DNV·GL

Certificate No:
TAP000013G

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
301SN/301TC, 421SN

Issued to
Parker Hannifin Manufacturing S.r.l.
Veniano CO, Italy

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
301SN/301TC	-40 ºC to 100 ºC (dependent on medium)	80 to 400 bar (dependent on size)	DN6, 8, 10, 12, 16, 19, 25, 31, 38, 51
421SN	-40 ºC to 100 ºC (dependent on medium)	40 to 225 bar (dependent on size)	DN6, 8, 10, 12, 16, 19, 25, 31, 38, 51

Issued at **Høvik** on **2017-12-28**
This Certificate is valid until **2022-12-27**.
DNV GL local station: **Milan**

for **DNV GL**

Approval Engineer: **Adel Samiei**

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.

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Job Id: **262.1-016585-4**
Certificate No: **TAP000013G**

Product description

301SN and 301TC according to EN 853 2SN – ISO 1436 2SN:
Synthetic rubber inner tube, two braids of high tensile steel wire reinforcement separated by a synthetic rubber layer. Oil, weather fire and abrasion resistant synthetic rubber black outer cover.

421SN according to EN 853 1SN – ISO 1436 1SN:
Synthetic rubber inner tube - one braid of high tensile steel wire reinforcement. Oil, weather , fire and abrasion resistant synthetic rubber black outer cover.

Couplings	Parker couplings series 48 made of carbon or 316 stainless steel (for both types 301SN/TC &421SN)
Hoses made by:	Parker Hannifin, Italy
Couplings made by:	Parker Hannifin, Germany

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.

The hose may be used for the following application: Petroleum base hydraulic fluids, water glycol and water oil emulsion hydraulic fluids, compressed air & fresh water.

Maximum working pressure:

Hose size (DN)	301SN/TC			421SN	
	Designation		Max working pressure (bar)	Designation	Max working pressure (bar)
6	301SN-4	301TC-4	400	421SN-4	225
8	301SN-5	301TC-5	350	421SN-5	215
10	301SN-6	301TC-6	330	421SN-6	180
112	301SN-8	301TC-8	275	421SN-8	160
16	301SN-10	301TC-10	250	421SN-10	130
19	301SN-12	301TC-12	215	421SN-12	105
25	301SN-16	301TC-16	165	421SN-16	88
31	301SN-20	301TC-20	125	421SN-20	63
38	301SN-24	301TC-24	90	421SN-24	50
51	301SN-32	301TC-32	80	421SN-32	40

Temperature range:

Medium:	Temperature range:
Petroleum base hydraulic fluids	-40 ºC to 100 ºC
Water and water based hydraulic fluids	-40 ºC to 85 ºC
Compressed air	-40 ºC to 70 ºC

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure and to be delivered with the pressure test report with reference to this type approval certificate.

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 and must only be fitted in places where they are always accessible.

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

Hoses covered by this certificate shall not be installed in systems with pressure below atmospheric or vacuum conditions.

The hoses are to be mounted in accordance with the manufacturer's instructions.

The cover of hoses for gaseous applications shall be pin-pricked.

Type Approval documentation

Tests carried out

Dimensional Check, Proof Pressure, Change in Length, Burst, Cold Flex, Oil Resistance, Ozone Resistance, Cover- and Tube- Adhesion Test, Impulse and Fire Test.

Marking of product

For traceability to this type approval the products are at least to be marked with:
- Manufacturer's name or trade mark
- Type designation
- Maximum working pressure
- Size

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.