

**EC-TYPE EXAMINATION
CERTIFICATE (MODULE B)**

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 GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

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

with type designation(s)

ALFABIOTECH 4000 - MINETUFF / POWERFLEX BIO 4000, ALFABIOTECH 5000 & 5000 PLUS - MINETUFF / POWERFLEX BIO 5000 & 5000 PLUS, ALFABIOTECH 6000 - MINETUFF / POWERFLEX BIO 6000

Issued to

**Alfagomma Hydraulic S.p.A.
Castelnuovo Vomano TE, Italy**

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

Regulation **(EU) 2017/306,**

Annex A.1, item No. A.1/3.15 and Annex B, Module B in the Directive; 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 **2022-06-08.**

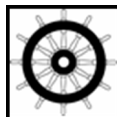
Issued at **Høvik** on **2017-06-09**

DNV GL local station:

Milan

Approval Engineer:

Adel Samiei



Notified Body
No.: **0575**

for **DNV GL AS**

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Vidar Dolonen
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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Product description

Three type of hose assemblies:

ALFABIOTECH 4000 - MINETUFF / POWERFLEX BIO 4000

Tube: oil resistant synthetic rubber and biodegradable hydraulic fluids.
 Reinforcement: four high tensile steel spirals.
 Cover: abrasion, ozone and hydrocarbon resistant synthetic rubber. MSHA APPROVED

ALFABIOTECH 5000 & 5000 PLUS - MINETUFF / POWERFLEX BIO 5000 & 5000 PLUS

Tube: oil resistant synthetic rubber and biodegradable hydraulic fluids.
 Reinforcement: four/six high tensile steel spirals.
 Cover: abrasion, ozone and hydrocarbon resistant synthetic rubber. MSHA APPROVED

ALFABIOTECH 6000 - MINETUFF / POWERFLEX BIO 6000

Tube: oil resistant synthetic rubber and biodegradable hydraulic fluids.
 Reinforcement: four/six high tensile steel spirals.
 Cover: abrasion, ozone and hydrocarbon resistant synthetic rubber. MSHA APPROVED

Coupling designations:

DN	DASH	Alfabiotech 4000	Alfabiotech 5000	Alfabiotech 5000 PLUS	Alfabiotech 6000
6	-4	-	-	-	H1100404
8	-5	-	-	-	
10	-6	-	-	-	H1200204 H1100404
12	-8	-	-	-	H1200204 H1100404
16	-10	-	H1200204 H1100204	-	H1400301
19	-12	H1200204 H1100404	H1100404 H1400200	H1100404 H1400200	H1400200
25	-16	H1200204 H1100404	H1100404 H1400200	H1100404 H1400200	H1400200
31	-20	H1200204	H1400200	-	H1400301
38	-24	H1400200	H1400301	-	H1400301
51	-32	H1400200	H1400301	-	-

Hoses made by: Alfagomma Hydraulic S.p.A.
 Couplings made by: Alfatechnology S.r.l.

Application/Limitation

Hose assemblies covered by this certificate are tested according to:

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

Hose assemblies are suitable for use with petroleum base hydraulic fluids and water base hydraulic fluids.

Maximum working pressure (MAWP):

Hose	Alfabiotech 4000	Alfabiotech 5000	Alfabiotech 5000 PLUS	Alfabiotech 6000	
Maximum working pressure	280 bar	350 bar	380 bar	DN6	450 bar
				DN10	445 bar
				DN ≥12	420 bar

Type Examination documentation

Alfagomma Catalogue Dated October 2016



Job Id: **344.1-006461-1**
Certificate No: **MEDB000024R**

LAPI Fire test reports 074.0IS0110/14, 075.0IS0110/14 & 076.0IS0110/14 (Alfabiotech4000)
LAPI Fire test reports 077.0IS0110/14, 078.0IS0110/14 & 079.0IS0110/14 (Alfabiotech5000/5000 PLUS)
LAPI Fire test reports 080.0IS0110/14, 081.0IS0110/14 & 082.0IS0110/14 (Alfabiotech6000)

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:

- Manufacturers name or trademark
- Manufacturer's address
- Specification or hose name
- Hose size (inside diameter in inches)
- Data code (quarterly and daily production code)