



CERTIFICATE NUMBER 22-2296174-PDA
EFFECTIVE DATE 07-Oct-2022
EXPIRY DATE 06-Oct-2027
ABS TECHNICAL OFFICE Houston ESD - Piping

CERTIFICATE OF Product Design Assessment

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

BLACKMER, A DOVER RESOURCES COMPANY

located at

**1809 CENTURY AVE SW, , GRAND RAPIDS, MI, United States,
49503**

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.

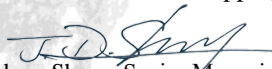
Product: Pump
Model: LGL and TX Series
Endorsements:
Tier: 4 - Enrolled in PQA Program

This Product Design Assessment (PDA) Certificate remains valid until 06/Oct/2027 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping


Jingdong Sheng, Senior Managing Principal Engineer

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 ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

BLACKMER, A DOVER RESOURCES COMPANY

1809 CENTURY AVE SW

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United States 49503

Telephone: 616-241-1611

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Email: robin.skinner@psgdover.com

Web: www.psgdover.com/blackamer

Tier: 4 - Enrolled in PQA Program

Product: Pump
Model: LGL and TX Series
Endorsements:

Intended Service:

- 1) LGL Series Sliding Vane Pumps for use in LPG, butane, and anhydrous ammonia,
- 2) TX Series

Description:

Pumps for liquids, flammable liquids, liquified gases

- 1) LGL Series Sliding Vane Pumps
- 2) TX Series

Rating:

- 1) LGL Series Sliding Vane Pumps

Flow capacities ranging from 30 to 370 U.S. gpm (114 – 1,400 L/min). Maximum internal relief valve pressure for all models is 150 psi (10.3 bar) differential (125 psi for 1 inch pumps) and maximum working pressure of 350 psi except the LGLH2 and the LGLD3F have a maximum internal relief valve pressure up to 165 psi and a maximum working pressure of 400 psi.

- 2) TX Series

Maximum Working Pressure: 175 psi (12.1 bar)
Maximum Differential Pressure: 125 psi (8.6 bar)
Maximum Temperature: 240 °F (115 °C)
Performance Data: Capacity from 10 to 550 GPM

See attachment for the pump specifications excluding the compressor.

Service Restriction:

- 1. Unit Certification is required for this product if intended for LPG application as per 5C-8-5/13.1.3 of the Marine Vessel Rules. 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. Unit Certification is required for this product if the TX Series pumps are used for services listed in Marine Vessels Rules 4-6-1/7.3.1, hydrostatic and capacity testing is to be performed to the satisfaction of the Surveyor as indicated in Marine Vessels Rules 4-6-1/7.3.2 a), b).

Comments:

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

Notes/Drawing/Documentation:

- Drawing No. 201-023, Perf: TXD2, Revision: a, Pages: 1
- Drawing No. 201-025, Perf: TXD2.5, Revision: a, Pages: 1
- Drawing No. 201-027, Perf: TXD3, Revision: a, Pages: 1
- Drawing No. 201-029, Perf: TX4, Revision: a, Pages: 1
- Drawing No. 201-049, Perf: TXH3C, Revision: a, Pages: 1
- Drawing No. 201-051, Perf: TSH35A, Revision: a, Pages: 1
- Drawing No. 201-091, MOC: TXD Pumps, Revision: a, Pages: 1
- Drawing No. 201-094, MOC: TXH Series, Revision: a, Pages: 1
- Drawing No. 201-101, Dim: TX1.5 PO, Revision: a, Pages: 1
- Drawing No. 201-103, Dim: TXD2A, TXD1220A PO, Revision: a, Pages: 1
- Drawing No. 201-105, Dim: TX2.5, TXD1225A PO, Revision: a, Pages: 1

