



Confirmation of Product Type Approval 16/SEP/2009

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This is to certify that, 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 28/JAN/2014. 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 01/SEP/2014 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.

RYCO HYDRAULICS PTY LTD Model Name(s): Avenger H13A Diehard H13D

Presented to:

RYCO HYDRAULICS PTY LTD
19 WHITEHALL STREET
FOOTSCRAY
Australia

Intended Service:

For use on ships and offshore installations Classed with American Bureau of Shipping, as short lengths in fresh water, seawater, hydraulic, pneumatic, fuel oil and lube oil systems.

Description:

Flexible hoses of non-metallic material with permanently fitted couplings.

Ratings:

Nominal Sizes: ¾ inch to 2 inch [see Service Restrictions] Maximum Working Pressure: 5100 psi (see Service Restrictions) Service Temperature: -40 deg. F to +250 deg. F (see Service Restrictions) Coupling Material: Carbon Steel AISI / SAE 12L14, Electroplated Fe / Zn12c per AS1789.

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. >> AVENGER H13A Temperature Range -40 deg. F to +250 deg. F Maximum Working Pressure AVENGER H13A NB (inch) Max. Pressure (psi) H1312A ¾ 5100 H1316A 1 5100 H1320A 1 ¼ 5100 H1324A 1 ½ 5100 H1332A 2 5100 DIEHARD H13D Temperature Range -40 deg. F to +250 deg. F Maximum Working Pressure DIEHARD H13D NB (inch) Max. Pressure (psi) H1312D ¾ 5100 H1316D 1 5100 H1320D 1 ¼ 5100 H1324D 1 ½ 5100 H1332D 2 5100

Comments:

The hoses are to be installed in accordance with the manufacturer's procedures and tested to the satisfaction of the attending Surveyor. Carbon steel couplings are to be normalized for temperatures below +140F. To prevent danger of flooding due to failure of the hoses, the hoses in seawater systems are to be enclosed. In case of continuous operation at temperatures higher than 212F, more frequent

inspections and changes may be necessary. Synthetic rubber hoses used for oil fuel supply to burners are to be provided with external wire braid protection. Hose clamps are not permitted except for cooling water systems for engines with a cylinder bore not exceeding 11.8 inches (300 mm).

Notes / Documentation:

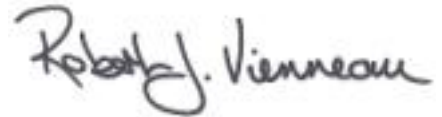
This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

Term of Validity:

This product/model is covered under Product Design Assessment (PDA) Certificate # 04-SG416942/1-PDA, dated 02/Sep/2009. This PDA Certificate expires 01/Sep/2014. It will remain valid for 5 years from date of issue or until the Rules or specifications used in the assessment are revised (whichever occurs first). It is valid for all vessels contracted on or before the date of the Rules used in this evaluation.

ABS Rules:

2009 Steel Vessels Rules 4-6-2 / 5.7 2008 MODU Rules 4-2-1 / 9.25

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


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.