



CERTIFICATE NUMBER
17-HS1613693-PDA

DATE
28 Jun 2017

ABS TECHNICAL OFFICE
Houston ESD - Electrical

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

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assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Ballast Water Analyzer**

Model: **Model 9017**

This Product Design Assessment (PDA) Certificate 17-HS1613693-PDA, dated 28/Jun/2017 remains valid until 27/Jun/2022 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.

AMERICAN BUREAU OF SHIPPING

Tim Kimble
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

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Tier: 2 - PDA Issued

Product: Ballast Water Analyzer

Model: Model 9017

Intended Service:

Marine and Offshore Application

Description:

Model 9017 Marine Ballast Water Analyzer provides continuous monitoring of free or total chlorine and the residual oxidant.

Rating:

Range: 0.1 to 15 ppm Total Cl;

Resolution: 0.05 ppm;

Input Pressure: 1-5 psig;

Standard Outputs: 4 - 20 mA and RS-485 Modbus (RTU or ASCII)

Power: 115-230 V AC, 50-60 Hz, 125 W

Measuring Interval: 2-60 minutes;

Operating Temperature: 5 °C - 55 °C (41 °F to 131 °F)

Enclosure: IP54;

Service Restriction:

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.

System is not suitable for use in Potentially Explosive Atmospheres.

Comments:

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

For installation on Oil/Chemical tankers, requirements of August 2016 (Up-dated February 2017) ABS Guide for Ballast Water Treatment/Appendix 1 are to be applied.

Notes/Drawing/Documentation:

Drawing No. 02 WPX1, Compact High-Performance Peristaltic Pump, Revision: -, Pages: -

Drawing No. 147901, Tubing-PTFE_Material_Properties -ZEUS, Revision: -, Pages: -

Drawing No. 17749, Combined Dolphin OI Analytical ENV and EMC Testing Report_FINAL, Revision: -, Pages: -

Drawing No. 17749-20-R1 EN 61010-1j, Final Report, Revision: -, Pages: -

Drawing No. 296012, Filter is 1.80 Long, Revision: -, Pages: -

Drawing No. 317545, P-300N Flangeless Ferrule Tefzel (ETFE), Revision: -, Pages: -

Drawing No. 319339_Frle-TFZL, P-200-Flangeless Ferrule Tefzel, Revision: -, Pages: -

Drawing No. 319345 Ftng-Nut PEEK, P-330B-Flangeless Nut Peek 1/4-28 Flat Bottom, Revision: -, Pages: -

Drawing No. 322156_SS-400-11-4, Stainless Steel Swagelok Tube Fitting Bulkhead Male Connector, Revision: -, Pages: -

Drawing No. 322446 Ftng-Nut, P-230-Flangeless Nut Peek 1/4-28 Flat Bottom, Revision: -, Pages: -

Drawing No. 326731 Ftng-Adptr, P-647-Adapter Barbed to Threaded Male for use with Soft-Walled Tubing Each, Revision: -, Pages: -

Drawing No. 327289-MS-STR-8, PTFE Tape Thread Sealant, 1/2 x 288 in, Revision: -, Pages: -

Drawing No. 329848-SS-200-1-4BT, Stainless Steel Swagelok Tube Fitting Bored-Through Male Connector Specifications, Revision: -, Pages: -

