



## ***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 25/JAN/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 13/JAN/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 Metal Hose Assemblies**  
**Model Name(s): Annuflex, Masterflex, Pressuremax, ChemKing**

**Presented to:**  
HOSE MASTER  
5250 FULTON INDUSTRIAL BOULEVARD SOUTHWEST  
United States

<b>Intended Service:</b>	Marine and Offshore Applications
<b>Description:</b>	Flexible Metal Hose Assemblies
<b>Tier:</b>	3
<b>Ratings:</b>	See the attached "pdf" for Annuflex, MasterFlex, PressureMax & ChemKing Hose Maximum Pressure Ratings, Size, etc.
<b>Service Restrictions:</b>	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) The hoses are to be complete with factory assembled end fittings or factory supplied ends made of steel only and installed in accordance with manufacturer's procedures; 2) The type of end connections utilized (e.g. threaded, flanged, etc.) are to comply with the applicable requirements and limitations in the Rules; 3) Hose assemblies are to be installed only when flexibility is required and are not to be subject to torsional deflection under normal conditions. In addition, the length of the hose is to be limited to that required for flexibility only
<b>Comments:</b>	Duplicate PDA resides with Hose Master LLC - Atlanta, Sparks (Reno) and Houston
<b>Notes / Documentation:</b>	Annuflex Catalog Sheets, Rev. 2 Chemking Catalog Sheets, Rev. 2 Fittings Catalog Sheets, Masterflex Catalog Sheets; Pressuremax Catalog Sheets Burst and Deformation Testing dated 5 November 2008; Assembly Prep for Testing

dated 27 May 2005; Recording and Generating Pressure Test Analysis Results dated 19 December 2006; Analysis of Burst Deformation Chart dated 27 May 2005;

**Term of Validity:**

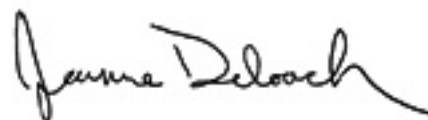
This Product Design Assessment (PDA) Certificate 15-HS1456131-PDA-DUP, dated 14/Jan/2016 remains valid until 13/Jan/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU 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:**

Rules for Conditions of Classification, Part 1 2016 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following: Steel Vessel Rules (2016): 4-6-2/5.7, Steel Vessels Under 90 Meters (295 feet) in Length Rules (2016): 4-4-1/9.19 Offshore Support Vessels (OSV Rules)(2016): 4-6-2/5.7 Mobile Offshore Drilling Unit Rules (2016): 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-1/11.29

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

<b>Model Certificate</b>	<b>Model Certificate No</b>	<b>Issue Date</b>	<b>Expiry Date</b>
PDA-DUP	15-HS1456131-PDA-DUP	14/JAN/2016	13/JAN/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.