EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008ZX
Revision no.:
2

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, Veritasveien 1, 1363 Høvik, Norway 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)
Alfagomma Alfabiotech 5K Minetuff Evolution – Dunlop Hiflex Powerflexbio 5k Minetuff Extra, Alfagomma Alfabiotech 4K Minetuff Evolution – Dunlop Hiflex Powerflexbio 4k Minetuff Extra, Alfagomma Alfabiotech 6K Minetuff Evolution – Dunlop Hiflex Powerflexbio 6k Minetuff Extra, Alfagomma Alfabiotech 5K Plus Minetuff Evolution – Dunlop Hiflex Powerflexbio 5k Plus Minetuff Extra

issued to

Alfagomma Hydraulic S.p.A.

Via Enrico Mattei 6 64020 Castelnuovo Vomano – Castellalto TE Italy

is found to comply with the Implementing Regulation **(EU) 2026/1434** for
Item no. **MED/3.15c** (Row **1 of 1**)
according to the following requirements:
SOLAS 74 Reg. II-2/4, IMO Res. MSC.36(63)-(1994 HSC Code) 7, IMO Res. MSC.36(63)-(1994 HSC Code) 10, IMO Res. MSC.97(73)-(2000 HSC Code) 7, IMO Res. MSC.97(73)-(2000 HSC Code) 10, IMO MSC/Circ.1120, SOLAS 74 Reg. X/3

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

Date of issue: **2026-08-31**

Expiry date: **2029-09-03**

for **DNV AS**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Tobias Berntsen

Notified Body no.: **0575**

Christine Mydlak-Röder
Head of Notified Body

NORSK AKKREDITERING PROD 019

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 USD 300 000.

Product description

Please see Appendix: Product Description

Application/Limitation

Scope of approval covers only the fire resistance capability of the hoses while the review of assembling of the approved hoses and end fittings for DNV Class approval are not covered under this certification.

Please see Appendix: Application/Limitation

Type Examination documentation

Tests carried out

Fire test as per ISO 15540/15541.

Marking of product

For traceability to this certificate, each hose shall be marked with:
- Manufacturer's name or trademark
- Specification or hose name
- Hose size and type designation
- Date of manufacture
- 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.

APPENDIX
Product Description

Certificate no.:
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Hose assemblies covered by this certificate are tested according to:
1) ISO 15540:2016 - Fire resistance of hose assemblies - Test methods
2) ISO 15541:2016 - Fire resistance of hose assemblies - Requirements for the test bench. Four different types of non-metallic hoses with permanently fitted couplings:

ALFABIOTECH 4000 Evolution (Alfagomma branding)/ **POWERFLEXBIO 4000 EXTRA** (Dunlop branding)
(according to ISO 18752 Type CC Class 280)
Tube: Synthetic rubber resistant to oil and Biodegradable Hydraulic Fluids
Reinforcement: Four high tensile steel spirals (4S)
Cover: Abrasion, ozone, and hydrocarbon resistant synthetic rubber – MINETUFF and Supertuff cover
Coupling: Material grade 11sMnPb30, AISI 316

ALFABIOTECH 5000 Evolution (Alfagomma branding)/ **POWERFLEXBIO 5000 EXTRA** (Dunlop branding)
(according to ISO 18752 Type CC Class 350)
Tube: Synthetic rubber resistant to oil and Biodegradable Hydraulic Fluids
Reinforcement: Four High Tensile Steel Spirals(4S) up to DN32, Six Spirals(6S), over DN32
Cover: Abrasion, ozone, and hydrocarbon resistant synthetic rubber – MINETUFF and Supertuff cover
Coupling: Material grade 11sMnPb30, AISI 316

ALFABIOTECH 6000 Evolution (Alfagomma branding)/ **POWERFLEXBIO 6000 EXTRA** (Dunlop branding)
(according to ISO 18752 Type CC Class 420)
Tube: Synthetic rubber resistant to oil and Biodegradable Hydraulic Fluids
Reinforcement: Four High Tensile Steel Spirals(4S) up to DN25, Six Spirals(6S), over DN32
Cover: Abrasion, ozone, and hydrocarbon resistant synthetic rubber – MINETUFF and Supertuff cover
Coupling: Material grade 11sMnPb30, AISI 316