Drawing No. 330418-SCH, TRO Analyzer, Revision: A, Pages: 1

Drawing No. 330567, Assy-9017 Fill & Spill, Revision: 4, Pages: 1

Drawing No. 330567_BOM_Vendor Specs, Outsourced BOM, Revision: 1, Pages: 1

Drawing No. 330571, Regulator ES-P60, Revision: -, Pages: -

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Drawing No. 330651, Analytical Plate-9017 TRO, Revision: 4, Pages: 1
Drawing No. 330653, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330655, Assy-Inner Subplate TRO, Revision: 3, Pages: 1
Drawing No. 330774, Ftnng Plug, HDPE XT10B, Revision: -, Pages: -
Drawing No. 330775-SS-4-HN, Stainless Steel Pipe Fitting, Hex Nipple, 1/4 in. Male NPT, Revision: -, Pages: -
Drawing No. 330827, Module-9017 TRO Assy, Revision: 3, Pages: 1
Drawing No. 330827-P1, Diagram-Plumbing 6017 TRO, Revision: -, Pages: -
Drawing No. 330827-W1, Wiring Diagram 9017 R3, Revision: 4, Pages: 1
Drawing No. 330828, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330829, Assy-9017 Reagent Cooling, Revision: 2, Pages: 1
Drawing No. 330834, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330837, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330842, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330858, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330871, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330872, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330875, Fan Assy-9017 Internal, Revision: -, Pages: -
Drawing No. 330877, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330879, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330890, Tube-9017 Reagent Pump, Revision: 7, Pages: 1
Drawing No. 330890_BOM_Vendor Specs, Outsourced BOM, Revision: -, Pages: -
Drawing No. 330891, 1576-PEEK Tubing Red 1/32 OD x .005 ID x 5ft, Revision: -, Pages: -
Drawing No. 330892, F-247-Nano Tight Sleeve Green 1/16 OD x .033 ID x 1.6, Revision: -, Pages: -
Drawing No. 331026, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331027, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331038_Pharmed, Saint-Gobain Pharmed Biocompatible Tubing for Peristaltic Pumps and Cell Culture, Revision: -, Pages: -
Drawing No. 331115, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331115, Outsourced BOM, Revision: 1, Pages: -
Drawing No. 331115_BOM_Vendor Specs, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331116, Assy-9017 Flowcell Untested, Revision: 02, Pages: 1
Drawing No. 331117, Assy-9017 Flowcell Tested, Revision: 02, Pages: 1
Drawing No. 331124, Assy-9017 Sample Filter, Revision: -, Pages: -
Drawing No. 331124_BOM_Vendor Specs, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331407, Assy-9017 Drain Tubing, Revision: -, Pages: -
Drawing No. 331407_BOM_Vendor Specs, Outsourced BOM, Revision: -, Pages: -
Drawing No. 331425 Tubing-PHARMED BPT, Masterflex SC0339 PharMed BPT extension tubing, 0.51mm ID, 100ft, Revision: -, Pages: -
Drawing No. 400-0004-TAB, Washer Flat Polypropylene, Revision: H, Pages: 1
Drawing No. 620-0005-TAB, Tubing Plastic Liquid Flow Teflon (FEP), Revision: H1, Pages: 1
Drawing No. 9017_spec_43581216, 9017_spec_43581216, Revision: -, Pages: -
Drawing No. Barbed adapters, Three Barb Sizes, for 1/16, Revision: -, Pages: -
Drawing No. BoM Rev 4, TRO Order, Revision: 4, Pages: 1
Drawing No. Chemours_Teflon_FEP, Teflon FEP 100 Production Information, Revision: -, Pages: -
Drawing No. Correspondence, PO_77187, Revision: -, Pages: -
Drawing No. Correspondence, Request-Type-Approval-ABS_OICO_signed, Revision: -, Pages: -
Drawing No. DB200-13201-01, FTG, CNS Ultra, 1/4-28, .077BR Peek, Natural, Revision: -, Pages: -
Drawing No. DB200-14024, FEP Mixing Coil, Revision: A, Pages: 1
Drawing No. DG Pump RoHS, SGS Verification Report Peristaltic Pump Head, Revision: -, Pages: -
Drawing No. HS3062343, OI Analytical Survey Report for E10 Witnessing, Revision: -, Pages: 1
Drawing No. ISO 9001 2008 Registration Certificate 2014-2017, ISO 9001 2008 Registration Certificate 2014-2017, Revision: -, Pages: -

