



Confirmation of Product Type Approval

Company Name: ALFAGOMMA HYDRAULIC S.P.A.

Address: VIA E. MATTEI 6 CASTELNUOVO VOMANO I-64020 Italy

Product: Non-Metallic Flexible Hose

Model(s): ABT3000,4000,5000,5000 PLUS,6000/ABT3000,4000,5000,5000 PLUS,6000 SUPERTUFF -
DUNLOPHIFLEX POWERFLEXBIO 3000,4000,5000,5000 PLUS,6000/POWERFLEX
3000,4000,5000,5000 PLUS,6000 TUFLEX

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	24-0069715-PDA	17-SEP-2024	16-SEP-2029
Manufacturing Assessment (MA)	20-4430198	08-SEP-2020	07-SEP-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Hydraulic fluids

Description

ALFABIOTECH 3000 - POWERFLEXBIO 3000: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals (six for DN76), covered with ozone and abrasion resistant synthetic rubber sheath

ALFABIOTECH 4000 - POWERFLEXBIO 4000: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals, covered with ozone and abrasion resistant synthetic rubber sheath.

ALFABIOTECH 5000 - POWERFLEXBIO 5000: 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 5000 PLUS - POWERFLEXBIO 5000 PLUS: oil resistant synthetic rubber hose reinforced with four high tensile steel spirals, covered with ozone and abrasion resistant synthetic rubber sheath.

ALFABIOTECH 6000 - POWERFLEXBIO 6000: 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

Ratings

ALFABIOTECH 3000 - POWERFLEXBIO 3000: from DN32 to DN76, working pressure 210 bar,

temperature range -40°C to +121°C.

ALFABIOTECH 4000 - POWERFLEXBIO 4000: from DN20 to DN 51, working pressure 280 bar and DN38 working pressure 290 bar, temperature range -40°C to +121°C.

ALFABIOTECH 5000 - POWERFLEXBIO 5000: from DN16 to DN 51, working pressure 350 bar, temperature range -40°C to +121°C.

ALFABIOTECH 5000 PLUS - POWERFLEXBIO 5000 PLUS: DN20 and DN25 working pressure 380 bar, temperature range -40°C to +121°C.

ALFABIOTECH 6000 - POWERFLEXBIO 6000: DN6 working pressure 450 bar, DN10 working pressure 445 bar, from DN12 to DN 51, working pressure 420 bar, temperature range -40°C to +121°C.

For additional details see attachment

Service Restrictions

- 1) 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.
- 2) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.
- 3) End connections are to comply with applicable requirements and limitation of Marine Vessels 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).
- 4) 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.
- 5) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.
- 6) Not to be used for installations where repeated and/or frequent flexing is expected.
- 7) 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 Marine Vessel Rules 4-6-2/5.7.6.

Comments

- 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.

- The hereby certificate is valid for Alfacomma Alfabiotech 3000/4000/5000/5000plus/6000 families Minetuff and Supertuff branding and for Dunlop Hiflex Powerflexbio 3000/4000/5000/5000plus/6000 families Hi-Tuff and Tufflex branding

Notes, Drawings and Documentation

Drawing No. CATALOGO ABT

Drawing No. Data Sheet ABT3000 Alfabiotech 3000

Drawing No. Data Sheet ABT4000 Alfabiotech 4000

Drawing No. Data Sheet ABT5000-5000PLUS Alfabiotech 5000-5000Plus

Drawing No. Data Sheet ABT6000 Alfabiotech 6000

Drawing No. Drawings Fitting ABT4K

Drawing No. Drawings Fitting ABT5K-5KP

Drawing No. Drawings Fitting ABT6K

Drawing No. Catalogo raccordi NO SKIVE NS4-NS6

Drawing No. Fitting inox

Drawing No. Fitting no skive

Drawing No. Hose fitting combination

Test report No. 2314.OIS0110/18 (FireTest at LAPI dated 15 Nov 2018)

Test report No. 2089.OIS0110/16 (FireTest at LAPI dated 12 Dec 2016)

Test report No. 1049.OIS0110/18 (FireTest at LAPI dated 06 Jun 2018)

