



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 13-DEC-2023. 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 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): BT1, D2B, DF1D , DK1D , DK1S, DF2D, DK2D, DK2S, H12D, H12S, H13D, H3000D, H4000D, H5000D, H6000D, H3000S, H4000S, H5000C, H5000S, H6000S, M2, R4SHD, R4SPD, RQP1, RQP2, RQP5, RTH1, SR, SRF, SRX, TXA2D, T1D, T1F, T1S, T2C, T2D, T2S, T5, T3000D, T4000D, T5000D, T6000D, T3000S, T3600C, T3600D, T3600S, T4000S, T5000S and T6000S

Presented to:

RYCO HYDRAULICS PTY LTD
19 WHITEHALL STREET
3011
Australia

| | |
|------------------------------|---|
| Intended Service: | For use on ships and offshore installations, as short lengths in fresh water, seawater, hydraulic, pneumatic, fuel oil and lube oil systems. |
| Description: | See attached document. |
| Tier: | 3 |
| Ratings: | See attached document. |
| Service Restrictions: | 1. 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. 2. Flexible hoses are not acceptable in high pressure fuel oil injection systems. See 4-6-2/5.7.2 of the ABS Steel Vessels Rules. |
| Comments: | 1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 2. The flexible hoses are to be installed in accordance with the manufacturer's procedures and are to be permanently marked by the |

manufacturer in accordance to 4-6-2/5.7.6 of ABS Steel Vessels Rules. 3. Rubber hoses intended for use in bilge, ballast, compressed air, oil fuel, lubricating, hydraulic and thermal oil systems are to incorporate a single or double closely woven integral wire braid or other suitable material reinforcement. Rubber hoses intended for use in oil supply lines to burners, the hoses are to have external wire braid protection in addition to the integral reinforcement. See 4-6-2/5.7.3 of ABS Steel Vessels Rules 4. The use of hose clamps and similar types of end attachments is not acceptable for flexible hoses in piping systems for steam, flammable media, starting air or for sea water where failure may result in flooding. In other piping systems, the use of hose clamps may be accepted where the working pressure is less than 5 bar (5.1 kgf/cm², 72.5 psi) and provided there are at least two stainless steel hose clamps at each end connection. The hose clamps are to be at least 12 mm (0.5 in.) wide and are not to be dependent upon spring tension to remain fastened. See 4-6-2/5.7.3 (b) 4-6-4/13.7 and 4-6-4/15.5.1 of ABS Steel Vessels Rules.

Notes / Documentation:

Drawing No. Datasheet, Ryco Flexible Hose, Revision: -, Pages: 49 Drawing No. Burst Test Reports, Ryco Burst Test Reports, Revision: -, Pages: 9 Drawing No. Fire Test Reports - 2005, Ryco Fire Test Reports, Revision: -, Pages: 22 Drawing No. Fire Test Reports - 2006, Ryco Fire Test Reports, Revision: -, Pages: 8 Drawing No. Fire Test Reports - 2012, Ryco Fire Test Reports, Revision: -, Pages: 19 Drawing No. Fire Test Reports - 2013, Ryco Fire Test Reports, Revision: -, Pages: 21 Drawing No. Fire Test Reports - 2014, Ryco Fire Test Reports, Revision: -, Pages: 1 Drawing No. Fire Test Reports - 2016, Ryco Fire Test Reports, Revision: -, Pages: 7 Drawing No. Fire Test Reports - 2017, Ryco Fire Test Reports, Revision: -, Pages: 33 Drawing No. Fire Test Reports - 2018, Ryco Fire Test Reports, Revision: -, Pages: 12 Drawing No. Impulse Test Reports, Ryco Impulse Test Reports, Revision: -, Pages: 54 Drawing No. Burst and Impulse Test Reports, Ryco Burst and Impulse Test Reports, Revision: -, Pages: 34 See pages 50 to 53 of the attachment for the Ryco test report number and date.

Term of Validity:

This Product Design Assessment (PDA) Certificate 18-SG1802656-PDA, dated 14/Dec/2018 remains valid until 13/Dec/2023 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:

ABS Rules for Conditions of Classification (2018) 1-1-4/7.7, 1-1-A3 and A4, which covers the following: 2018 Rules for Building and Classing Steel Vessels 4-6-2/5.5, 4-6-2/5.7, 4-6-2/7.3, 4-6-2/Table 6, 4-6-2/Table 7, 4-6-4/Table 4, 4-6-5/Table 3, 4-6-5/Table 5, 4-6-6/Table 7, 4-6-7/Table 1 and 4-6-7/3.5.2 2018 Rules for Building and Classing Steel Vessels Under 90 Meters (295 feet) in Length 4-4-1/9.19 2018 Rules for Building and Classing Offshore Support Vessels 4-6-2/5.7 2018 Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways 4-3-1/7.21 ABS Rules for Conditions of Classification - High Speed Crafts (2018) 1-1-4/11.9, 1-1-A2 and A3 which covers the following: 2018 Rules for Building and Classing High-Speed Crafts 4-4-1/9.19

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

| Model Certificate | Model Certificate No | Issue Date | Expiry Date |
|-------------------|----------------------|-------------|-------------|
| PDA | 18-SG1802656-PDA | 17-DEC-2018 | 13-DEC-2023 |



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.