DNV·GL

Certificate No:
TAP00001RM

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
DS-4SH, DS-4SP, DS12, DS13, DS15, XFIGHT 4000, XFIGHT 5000, XFIGHT 6000

Issued to
Diesse Rubber Hoses S.p.A.
Filago BG, 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 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.

Type:	Temperature range:	Max. working press.:	Sizes:
DS-4SH	-40°C to +100°C	250 to 425 bar	DN19 to 51
DS-4SP	-40°C to +100°C	165 to 500 bar	DN6 to 51
DS12	-40°C to +121°C	172 to 276 bar	DN10 to 51
DS13	-40°C to +121°C	350 bar	DN19 to 51
DS15	-40°C to +121°C	420 bar	DN19 to 38
XFIGHT 4000	-40°C to +121°C	280 bar	DN10 to 38
XFIGHT 5000	-40°C to +121°C	350 to 380 bar	DN10 to 38
XFIGHT 6000	-40°C to +121°C	420 bar	DN10 to 38

Issued at **Høvik** on **2019-07-11**
This Certificate is valid until **2022-12-31**.
DNV GL local station: **Milan**

Approval Engineer: **Adel Samiei**

for **DNV GL**

Zeinab Sharifi
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: **262.1-008998-4**
Certificate No: **TAP00001RM**

Product description

Eight types of flexible hose with permanently fitted couplings. Hoses made of covers Black synthetic rubber (SBR/CR), resistant to abrasion, oils and weather conditions, and Synthetic rubber inner tube (CR) resistant to oils, reinforced with four or six high tensile steel spirals

DS-4SH: Constructed according to 4SH / EN 856
DS-4SP: Constructed according to 4SP / EN 856
DS12: Reinforced with four high tensile steel spirals
DS13: Reinforced with four or six high tensile steel spirals
DS15: Reinforced with four or six high tensile steel spirals
XFIGHT 4000: Constructed according to R12 EN856
XFIGHT 5000: Constructed according to R13 EN856
XFIGHT 6000: Constructed according to R15 SAEJ517

Hose made by Diesse Rubber Hoses S.p.A., Italy

Hose size			DS-4SH	DS-4SP	DS12
DN	DASH	inch			
6	-4	¼	-	BXS	-
10	-6	3/8	-		BXT4
12	-8	½	-		
16	-10	5/8	-		
19	-12	¾	BSN4A/ BSS4/BHH	BXS/BXT4A/ BSN4A/BSS4	BXT4A/BSN3/ BSS4
25	-16	1			
31	-20	1 ¼	BSXSH/ BSN4A/ BSS4/BHH	BXS/ BSN4A/BSS6	BSN4A/BSS4
38	-24	1 ½			
51	-32	2			

Hose size			DS13	DS15	XFIGHT 4000	XFIGHT 5000	XFIGHT 6000
DN	DASH	inch					
10	-6	3/8	-	-	BXT4		
12	-8	½	-	-			
16	-10	5/8	-	-			
19	-12	¾	BSN4A/BSS4/BHH		BXT4A/BSN3/BSS4		BXT4A/BSN4A/BSS4
25	-16	1			BSN3/BSS4		BSN3/BSN4A/BSS4
31	-20	1 ¼	BSN6/BSS6/BH13				BSN6/BSS6
38	-24	1 ½			BSN4A/BSS4	BSN6/BSS6	
51	-32	2	BSS6/BH13	-	-	-	-

Couplings: Made by Tieffe SPA, Italy
Coupling materials: 11SMnPb37 UNI EN 10277

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 covered by this certificate are suitable for use with:
- Petroleum based hydraulic fluids at temperatures range mentioned in the front page of the certificate
- water based fluids at temperatures ranging from -40 °C to +70 °C
- water at temperatures ranging rom 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.

Maximum working pressure in bar:

Hose size			DS-4SH	DS-4SP	DS12	DS13	DS15	XFIGHT 4000	XFIGHT 5000	XFIGHT 6000
inch	DN	Dash								
¼	6	-4	-	500	-	-	-	-	-	-
3/8	10	-6	-	460	276	-	-	280	380	420
½	12	-8	-	440	276	-	-	280	380	420
5/8	16	-10	-	400	276	-	-	280	380	420
¾	19	-12	425	380	276	350	420	280	380	420
1	25	-16	400	325	276	350	420	280	350	420
1 ¼	31	-20	350	240	210	350	420	280	350	420
1 ½	38	-24	300	210	172	350	420	280	350	420
2	51	-32	250	165	172	350	-	-	-	-

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.

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

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

The cover of hoses for gaseous applications shall be pin-pricked.

Production testing

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 this type approval certificate.

Type Approval documentation

Tests carried out

Change in length, burst, dimensional check, impulse, oil resistance, ozone resistance, leakage, cold flexibility and fire test.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- hose manufacturer's name or trademark;
- date of manufacture (month/year);
- designation type reference;
- nominal diameter;
- pressure rating;
- temperature rating.

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.