DNV·GL

Certificate No:
TAP00000UG

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**.
DNV GL local station: **Milan**

Approval Engineer: **Adel Samiei**

for **DNV GL**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-024201-1**
Certificate No: **TAP00000UG**

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 sprirals 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.

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

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

Hose assemblies covered by this certificate shall not be installed in system with pressure below atmospheric or vacuum condition.

Maximum working pressure as below:

Size		DS-17	DS-19	FIGHTER DS 2SC/R16	2 STARK
DN	DASH				
06	-4	210	280	420	450
08	-5	210	-	380	420
10	-6	210	280	350	390
					420 (*)
12	-8	210	280	310	350
16	-10	210	280	280	290
19	-12	210	280	240	280
25	-16	210	280	185	200
31	-20	210	-	165	175
38	-24	210	-	135	-

(*) STARK Plus

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

Hose assemblies covered by this certificate may be delivered with TEXCEL designation by the holder of this certificate. TEXCEL marking is according to below table:

Family	TEXCEL part number	Diesse part number	Version	Intertraco Coupling series	Customer Coupling series
HB3K	HB3K-4	117-06-04	MSHA HARC	K-04	F2-04
	HB3K-6	117-10-06	MSHA HARC	K-06	F2-06
	HB3K-8	117-12-08	MSHA HARC	K-08	F2-08
	HB3K-10	117-16-10	MSHA HARC	K-10	F2-10
	HB3K-12	117-19-12	MSHA HARC	K-12	F2-12
	HB3K-16	117-25-16	MSHA HARC	K-16	F2-16
HB3KXT	HB3KXT-4	117-06-04	MSHA ENDLESS	K-04	F2-04
	HB3KXT-6	117-10-06	MSHA ENDLESS	K-06	F2-06
	HB3KXT-8	117-12-08	MSHA ENDLESS	K-08	F2-08
	HB3KXT-12	117-19-12	MSHA ENDLESS	K-12	F2-12
	HB3KXT-16	117-25-16	MSHA ENDLESS	K-16	F2-16
HB4K	HB4K-6	R19-10-06	MSHA HARC	K-06	F2-06
	HB4K-8	R19-12-08	MSHA HARC	K-08	F2-08

	HB4K-10	R19-16-10	MSHA HARC	K-10	F2-10
	HB4K-12	R19-19-12	MSHA HARC	K-12	F2-12
HB5K	HB5K-4	FGT16-06-04	MSHA HARC	K-04	F2-04
	HB5K-6	FGT16-10-06	MSHA HARC	K-06	F2-06
	HB5K-8	2STK-12-08	MSHA HARC	K-08	F2-08
HB5KXT	HB5KXT-4	FGT16-06-04	MSHA ENDLESS	K-04	F2-04
	HB5KXT-6	FGT16-10-06	MSHA ENDLESS	K-06	F2-06
	HB5KXT-8	2STK-12-08	MSHA ENDLESS	K-08	F2-08
HB6K	HB6K-4	FGT16-06-04	MSHA HARC	K-04	F2-04
	HB6K-6	2STK-PLUS-10-06	MSHA HARC	K-06	F2-06
HS3K	HS3K-20	117-31-20	MSHA HARC	J-20	F4-20
	HS3K-24	117-38-24	MSHA HARC	J-24	F4-24

Periodical assessment

For retention of the Type Approval, DNV GL Surveyor shall perform a periodical assessment every second year, to verify that the conditions for the type approval are complied with and to burst tests on every 3rd sizes. The tests are to be performed with the type of couplings fitted that are Type Approved with the hoses.