



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA21190M

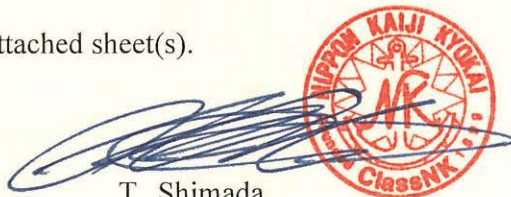
This is to certify that the undernoted products have been approved in accordance with the requirements 12.3.4, Chapt.12, Part D of “Rules for the Survey and Construction of Steel Ships” and Chapt.2, Part 6“Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use”.

This certificate is issued to

Manufacturer:	ALFAGOMMA HYDRAULIC S. p. A., Italy ALFAGOMMA Korea, Co., Ltd. Via Enrico Mattei, 6-64020 Castelnuovo Vomano (Teramo), Italy
Place of Manufacturer:	15,Julteo-gil, Yanggam-meon, Hwasung-si, Gyeonggi-do, Korea
Product description	Rubber Hose Assemblies
Type designation(s):	ALFAGOMMA ALFABIOTECH 3000 (DUNLOP HIFLEX POWERFLEXBIO 3000) ALFAGOMMA ALFABIOTECH 4000 (DUNLOP HIFLEX POWERFLEXBIO 4000) ALFAGOMMA ALFABIOTECH 5000 (DUNLOP HIFLEX POWERFLEXBIO 5000) ALFAGOMMA ALFABIOTECH 5000 PLUS (DUNLOP HIFLEX POWERFLEXBIO 5000 PLUS) ALFAGOMMA ALFABIOTECH 6000 (DUNLOP HIFLEX POWERFLEXBIO 6000)
Approval No.:	21FV402B
Valid until:	13 May 2026

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on **14 May 2021**.



T. Shimada
General Manager
Machinery Department

• Particulars and conditions :

Type	Dimension (inch)	Design Press. (bar)	Design Temp & Fluid (°C)
ALFAGOMMA ALFABIOTECH 3000 (DUNLOP HIFLEX POWERFLEXBIO 3000)	1 1/4"	210	Petroleum Based Fluid (-40 to 121) Water Based fluid (-40 to 70) Water and Air (0 to 70)
	1 1/2"		
	2"		
	3"		
ALFAGOMMA ALFABIOTECH 4000 (DUNLOP HIFLEX POWERFLEXBIO 4000)	3/4"	280	Petroleum Based Fluid (-40 to 121) Water Based fluid (-40 to 70) Water and Air (0 to 70)
	1"	280	
	1 1/4"	280	
	1 1/2"	290	
	2"	280	
ALFAGOMMA ALFABIOTECH 5000 (DUNLOP HIFLEX POWERFLEXBIO 5000)	5/8"	350	Petroleum Based Fluid (-40 to 121) Water Based fluid (-40 to 70) Water and Air (0 to 70)
	3/4"		
	1"		
	1 1/4"		
	1 1/2"		
	2"		
	2 1/2"		
	3"		
ALFAGOMMA ALFABIOTECH 5000 PLUS (DUNLOP HIFLEX POWERFLEXBIO 5000 PLUS)	3/4"	380	Petroleum Based Fluid (-40 to 121) Water Based fluid (-40 to 70) Water and Air (0 to 70)
	1"		
ALFAGOMMA ALFABIOTECH 6000 (DUNLOP HIFLEX POWERFLEXBIO 6000)	1/4"	450	Petroleum Based Fluid (-40 to 121) Water Based fluid (-40 to 70) Water and Air (0 to 70)
	3/8"	445	
	1/2"	420	
	5/8"		
	3/4"		
	1"		
	1 1/4"		
	1 1/2"		
	2"		

• Type approval tests

Pressure test, Burst test, Impulse test and Fire resistance test

• Documents:

- TECHNICAL INFORMATION ON THE PRODUCT ALFABIOTECH HOSE AND FITTING
- Product catalogue(ALFABIOTECH)
- Product catalogue(NEW EXTRA FLEXIBLE BIO OIL RESISTANT HOSE RANGE)
- ALFABIOTECH HOSE FAMILY MATERIAL LIST
- ALFAGOMMA Technical Data Sheet
- Ferrule (H1T00600-32, H1T00600-40, H1T00600-48, H1300NS4-12, H1300NS4-16, H1300NS4-20, H1300NS6-20, H1300NS6-24, H1300NS6-32, H1100404-04, H1100404-06, H1100404-08, H1100404-10, H1100404-12, H1100404-16, H1100404-20, H1100404-24, H1100404-32, H1400200-12, H1400200-16, H1400200-20, H1400200-24, H1400200-32, H1400301-10, H1400301-20, H1400301-24, H1400301-32, H1200204-10, H1200204-12, H1200204-16, H1200204-20, H1200204-32, H3100404-04, H3100404-06, H3100404-08, H3100404-16, H3400301-10, H3400200-12, H3400200-16, H3400301-20, H3400301-24, H3T00600-32, H3T00600-48)

Remark:

For the zincated plated H1XXXXXX-XX and for the stainless steel plate(AISI 316) H3XXXXXX-XX.

Both ferrule drawings are based on H0XXXXXX-XX.

- INSPECTION CERTIFICATE 3.2 (For Pressure test, Burst test)
- IMO recognized test Laboratory (For Fire resistance test)
- IMPULSE TEST REPORT

• Limitations :

- Threaded pipe joints for direct connections with pipes can be applied to pipes of a nominal diameter not exceeding 25A (Class I) and 50A (Class II and Class III).
- Threaded pipe joints cannot be applied for direct connections with pipes conveying flammable media (except for pipes with small diameter) and the ones for CO₂ systems.
- Only tapered threaded pipe joints can be applied for direct connections with pipes of Class I and Class II.
- Pipe flanges are to be in accordance with 12.4.3, Chapt.12, Part D of the Rules.
- Flexible hoses are not to be subjected to torsional deflection (twisting) under normal operating conditions.
- Flexible hoses are to be installed in clearly visible and readily accessible locations.
- Installation of the number of flexible hoses is to be kept to a minimum.
- Flexible hoses are to be limited to the necessary minimum length.
- The hose contact that could cause rubbing and abrasion is to be avoided.
- Flexible hoses are to be installed taking into account the allowable minimum bend radius.
- Where flexible hoses are intended to be used for flammable oil pipes which are in close proximity to heated surfaces, the risk of ignition due to failure of the hose assembly and subsequent release of fluids is to be mitigated by the use of screens or other similar protection.
- Flexible hoses are to be installed in accordance with the manufacturer's instruction.

• Test

The hoses used for piping belonging to Group I & II defined by the requirements 12.1.3, Chapt.12, Part D of the Rules are to be subjected to hydraulic test in the presence of the Society's surveyor in accordance with the requirements 12.6.1, Chapt.12, Part D of the Rules.

• Notice

Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -