

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008ZX
Revision No:
1

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)

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.
Castelnuovo Vomano – Castellalto, TE, Italy

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2024/1975,

item No. MED/3.15c. SOLAS 74 as amended, Regulation II-2/4 & X/3 and 2000 HSC Code 7 & 10 and IMO MSC/Circ.1120

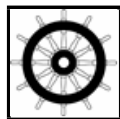
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-09-03**.

Issued at **Høvik** on **2024-09-17**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Per Ola Nymoen



Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Product description

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

Application/Limitation

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

Hose I.D.	Maximum working pressure (bar)			
	E4000 Evolution	E5000 Evolution	E6000 Evolution	E5000 Plus Evolution
DN				
6	-	-	450	-
10	-	-	445	-
12	280	-	420	-
16	280	-	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.	Ferrule designation			
	E4000 Evolution	E5000 Evolution	E6000 Evolution	E5000 Plus Evolution
DN				
6	-	-	H1100404	-
10	-	-	H1100404	-
12	H1100404	-	H1100404	-
16	H1100404	-	H1700301	-
19	H1100404	H1700200	H1700200	H1700200
25	H1100404	H1700200	H1700200	H1700200
31.5	H1700200	H1700200	H1700301	-
38	H1700200	H1700301	H1700301	-
51	H1700200	H1700301	-	-

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

Type Approval documentation

Tests carried out

Fire test as per ISO 15540/15541.

Marking of product

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

- Manufacturer's name or trademark;
- Specification or hose name;
- Hose name 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 mode (D, E, or F) is valid.