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Drawing No. Natural PEEK, Quadrant EPP Ketron 1000 PEEK, Extruded Unfilled Polyetherether Ketone (ASTM Product Data Sheet), Revision: -, Pages: -
Drawing No. PP1024E4, ExxonMobil Polypropylene Homopolymer, Revision: -, Pages: -
Drawing No. Phthalate-Free_TBL, Clear Green Phthalate-Free Vinyl Tubing, Revision: -, Pages: -
Drawing No. SS-200-1-4BT, Stainless Steel Swagelok Tube Fitting Bored-Through Male Connect, Revision: -, Pages: -
Drawing No. SS-4-HN, Stainless Steel Pipe Fitting Hex Nipple 1/4 in Male NPT, Revision: -, Pages: -
Drawing No. SS-400-11-4, Stainless Steel Swagelok Tube Fitting Bulkhead Male Connector, Revision: -, Pages: -
Drawing No. T-200-Set, PTFE Ferrule Set, Revision: -, Pages: -
Drawing No. communication guide, Appendix C Programming Guide, Revision: -, Pages: -
Drawing No. pvc_medical_6, PVC Transmission Tubing, Revision: -, Pages: -
Drawing No. tefzel-etfe-200-product-information, Tefzel ETFE 200 Fluoroplastic Resin, Revision: -, Pages: -
Drawing No. P-647, Rev: C, Adapt Body 1/8M Bartz 1/4-28M
Drawing No. X-6810, Rev: 1, Labpor Porous Products
Request for SDS, SDS Memo_Interstate_6810_030817
Longer_ISO9001, QAIC Certificate of Registration
317545 Frle-TFZL Upchurch P-300N, P-300N - Flangeless Ferrule Tefzel
112383 Frle-TFE T-200-Set, T-200-SET
Drawing No. 324084, FTNG-NUT CPVC 1/4-28 x 1/8
Drawing No. 329848, Straights
330565, Manifold-9017 Fill & Spill
HDPE_UHMW, Typical Properties of Polyethylene
ES-P60, Series P60-M1 Miniature Plastic Water Pressure Regulators
is 15225 2002, Disclosure to Promote the Right to Information
NorylGFN3DataSheet, Noryl GFN3 Material Data Sheet
Noryl- Noryl PPO Modified Polyphenylene Oxide
Noryl Stress and Strain - Tensile Stress and Strain
OI Analytical~HS3062343, OI Analytical Prototype Testing
PVC_cpvc_physical_properties_and_astm_specifications_for_piping- Physical Properties of PVC and CPVC
PTFE Specifications_AETNA, Dupont Teflon PTFE Specifications
psg_teflon_ptfe, WS Hampshire Inc Teflon
Print # 6810, LABPOR Porous Products X-6810
web-noryl, Noryl PPO+PS Thermoplastic resin
OI Analytical-Environmental and Electromagnetic Compatibility test report- Submittal Letter by Lab-Professional Testing (EMI), Inc.
SDS Memo_Interstate_6810_030817- Porex Part 6810

Terms of Validity:

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STANDARDS**ABS Rules:**

Rules for Conditions of Classification, Part 1 - 2017 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

Steel Vessels (2017): 4-6-3, 4-8-3/Table 2, 4-9-8/13, 4-9-8/Table 1

Steel Vessels Under 90 Meters (295 feet) in Length (2017): 4-4-2/7, 4-6-3/Table 1, 4-7-2/Table 1

Offshore Support Vessels (OSV Rules) (2017): 4-6-3, 4-8-3/Table 2, 4-9-8/13, 4-9-8/Table 1

Rules for Conditions of Classification, Part 1 - 2017 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

Mobile Offshore Drilling Units (2017): 4-2-2/7, 4-3-3/Table 1, 4-3-4/5;

August 2016 (Updated February 2017) ABS Guide for Ballast Water Treatment

National:

NA

International:

IEC 61000-4-2:2008, IEC 61000-4-3:2006, IEC 61000-4-4:2004, IEC 61000-4-5:2005, IEC 61000-4-6:2008, IEC 61000-4-8:2009, IEC 61000-4-11:2004, IEC 60945 (Section 9.2, 9.3):2002, Power supply tested to IEC 60950-1:2005; windings investigated to Clause 10 of IEC 61010-1:2010, EN 61010-1:2010, Switches and Circuit breakers meet IEC 60947-1:2007 and IEC 60947-3:2008, PCB conformity with V-1 of IEC 60695-11-10:2013;

Government:

NA

EUMED:

NA

OTHERS:

NA