Impulse test reports at ALFAGOMMA dated 27 Jul 2017, 25 May 2017, 11 Apr 2018, 04 Aug 2017, 12 Jun 2018, 13 Sep 2017, 21 Sep 2017, 02 May 2017, 28 Feb 2018, 17 Apr 2018, 08 Jan 2018, 31 Jul 2017

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 16/Sep/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

2024 Rules for Conditions of Classification, 1A-1-4/7.7 & 1-1 Appendix 3 and 4, which covers the following:

2024 Rules for Building and Classing Marine Vessels, 4-6-2/5.7

2024 Rules for Building and Classing Yachts, 4-1-1/3.3, 4-4-1/9.19

2024 Rules for Conditions of Classification - Mobile Offshore Units, 1B-1-4/9.7 & 1-1 Appendix 2 and 3, which covers the following:

2024 Rules for Building and Classing Mobile Offshore Units, 4-2-1/11.29

2021 Guide for Classification of Drilling Systems, 4-2-1/11.29

2024 Rules for Conditions of Classification - High-Speed Crafts, 1C-1-4/11.9, 1-1 Appendix 2 & 3, which covers the following:

2024 Rules for Conditions of Classification - High-Speed Crafts, 4-4-1/9.19

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 14-Jan-2025 10:03

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 is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. 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.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

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.

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.

