DNV·GL

Certificate No:
TAP000018J

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
421, 481, 301 and 381

Issued to
DONGNAM TS Co., Ltd.
Busan, Korea

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 January 2018
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.

Temperature range:	**For 481 and 381: -40 to +100°C. For 301 and 421: -40 to +125°C**
Max. working press.:	**375 psi to 5800 psi, size and type dependent (see page 2)**
Sizes:	**1/4" to 2"**

Issued at **Høvik** on **2018-02-14**
This Certificate is valid until **2022-12-31**.
DNV GL local station: **Busan**

for **DNV GL**

Approval Engineer: **Iselinn Vindstad**

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: **262.1-013376-4**
Certificate No: **TAP000018J**

Product description
Synthetic rubber hoses with one braid (421 and 481 type) and two braids (301 and 381 type) of high tensile steel wire.

Types:
301: SAE 100R2 Type AT with Parker couplings series 43
381: ISO 1436 Type 2SN / SAE 100R2 Type AT & EN853 Type 2SN with Parker couplings series 43
421: SAE 100R1 Type AT with Parker couplings series 43
481: ISO 1436-1 Type 1SN / SAE 100R1 Type AT and EN853 1SN with Parker couplings series 43

Hose manufacturing location:
Parker Hannifin Connectors Ltd.
Yangsan-si, Gyeongsangnam-do
Republic of Korea

Application/Limitation
Application: hoses for petroleum base hydraulic fluids and lubricating oils.

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

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.

Max. working pressure depending on size and type:

Nominal diameter		301		381		421		481	
Inch.	mm	PSI	Bar	PSI	Bar	PSI	Bar	PSI	Bar
¼	6.4	5000	350	5800	410	2750	193	3250	230
5/16	7.9	4250	298	5250	370	2500	175	3250	230
3/8	9.5	4000	280	5000	350	2250	158	3000	210
½	12.7	3500	245	4250	300	2000	140	2500	175
5/8	15.9	2750	190	3625	250	1500	105	2000	140
¾	19.1	2250	158	3125	217	1250	88	1750	123
1	25.4	2000	140	2500	175	1000	70	1275	90
1 ¼	31.8	1625	114	2250	158	625	44	900	63
1 ½	38.1	1250	88	1800	123	500	35	725	51
2	50.8	1125	79	1300	88	375	26	575	40

Type Approval documentation

Tests carried out
Burst, Ozone Resistance, Cold Flex, Impulse, Dimensional Check, Fire test.

Production testing
Every hose assembly shall be hydrostatically tested at a hydrostatic pressure of 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

Marking of product

For traceability to this type approval the products are to be marked with:

- Manufacturer's name or trade mark
- Type designation

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.