



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 17/AUG/2021. 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 26/OCT/2021 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: Flexible Hose
Model Name(s): R2K, 4ST, 4ST+ & 6ST

Presented to:
INTERTRACO (ITALIA) S.P.A.
VIA E. AMALDI, 1/A-B
Italy

Intended Service:	Hydraulic Oils, both Mineral and Biological, Polyglycol Base Oils, Water-Oil Emulsion and Water
Description:	R2K: Synthetic rubber tube with two high tensile steel wire braids covered with MSHA flame retardant rubber. 4ST: Synthetic rubber tube with four high tensile steel wire spirals covered with MSHA flame retardant and abrasion resistant rubber. 4ST+ & 6ST: Synthetic rubber tube with four/six high tensile steel wire spirals covered with MSHA flame retardant and abrasion resistant rubber.
Ratings:	R2K: from DN 06 to DN 25, pressure from 420 bar to 210 bar. 4ST: from DN 16 to DN 51, pressure from 350 bar to 250 bar. 4ST+ & 6ST: from DN10 to DN 51, pressure 420 bar. For additional details see attached table.
Service Restrictions:	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. 1) Hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications. 2) 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). 3) 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. 4) Not to be used in high pressure fuel oil injection systems, steam systems or oil

supply lines to boilers. 5) Not to be used for installations where repeated and/or frequent flexing is expected. 6) 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:

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

Notes / Documentation:

Drawing No. ANNEX - TYPE APPROVAL LIST_30, ANNEX - TYPE APPROVAL LIST, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST - HOSE REPORT, BRIDGESTONE 4ST - HOSE REPORT, dated 27 February 2014 Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST - IMPULSE TEST REPORT - REVIEWED, BRIDGESTONE 4ST - IMPULSE TEST REPORT - REVIEWED, dated 14 November 2013, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST - STATIC TESTS - WITNESSED, BRIDGESTONE 4ST - STATIC TESTS - WITNESSED, dated 27 February 2014 Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST+ & 6ST - HOSE REPORT, BRIDGESTONE 4ST+ & 6ST - HOSE REPORT, dated 27 February 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST+ & 6ST - IMPULSE TEST REPORT - REVIEWED, BRIDGESTONE 4ST+ & 6ST - IMPULSE TEST REPORT - REVIEWED, dated 26 February 2014 Revision: 0, Pages: 1 Drawing No. BRIDGESTONE 4ST+ & 6ST - STATIC TESTS - WITNESSED, BRIDGESTONE 4ST+ & 6ST - STATIC TESTS - WITNESSED, dated 27 February 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE R2K - HOSE REPORT, BRIDGESTONE R2K - HOSE REPORT dated 27 February 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE R2K - IMPULSE TEST REPORT - REVIEWED, BRIDGESTONE R2K - IMPULSE TEST REPORT - REVIEWED, dated 26 February 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE R2K - STATIC TESTS - WITNESSED, BRIDGESTONE R2K - STATIC TESTS - WITNESSED dated 27 February 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE_4ST+ & 6ST_CERTIFICATE NO 0987_MED-B_494, BRIDGESTONE_4ST+ & 6ST_CERTIFICATE NO 0987_MED-B_494 dated 05 March 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE_4ST+ 06_CERTIFICATE NO 0987_MED-B_530, BRIDGESTONE_4ST+ 06_CERTIFICATE NO 0987_MED-B_530 dated 05 March 2014, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE_4ST+ 20_CERTIFICATE NO 0987_MED-B_531, BRIDGESTONE_4ST+ 20_CERTIFICATE NO 0987_MED-B_531 dated 30 May 2013, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE_4ST_CERTIFICATE NO 0987_MED-B_493, BRIDGESTONE_4ST_CERTIFICATE NO 0987_MED-B_493 dated 29 May 2013, Revision: 0, Pages: 1 Drawing No. BRIDGESTONE_R2K_CERTIFICATE NO 0987_MED-B_529, BRIDGESTONE_R2K_CERTIFICATE NO 0987_MED-B_529 dated 05 March 2014, Revision: 0, Pages: 1 Drawing No. DATA SHEET BS 4ST+ & 6ST_17.02.2014, HOSE DATA SHEET 4ST+ & 6ST, Revision: 0, Pages: 1 Drawing No. DATA SHEET BS 4ST_31.05.2012, HOSE DATA SHEET 4ST, Revision: 0, Pages: 1 Drawing No. DATA SHEET BS R2K_04.11.2013, HOSE DATA SHEET R2K, Revision: 0, Pages: 1 Drawing No. D14-023_4ST10, Dynamic test D14-023_4ST10 dated 05 June 2016, Revision: 0, Pages: 1 Drawing No. D14-034_4ST16, Dynamic test D14-034_4ST16 dated 27 June 2016, Revision: 0, Pages: 1 Drawing No. D14-157_R2K08, Dynamic test D14-157_R2K08 dated 18 November 2014, Revision: 0, Pages: 1 Drawing No. D14-158_R2K16, Dynamic test D14-158_R2K16 dated 18 November 2014, Revision: 0, Pages: 1 Drawing No. D14-191_R2K04, Dynamic test D14-191_R2K04 dated 08 January 2015, Revision: 0, Pages: 1 Drawing No. D14-218_6ST32_1, Dynamic test D14-218_6ST32_1 dated 16 February 2015, Revision: 0, Pages: 1 Drawing No. D14-218_6ST32_2, Dynamic test D14-218_6ST32_2 dated 06 March 2015, Revision: 0, Pages: 1 Drawing No. D15-183_4ST+06, Dynamic test D15-183_4ST+06 dated 22 October 2015, Revision: 0, Pages: 1 Drawing No. D16-004_4ST32_1, Dynamic test D16-004_4ST32_1 dated 16 February 2016, Revision: 0, Pages: 1 Drawing No. D16-004_4ST32_2, Dynamic test D16-004_4ST32_2 dated 03 March 2016, Revision: 0, Pages: 1 Drawing No. S14-369_4ST10, Static test S14-369_4ST10 dated 18 November 2014, Revision: 0, Pages: 1 Drawing No. S15-128_R2K04, Static test S15-128_R2K04 dated 12 March 2015, Revision: 0, Pages: 1 Drawing No. S15-134_4ST+20, Static test S15-134_4ST+20 dated 12 March 2015, Revision: 0, Pages: 1 Drawing No. S15-137_6ST20, Static test S15-137_6ST20

