

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00002FE
Revision No:
1

This is to certify:

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

with type designation(s)
777TC, 777ST, 777CP

issued to

Parker Hannifin Corporation dba Hose Products Division
Wickliffe, OH, USA

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:
777TC	-40°C to +120°C	280 bar	-6, -8, -10, -12, -16
777ST	-40°C to +120°C	280 bar	-6, -8, -10, -12, -16
777CP	-40°C to +120°C	280	-8, -12, -16

Issued at **Høvik** on **2024-06-12**

for **DNV**

This Certificate is valid until **2027-09-12**.

DNV local unit: **Houston Offshore Services**

Approval Engineer: **Sarah Miller**

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

Two types of hose assemblies constructed according to ISO 18752, with the following configurations:

777TC

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four spiral plies of high tensile steel wire reinforcement
Cover : Oil, weather and abrasion resistant, black, synthetic rubber
Couplings : Parker couplings series 43, SAE 1215

777ST

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four spiral plies of high tensile steel wire reinforcement
Cover : Oil, weather and abrasion resistant, black, synthetic rubber and abrasion resistant UHMWPE
Couplings : Parker couplings series 43, SAE 1215

777CP

Inner tube : Oil resistant synthetic rubber
Reinforcement : Four spiral plies of high tensile steel wire reinforcement
Cover : Oil, weather and abrasion resistant, black, synthetic rubber and abrasion resistant textile
Couplings : Parker couplings series 43, SAE 1215

Manufacturing and assembling location:

Parker Hannifin dba Hose Products Division
Wickliffe, OH, USA

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled, and delivered by the specified assembling location.

The hose assemblies are approved for use with petroleum base hydraulic fluids within a temperature range of -40°C to +120°C; fresh water & water base hydraulic fluids within a temperature range of -40°C to +85°C, and air up to +70°C.

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.

Flexible hoses of these types are not to be used on boiler fronts.

The cover on hoses for gaseous applications shall be pinpricked.

The outer end of the pipe coupling (performing the connection to the fixed piping) is not covered by this certificate and shall follow the below requirements:

- Flanged ends shall be according to a recognized standard
- Slip-on threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads, shall comply with requirements of a recognized standard. Limitations stated in DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [5.2.6] to be followed.
- If these outer ends are going to be part of a mechanical joint as covered by Table 10 DNV-RU-SHIP Pt.4 Ch.6 Sec.9, then they shall be separately type approved.

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.

Type Approval documentation

Hose specification sheets GHS-777TC and GHS-777ST.
Fire test report no. 1077.OIS0110/20 dated 2020-07-22.
Fire test report no. 1548.OIS0110/20 dated 2020-10-05.
Fire test report no. 1076.OIS0110/20 dated 2020-07-22.
Fire test report no. 1549.OIS0110/20 dated 2020-10-05.

Design validation plan and report (DVP&R) for each hose type and size.

Test report W26786 dated 2020-03-27.
Test report W26863 dated 2020-04-29.
Test report W26938 dated 2020-06-10.
Test report W26970 dated 2020-06-15.
Test report W26972 dated 2020-06-15.
Test report W27046 dated 2020-08-03.
Test report W27090 dated 2020-07-15.
Test report W27151 dated 2020-08-10.
Test report W27183 dated 2020-09-01.
Test report W27208 dated 2020-09-08.
Test report W27235 dated 2020-12-08.
Test report W27236 dated 2020-09-22.
Test report MTR 3833 dated 2020-04-22.
Test report MTR 3449 dated 2018-09-01.
Test report MTR 3815 dated 2020-04-01.
Test report MTR 3848 dated 2020-06-12.
Test report MTR 3884 dated 2020-08-06.
Test report MTR 3866 dated 2020-04-01.
Test report MTR 3865 dated 2020-07-07.
Test report MTR 3898 dated 2020-08-17.
Test report MTR 3908 dated 2020-10-05.
Witnessed burst test report W28293 dated 2021-12-17.
Test report MTR 4160 / T-913 dated 2022-08-24.
Qualification Test report no. T-991 dated 2023-09-08
Qualification Test report no. T-992 dated 2023-09-08
Qualification Test report no. T-990 dated 2023-09-08
Qualification Test report no. T-989 dated 2023-09-08
Qualification Test report no. T-988 dated 2023-09-08
Qualification Test report no. T-987 dated 2023-09-08
LAPI test report no. 749/22 dated 2022-04-05
LAPI test report no. 1548/20 dated 2022-05-20
LAPI test report no. 1077/20 dated 2022-07-22
LAPI test report no. 1076/20 dated 2022-07-22
LAPI test report no. 748/22 dated 2022-05-04
LAPI test report no. 1549/20 dated 2022-05-10
Cover Adhesion, Fluid Resistance and Ozone Resistance test no. T-996 dated 2023-10-18

Tests carried out

Dimensional check test, proof test, change in length test, burst test, cold bend test, impulse test, leakage test, ozone resistance test, abrasion test, adhesion, fire resistance testing.

Marking of product

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

- Manufacturer's name or trademark
- Date of manufacture (month/year)
- Type designation
- Maximum working pressure
- Temperature rating
- Size

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.