CERTIFICATE NUMBER
15-HS1384783-PDA

DATE
23 Nov 2015

ABS TECHNICAL OFFICE
Houston SED Machinery - Piping
& Electrical Sys.

CERTIFICATE OF DESIGN ASSESSMENT

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

DELTECH CONTROLS

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, Resilient Seated Butterfly Valves**

Model: **Series 50/52**

This Product Design Assessment (PDA) Certificate 15-HS1384783-PDA, dated 23/Nov/2015 remains valid until 22/Nov/2020 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

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Tier: 2 - PDA Issued

Product: **Valve, Resilient Seated Butterfly Valves**
Model: **Series 50/52**
Intended Service:
Marine and Offshore Applications- Various piping systems including Fresh water, Fuel Oil, Ballast, Sea water and Cargo systems

Description:
Resilient seated Butterfly valves, Series 50/52 (Category A as per API 609)
Body: Cast Iron ASTM A126 Gr. B/ Ductile Iron ASTM A536 Grade 65-45-12/ ASTM A216 WCB/ ASTM A351 Gr. CF8/CF8M

Rating:
1) Sizes: 3" to 24", PN16 bar (max), Lug and Wafer Type
2) 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)
3) Pressure limit:
   a) Valve seats: EPDM (PN 16 bar max), BUNA-N (PN 16 bar max) and Viton-FKM (PN 16 bar max)

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) As per SVR 4-6-2/5.11.3 (c), "Resilient materials, where used, are subject to service limitations as specified by the manufacturers. Use of resilient materials in valves intended for fire mains is to be specifically approved based on submittal of certified fire endurance tests conforming to a recognized standard." No fire endurance test is conducted and hence these valves cannot be used in Fire main, Fire-fighting and other systems where fire testing is required.
3) Materials are to be suitable for the intended service at the pressure-temperature rating.
4) Valves are not to exceed the lesser of the pressure-temperature rating of this product or flange rating.
5) Wafer type valves with non-conductive gaskets or sealsare 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. Refer SVR 4-6-2/9.15.
6) Gray cast iron is not to be used for the applications as mentioned in 2015 SVR 4-6-2/3.1.3. Also, as per 2015 SVR 4-6-2/9.13, "Gray cast iron valves are not to be used as shell valves. Nodular iron valves are acceptable, see 4-6-2/3.1.4."

Comments:
1) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2) For use as Ballast Tank valves, the requirements in SVR 4-6-4/7.5 are to be met.
3) For use as steam and feed valves, requirements in SVR 4-4-1/9.5 are to be met.
4) All valves are to bear the trademark of the manufacturer legibly stamped or cast on the exterior of the valves and also the primary pressure rating and temperature rating at which the manufacturer guarantees the valve to meet the requirements of the standards.
5) As per API 609/Section 7.1, temperature limits shall be marked on the name plate

Notes/Drawing/Documentation:
1) Drawing No. Delval_valve 50-52_ 3-1-2015_v4, Specifications Series 50-52, Revision: -, Pages: 1
2) PDBFV27900- GNERAL ASSEMBLY 2"-24" BFV SERIES-50/52
3) SHELL THICKNESS- SHELL THICKNESS
4) TCs of Ser 50 BFV _12- COMPLIANCE CERTIFICATE
5) PDBFV28460- General Assembly Wafer DN 80/3" LAVER BFV CI/DI
6) PDBFV28470- General Assembly Lug DN 80/3" LAVER BFV CI/DI

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7) PDBFV28480- General Assembly Wafer DN 80/3" LAVER BFV CS/SS
8) PDBFV28490- General Assembly Lug DN 80/3" LAVER BFV CS/SS
9) PDBFV28500- General Assembly Wafer DN 200/8" GEAR BFV CI/DI
10) PDBFV28510- General Assembly Lug DN 200/8" GEAR BFV CI/DI
11) PDBFV28520- General Assembly Wafer DN 200/8" GEAR BFV CS/SS
12) PDBFV28530- General Assembly Lug DN 200/8" GEAR BFV CS/SS
13) PDBFV28540- General Assembly Wafer DN 400/16" GEAR BFV CI/DI
14) PDBFV28550- General Assembly Lug DN 400/16" GEAR BFV CI/DI
15) PDBFV28560- General Assembly Wafer DN 400/16" GEAR BFV CS/SS
16) PDBFV28570- General Assembly Lug DN 400/16" GEAR BFV CS/SS
17) PDBFV28580- General Assembly Wafer DN 600/24" GEAR BFV CI/SI
18) PDBFV28590- General Assembly Lug DN 600/24" GEAR BFV CI/DI
19) PDBFV28600- General Assembly Wafer DN 600/24" GEAR BFV CS/SS
20) PDBFV28610- General Assembly Lug DN 600/24" GEAR BFV CS/SS
21) 1377- EPDM Test Certificate
22) 1539- NBR Test Certificate
23) ST-242- COMPLIANCE CERTIFICATE
24) 1761- VITON Certificate
25) Buna seat PN16- Compliance Certif
26) Viton seat PN16- Compliance Certif

Terms of Validity:
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STANDARDS

ABS Rules:
The Rules for Conditions of Classification, Part 1 2015 Steel Vessels 1-1-4/7.7, 1-1-A3, 1-1-A4
2015 Steel Vessels 4-6-2/3.1.3, 3.1.4 and 5.11; 4-6-2/9.7.3 (b); 4-6-2/9.13.2; 4-6-4/13.5.3 and 13.7.2
2015 Rules for Building and Classing Steel Vessels Offshore Support Vessels 4-6-2/3.1.3, 3.1.4, 5.11, 9.7.3 (b), 9.13
2015 Rules for Building and Classing Mobile Offshore Drilling Units 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-1/11.17; 4-2-2/9; 4-2-2/ 17; 4-2-2/21; 4-2-5/3.9

National:
API 598, API 609, ASME B16.1, ASME B16.10, ASME B16.5

International:
NA

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Tier: 2 - PDA Issued

Government:
BS EN 12266-1 and BS EN 593

EUMED:
NA

OTHERS:
NA