



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): FLEXOR 1SN/AT HF/MT,DH122 GREENLINE PLUS/HI-TUFF FLEXOR 2SN/AT HF/MT,DH222 GREENLINE PLUS/HI-TUFF FXP2SC HF,DH SLIMLINE PLUS221T,221G FXP2 MT,DH SUPERSLIMLINE241T,241GHI-TUFF AT3K

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	24-2518109-PDA	08-OCT-2024	07-OCT-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 systems (mineral and vegetable oils, glycol based oils, water/oil emulsions and water, fuel and lube oils, compressed air, air with T max 70 deg. C)

Description

Oil-resistant synthetic rubber hoses reinforced with one or more high tensile steel braids or wires, covered with a synthetic rubber sheath

Models:

ALFAGOMMA FLEXOR 1SN/1AT HF, DUNLOP HIFLEX 122 GREENLINE PLUS

ALFAGOMMA FLEXOR 1SN/1AT MINETUFF, DUNLOP HIFLEX 122 GREENLINE PLUS HI-TUFF

ALFAGOMMA FLEXOR 2SN/2AT HF, DUNLOP HIFLEX 222 GREENLINE PLUS

ALFAGOMMA FLEXOR 2SN/2AT MINETUFF, DUNLOP HIFLEX 222 GREENLINE PLUS HI-TUFF

ALFAGOMMA FLEXOPAK 2SC HF, DUNLOP HIFLEX SLIMLINE PLUS 221T,221G

ALFAGOMMA FLEXOPAK 2 MINETUFF, DUNLOP HIFLEX SUPERSLIMLINE 241T, 241G HI-TUFF

ALFAGOMMA ALFATECH 3000

Ratings

Sizes from DN6 to DN76

Pressure from 40 bar to 420 bar

Temperature range -40°C to +100°C

Model 1SN MINETUFF can be used in CO2 systems at temperatures from -60°C to 100°C with AD1 couplings up to size 1"

For additional details refer to the attached Table of ratings

Service Restrictions

1) Unit Certification is not required for this product. If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

2) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

3) Hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

4) 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).

5) 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.

6) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.

7) Not to be used for installations where repeated and/or frequent flexing is expected.

8) 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 Vessels 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.

- FLEXOR and FLEXOPAK hoses can also be identified by Dunlop-Hiflex "D-H" marking, according to the attached table.

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes, Drawings and Documentation

Drawing No. "Dwgs hoses" booklet (1SN HF, 1SN MT, 2SN HF, 2SN MT, AT3K, Flexopack 2)

Drawing No. "Dwgs fittings" booklet (H0100SK1-16, H0200AD1-04, H0200AD2-08, H3100SK1-08, H3100404-04)

Test reports booklet (fire tests, impulse tests, pressure tests)

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 07/Oct/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, 1-1-4/7.7 & 1-1 Appendix 3 and 4

2024 Rules for Conditions of Classification - Mobile Offshore Units, 1-1-4/9.7 & 1-1 Appendix 2 and 3 (including Guide for Classification of Drilling Systems)

2024 Rules for Conditions of Classification - High-Speed Crafts 2021 1C-1-4/11.9, 1-1 Appendix 2 & 3

International Standards

EN853 Ed. 2015

EN856 Ed. 2015

EN857 Ed. 2015

SAE J517 Ed. 2017

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



A handwritten signature in blue ink, appearing to read 'Joseph W. ...', is written over the printed name and title.

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 15-Jan-2025 2:11

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.

DN			REF. STAND.	ALFAGOMMA REF.	TEMPER. RANGE	WORK. PRESS. [bar]	FITTINGS			
mm	Inch	Dash								
6	1/4	4	EN 853 TYPE 1SN - EXCEEDS SAE J517 100R1AT	ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	225	H1200AD1-04	-	-	
8	5/16	5		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	215	H1200AD1-05	-	-	
10	3/8	6		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	180	H1200AD1-06	-	-	
12	1/2	8		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	160	H1200AD1-08	-	-	
16	5/8	10		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	130	H1200AD1-10	-	-	
20	3/4	12		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	105	H1200AD1-12	-	-	
25	1	16		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	88	H1200AD1-16	-	-	
32	1 1/4	20		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	63	H1200AD1-20	-	-	
38	1 1/2	24		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	50	H1200AD1-24	-	-	
51	2	32		ALFAGOMMA 1SN/1AT <HF> 1SN MINETUFF DUNLOP HIFLEX 122 GREENLINE PLUS & HI-TUFF DUNLOP HIFLEX GREENLINE PLUS 122	-40°C/+100°C	40	H1200AD1-32	-	-	
6	1/4	4		EN 853 TYPE 2SN - EXCEEDS SAE J517 100R2AT	ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF	-40°C/+100°C	400	H1200AD2-04	H3100404-04	-
8	5/16	5			DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF	-40°C/+100°C	350	H1200AD2-05	H3100404-05	-
10	3/8	6	ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF		-40°C/+100°C	330	H1200AD2-06	H3100404-06	-	
12	1/2	8	DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF		-40°C/+100°C	275	H1200AD2-08	H3100404-08	-	
16	5/8	10	ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF		-40°C/+100°C	250	H1200AD2-10	H3100404-10	-	
20	3/4	12	DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF		-40°C/+100°C	215	H1200AD2-12	H3100404-12	-	
25	1	16	ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF		-40°C/+100°C	165	H1200AD2-16	H3100404-16	-	
32	1 1/4	20	DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF		-40°C/+100°C	125	H1200AD2-20	H3100404-20	-	
38	1 1/2	24	ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF		-40°C/+100°C	90	H1200AD2-24	H3100404-24	-	
51	2	32	DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF ALFAGOMMA 2SN/2AT <HF> 2SN MINETUFF DUNLOP HIFLEX 222 GREENLINE PLUS & HI-TUFF		-40°C/+100°C	80	H1200AD2-32	H3100404-32	-	
6	1/4	4	EN 857 TYPE 1SC (up to 3/8") SAE 100 R17		ALFATECH 3000	-40°C/+100°C	225	H1200AD1-04	-	-
8	5/16	5			ALFATECH 3000	-40°C/+100°C	215	H1200AD1-05	-	-
10	3/8	6		ALFATECH 3000	-40°C/+100°C	210	H1200AD1-06	-	-	
6	1/4	4	EXCEEDS SAE 100 R16 EN 857 TYPE 2SC	FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	420	H1100SK1-04	H1200AD1-04	-	
8	5/16	5		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	375	H1100SK1-05	H1200AD1-05	-	
10	3/8	6		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	350	H1100SK1-06	H1200AD1-06	-	
12	1/2	8		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	310	H1100SK1-08	H1200AD1-08	H3100SK1-08	
16	5/8	10		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	280	H1100SK1-10	H1200AD1-10	-	
20	3/4	12		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	240	H1100SK1-12	H1200AD1-12	-	
25	1	16		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	210	H1100SK1-16	H1200AD1-16	H3100SK1-16	
32	1 1/4	20		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	140	-	H1200AD1-20	-	
38	1 1/2	24		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	125	-	H1200AD1-24	-	
51	2	32		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	100	-	H1200AD1- 32	-	
63	2 1/2	40		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	75	-	H1200AD1- 40	-	
76	3	48		FLEXOPAK 2 DUNLOP HIFLEX 241	-40°C/+100°C	70	-	H1200AD1-48	-	