ALFABIOTECH HOSE/FITTING COMBINATION																
Hose								Ferrule			Insert					
Branding Alfagomma/Dunlop Hiflex STANDARD Alfagomma SUPERTUFF/Dunlop Hiflex TUFLEX	Reference Specification	Type Designation	Hose size			TEMPER. RANGE	WORK. PRESS. [bar]	No skive		Skive		Double Skive	Skive/No Skive	Skive/No Skive	Double Skive	
			Inch	Dash	DN			Standard	Multispiral	Standard	Multispiral	Interlock	Standard	Multispiral	Interlock	
																AG Branding
			Carbon Steel and Stainless Steel													
ALFAGOMMA ALFABIOTECH 3K DUNLOP HIFLEX POWERFLEXBIO 3K ALFAGOMMA ALFABIOTECH 3K SUPERTUFF DUNLOP HIFLEX POWERFLEXBIO 3K TUFLEX	ISO 18752 Exceeds SAE100 R12	ABT 3K	1.1/4	20	32	-40°C/+80°C	210	-	-	H1100404-20	-	-	H12xxxx-20xxx	-	-	
			1.1/2	24	38	-40°C/+80°C	210	-	-	H1100404-24	-	-	H12xxxx-24xxx	-	-	
			2	32	51	-40°C/+80°C	210	H1200204-32	-	-	-	-	H12xxxx-32xxx	-	-	
			3	48	76	-40°C/+80°C	210	-	-	-	-	H1T00600-48	-	-	H1Txxxx-48xxx	
ALFAGOMMA ALFABIOTECH 4K DUNLOP HIFLEX POWERFLEXBIO 4K ALFAGOMMA ALFABIOTECH 4K SUPERTUFF DUNLOP HIFLEX POWERFLEXBIO 4K TUFLEX	ISO 18752	ABT 4K	3/8	06	10	-40°C/+80°C	280	-	-	-	-	-	-	-	-	
			1/2	08	16	-40°C/+80°C	280	-	-	-	-	-	-	-	-	
			3/4	12	19	-40°C/+80°C	280	H1200204-12	-	-	-	-	H12xxxx-12xxx	-	-	
			1	16	25	-40°C/+80°C	280	H1200204-16	-	H1100404-16 H3100404-16	-	-	-	H12xxxx-16xxx H32xxxx-16xxx H12xxxx-20xxx	-	-
			1.1/4	20	32	-40°C/+80°C	280	H1200204-20	-	-	-	-	-	-	-	
			1.1/2	24	38	-40°C/+80°C	290	-	H1300NS4-24	-	-	H1400200-24	-	H13xxxx-24	H14xxxx-24xxx	
ALFAGOMMA ALFABIOTECH 5K DUNLOP HIFLEX POWERFLEXBIO 5K ALFAGOMMA ALFABIOTECH 5K SUPERTUFF DUNLOP HIFLEX POWERFLEXBIO 5K TUFLEX	ISO 18752	ABT 5K	5/8	10	16	-40°C/+80°C	350	-	-	H1100404-10	-	-	H12xxxx-10xxx	-	-	
			3/4	12	19	-40°C/+80°C	350	-	H1300NS4-12	H1100404-12	H1400200-12	H12xxxx-12xxx	H13xxxx-12xxx	H14xxxx-12xxx		
			1	16	25	-40°C/+80°C	350	-	H1300NS4-16	H1100404-16	H1400200-16	H12xxxx-16xxx	H13xxxx-16xxx	H14xxxx-16xxx		
			1.1/4	20	32	-40°C/+80°C	350	-	H1300NS4-20	-	H1400200-20	-	H13xxxx-20xxx	H14xxxx-20xxx		
			1.1/2	24	38	-40°C/+80°C	350	-	H1300NS6-24	-	H1400301-24 H3400301-24	-	H13xxxx-24xxx	H14xxxx-24xxx H34xxxx-24xxx		
			2	32	51	-40°C/+80°C	350	-	H1300NS6-32	-	H1400301-32	-	H13xxxx-32xxx	H14xxxx-32xxx		
	2 1/2	40	63	-40°C/+80°C	350	-	-	-	H1T00600-40	-	-	H1Txxxx-40xxx				
ALFAGOMMA ALFABIOTECH 5K PLUS DUNLOP HIFLEX POWERFLEXBIO 5K PLUS ALFAGOMMA ALFABIOTECH 5K PLUS SUPERTUFF DUNLOP HIFLEX POWERFLEXBIO 5K PLUS TUFLEX	ISO 18752	ABT 5K PLUS	3/4	12	19	-40°C/+80°C	380	-	H1300NS4-12	H1100404-12	H1400200-12	H12xxxx-12xxx	H13xxxx-12xxx	H14xxxx-12xxx		
			1	16	25	-40°C/+80°C	380	-	H1300NS4-16	-	H1400200-16	-	H13xxxx-16xxx	H14xxxx-16xxx		
ALFAGOMMA ALFABIOTECH 6000 DUNLOP HIFLEX POWERFLEXBIO 6000 ALFAGOMMA ALFABIOTECH 6K SUPERTUFF DUNLOP HIFLEX POWERFLEXBIO 6K TUFLEX	ISO 18752 Exceeds SAE 100 R15	ABT 6K	1/4	04	6	-40°C/+80°C	450	-	-	H1100404-04 H3100404-04	-	-	H12xxxx-04xxx H32xxxx-04xxx	-	-	
			3/8	06	10	-40°C/+80°C	445	-	-	H1100404-06 H3100404-06	-	-	H12xxxx-06xxx H32xxxx-06xxx	-	-	
			1/2	08	13	-40°C/+80°C	420	-	-	H1100404-08 H3100404-08	-	H1400200-08	H12xxxx-08xxx H32xxxx-08xxx	-	-	
			5/8	10	16	-40°C/+80°C	420	-	-	-	H1400301-10 H3400301-10	-	-	-	-	
			3/4	12	19	-40°C/+80°C	420	-	H1300NS4-12	-	H1400200-12 H3400200-12	-	H13xxxx-12xxx	H14xxxx-12xxx H34xxxx-12xxx		
			1	16	25	-40°C/+80°C	420	-	H1300NS4-16	-	H1400200-16 H3400200-16	-	H13xxxx-16xxx	H14xxxx-16xxx H34xxxx-16xxx		
			1.1/4	20	32	-40°C/+80°C	420	-	H1300NS6-20	-	H1400301-20 H3400301-20	-	H13xxxx-20xxx	H14xxxx-20xxx H34xxxx-20xxx		
			1.1/2	24	38	-40°C/+80°C	420	-	-	-	H1400301-24 H3400301-24	-	-	H14xxxx-24xxx H34xxxx-24xxx		
2	32	51	-40°C/+80°C	420	-	-	-	H1T00600-32 H3T00600-32	-	-	H1Txxxx-32xxx H3Txxxx-32xxx					