

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00001N7
Revision No:
3

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 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 are accepted for installation on vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
722TC/722ST	-40°C to +125°C	280 bar	-6, -8, -10, -12, -16, -20, -24, and -32
787/787TC/787ST	-40°C to +125°C	350 bar	-4, -6, -8, -10, -12, -16, -20, -24, and -32
797/797TC/797ST	-40°C to +125°C	420 bar	-4, -6, -8, -10, -12, -16, -20, -24, and -32

Issued at **Høvik** on **2024-07-04**

for **DNV**

This Certificate is valid until **2028-12-31**.

DNV local unit: **Oslo Pressure Equipment**

Approval Engineer: **Andreas Hansen**

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

Three types of hose assemblies:

1. 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

2. 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

3. 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

Couplings:

722TC/722ST: Parker 43 series (-6 to -20) and Parker 71 series (-24 and -32)

787/787TC/787ST: Parker 43/48 series (-4 to -6) and Parker 77 series (-8 to -32)

797/797TC/797ST: Parker 43 series (-4 to -6) and Parker 77 series (-8 to -32)

Hose manufacturer:

Parker Hannifin Manufacturing Srl, 22070 Veniano (CO), Italy

Parker Hannifin HPD, Wickliffe OH, USA

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			
¼	6	-4	-	350 bar	420 bar
3/8	10	-6	280 bar	350 bar	420 bar
½	12	-8	280 bar	350 bar	420 bar
5/8	16	-10	280 bar	350 bar	420 bar
¾	19	-12	280 bar	350 bar	420 bar
1	25	-16	280 bar	350 bar	420 bar
1-¼	32	-20	172 bar	350 bar	420 bar
1-½	38	-24	172 bar	350 bar	420 bar
2	52	-32	172 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.

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.

Type Approval documentation

<u>Document no.</u>	<u>Title</u>	<u>Rev.</u>	<u>Date</u>
GHS-722TC	Manufacturer's hose specification 722TC	-	-
GHS-722CIF	Manufacturer's hose specification 722CIF	-	-
GHS-787TC	Manufacturer's hose specification 787TC	-	-
GHS-797TC	Manufacturer's hose specification 797TC	-	-
1171.OIS0110/17	LAPI Fire test report 787ST-32	-	2017-05-18
1176.OIS0110/17	LAPI Fire test report 797ST-32	-	2017-04-27
1051.OIS0110/13	LAPI Fire test report 787TC-24	-	2013-07-23
1052.OIS0110/13	LAPI Fire test report 787TC-32	-	2013-07-23
1053.OIS0110/13	LAPI Fire test report 797TC-24	-	2013-07-23
1054.OIS0110/13	LAPI Fire test report 797TC-32	-	2013-07-23
1596.OIS0110/10	LAPI Fire test report 722TC-20	-	2010-11-11
1648.OIS0110/14	LAPI Fire test report 722ST-32	-	2014-10-23
1652.OIS0110/14	LAPI Fire test report 722TC-32	-	2014-10-23
523.OIS0110/10	LAPI Fire test report 787TC-20	-	2010-04-28
526.OIS0110/10	LAPI Fire test report 797TC-20	-	2010-04-28
T-491	Test summary report 787TC-20	-	2015-07-29
T-492	Test summary report 787TC-24	-	2015-07-29
T-493	Test summary report 787TC-32	-	2015-07-29
T-498	Test summary report 797TC-20	-	2015-07-29
T-499	Test summary report 797TC-24	-	2015-07-29
T-500	Test summary report 797TC-32	-	2015-07-29
T-854	Test result summary report 722TC/ST	-	2022-03-02
W24332	Burst testing witnessed by DNV	-	2017-06-06
3566/3567/3568	Burst testing 722TC/787TC/797TC-24, witnessed by DNV	-	2022-10-11
3562/3563/3564	Burst testing 722TC-12/787TC-16/797TC-8, witnessed by DNV	-	2022-10-05
3599/3600	Burst testing 722TC-24/722TC-16, witnessed by DNV	-	2024-01-16
3618	Burst testing 722TC-8, witnessed by DNV	-	2024-02-16
3601/3596	Burst testing 797TC-10/797TC-16, witnessed by DNV	-	2024-01-16
3616/3619	Burst testing 797TC-24/797TC-6, witnessed by DNV	-	2024-02-16
3597/3598/3595/3594	Burst testing 787TC-6/787TC-10/787TC-16/787TC-16, witnessed by DNV	-	2024-01-16

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. OIS0110/14, 355, 356, 357. OIS0110/14, 358, 359, 360. OIS0110/14 and 2598&2599. OIS0110/18

Witnessed burst pressure test report number 113, 116, 118, 119, 122, 124, 125, 128 dated 2018-11-13

Production testing

All hose assemblies delivered under the DNV 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.

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.



Job ID: **262.1-017480-16**
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Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

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.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>