



EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB000024R
Revision No:
4

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

That the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies and compensators

with type designation(s)
Alfabiotech 3000, 4000, 5000, 5000Plus, 6000 (Supertuff) / Powerflexbio 3000, 4000, 5000, 5000Plus, 6000 (TUFLEX)

Issued to

Alfagomma Hydraulic S.p.A.
Castelnuovo Vomano – Castellalto, TE, Italy

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2021/1158**,

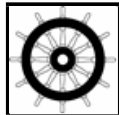
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-07-28**.

Issued at **Høvik** on **2022-07-29**

DNV local station:
Italy/Malta CMC

Approval Engineer:
Maheshraja Venkatesan



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: MED 201.NOR

Revision: 2022-02

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Product description

Five types of flexible rubber hoses with permanently attached couplings constructed according to ISO 18752 with type designations (except Alfabiotech 5000 DN76 which is not according to ISO18752)

ALFAGOMMA: ALFABIOTECH 3000, 4000, 5000 / 5000PLUS, 6000 (SUPERTUFF)
 DUNLOP HIFLEX: POWERFLEXBIO 3000, 4000, 5000 / 5000 PLUS, 6000 (TUFLEX)

Design:

Tube : Oil resistant synthetic rubber and biodegradable hydraulic fluids
 Cover : Abrasion, ozone and hydrocarbon resistant synthetic rubber. MSHA.
 Reinforcement :
 Type 3000 : Four/six high tensile steel spirals
 Type 4000 : Four high tensile steel spirals
 Type 5000: : Four/six high tensile steel spirals
 Type 5000PLUS : Four high tensile steel spirals
 Type 6000 : Four/six high tensile steel spirals
 End fittings material : Carbon Steel 11SMnPb30 according to UNI EN 10277 / INOX Steel AISI 316

Hose manufacturer: Alfagomma Hydraulic S.p.A., Via Enrico Mattei no.6, 64020 - Castelnuovo Vomano (TE)
 Coupling manufacturer: Alfagomma Hydraulic S.p.A, Area Industriale Piano Lago, 87050 Mangone (CS) – Italy

ALFABIOTECH 3000	Size		Ferrule	Insert
	1 ¼"	-20	H1100404-20 H3100404-20	H12xxxxx-20 H32xxxxx-20
1 ½"	-24	H1100404-24 H3100404-24	H12xxxxx-24 H32xxxxx-24	
2"	-32	H1100404-32 H3100404-32	H12xxxxx-32 H32xxxxx-32	
3"	-48	H1T00600-48	H1Txxxxx-48	

ALFABIOTECH 4000	Size		Ferrule	Insert	Ferrule	Insert
	¾"	-12	H1200204-12	H12xxxxx-12	-	-
	1"	-16	H1200204-16	H12xxxxx-16	H1100404-16 H3100404-16	H12xxxxx-16 H32xxxxx-16
	1 ¼"	-20	H1200204-20	H12xxxxx-20	-	-
	1 ½"	-24	H1300NS4-24	H13xxxxx-24	H1400200-24	H14xxxxx-24
2"	-32	H1300NS4-32	H13xxxxx-32	H1400200-32	H14xxxxx-32	

ALFABIOTECH 5000							
Size		Ferrule	Insert	Ferrule	Insert	Ferrule	Insert
5/8"	-10	-	-	H1100404-10	H12xxxxx-10	-	-
¾"	-12	H1300NS4-12	H13xxxxx-12	H1100404-12	H12xxxxx-12	H1400200-12	H14xxxxx-12
1"	-16	H1300NS4-16	H13xxxxx-16	H1100404-16	H12xxxxx-16	H1400200-16	H14xxxxx-16
1 ¼"	-20	H1300NS4-20	H13xxxxx-20	-	-	H1400200-20	H14xxxxx-20
1 ½"	-24	H1300NS6-24	H13xxxxx-24	-	-	H1400301-24 H3400301-24	H14xxxxx-24 H34xxxxx-24
2"	-32	H1300NS6-32	H13xxxxx-32	-	-	H1400301-32	H14xxxxx-32
2 ½"	-40	-	-	-	-	H1T00600-40	H1Txxxxx-40
3"	-48	-	-	-	-	H1T00600-48 H3T00600-48	H1Txxxxx-48 H3Txxxxx-48

