is a system of 2 or more control rods placed across the Expansion Joint from flange to flange to set the maximum allowable expansion/contraction of the Expansion Joint and will absorb the pressure thrust. Recommended on most applications to prevent damage due to excessive pipe movements, each rod incorporates double nuts on each end to keep the Expansion Joint from over-elongating and spherical washers to allow Lateral, Angular and some Torsional movements as well as to accommodate moderate piping misalignments.



## Rubber Expansion Joints Accessories

Flange EN 1092-1 PN6, PN10, PN16 and ASME B 16.5 Class 150lb & 300lb

**Prod. Code: 502**

### ACCESSORIES

#### CONTROL UNIT

(Tie rods, spherical washers, etc.) F and W Series Expansion Joints can be supplied with Control Rods.

#### METAL REINFORCEMENTS AND VACUUM RINGS

The Expansion Joints can also incorporate internal vacuum rings and/or external pressure support rings can be supplied in hot dip galvanized carbon steel, in stainless steel or PTFE lined.



### SPECIAL DESIGNS

#### MULTIPLE ARC DESIGN

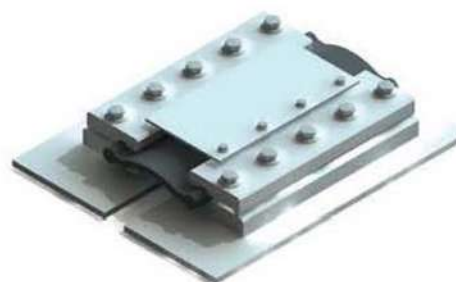
Rubber Expansion Joints with two or more arches. Generally used to absorb large movements.

#### “DOG BONE” TYPE EXPANSION JOINTS

The Belt Type (Dog Bone) Condenser Expansion Joint is specifically designed for turbine/condenser connections. It is the most widely used turbine to condenser expansion joint use. A moulded construction of plies of rubber impregnated polyester fabric, EPDM or Neoprene rubber cover and reinforcing cord at each end. IOCS srl designs and supplies the rubber Dog Bone part and the special clamping system required for installation.



**F2 Type**



**Dog Bone Type**