



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 20/OCT/2020 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): FLEXOR 1ST, 1SN, 1SN/1AT-HF, 1SN MINETUFF, 2ST, 2SN, 2SN/2AT-HF, 2SN MINETUFF, 4SP, 4SH, R12, R13; FLEXOPAK 16, 2SC, 2SC HF; ALFATECH 3000; 1SN-HT; 2SN-HT; DUNLOP HIFLEX SP 33 SERIES (3SP); DUNLOP HIFLEX 241

Presented to:

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

Intended Service:

Hydraulic systems (mineral and vegetable oils, glycol based oils, water/oil emulsions and water), fuel and lube oils, compressed air, air (T max 70 degC)

Description:

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

Ratings:

See attachment.

Service Restrictions:

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. 1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 2) Hoses are to be complete 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 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) Models FLEXOR 1SN/1AT-HF and 1SN MINETUFF have also been tested at low temperature (-60°C) in accordance with AG Specification SWS Cold Burst Test 1/Q/IC/27/00 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 Steel 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. 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 / Documentation:

Drawing No. 1, DNV GL TAC P-14895 SP33 Series, Revision: 0, Pages: 1 Drawing No. 10, Data Sheet 241T, Revision: 0, Pages: 1 Drawing No. 11, Data Sheet SP33 Series, Revision: 0, Pages: 1 Drawing No. 12, Witnessed Burst Test Hoses, Revision: 0, Pages: 1 Drawing No. 13, CO2 Cold burst test witnessed_1SN HF, Revision: 0, Pages: 1 Drawing No. 14, CO2 Cold burst test witnessed_1SN MINETUFF, Revision: 0, Pages: 1 Drawing No. 15, Type Approval Request Extension, Revision: 0, Pages: 1 Drawing No. 16, Impulse TEst Report 1SN MINETUFF, Revision: 0, Pages: 1 Drawing No. 17, Impulse Test Report 2SN Minetuff, Revision: 0, Pages: 1 Drawing No. 18, Impulse Test Report 241T-241G, Revision: 0, Pages: 1 Drawing No. 19, Impulse Test Report SP33, Revision: 0, Pages: 1 Drawing No. 2, DNV GL TAC P-14943 braided hoses, Revision: 0, Pages: 1 Drawing No. 20, Impulse Test Report R13 dn 63, Revision: 0, Pages: 1 Drawing No. 3, DNV GL TAC P-14949 spiralled hoses, Revision: 0, Pages: 1 Drawing No. 4, DNV GL DRAFT TAC 1SN-2SN HF&MINETUFF, Revision: 0, Pages: 1 Drawing No. 5, TypeAppAsbestos, Revision: 0, Pages: 1 Drawing No. 6, Fitting Table, Revision: 0, Pages: 1 Drawing No. 7, FIRE TEST ISO 15540, Revision: 0, Pages: 1 Drawing No. 8, Data Sheet 1SN MINETUFF, Revision: 0, Pages: 1 Drawing No. 9, Data Sheet 2SN MINETUFF, Revision: 0, Pages: 1

Term of Validity:

This Product Design Assessment (PDA) Certificate 15-GE1436481-1-PDA, dated 28/Oct/2015 remains valid until 20/Oct/2020 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.

ABS Rules:

2015 Rules for Conditions of Classification – Offshore Units and Structures 1-1-4/9.7, 1-1 Appendix 2 and 3 2015 Mobile Offshore Drilling Unit Rules 1-1-4/9.7, 1-1 Appendix 2 and 3, 4-2-1/11.29 2015 Rules for Conditions of Classification, 1-1-4/7.7, 1-1 Appendix 3 and 4 2015 Steel Vessel Rules 4-6-2/5.7, 4-6-7/3.5.2 2015 Steel Vessel Rules Under 90 Meters 4-4-1/9.19 2015 Offshore Supply Vessel Rules 4-6-2/5.7 2015 High Speed Craft Rules 1-1-4/11.9, 1-1-Appendix 2, and 3, 4-4-1/9.19 2015 Motor Pleasure Yacht Guide 4-4-1/9.19

National Standards:**International Standards:**

EN853 Ed. 2015 (FLEXOR 1SN, 1SN/1AT-HF, 1 MINETUFF, 1ST, 2SN, 2SN/2AT-HF, 2 MINETUFF, 2ST; 1SN-HT; 2SN-HT); EN856 Ed. 2015 (4SP, 4SH, R12, R13); EN 857 Ed. 2015 (FLEXOPAK 2SC, 2SCHF, FLEXOPAK 2, DH 241, ALFATECH 3000 UP TO3/8"); SAE J517 Ed. 2013 (FLEXOR 1SN, 1SN/1AT-HF, 1 SN MINETUFF, 1FLEXOR 2S, 2SN/2AT-HF, 2 SN MINETUFF, FLEXOPAK 2, FLEXOPAK 2SC, 2SCHF, DH241, FLEXOR 12, 13; FLEXOPAK 16; ALFATECH 3000)

Government Authority:**EUMED:****Others:**

AG Specification SWS Cold Burst Test 1/Q/IC/27/00 (FLEXOR 1SN/1AT-HF only) Ed. 2014

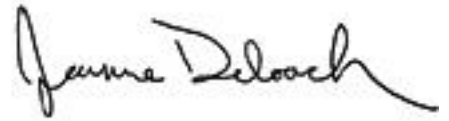
Model Certificate**Model Certificate No****Issue Date****Expiry Date**

PDA

15-GE1436481-1-PDA

06/NOV/2015

20/OCT/2020



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.