ALFABIOTECH 5000 Plus Evolution (Alfagomma branding)/ **POWERFLEXBIO 5000 Plus EXTRA** (Dunlop branding)
(constructed according to ISO 18752 Type CC Class 350)
Tube: Synthetic rubber resistant to oil and Biodegradable Hydraulic Fluids
Reinforcement: Four High Tensile Steel Spirals(4S)
Cover: Abrasion, ozone, and hydrocarbon resistant synthetic rubber – MINETUFF and Supertuff cover
Coupling: Material grade 11sMnPb30

Manufacturing locations:

Hoses	:	Alfagomma Hydraulic S.p.A., Via Enrico Mattei no.6,64020 - Castelnuovo Vomano (TE), Italy Alfagomma Hydraulic - Area Industriale Piano Lago – 87050 Figline Vegliaturo (CS), Italy Alfagomma Malaysia Sdn Bhd - PLO 344, Jalan Perak 4 – 81700 Pasir Gudang – Johor, Malaysia
Couplings	:	Alfagomma Hydraulic S.p.A, Area Industriale Piano Lago, 87050 Mangone (CS), Italy Alfagomma (Ningbo) Co. Ltd. – Zhejiang, 315311 China

APPENDIX
Application/Limitation

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Hose assemblies covered by this certificate are approved to be used in oil or fuel oil systems.

Hose I.D. DN	Maximum working pressure (bar)			
	E4000 Evolution	E5000 Evolution	E6000 Evolution	E5000 Plus Evolution
6	-	-	450	-
10	-	-	445	-
12	280	-	420	-
16	280	350	420	-
19	280	350	420	380
25	280	350	420	380
31.5	280	350	420	-
38	280	350	420	-
51	280	350	420	-

Hose I.D. DN	Ferrule designation			
	E4000 Evolution	E5000 Evolution	E6000 Evolution	E5000 Plus Evolution
6	-	-	H1100404/ H3100404/ C18SXXXXX-04XXX	-
10	-	-	H1100404/ H3100404/ C18SXXXXX-06XXX	-
12	H1100404/ H3100404/ C18SXXXXX-08XXX	-	H1100404/ H3100404/ C18SXXXXX-08XXX	-
16	H1100404/ H3100404/ C18SXXXXX-10XXX	H3100404/ C18SXXXXX-10XXX	H1700301/ C18SXXXXX-10XXX H3700301-10	-
19	H1100404/ H3100404/ C18SXXXXX-12XXX	H1700200/ H3100404/ C18SXXXXX-12XXX H1800NSS-12	H1700200/ C18SXXXXX-12XXX H1800NSS-12 H3700200-12	H1700200 H1800NSS-12
25	H1100404/ H3100404/ C18SXXXXX-16XXX	H1700200/ H3100404/ C18SXXXXX-16XXX H1800NSS-16	H1700200/ C18SXXXXX-16XXX H1800NSS-16 H3700200-16	H1700200 H1800NSS-16
31.5	H1700200/ H3100404/ C18SXXXXX-20XXX	H1700200/ C18SXXXXX-20XXX H1800NSS-20 H3700200-20	H1700301/ C18SXXXXX-20XXX H1800NSS-20 H3700301-20	-
38	H1700200/ H3100404/ C18SXXXXX-24XXX H1800NSS-24 H3700200-24	H1700301/ C18SXXXXX-24XXX H1800NSS-24 H3700301-24	H1700301/ C18SXXXXX-24XXX H3700301-24	-
51	H1700200/H3100404/ C18SXXXXX-32XXX H1800NSS-32 H3700200-32	H1700301/ C18SXXXXX-32XXX H1800NSS-32 H3700301-32	-	-

Hose I.D.	**Coupling**			
DN	E4000 Evolution	E5000 Evolution	E6000 Evolution	E5000 Plus Evolution
6	-	-	H3100404	-
10	-	-	H3100404	-
12	H3100404	-	H3100404	-
16	H3100404	H3100404	-	-
20	H3100404	H3100404	-	-
25	H3100404	H3100404	-	-
31.5	H3100404	-	-	-
38	H3100404	-	-	-
51	H3100404	-	-	-