

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP00001AR**  
Revision No:  
**1**

## This is to certify:

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

with type designation(s)  
**Parflex 520N, 528N and 588N**

Issued to

**Parker Hannifin Corporation Parflex Division**  
**Ravenna, OH, USA**

is found to comply with

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

## Application :

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

**Temperature range:** -40 °C to +100 °C  
**Max. working press.:** 140 to 350 bar  
**Sizes:** DN 3 to 16

Issued at **Høvik** on **2023-10-31**

for **DNV**

This Certificate is valid until **2028-06-30**.

DNV local unit: **New York**

Approval Engineer: **Sarah Miller**

**Zeinab Sharifi**  
**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**

Thermoplastic- and high pressure hose assemblies designed accoring to SAE J517 (SAE 100R8).

**Parflex 520N/528N:**

Tube: Special formulated thermoplastic elastomer (nylon) core tube.  
 Reinforcement: Multiple layers of high-tensile strength aramide fibre braid.  
 Outer cover: Thermoplastic, hydraulic fluid and weather resistant cover:  
 Black (520N), polyurethane- perforated cover  
 Orange (528N), non-perforated cover.  
 Couplings: Parflex permanent fitted, Series 56.

**Parflex 580N/588N:**

Tube: Special formulated thermoplastic elastomer (nylon) core tube.  
 Reinforcement: Twin-line/multi-line of high-tensile strength fibre braids  
 Outer cover: Thermoplastic , hydraulic fluid and weather resistant  
 Black (580N) polyurethane, perforated cover.  
 Orange (588N) polyurethane, non-perforated cover.  
 Couplings: Parflex permanent fitted, Series 56/58.

**Coupling Material:** Carbon Steel: 1.0736, 1.07371.1193, 1.0301, 1.0402, 1.0044.  
 Stainless Steel: 1.4305, 1.4301, 1.4404, 1.4401, 1.4571.

**Manufacturing plants:**

Hose: Parker Hannifin Corporation Parflex Division  
 Ravenna, OHIO, USA

Parker Hannifin Corporation Parflex Division  
 Wissemburg, France

**Couplings:**

Zhejiang fitting machinery Co.  
 Damaiyu Economic Devl Zone,  
 Zhejiang, Yuhaun China 317604

CNC Precision Machine Inc.  
 18360 Industrial Circle  
 Parkman, OH 44080

Lewis Unlimited, Inc  
 165 Jackson Drive  
 Orange Viillage, OH 44022

Hycom Inc  
 374 STH Street NW  
 Barberton, OH 44203

QP MFG. Group, LLC  
 215 Fifth Avenue  
 Chardon, OH 44024

Universal Flexibles PVT LTD  
 2C, Dyavasandra Industrial Area  
 4<sup>th</sup> Cross Whitefield Road,  
 Mahadevapura post  
 560048 Bangalore, India

Strenzke Soemmerda De  
 Am Oberwege 14  
 99610 Soemmerda, Germany

Parker Hannifin ES Muecke HPDE 5042  
 Freiherr-vom-Stein-Strasse  
 35325 Mucke, Germany

Approved hose manufacturing locations and corresponding hose type and size:

Hose size		520N	528 N	580N	588N
inch	DN				
3/16"	3	Ravenna, Wissembourg	-	-	-
1/4"	4	Ravenna, Wissembourg	Ravenna	-	-
5/16"	5	Ravenna, Wissembourg	-	-	-
3/8"	6	Ravenna, Wissembourg	Ravenna	Ravenna	Ravenna, Wissembourg
1/2"	8	Ravenna, Wissembourg	Ravenna	Ravenna	Ravenna, Wissembourg
5/8"	10	-	-	Ravenna, Wissembourg	Ravenna, Wissembourg
3/4"	12	-	-	Ravenna	Ravenna
1"	16	-	-	Ravenna	Ravenna

**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 allowable working pressure for corresponding size:

Hose size		520N		528 N		580N		588N	
inch	DN	bar	psi	bar	psi	bar	psi	bar	psi
3/16"	3	350	5 000	-	-	-	-		
1/4"	4	350	5 000	350	5000	-	-		
5/16"	5	310	4 500	-	-	-	-		
3/8"	6	280	4 000	280	4000	280	4000	280	4000
1/2"	8	245	3 500	245	3 500	245	3 500	245	3 500
5/8"	10	-	-			192	2750	192	2 750
3/4"	12	-	-			157	2250	157	2 250
1"	16	-	-			140	2000	140	2 000

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

- water based hydraulic fluids and air: -40°C to +100°C
- water and air: 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.

The hose assemblies are not of fire-resistant type and are not approved for installation in piping systems for flammable media and sea water system where failure may result in flooding. This is not applicable in cases where such hoses are installed on open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines.

### 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 the type approval certificate.

### Type Approval documentation

- Manufacturers Catalogue 4660
- Burst test report no. 11905 dated 2017-12-12, witnessed by DNVGL Houston.
- Prototype test report no. from Ravenna: ER1074H and ER1075H
- Prototype test report no. from Wissembourg: PFDE-LTR-4171-TS01, PFDE-LTR-4088-TS01, PFDE-LTR-3677-TS01, PFDE-LTR-3914-TS01, PFDE-LTR-3851-TS01, PFDE-LTR-3471-TS01, PFDE-LTR-3469-TS01, PFDE-LTR-3471-TS01 and PFDE-LTR-3654-TS0.
- Renewal Burst test LTR no. 13770

### Tests carried out

Dimensional Check Test, Change in Length Test, Leakage Test, Proof Test, Burst Test, Cold Flexibility Test, Ozone Resistance Test, Impulse Test, fluid resistance Test.  
Parflex 528N/588N have also electrical non-conductivity 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 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.