Electronically published by ABS Singapore.
Reference T2410866, dated 08-JUN-2023.

CERTIFICATE NUMBER 23-2410866-PDA
EFFECTIVE DATE 08-JUNE-2023
EXPIRATION DATE 07-JUNE-2028
ABS TECHNICAL OFFICE Singapore Engineering Services

CERTIFICATE OF

Product Design Assessment

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

DELVAL FLOW CONTROLS PVT. LTD.

located at

GAT NO.25,37,43-1A, KAVATHE, POST JAVALE, TAL. KHANDALA, DIST. SATARA, INDIA, 4128010

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 **Valve, Butterfly and Actuators**

Model **Triple-Offset Butterfly Valves 4A, 4B, 4D, 4E**
Double-Offset Butterfly Valves 44, 45, 47, 48
Resilient Seated Butterfly Valves 50, 52, 56, 57, 5C, 5D
Damper Butterfly Valves 5U
Series 21 Pneumatic Rack & Pinion Actuator

Endorsement: **Other**

This Product Design Assessment (PDA) Certificate remains valid until 07-JUNE-2028 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.

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

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American Bureau of Shipping

Wu Guanying, Senior Engineer

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India 412801
Telephone: +91 9763720100
Fax:
Email: salesindia@delvalflow.com
Web: www.delvalflow.com
Tier: 2 - PDA Issued

Product: **Valve, Butterfly and Actuators**
Model: **Triple-Offset Butterfly Valves 4A, 4B, 4D, 4E**
Double-Offset Butterfly Valves 44, 45, 47, 48
Resilient Seated Butterfly Valves 50, 52, 56, 57, 5C, 5D
Damper Butterfly Valves 5U
Series 21 Pneumatic Rack & Pinion Actuator
Endorsements:

Intended Service:
Marine & Offshore Application- Fuel Oil, Bilge, Ballast, Sea Water, Cargo System (including methanol & liquid mud), Fire main system

Description:
Triple-Offset Butterfly Valve Series 4A, 4B, 4D, 4E
Sizes: 3" to 24", Wafer and Lug Type

Double-Offset Butterfly Valve Series 44, 45, 47, 48
Sizes: 2" to 24", Wafer and Lug Type

Resilient Seated Butterfly Valves Series 50, 52, 56, 57, 5C, 5D
Sizes: 2" to 24", Wafer and Lug Type

Damper Butterfly Valves 5U
Sizes: 2" to 24", Wafer Type

Series 21 Pneumatic Rack & Pinion Actuator
Double Acting & Spring Return Configurations

Rating:
Triple-Offset Butterfly Valve Series 4A, 4B, 4D, 4E
Pressure-Temperature ratings as per ASME B16.34
Pressure rating Class 150# and 300#

Double-Offset Butterfly Valve Series 44, 45, 47, 48
Pressure-Temperature ratings as per ASME B16.34
Pressure rating Class 150# and 300#

Resilient Seated Butterfly Valve Series 50, 52, 56, 57, 5C, 5D
Pressure Limit:
a) 50/52: 16 Bar
b) 56/57: 20 Bar
c) 5C/5D: 10 Bar
Temperature limit:
a) EPDM: Min. -20 deg. F (-29 deg. C); Max: 302 deg. F (150 deg. C)
b) BUNA-N: Min. 0 deg. F (-18 deg. C); Max: 212 deg. F (100 deg. C)
c) Viton (FKM): Min. 0 deg. F (-18 deg. C); Max: 392 deg. F (200 deg. C)

Damper Butterfly Valves 5U
Pressure Rating: PN 1

Series 21 Pneumatic Rack & Pinion Actuator
Sizes: 055, 065, 075, 085, 100, 115, 125 150, 175 and 200
Temperature Range: -20 deg. C to 80 deg. C

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Tier: 2 - PDA Issued

Maximum Working Pressure: 8 Bar

Service Restriction:
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. Wafer type butterfly valves are not to be used for any connections to the vessel's shell; Lug or Flanged type valves may be used for shell connections only if fire tested as per 4-6-2/9.13.1 of ABS Marine Vessels Rules 2023.
3. All the valves containing non-metal material should not be used as fire mains, hydrants, and shell valves, valves on oil tanks which would be readily rendered ineffective by heat or in the event of fire. Otherwise the valves are to be subjected to a fire test. See 4-7-3/1.11.1, 4-6-2-9.13.1, 4-6-4/13.5.3(b) of ABS Marine Vessels Rules 2023.
4. Valves are not to exceed the lesser of the pressure-temperature rating of this product or flange rating.

