

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

with type designation(s)

DS-17, DS-19, FIGHTER DS 2SC/R16, 2 STARK

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:
DS-17	-40°C to +100°C	210 bar	DN6 to DN38
DS-19	-40°C to +100°C	280 bar	DN6 to DN25
FIGHTER DS 2SC/R16	-40°C to +100°C	135 bar to 420 bar	DN6 to DN38
2 STARK	-40°C to +100°C	175 bar to 450 bar	DN6 to DN31

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:

DS-17 According to SAE100R17
Tube: Black synthetic rubber resistant to oil
Reinforcement: One high tensile steel braid up to -8, two braids from -10 to -16 and 4 spirals for -20 and -24
Cover: Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Coupling: Intertraco fitting type K DN≤25
Intertraco fitting type J DN>25

DS-19 According to SAE100R19
Tube: Black synthetic rubber resistant to oil
Reinforcement: Two high tensile steel braids
Cover: Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Coupling: Intertraco fitting type K

FIGHTER DS 2SC/R16 Constructed according to EN857-2SC/SAE100R16
Tube: Black synthetic rubber resistant to oil
Reinforcement: Two high tensile steel braids
Cover: Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Coupling: Intertraco fitting type K DN≤25
Intertraco fitting type J DN>25

2 STARK
Tube: Black synthetic rubber resistant to oil
Reinforcement: Two high tensile steel braids
Cover: Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Coupling: Intertraco fitting type K DN≤25
Intertraco fitting type J DN>25

Hoses are manufactured by: Diesse Rubber Hoses S.P.A.
Couplings are manufactured by: Intertraco according 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.

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
- Water at temperature ranging from 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.

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.