



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000018F
Revision No:
1

This is to certify:

That the Compensator, Bellows of Rubber Material

with type designation(s)
Teguflex® type P, Teguflex® type W

Issued to
TRELLEBORG IZARRA, S.A.U.
Izarra, Spain

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
Teguflex® type P	see page 2	see page 2	DN25-300
Teguflex® type W	see page 2	see page 2	DN25-600

Issued at **Høvik** on **2022-07-18**

This Certificate is valid until **2027-06-29**.

for **DNV**

DNV local station: **Area NB/CMC Iberia**

Approval Engineer: **Andreas Hansen**

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Sinisa Sedlan
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Rubber compensators spherical shaped with synthetic cord reinforcement.

Material for Teguflex types P and W:

Teguflex®	Inner Tube	Outer cover	Applications
Red	EPDM	EPDM	Water (hot water, salt water, chlorine solutions, esters and ketones)
Yellow	ECO	ECO	Oil (Water, saline solutions, alkalis, mineral oils, vegetable/animal oils, oil aerosols)
HP	EPDM HP	EPDM HP	Steam 130°C (hot water, steam, hot air up to 130°C)
HO	HNBR	HNBR	Oil 120°C (Oil, mix of water and oils, mix of compressed air and oils)

Flange: S235JR (other types of material accepted by EN1092-1 may be used)
 Flanges are in accordance with EN 1092-1.

Sizes Teguflex P: DN25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, and 300
 Sizes Teguflex W: DN25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, and 600

Dimensional data shall be in accordance with manufacturer's datasheet.

Application/Limitation

Maximum working pressure and temperatures:

Teguflex®	Sizes type P (DN, mm)	Sizes type W (DN, mm)	Maximum temperature						
			70°C	90°C	100°C	120°C	130°C		
Red	25 – 300	25 – 300	16 bar	10 bar	NA				
	NA	350 – 600	10 bar	8 bar					
Yellow	25 – 300	25 – 300	16 bar	10 bar					
	NA	350 – 600	10 bar	8 bar					
HP	25 – 150	25 – 150	16 bar					10 bar	
	200 - 300	200 – 600	10 bar					6 bar	
HO	25 – 150	25 – 150	16 bar	10 bar		NA			
	200 – 300	200 – 600	10 bar	6 bar					

Minimum and maximum working temperature of rubber materials:

EPDM	:	-35 to 90°C
EPDM HP	:	-35 to 130°C
ECO	:	-25 to 90°C
HNBR	:	-25 to 120°C

The fire protection cover (Teguflex® Flame Guard) shall be used if the compensator is used in systems containing flammable fluids or in sea water systems.

The compensators are not permitted used in systems where pressure pulsations may occur.

Movements shall be according to datasheet/product catalogue.

The location of the rubber compensator in the piping system shall be approved in each separate case.

Type Approval documentation

Tests carried out

Oil resistance test, sea water/distilled water resistance test, ozone test, burst test, endurance test, elongation test

Production testing

Each compensator is to be hydraulic pressure tested to 1.5 times the working pressure, and delivered with the manufacturer's pressure test report with reference to this type approval certificate.



Job Id: **262.1-015958-3**
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Marking of product

Each compensator shall be permanently marked in a way that enables identification versus the type approval certificate. Additional marking may be performed at the manufacturer's option.

Periodical assessment

For retention of the type approval, a DNV surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.