Comments:
1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Valves intended for installation on the side shell at or below the deepest load waterline, including those at the sea chests, are to be hydrostatically tested in the presence of the Surveyor, before installation. See 4-6-2/9.13.2 and 4-6-2/7.3.2 of ABS Marine Vessels Rules 2023.
3. Wafer type valves with non-conductive gaskets or seals are to be earthed (grounded) to the hull such that the resistance between any point on the piping and the hull (across joints, pipe to hull) does not exceed 1 Mega-Ohm. See 4-6-2/9.15 of ABS Marine Vessels Rules 2023.
4. Materials are to be suitable for the intended service at the pressure-temperature rating.
5. Nodular iron or ductile iron will be accepted provided the material has an elongation not less than 12 % in 50mm as indicated in 4-6-2/3.1.5 of ABS Marine Vessels Rules 2023.
6. Ferrous materials used in piping systems operating at lower than –18°C (0°F) are to have adequate notch toughness properties. Specifications of acceptable materials are in Section 2-3-13 of the ABS Rules for Materials and Welding (Part 2). Materials for piping systems of liquefied gas carriers are to comply with 5C-8-5/12 of ABS Marine Vessels Rules 2023. See 4-6-2/3.1.7 of ABS Marine Vessels Rules 2023.
7. For use as ballast tank valves, the requirements of 4-6-4/7.5 ABS Marine Vessels Rules 2023 are to be met.
8. For use as steam and feed valves, the requirements of 4-4-1/9.5 Marine Vessels Rules 2023 are to be met.
9. The manufacturer is to guarantee that the valve has been tested before shipment to the pressure required by the pressure rating of the valve. The certificate of test is to be submitted upon request. See 4-6-2/5.11.4 of ABS Marine Vessels Rules 2023.
10. All valves and actuators are to bear permanent identification, such as the manufacturer's name or trademark, standard of compliance, material identify, pressure rating, etc. as required by the standard of compliance and at which the manufacturer guarantees the valve to meet the requirements of the standards. Such markings may be cast or forged integral with, stamped on, or securely affixed by nameplate on the component, and are to serve as a permanent means of identification of the component throughout its service life in accordance with 4-6-2/5.11.4 and 4-6-1/7.1.4 of ABS Marine Vessels Rules 2023.
11. Pneumatic actuators subjected to Class III fluid pressures and temperatures are to be used in accordance with the manufacturer's rating. See 4-6-7/3.5.5(e) and 4-6-7/5.3.3 of ABS Marine Vessels Rules 2023.
12. The solenoid valve of the pneumatic actuator is not a part of this approval.

Notes/Drawing/Documentation:
Refer to Documents List

Terms of Validity:
This Product Design Assessment (PDA) Certificate remains valid until 07/Jun/2028 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.

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Tier: 2 - PDA Issued

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STANDARDS

ABS Rules:
2023 Rules for Conditions of Classification 1-1-4/7.7, 1-1-A3 and A4, which covers the following:
2023 Rules for Building and Classing Marine Vessel Rules: 4-4-1/9.5, 4-6-2/3, 4-6-2/5.11, 4-6-2/5.17, 4-6-2/7.3, 4-6-4/7.5, 4-6-4/13.5, 4-6-7/3.5.5, 4-6-7/5.3.3

2023 Rules for Conditions of Classification – Offshore Units and Structures 1-1-4/9.7, 1-1-A2 and A3, which covers the following:
2023 Rules for Building and Classing Mobile Offshore Unit Rules: 4-2-2/9, 4-2-2/17, 4-2-2/21, 4-2-4/11.5, 4-2-5/3.9

National:
API 598 Ed. 11th 2023
API 607 Ed. 8th 2022
API 609 Ed. 9th 2021
ASME B16.10-2022
ASME B16.34-2020
ASME B16.5-2020

International:
NA

Government:
NA

EUMED:
NA

OTHERS:
NA