DNV·GL

Certificate No:
TAP00001JV

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
421TC, 421SN

Issued to
Parker Hannifin Manufacturing S.r.l.
Veniano CO, Italy

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
421TC	-40°C to +100°C	225, 180, 160	DN6, 10, 12
421SN	-40°C to +100°C	225, 180, 160	DN6, 10, 12

Issued at **Høvik** on **2019-03-19**
This Certificate is valid until **2020-04-21**.
DNV GL local station: **Milan**

Approval Engineer: **Iselinn Vindstad**

for **DNV GL**

Marianne Spæren Marveng
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.

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Product description

Synthethic rubber hoses with one braid wire reinforcement designed according to EN 853 1SN.

Inner tube: Nitrile rubber (NBR)
Reinforcement: One braid of steel wire
Cover 421SN: Perforated cover of synthetic rubber
Cover 421TC: MSHA approved synthetic rubber, tough cover
Couplings: Parker coupling series 48 (material – stainless steel: 1.4571, 1.4404, 1.4401, carbon steel: 1.0718, 1.0715, SAE1137, 1.0765, 1.0581, 1.0255, 1.0303, 1.0504, 1.7225, 1.7131)

Application/Limitation

Application:flexible connection between CO_2 bottle valve and manifold in CO_2 fire extinguishing system.

Working pressure:

Size	421 TC	421 SN
DN 6	225 bar	225 bar
DN 10	180 bar	180 bar
DN 12	160 bar	160 bar

The cover of the hoses shall be pin-pricked.

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

The hoses are to be mounted in accordance with the manufacturer's instructions.

Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hoses must only be fitted in places where they are always accessible.

Type Approval documentation

Tests carried out

Dimensional check, change in length, leakage test, cold flexibility, resistance against liquids, cover adhesion, vacuum test, ozone resistance, fire test, impulse, burst at minimum design temperature, endurance test with liquid carbon dioxide

Production testing

Every hose assembly shall be hydrostatically tested at a hydrostatic pressure of 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

Marking of product

For traceability to this type approval the products are to be marked with:

- Type
- Size
- Test pressure
- Manufacturer identification number

Periodical assessment

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.