

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**

with type designation(s)

DS1-T, DS2-T, JCK (Jack Hose), FAHRENHEIT 302/2

Issued to

**Diesse Rubber Hoses S.p.A.
Filago BG, 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 all vessels classed by DNV GL.**

| Type: | Temperature range: | Max. working press.: | Sizes: |
|-------------------------|---------------------------|-----------------------------|-----------------------|
| DS1-T | -40°C to +100°C | 40 bar to 225 bar | DN5 to DN51 |
| DS2-T | -40°C to +100°C | 80 bar to 415 bar | DN5 to DN51 |
| JCK (Jack Hose) | -40°C to +100°C | 700 bar | DN6 & DN10 |
| FAHRENHEIT 302/2 | -40°C to +150°C | 80 bar to 400 bar | DN5 to DN51 |

Issued at **Høvik** on **2017-05-05**This Certificate is valid until **2022-05-04**.for **DNV GL**DNV GL local station: **Milan**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.



Product description

4 types of hose assemblies:

DS1-T Accoridng to EN 853 1SN
 Tube: Black synthetic rubber resistant to oil
 Reinforcement: One high tensile steel braid
 Cover: Black, synthetic rubber resistant to oil, abrasion and weather condition
 STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
 Coupling: Intertraco coupling type K DN≤25
 Intertraco coupling type J DN>25

DS2-T Accoridng to EN 853 2SN
 Tube: Black synthetic rubber resistant to oil
 Reinforcement: Two high tensile steel braids
 Cover: Black, synthetic rubber resistant to oil, abrasion and weather condition
 STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
 Coupling: Intertraco coupling type K DN≤25
 Intertraco coupling type J DN>25

JCK (Jack Hose)
 Tube: Black synthetic rubber resistant to oil
 Reinforcement: Two high tensile steel braids
 Cover: Black, synthetic rubber resistant to oil, abrasion and weather condition
 STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
 Coupling: Intertraco coupling type K

FAHRENHEIT 302/2 Accoridng to EN 853 2SN
 Tube: Black synthetic rubber resistant to oil
 Reinforcement: Two high tensile steelbraids
 Cover: Black or blue, synthetic rubber resistant to oil, abrasion and weather condition
 STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
 Coupling: Intertraco coupling type K DN≤25
 Intertraco coupling type J DN>25

Hoses are manufactured: Diesse Rubber Hoses S.P.A.

Couplings are manufactured: Intertraco according to Intertraco fitting catalogue 1P013 dated
 September 2013

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 working pressure:

| Size | | DS1-T | | DS2-T | | JCK (Jack Hose) | | FAHRENHEIT 302/2 | |
|------|------|-----------|-------|-----------|-------|-----------------|-------|------------------|-------|
| DN | size | Hose | (bar) | Hose | (bar) | Hose | (bar) | Hose | (bar) |
| 06 | -4 | 1SN-06-04 | 225 | 2SN-06-04 | 400 | JCK-06-04 | 700 | 2FF-06-04 | 400 |
| 08 | -5 | 1SN-08-05 | 215 | 2SN-08-05 | 350 | - | - | 2FF-08-05 | 350 |
| 10 | -6 | 1SN-10-06 | 180 | 2SN-10-06 | 330 | JCK-10-06 | 700 | 2FF-10-06 | 330 |
| 12 | -8 | 1SN-12-08 | 160 | 2SN-12-08 | 275 | - | - | 2FF-12-08 | 275 |
| 16 | -10 | 1SN-16-10 | 130 | 2SN-16-10 | 250 | - | - | 2FF-16-10 | 250 |
| 19 | -12 | 1SN-19-12 | 105 | 2SN-19-12 | 215 | - | - | 2FF-19-12 | 225 |
| 25 | -16 | 1SN-25-16 | 87 | 2SN-25-16 | 165 | - | - | 2FF-25-16 | 165 |
| 31 | -20 | 1SN-31-20 | 62 | 2SN-31-20 | 125 | - | - | 2FF-31-20 | 125 |
| 38 | -24 | 1SN-38-24 | 50 | 2SN-38-24 | 90 | - | - | 2FF-38-24 | 90 |
| 51 | -32 | 1SN-51-32 | 40 | 2SN-51-32 | 80 | - | - | 2FF-51-32 | 80 |

Hose assemblies are suitable for use with:

- Hydraulic fluids in accordance with ISO 6734-4 (with exception of HFD-R, HFD-S and HFD-T) at temperature ranging from -40°C to 100°C
- Water based fluids at temperature ranging from -40°C to 70°C

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Certificate No: **TAP00000UH**

– Water at temperature ranging from 0°C to 70°C
Except FAHRENHEIT 302/2 which is suitable for -40°C to +150°C for hydraulic fluids (maximum temperature for air shall not be more than +121°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.

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.

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.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized.

Type Approval documentation

Tests carried out

Fire test, burst test, Dimensional check test, Change in length test, Cold flexibility test, Oil resistance test, Cover adhesion test, Ozone resistance test, Impulse 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