

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

with type designation(s)

Dunlop Hiflex SP33 Series (3SPT, 3SPG)

Issued to

**Alfagomma Hydraulic S.p.A.
Castellalto TE, 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.****Temperature range: -40°C to 100°C****Max. working press.: 240 bar to 500 bar****Sizes: 3/8" to 1 1/4"**Issued at **Høvik** on **2018-10-03**for **DNV GL**This Certificate is valid until **2023-03-31**.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

Design: Tube: Oil resistant syntetic rubber compound
Cover: Syntetic rubber compound, weather-, oil- and abrasionand ozone resistant
Reinforcement: Three high tensile steel braids
Cover: Black rubber cover (3SPT)
Black rubber cover "Greenline" branded (3SPG)
Coupling materials: Carbon Steel 11SMnPb30 according UNI EN 10277
Stainless Steel AISI 304 - AISI 316

Hose size			Couplings designation (Skive fittings)	
Dash	DN	inch	AG Branding	DH Branding
- 06	10	3/8	H1100404-06	D440000-06
- 08	12	1/2	H1100404-08	D440000-08
- 10	16	5/8	H1100404-10	D330000-10
- 12	19	3/4	H1100404-12	D440000-12
- 16	25	1	H1100404-16	D330000-16
- 20	31	1 1/4	H1100404-20	D330000-20

Manufacturing plants:

Couplings: Alfagomma Hydraulic S.p.A., Area Industriale Piano Lago, 87050 Mangone (CS) – Italy
Hoses: Alfagomma Hydraulic S.p.A., Area Industriale Piano Lago, 87050 Figline Vegliaturo (CS)

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 or below assembling locaitons:

- 1- Dunlop Hiflex Oy, Pirkkala, Finland
- 2- Dunlop Hiflex OY, Vantaa, Finland
- 3- Alfagomma Hydraulic France, Vendin, France
- 4- Dunlop Hiflex AB, Halmstad, Sweden
- 5- Dunlop Hiflex OY, Turku, Finland
- 6- Alfagomma Germany GmbH, Herne, Germany
- 7- Alfagomma Germany GmbH, Hamburg, Germany
- 8- Dunlop Hiflex AS, Stavanger, Norway
- 9- Dunlop Hiflex AS, Bergen, Norway
- 10- Dunlop Hiflex AS, Kristiansand, Norway
- 11- Dunlop Hiflex AS, Esbjerg, Denmark
- 12- Dunlop Hiflex AS, Kolding, Denmark

Hose assemblies covered by this certificate may be used in:

Petroleum based (-40°C to +100°C), water based Hydraulic fluids (-40°C to +70°C) fluids, water and air (0°C to +70°C)

Hose size			Maximum working pressure	
DASH	DN	inch	bar	Psi
- 06	10	3/8	500	7250
- 08	12	1/2	470	6820
- 10	16	5/8	410	5950
- 12	19	3/4	375	5440
- 16	25	1	327	4780
- 20	31	1 1/4	240	3480

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.

Job Id: **262.1-016581-5**
Certificate No: **TAP00001GF**

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.

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

Type Approval documentation

Dunlop Hiflex SP33 data sheet number 209 edition 0

Burst pressure test reports numbers DNV 010, 011, 012 dated 2004-06-29 (witnessed by DNV surveyor)

LAPI fire test report nos 530/04, 531/04 dated 2004-06-21

WTD71 fire test report nos 25/98 dated 1998-01-24

DNV test reports nos. 91-1002 dated 14.01.91 and 91/340 dated 06.02.92

DNV test reports dated 2008-06-19

Renewal burst pressure test report numbers: 183/2014, 184/2014

Alfagomma test reports numbers: 953/2018, 954/2018, 955/2018, 956/2018, 957/2018, 958/2018

Renewal burst pressure test report numbers: 167/2018, 146/2018, 133/2018, 111/2018, 122/2018, 88/2018, 50/2018, 63/2018, 100/2018, 01/2018, 181/2018, 172/2018, 141/2018, 02/2018

Tests carried out

Dimensional Check Test, Change in Length Test, Burst Test, Cold Flexibility Test, Ozone Resistance Test, Impulse Test, Oil Resistance Test, Cover adhesion test 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.