

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
722TC/722ST, 787/787TC/787ST, 797/797TC/797ST

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: |
|------------------------|---------------------------|-----------------------------|-----------------------------|
| 722TC/722ST | -40°C to +125°C | 280 bar | -6,-8,-10,-12,-16 |
| 787/787TC/787ST | -40°C to +125°C | 350 bar | -4,-6,-8,-10,-12,-16 |
| 797/797TC/797ST | -40°C to +125°C | 420 bar | -4,-6,-8,-10,-12,-16 |

Issued at **Høvik** on **2019-01-18**

for **DNV GL**

This Certificate is valid until **2023-12-31**.
DNV GL local station: **Oslo Pressure Equipment**

Approval Engineer: **Adel Samiei**

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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.



Product description

Three types of hose assemblies:

722TC/722ST:

Nitrile (NBR) inner tube with four braid steel wires and:

TC (Tough Cover): highly abrasion resistant synthetic rubber cover.

ST (Super Tough Cover): with a synthetic rubber cover and a special polyethylene coating

787/787TC/787ST

Proprietary synthetic rubber inner tube with four/six spirals high-tensile steel wires and synthetic rubber cover

TC (Tough Cover): highly abrasion resistant synthetic rubber cover.

ST (Super Tough Cover): with a synthetic rubber cover and a special polyethylene coating

797/797TC/797ST

Proprietary synthetic rubber inner tube with four/six spirals high-tensile steel wires and synthetic rubber cover

TC (Tough Cover): highly abrasion resistant synthetic rubber cover.

ST (Super Tough Cover): with a synthetic rubber cover and a special polyethylene coating

Hose manufacturer: Parker Hannifin Manufacturing Srl, 22070 Veniano (CO), Italy

Couplings:

722TC/722ST: Parker 43 series

787/787TC/787ST: Parker 43/48 series (-6) and Parker 77 series (-8 to -32)

797/797TC/797ST: Parker 43 series (-6) and Parker 77 series (-8 to -32)

Coupling manufacturer: Parker Hannifin GmbH, Fluid Verbindungsteile, 35325 Mücke, Germany

Coupling Material: Carbon Steel: 1.0718, 1.0715, SAE1137(35SMnPb14), 1.07665, 1.0581, 1.0255, 1.0303, 1.0504, 1.7225, 1.7131

Stainless Steel: 1.4404, 1.4401, 1.4571

Application/Limitation

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.

Maximum working pressure:

| Hose size | | | 722TC/722ST | 787/787TC/787ST | 797/797TC/797ST |
|-----------|----|------|-------------|-----------------|-----------------|
| inch | DN | Dash | | | |
| 1/4 | 6 | -4 | - | 350 bar | 420 bar |
| 3/8 | 10 | -6 | 280 bar | 350 bar | 420 bar |
| 1/2 | 12 | -8 | 280 bar | 350 bar | 420 bar |
| 5/8 | 16 | -10 | 280 bar | 350 bar | 420 bar |
| 3/4 | 19 | -12 | 280 bar | 350 bar | 420 bar |
| 1 | 25 | -16 | 280 bar | 350 bar | 420 bar |

Hose assemblies covered by this certificate may be used in systems conveying petroleum based hydraulic fluid, water based Hydraulic fluids, fresh water and air in the below temperature range:

- petroleum based hydraulic fluid: (temperature range as mentioned on the front page)
- water based Hydraulic fluids and air: -40°C to +70°C
- water: 0°C to +70°C

Flexible hoses are only to be used in short lengths 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 hose assemblies must only be fitted in places where they are always accessible. Flexible hoses of these types are not to be used on boiler fronts.

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

Job Id: **262.1-017480-7**
Certificate No: **TAP00001N7**

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

The cover of hoses for gaseous applications shall be pin-pricked.

Production testing

All hose assemblies delivered under the DNV GL type approval scheme shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to this type approval certificate.

Type Approval documentation

Manufacturer's hose specification no GHS-722TC, GHS-722CIF, GHS-787TC and GHS-797TC
Manufacturers test specifications (reports) numbers: 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036 and 037
Manufacturers test specifications (reports) numbers: 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129 dated 2018-11-23
LAPI Fire tests from LAPI 361, 362, 363.0IS0110/14, 355, 356, 357.0IS0110/14, 358, 359, 360.0IS0110/14 and 2598&2599.0IS0110/18
Witnessed burst pressure test report number 113, 116, 118, 119, 122, 124, 125, 128 dated 2018-11-13

Tests carried out

Dimensional Check Test, Change in Length Test, Burst Test, Cold Flexibility Test, Ozone Resistance Test, Impulse Test, fluid resistance Test and Fire Test.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- hose manufacturer's name or trademark;
- date of manufacture (month/year);
- designation type reference;
- nominal diameter;
- pressure rating;
- temperature rating.

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.