



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14895**

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 SPA
CASTELNUOVO VOMANO TE, Italy

is found to comply with
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.70
Det Norske Veritas' Rules for Classification of Ships Pt.4, Ch.6 "Piping Systems"

Application
The hoses may be used in short lengths in: hydraulic-, fuel- and lubricating oil, compressed air, fresh water and sanitary systems

Temperature range: -40°C to 100°C
Max. working press.: 240 bar to 500 bar
Sizes: 3/8" to 1 1/4"

This Certificate is valid until **2018-03-31**.

Issued at **Høvik** on **2014-09-29**

DNV local station: **Milan**

Approval Engineer: **Adel Samiei**

for **Det Norske Veritas AS**

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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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Tube: Oil resistant syntetic rubber compound

Cover: Syntetic rubber compound, weather-, oil- and abrasionand ozone resistant

Reinforced by 3 wire braids.

3SPT – Black rubber cover

3SPG – Black rubber cover “Greenline” branded

Couplings: Alfagomma and Dunlop Hiflex series of inserts and ferrules in carbon or stainless steel.

Hose size	Carbon Steel 11SMnPb30 according UNI EN 10277 Stainless Steel AISI 304 - AISI 316	
	Skive fittings	
Dash	AG Branding	DH Branding
- 06	H1100404-06	D440000-06
- 08	H1100404-08	D440000-08
- 10	H1100204-10	D330000-10
- 12	H1100404-12	D440000-12
- 16	H1100204-16	D330000-16
- 20	H1100204-20	D330000-20

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.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure.

Hose assemblies delivered from the certificate holder shall be delivered with the following documentation:

- Pressure test report with reference to the type approval certificate.

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the following conditions:

- The assembler is authorised by a written authorization from the certificate holder. The certificate holder shall keep record of all assembler authorisations.
- Hose assemblies are in accordance with an assembly procedure issued by the certificate holder and the assembler has proved their qualifications by burst testing of a selection of hose/coupling combinations. One sample of each hose type is to be burst tested and the testing is to be witnessed by DNV. This testing is to be performed at least once a year.

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

The hoses may be used with the following maximum working pressure:

Nominal bore size	[bar]	[Psi]
3/8"	500	7250
1/2"	470	6820
5/8"	410	5950
3/4"	375	5440
1"	327	4780
1 1/4"	240	3480

Temperature range: -40°C to +100°C, water based fluids -40 °C to 70 °C

Flexible hoses are only to be used in lengths up to 2 meters 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.

The hoses must only be fitted in places where they are always accessible.

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

It must be possible to shut off from the system all flexible hoses used in systems for compressed air, lube. oil, fuel oil and petroleum base hydraulic oil.

Each hose is to be hydraulic pressure tested to 1.5 times the working pressure, and delivered with the manufacturer's pressure test report.

For use with compressed air or gases, the cover of the hose has to be pin-pricked.

Type Approval documentation

- Specifications: Dunlop Hiflex SP33
- Qualification test results dated July 2004
- 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 retention survey report 53004044 dated 2004-08-19
- Manufacturer's letter dated 19.11.90 and fax dated 19.12.90
- DNV test reports nos. 91-1002 dated 14.01.91 and 91/340 dated 06.02.92.
- Dunlop Hiflex Specification SPH 400 issue No. 01 dated 2004-09-16.
- DNV test reports dated 2008-06-19.
- Test report dated 2014-03-05 witnessed by DNV local station Milan (acc. to ISO 1402)
- Type approval assessment report dated 2014-03-06.

Tests carried out

Dimensional check, change in length, burst, impulse, ozone resistance, cold flexibility, oil resistance, fire, adhesion and abrasion resistance test.

Marking of product

For traceability to this type approval the final hose is to be marked with:

- Manufacturer's name or trade mark
- Type designation

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a periodical assessment every second year and before the expiry date of this certificate, to verify that the conditions for the type approval are complied with and to witness the Burst test on a selection of sizes.

The Burst tests shall be performed in accordance with procedures given in DNV Certification notes no. 2.9 5-791.70 "Type Approval of Flexible Hoses of Non-Metallic Material" or another recognized standard. The test is to be performed with the type of couplings fitted that is Type Approved with the compensators.

END OF CERTIFICATE