ALFABIOTECH 5000 Plus							
Size		Ferrule	Insert	Ferrule	Insert	Ferrule	Insert
¾"	-12	H1300NS4-12	H13xxxxx-12	H1100404-12	H12xxxxx-12	H1400200-12	H14xxxxx-12
1"	-16	H1300NS4-16	H13xxxxx-16	-	-	H1400200-16	H14xxxxx-16

ALFABIOTECH 6000							
Size		Ferrule	Insert	Ferrule	Insert	Ferrule	Insert
¼"	-04	H1100404-04 H3100404-04	H12xxxxx-04 H32xxxxx-04	-	-	-	-
3/8"	-06	H1100404-06 H3100404-06	H12xxxxx-06 H32xxxxx-06	-	-	-	-

ALFABIOTECH 6000					
Size		Ferrule	Insert	Ferrule	Insert
½"	-08	H1100404-08 H3100404-08	H12xxxxx-08 H32xxxxx-08	H1400200-08	H14xxxxx-08
5/8"	-10	-	-	H1400301-10 H3400301-10	H14xxxxx-10 H34xxxxx-10
¾"	-12	H1300NS4-12	H13xxxxx-12	H1400200-12 H3400200-12	H14xxxxx-12 H34xxxxx-12
1"	-16	H1300NS4-16	H13xxxxx-16	H1400200-16 H3400200-16	H14xxxxx-16 H34xxxxx-16
1 ¼"	-20	H1300NS6-20	H13xxxxx-20	H1400301-20 H3400301-20	H14xxxxx-20 H34xxxxx-20
1 ½"	-24	-	-	H1400301-24 H3400301-24	H14xxxxx-24 H34xxxxx-24
2"	-32	-	-	H1T00600-32 H3T00600-32	H1Txxxxx-32 H3Txxxxx-32

Application/Limitation

Hose assemblies covered by this certificate are tested according to:

- 1) NS-EN ISO 15540:2016 - Fire resistance of hose assemblies- Test methods
- 2) NS-EN ISO 15541:2016 - Fire resistance of hose assemblies - Requirements for the test bench

Hose assemblies covered by this certificate may be used in:

Petroleum based (-40°C to +121°C), water based hydraulic fluids (-40°C to +70°C), and water and air (0°C to +70°C).

Maximum working pressure for each type and size of hose assembly shall be as below:

Size			ABT 3K	ABT 4K	ABT 5K	ABT 5K PLUS	ABT 6K
DN6	-04	¼"	-	-	-	-	450 bar
DN10	-06	3/8"	-	-	-	-	445 bar
DN12	-08	½"	-	-	-	-	420 bar
DN16	-10	5/8"	-	-	350 bar	-	420 bar
DN19	-12	¾"	-	280 bar	350 bar	380 bar	420 bar
DN25	-16	1"	-	280 bar	350 bar	380 bar	420 bar
DN31	-20	1 ¼"	210 bar	280 bar	350 bar	-	420 bar
DN38	-24	1 ½"	210 bar	290 bar	350 bar	-	420 bar
DN51	-32	2"	210 bar	280 bar	350 bar	-	420 bar
DN63	-40	2 ½"	-	-	350 bar	-	-
DN76	-48	3"	210 bar	-	350 bar	-	-

Type Examination documentation

Tests carried out

Fire tests carried out according to ISO 15540/15541

Marking of product

As a minimum, the final products (hoses with couplings) are to be marked with:

- Manufacturer's name or trademark
- Manufacturer's address
- Specification or hose name
- Hose size
- Data code (quarterly and daily production code)
- Mark of conformity according to Article 10 of the Council Directive 2014/90/EU

Mark of Conformity may only be affixed to the product when the corresponding certification related to production-control phase module (D, E, or F) is valid.