



## ***Confirmation of Product Type Approval***

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 23/JAN/2018. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 30/JUN/2021 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

**Product Name:** Non-Metallic Flexible Hose  
**Model Name(s):** ALFABIOTECH/POWERFLEXBIO 4000,  
ALFABIOTECH/POWERFLEXBIO 5000/5000 PLUS,  
ALFABIOTECH/POWERFLEXBIO 6000

**Presented to:**

ALFAGOMMA HYDRAULIC S.P.A.  
VIA E. MATTEI 6  
Italy

**Intended Service:**

Hydraulic fluids

**Description:**

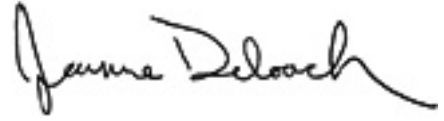
ALFABIOTECH/POWERFLEXBIO 4000: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals, covered with ozone and abrasion resistant synthetic rubber sheath. ALFABIOTECH/POWERFLEXBIO 5000/5000 PLUS: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals (up to DN32), six spirals (over DN32), covered with ozone and abrasion resistant synthetic rubber sheath. ALFABIOTECH/POWERFLEXBIO 6000: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals (up to DN25), six spirals (over DN25), covered with ozone and abrasion resistant synthetic rubber sheath

**Ratings:**

ALFABIOTECH/POWERFLEXBIO 4000: from DN20 to DN 51, working pressure 280 bar and DN38 working pressure 290 bar, temperature range -40°C to +80°C. ALFABIOTECH/POWERFLEXBIO 5000/5000 PLUS: from DN16 to DN 51, working pressure 350 bar and DN20 and DN25 working pressure 380 bar, temperature range -40°C to +80°C. ALFABIOTECH/POWERFLEXBIO 6000: DN6 working pressure 450 bar DN10 working pressure 445 bar, from DN12 to DN 38, working pressure 420 bar, temperature range -40°C to +80°C. For additional details see attachment

<b>Service Restrictions:</b>	Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined. 1) Hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications. 2) End connections are to comply with applicable requirements and limitation of Rules (4-6-2/5.5.4, 4-6-2/5.5.5, 4-6-7/3.5.1, 4-6-7/5.3.2). 3) Hose assemblies are to be installed only where flexibility is required, in clearly visible and readily accessible locations, and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only. 4) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers. 5) Not to be used for installations where repeated and/or frequent flexing is expected. 6) Flexible Hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, date of manufacturer (month/year), designation type reference, nominal diameter, pressure and temperature rating in accordance with Steel Vessel Rules 4-6-2/5.7.6.
<b>Comments:</b>	Only ALFAGOMMA's approved ferrules and inserts are to be used for end fittings, as per the manufacturer's recommendations. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
<b>Notes / Documentation:</b>	Drawing No. Burst Test ABT5K DN51 dated 09/06/2016, Inspection Certificate 3.2 ABT5K dn51 Surveyour, Revision: 0, Pages: 1 Drawing No. Data Sheet ABT4000, Data Sheet Alfabiotech 4000, Revision: 0, Pages: 1 Drawing No. Data Sheet ABT5000-5000PLUS , Data Sheet Alfabiotech 5000-5000Plus , Revision: 0, Pages: 1 Drawing No. Data Sheet ABT6000, Data Sheet Alfabiotech 6000, Revision: 0, Pages: 1 Drawing No. Declaration, Declaration DH-AG, Revision: 0, Pages: 1 Drawing No. Drawings Fitting ABT4K, Drawings Fitting ABT4K, Revision: 0, Pages: 1 Drawing No. Drawings Fitting ABT5K-5KP, Drawings Fitting ABT5K-5KP, Revision: 0, Pages: 1 Drawing No. Drawings Fitting ABT6K, Drawings Fitting ABT6K, Revision: 0, Pages: 1 Drawing No. Fire Test dated 12/02/2014, Fire Test ISO 15540 ABT, Revision: 0, Pages: 1 Drawing No. Fire Test ISO 15540 ABT dated 12/02/2014, Complete Fire Test Report , Revision: 0, Pages: 1 Drawing No. Hose Fitting combination, Table hose fitting combination, Revision: 0, Pages: 1 Drawing No. Impulse Test ABT5K dn51 dated 28/07/2015, Impulse Test Report ABT5K DN51, Revision: 0, Pages: 1 Drawing No. Impulse Test Report dated 08/11/2013, Impulse Test Report ABT, Revision: 0, Pages: 1 Drawing No. Inspection Certificate dated 03/04/2014, Inspection Certificate ABT 3.2, Revision: 0, Pages: 1 Drawing No. Test Report dated 22/07/2014, Test Report ABT 2.2, Revision: 0, Pages: 1
<b>Term of Validity:</b>	This Product Design Assessment (PDA) Certificate 16-GE1532646-PDA, dated 01/Jul/2016 remains valid until 30/Jun/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.
<b>ABS Rules:</b>	2016 Rules for Conditions of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-Appendix 2 and 3 which covers the following: 2016 Mobile Offshore Drilling Unit Rules 4-2-1/11.29 2016 Rules for Conditions of Classification, 1-1-4/7.7, 1-1-Appendix 3 and 4, which covers the following: 2016 Steel Vessel Rules 4-6-2/5.7 2016 Steel Vessel Rules Under 90 Meters 4-4-1/9.19 2016 Offshore Supply Vessel Rules 4-6-2/5.7 2016 (Up-dated Jan 2016) Guide for Building and Classing Yachts 4-1-1/3.3, 4-4-1/9.19 2016 High Speed Craft Rules 1-1-4/11.9, 1-1-Appendix 2 and 3, 4-4-1/9.19
<b>National Standards: International Standards: Government Authority: EUMED: Others:</b>	

<b>Model Certificate</b>	<b>Model Certificate No</b>	<b>Issue Date</b>	<b>Expiry Date</b>
PDA	16-GE1532646-PDA	01/JUL/2016	30/JUN/2021



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.