

TYPE APPROVAL CERTIFICATE

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

Application :

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

Temperature range: -40 °C to +100 °C

Max. working press.: 140 to 350 bar

Sizes: DN 3 to 16

This Certificate is valid until **2023-06-30**.

Issued at **Høvik** on **2019-04-23**

DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Zeinab Sharifi**

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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.

If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million.

In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **TAP00001AR**
 File No: **791.70**
 Job Id: **262.1-010434-5**

Product description

Thermoplastic- and high pressure hose assemblies designed according 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.

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:

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- 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 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 the type approval certificate.

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Type Approval documentation

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 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.