



TYPE APPROVAL CERTIFICATE
No. **MAC036323CS/002**

This is to certify that the product identified below is in compliance with the regulations herewith specified.

<i>Description</i>	Non metallic flexible hoses
<i>Type</i>	ALFAGOMMA Alfabiotech Evolution xK DUNLOP Hiflex Powerflexbio Extra xK E4K EVOLUTION E5K EVOLUTION E5KP EVOLUTION PLUS E6K EVOLUTION
<i>Applicant</i>	ALFAGOMMA HYDRAULIC SPA VIA ENRICO MATTEI 6 64020 CASTELNUOVO VOMANO (TE) ITALY
<i>Manufacturer</i>	ALFAGOMMA HYDRAULIC SPA
<i>Place of manufacture</i>	VIA ENRICO MATTEI 6 64020 CASTELNUOVO VOMANO (TE) ITALY
<i>Reference standards</i>	Part C, Ch 1, Section 10 of RINA Rules for the Classification of Ships and RINA Rules for the Type Approval of Flexible Hoses and Expansion Joints

Issued in **Genova** on **June 26, 2024**. *This Certificate is valid until* **July 11, 2028**

RINA Services S.p.A.
Rosario Pitruzzo

This certificate consists of this page and 1 enclosure

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Reference documents

Technical drawings and test approved and filed with letters

PPVT/2023/434/CRLVA

PPVT/2024/614/CRLVA

Technical characteristics

Temperatures range: -40 °C / +120 °C

Materials/Components As per document PPVT-40683

Hose-fitting Combination as per PPVT-45402

Fields of application

Hydraulic systems with hydraulic fluid having a flash point higher than 150 °C (closed cup test)

Pneumatic systems

Compressed air systems

Fresh water systems

Sea water

Sanitary systems

Tests carried out

As per documents

PPVT -40686 filed with letter PPVT/2023/434/CRLVA

PPVT -45399, PPVT-45401 PPV-45403 filed with letter PPVT/2024/614/CRLVA

Places of manufacture:

Hose:

Alfagomma Hydraulic – via E. Mattei,6 – 64020 Castelnuovo Vomano (TE)

Alfagomma Hydraulic - Area Industriale Piano Lago – 87050 Figline Vegliaturo (CS)

Alfagomma MALAYSIA Sdn Bhd - PLO 344, Jalan PERAK 4 - 81700 PASIR GUDANG

JOHOR MALAYSIA

Coupling:

Alfagomma Hydraulic - Area Industriale Piano Lago – 87050 Mangone (CS)

Alfagomma (NINGBO) co Ltd - Zhejiang315311 - CHINA

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Acceptance conditions

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hose assemblies must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used on boiler fronts.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

The cover of hoses for gaseous applications shall be pin-pricked.

This Type Approval Certificate is valid for hoses connected to the machinery/system with flange and/or threaded connection (in accordance with limitation in Pt. C, Ch. 1, Sec. 10, Tab. 15 of RINA Rules) only. Other fitting defined as mechanical joints (Rina Rules Pt. C, Ch. 1, Sec. 10, Para. 2.4.5 Fig. 2), could be accepted upon satisfactory result of prototype tests performed on hose/fitting assemblies.

All hose assemblies delivered under the RINA type approval scheme shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to this type approval certificate.

Hoses assemblies is to be carried out at Alfagomma branch sites or by authorized assemblers.

Validity of this Certificate is subject to positive outcome of periodical Audit as per Rules for Testing and Certification of Marine Materials and Equipment

Genova June 26, 2024



HOSE - FITTING COMBINATION					
ALFABIOTECH EVOLUTION FAMILY					
HOSE	SIZE		FERRULE		
	DN	DASH	Standard	Interlock	Standard
ALFABIOTECH EVOLUTION 4000	12	08	H1100404	--	H3100404
	16	10	H1100404	--	H3100404
	20	12	H1100404	--	H3100404
	25	16	H1100404	--	H3100404
	32	20	--	H1700200	H3100404
	38	24	--	H1700200	H3100404
	51	32	--	H1700200	H3100404
ALFABIOTECH EVOLUTION 5000	16	10	--	--	H3100404
	20	12	--	H1700200	H3100404
	25	16	--	H1700200	H3100404
	32	20	--	H1700200	--
	38	24	--	H1700301	--
	51	32	--	H1700301	--
ALFABIOTECH EVOLUTION 5500	20	12	--	H1700200	--
	25	16	--	H1700200	--
ALFABIOTECH EVOLUTION 6000	6	04	H1100404	--	H3100404
	10	06	H1100404	--	H3100404
	12	08	H1100404	--	H3100404
	16	10	--	H1700301	--
	20	12	--	H1700200	--
	25	16	--	H1700200	--
	32	20	--	H1700301	--
	38	24	--	H1700301	--
	51	32	--	--	--

End fittings material : Carbon Steel

End fittings material : Stainless Steel