DNV·GL

Certificate No:
TAP00000UJ

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
XFIGHT 4000, XFIGHT 5000, XFIGHT 6000, DS-4SP, DS-4SH, FGT-12 (Fight R12), DS13, DS15

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:
XFIGHT 4000	-40°C to +121°C	280 bar	DN10 to DN38
XFIGHT 5000	-40°C to +121°C	380 bar / 350 bar	DN10 to DN38
XFIGHT 6000	-40°C to +121°C	420 bar	DN10 to DN38
DS-4SP	-40°C to +100°C	165 bar to 500 bar	DN6 to DN38
DS-4SH	-40°C to +100°C	250 bar to 450 bar	DN16 to DN51
FGT-12 (Fight R12)	-40°C to +121°C	210 bar to 350 bar	DN10 to DN51
DS13	-40°C to +121°C	350 bar	DN19 to DN51
DS15	-40°C to +121°C	420 bar	DN10 to DN51

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.

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Job Id: **262.1-024201-1**
Certificate No: **TAP00000UJ**

Product description

8 types of hose assemblies:

XFIGHT 4000

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J

XFIGHT 5000

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals up to -20, six spirals - 24
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J DN≤31 / Intertraco couplings type H DN=38

XFIGHT 6000

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals up to -16, six spirals -20 and -24
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J DN≤25/ Intertraco couplings type H DN>25

DS-4SP

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type B+S0420 DN≤25 Intertraco couplings type X DN>25

DS-4SH

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type B+S0420, S0430 DN≤19 Intertraco couplings type J DN>19

FGT-12 (Fight R12)

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J

DS13

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals up to -16, six spirals -20 and -24
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J DN≤25 / Intertraco couplings type H DN>25

DS15

Tube:	Black synthetic rubber resistant to oil
Reinforcement:	Four high tensile steel spirals up to -16, six spirals -20 and -24
Cover:	Black, synthetic rubber resistant to oils, abrasion and weather condition STANDARD,MSHA, MSHA HARC, MSHA ENDLESS, HARC, ENDLESS COVERS
Couplings:	Intertraco couplings type J DN≤25 / Intertraco couplings type H DN>25

Hoses are manufactured by: Diesse Rubber Hoses S.P.A.
Couplings are manufactured by: Intertraco referred 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 (bar):

SIZE		XFIGHT 4000	XFIGHT 5000	XFIGHT 6000	DS-4SP	DS-4SH	Fight R12	DS13	DS15
DN	DASH	(bar)	(bar)	(bar)	(bar)	(bar)	(bar)	(bar)	(bar)
6	-4	-	-	-	500	-	-	-	-
10	-6	280	380	420	460	-	350	-	420
12	-8	280	380	420	440	-	350	-	420
16	-10	280	380	420	400	450	350	-	420
19	-12	280	380	420	380	425	350	350	420
25	-16	280	350	420	325	400	350	350	420
31	-20	280	350	420	240	350	280	350	420
38	-24	280	350	420	210	300	255	350	420
51	-32	-	-	-	-	250	210	350	420

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 as mentioned in the front page (-40°C to +100°C for 4SP and 4SH; -40°C to +121°C for others)
- 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 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

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	Cusotmer coupling series
HS4K	HS4K-10	XFGT-4000-16-10	MSHA HARC	J-10	F4-10
	HS4K-12	XFGT-4000-19-12	MSHA HARC	J-12	F4-12
	HS4K-16	XFGT-4000-25-16	MSHA HARC	J-16	F4-16
	HS4K-20	XFGT-4000-31-20	MSHA HARC	J-20	F4-20
	HS4K-24	XFGT-4000-38-24	MSHA HARC	J-24	F4-24
HS5K	HS5K-08	XFGT-5000-12-08	MSHA HARC	J-08	F4-08
	HS5K-10	XFGT-5000-16-10	MSHA HARC	J-10	F4-10
	HS5K-12	XFGT-5000-19-12	MSHA HARC	J-12	F4-12
	HS5K-16	XFGT-5000-25-16	MSHA HARC	J-16	F4-16
	HS5K-20	XFGT-5000-31-20	MSHA HARC	J-20	F4-20
	HS5K-24	XFGT-5000-38-24	MSHA HARC	H-24	F6-24
HS5KXT	HS5KXT-12	XFGT-5000-19-12	MSHA ENDLESS	J-12	F4-12
	HS5KXT-16	XFGT-5000-25-16	MSHA ENDLESS	J-16	F4-16
HS6K	HS6K-12	XFGT-6000-19-12	MSHA HARC	J-12	F4-12
	HS6K-16	XFGT-6000-25-16	MSHA HARC	J-16	F4-16
	HS6K-20	XFGT-6000-31-20	MSHA HARC	H-20	F6-20
	HS6K-24	XFGT-6000-38-24	MSHA HARC	H-24	F6-24

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.