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Drawing No. 201-107, Dim: TXD3E, TXD1230A PO, Revision: a, Pages: 1
Drawing No. 201-109, Dim: TX4A PO, Revision: a, Pages: 1
Drawing No. 201-117, Dim: TXH3, Revision: a, Pages: 1
Drawing No. 201-119, Dim: TXH35, Revision: a, Pages: 1
Drawing No. 201-133, Dim: TXDI2, Revision: a, Pages: 1
Drawing No. 201-135, Dim: TXDI2.5, Revision: a, Pages: 1
Drawing No. 201-137, Dim: TXDI3A, Revision: a, Pages: 1
Drawing No. 201-139, Dim: TXI4, Revision: a, Pages: 1
Drawing No. 201-A02, Parts List: TXD2A, TX2A, Revision: a, Pages: 1
Drawing No. 201-A08, Parts List: TXDI3A, Revision: a, Pages: 1
Drawing No. 201-A09, Parts List: TXI4A, Revision: a, Pages: 1
Drawing No. 201-C00, IOM: TXH3C, TXH35A, Revision: a, Pages: 1
Drawing No. 201-C01, Parts List: TXH3C, Revision: a, Pages: 1
Drawing No. 201-C02, Parts List: TXH35A, Revision: a, Pages: 1
Drawing No. 501-002, Spec: LGF1 and LGB1 series pumps, Revision: a, Pages: 1
Drawing No. 501-005, Spec: LGLH2A High Pressure LPG Pump, Revision: a4, Pages: 1
Drawing No. 501-008, Bulletin: LGL3021, Revision: a4, Pages: 1
Drawing No. 501-010, Spec: LGLD2, LGLD3, LGLD4 Series Pumps, Revision: a4, Pages: 1
Drawing No. 501-012, Spec: LGRL 1.25, LGL 1.25, LGL 1.5 Series Pumps, Revision: a4, Pages: 1
Drawing No. 501-021, Perf: LG, LGL and TLG Pumps, Revision: a, Pages: 1
Drawing No. 501-025, Perf: LGLH2 pumps, Revision: a, Pages: 1
Drawing No. 501-027, Perf: LGL3021 pumps, Revision: a, Pages: 1
Drawing No. 501-090, MOC: TLGLF3HD, Revision: a, Pages: 1
Drawing No. 501-091, MOC: LGF1(P)E, LGB1(P)E, Revision: a, Pages: 1
Drawing No. 501-093, MOC: LGRL(F)1.25, LGL(F)1.25, LGL1.5, Revision: a, Pages: 1
Drawing No. 501-094, MOC: LGLD2E, LGLH2A, LGLD3F, Revision: a, Pages: 1
Drawing No. 501-095, MOC: TLGLF3C, Revision: a, Pages: 1
Drawing No. 501-096, MOC: LGL3021A, Revision: a, Pages: 1
Drawing No. 501-097, MOC: LGL4B, LGLD4B, TLGLF4B, Revision: a, Pages: 1
Drawing No. 501-101, Dim: LGF1E, LGF1PE, Revision: a, Pages: 1
Drawing No. 501-105, Dim: LGB1E, LGB1PE, Revision: a, Pages: 1
Drawing No. 501-107, Dim: LGRL1.25, LGL1.25, LGL1.5, Revision: a, Pages: 1
Drawing No. 501-109, Dim: LGRLF1.25, LGLF1.25A, LGLF1.5A, Revision: a, Pages: 1
Drawing No. 501-111, Dim: LGLD2E, Revision: a, Pages: 1
Drawing No. 501-113, Dim: LGLD3F, Revision: a, Pages: 1
Drawing No. 501-115, Dim: LGLF3C, Revision: a, Pages: 1
Drawing No. 501-117, Dim: LGLD4, LGL4, Revision: a, Pages: 1
Drawing No. 501-118, Dim: LGLF3HD, Revision: a, Pages: 1
Drawing No. 501-119, Dim: LGLF4B, Revision: a, Pages: 1
Drawing No. LGL1, LGL1 Parts, Revision: A, Pages: 1
Drawing No. UL51, UL51 10th Edition, Revision: 10, Pages: 1
Drawing No. UL 51 01, CoC UL 51 Pumps & Valves, Revision: 1, Pages: 1
Drawing No. UL 51 02, CoC UL 51 (T)LGL4, Revision: 1, Pages: 1
Drawing No. UL 51 03, CoC UL 51 LG Series, Revision: 1, Pages: 1
Drawing No. UL 51 04, CoC UL 51 TLGLF3, Revision: 1, Pages: 1

Terms of Validity:

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STANDARDS

ABS Rules:

2022 Rules for Conditions of Classification 1-1-4/7.7, 1-1-A3 and A4, which covers the following:

2022 Rules for Building and Classing Marine Vessel Rules: 4-6-1/7.3.1, 4-6-1/7.3.2 a), b).; 5C-8-5/13.1.3

2022 Rules for Conditions of Classification - Offshore Units and Structures 1- 1-1-4/9.7,1-1-A2, 1-1-A3, which covers the following:

2022 Rules for Building and Classing Mobile Offshore Unit: 4-1-2

National:

UL51 10th Edition, Date 31 May 2013

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA