

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
2020N, 2244N, 2245N

Issued to

**Parker Hannifin Manufacturing Germany GmbH & Co. KG -
Polyflex Division Europe
Lampertheim, Hessen, Germany**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
2020N	-40 °C up to 100 °C	Up to 440 bar. Refer to certificate.	DN 3, DN 4
2244N	-40 °C up to 100 °C	Up to 750 bar. Refer to certificate.	DN 6, DN 10, DN 12
2245N	-40 °C up to 100 °C	Up to 450 bar. Refer to certificate.	DN 6, DN 8, DN 10, DN 12, DN 16, DN 20, DN 25

Issued at **Hamburg** on **2019-06-17**This Certificate is valid until **2024-01-20**.DNV GL local station: **Augsburg**for **DNV GL**Approval Engineer: **Andrii Pishchanskyi****Olaf Drews
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.



Job Id: **262.1-001107-5**
Certificate No: **TAP00001M6**
Revision No: **3**

Product description

Hose assemblies of types 2020N, 2244N and 2245N consist of the following components:

Type	Inner tube	Reinforcement	Cover	Fittings
2020N	Polyamide	One braided layer of high tensile synthetic fibre	Polyamide, pinpricked	EX series
2244N	Polyamide	Two spiral layers and one braiding layer of high tensile steel wire	Polyurethane	8X series
2245N	Polyamide	Two spiral layers of high tensile steel wire, one braided layer of steel wire	<ul style="list-style-type: none">• Polyurethane up to dash size 08• Polyamide dash size 10 and above	NX or 9X series

Hose end fittings are specified in manufacturer's catalogue "Thermoplastic Hoses for Hydraulics & Industry", Catalogue 4460-UK, dated 08/2017.

Hose end fitting material as follows:

- Steel (ASTM 12L14, 12L15);
- Stainless steel (AISI 316, 316Ti).

Responsibility

Parker Hannifin Manufacturing Germany GmbH & Co. KG, Lampertheim takes the responsibility that the design and production of the hoses, hose end fittings and manufacturing of the hose assemblies are in compliance with the Rules, Standards and/or Regulations listed on first page of the certificate.

Application/Limitation

The hose assemblies of types 2020N, 2244N and 2245N are type approved for the use according to their suitability in the following piping systems:

1. Fresh water cooling;
2. Compressed air;
3. Refrigeration;
4. Non-Class.

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.

Installation

In general, hose assemblies shall:

- Only to be used in short lengths (up to 1.5m) where necessary to admit relative movements between machinery and fixed piping system;
- Not replace or be installed where permanent piping is feasible;
- Only be fitted in places where they are always accessible.

The hose assemblies shall be selected, installed and maintained according to manufacturer's instructions (Thermoplastic Hoses for Hydraulics & Industry, Catalogue 4460-UK, dated 08/2017).

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Production testing

Each hose assembly is to be subjected to a hydraulic pressure test with 1.5 times the M.A.W.P. by the manufacturer. Appropriate "Works Certificate" to be issued by the manufacturer.

Maximum allowable working pressure (M.A.W.P.)

Dash size	DN	M.A.W.P. [MPa]		
		2020N	2244N	2245N
-02	3	40	N/A	N/A
-025	4	44	75	N/A
-04	6	N/A	N/A	45
-05	8	N/A	N/A	40
-06	10	N/A	53.5	37.5
-08	12	N/A	55	35
-10	16	N/A	N/A	33
-12	20	N/A	N/A	30
-16	25	N/A	N/A	27.5
-20	31	N/A	N/A	N/A
-24	38	N/A	N/A	N/A
-32	51	N/A	N/A	N/A

Type Approval documentation

Tests carried out

1. Dimensional check test;
2. Change in length test;
3. Cold flexibility test;
4. Impulse test;
5. Burst test.

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Marking of product

For traceability to this type approval, each hose assembly is to be marked with:

Marking scope	Example
Manufacturer's identification	P
Maximum working pressure with measure units	PN 400 bar
Month and year of production	01/19 or 01/2019

Periodical assessment

A condition for retention of the type approval certificate in its validity period is that periodical assessments are successfully carried out. The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered.

Regulations for the periodical assessment of the type approval certificate are to be found in the DNVGL Class Programme CP-0338.

In the course of renewal assessment a DNV GL surveyor shall witness burst and production tests on every 3rd size.

It is further to be noted that the Society shall be informed of any:

- Modifications to the product which are liable to affect its characteristics and functions, as originally specified and tested;
- Shifting of the production site and additional production site.

If such notifications are not made, the validity of the type approval certificate terminates.