dated 28 April 2015, Revision: 0, Pages: 1 Drawing No. S15-240_R2K08, Static test S15-240_R2K08 dated 04 may 2015, Revision: 0, Pages: 1 Drawing No. S15-304_4ST32, Static test S15-304_4ST32 dated 26 August 2015, Revision: 0, Pages: 1 Drawing No. S15-306_4ST+10, Static test S15-306_4ST+10 dated 26 August 2015, Revision: 0, Pages: 1 Drawing No. S15-307_4ST+12, Static test S15-307_4ST+12 dated 24 July 2015, Revision: 0, Pages: 1 Drawing No. S15-312_6ST32, Static test S15-312_6ST32 dated 22 December 2015, Revision: 0, Pages: 1 Drawing No. S15-316_R2K10, Static test S15-316_R2K10 dated 26 August 2015, Revision: 0, Pages: 1 Drawing No. S15-318_R2K16, Static test S15-318_R2K16 dated 06 August 2015, Revision: 0, Pages: 1 Drawing No. S15-384_4ST+06, Static test S15-384_4ST+06 dated 04 September 2015, Revision: 0, Pages: 1 Drawing No. S16-344_4ST16, Static test S16-344_4ST16 dated 19 September 2016, Revision: 0, Pages: 1 Drawing No. S16-345_4ST20, Static test S16-345_4ST20 dated 19 September 2016, Revision: 0, Pages: 1

Term of Validity:

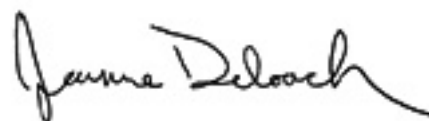
This Product Design Assessment (PDA) Certificate 16-GE1541486-1-PDA, dated 02/Nov/2016 remains valid until 26/Oct/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or 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:

2016 Rules for Condition of Classification - Offshore Units and Structures 1-1-4/9.7, 1-1-Appendix 2 and 3 which covers the following: 2016 Mobile Offshore Drilling Unit Rules 4-2-1/11.29 2016 Rules for condition of Classification, 1-1-4/7.7, 1-1-Appendix 3 and 4, which covers the following: 2016 Steel Vessel Rules 4-6-2/5.7 2016 Steel Vessel Rules Under 90 Meters 4-4-1/9.19 2016 Offshore Supply Vessel Rules 4-6-2/5.7 2014 (Up-dated Jan 2016) Guide for Building and Classing Yachts 4-1-1/3.3, 4-4-1/9.19 2016 High Speed Craft Rules 1-1-4/11.9, 1-1-Appendix 2 and 3, 4-4-1/9.19

- National Standards:**
- International Standards:**
- Government Authority:**
- EUMED:**
- Others:**

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-GE1541486-1-PDA	02/NOV/2016	26/OCT/2021



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.