



CERTIFICATE NUMBER
18-gd1718634-PDA

DATE
08 Mar 2018

ABS TECHNICAL OFFICE
Gdynia Engineering Department

CERTIFICATE OF Design Assessment

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

WOUTER WITZEL EUROVALVE B.V.

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**

Model: **Butterfly Valves type EVS, EVBS, EVBLS, EVCS, EVML/S, EVFS, EVFL, EVTLS, EVUS lined with NBR, EPDM, FPM Linings**

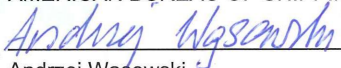
This Product Design Assessment (PDA) Certificate 18-gd1718634-PDA, dated 08/Mar/2018 remains valid until 07/Mar/2023 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

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



Andrzej Wasowski
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).

TERMS & CONDITIONS OF ABS DESIGN ASSESSMENT

1. AGREEMENT

Unless otherwise agreed in writing, all services rendered and certificates issued are governed by the terms and conditions of the "Request for Product Type Approval and Agreement" (the "Agreement") which are hereby incorporated by reference.

2. REPRESENTATIONS AS TO DESIGN ASSESSMENT

A certificate of design assessment represents that the product design meets the ABS, statutory, industrial or manufacturer's standard described on the reverse hereof and that the manufacturer has established a systematic quality monitoring system sufficient to show its capacity to consistently manufacture a product which meets the designated standards. ABS is not a substitute for the independent judgment of professional designers or engineers nor a substitute for the quality control procedures of constructors, steel makers, suppliers, manufacturers and vendors of marine structures, materials, machinery or equipment. ABS represents solely to the manufacturer or other client of ABS that it will use due diligence in developing Rules, Guides and standards and in surveying the plant as called for by ABS criteria for type approval.

3. SUSPENSION OF CERTIFICATION

Any of the following events will cause immediate suspension of the certificate of design assessment unless the change is submitted to ABS for a new review and audit.

- a) Redesign of the product or products covered by this certificate;
- b) Change in production methods;
- c) Substantial change in management organization;
- d) Substantial change in frequency or curriculum for personnel training;
- e) Refusing access to ABS personnel for periodic or annual audits;
- f) Failure to correct a non-compliance identified during an audit or in service;
- g) Failure to pay ABS fees.

4. VALIDITY

The validity, applicability and interpretation of a certificate issued under the terms of or in contemplation of ABS Type Approval are governed by the Rules, Guides and standards of American Bureau of Shipping which shall remain the sole judge thereof. Nothing contained in this certificate or in

any report issued in contemplation of this certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied, nor create any interest, right, claim or benefit in any third party. It is understood and agreed that nothing expressed herein is intended or shall be construed to give any person, firm or corporation other than the parties hereto, any right, remedy, or claim hereunder or under any of the provisions herein contained; all of the provisions hereof are for the sole and exclusive benefit of the parties hereto.

5. LIMITATION

ABS makes no representations beyond those contained herein and in the provisions of the Agreement regarding its reports, statements, plan review, surveys, certificates or other services.

6. HOLD HARMLESS

The party to whom this certificate is issued, and his assignee and successor in interest, agree to indemnify and hold harmless ABS from and against any and all claims, demands, lawsuits, or actions for damages, including legal fees, to persons or other legal entities and property, tangible, intangible, or otherwise which may be brought against ABS incidental to, arising out of or in connection with the work done, services performed or material to be furnished under this certificate, except for those claims caused solely and completely by the negligence of ABS, its agents, employees, officers, directors or subcontractors.

7. ARBITRATION

Any and all differences and disputes of whatsoever nature arising out of this agreement shall be put to arbitration in the City of New York pursuant to the laws relating to the arbitration there in force, before a board of three persons, consisting of one arbitrator to be appointed by ABS, one by Client, and one by the two so chosen. The decision of any two of the three on any point or points shall be final. Until such time as the arbitrators finally close the hearings either party shall have the right by written notice served on the arbitrators and on an officer of the other party to specify further disputes or difference under this Agreement for hearing and determination. The arbitration is to be conducted in accordance with the rules of the Society of Maritime Arbitrators, Inc. The arbitrators may grant any relief, other than punitive damages,

which they, or a majority of them, deem just and equitable and within the scope of the agreement of the parties, including, but not limited to, specific performance. Awards made in pursuance to this clause may include costs including a reasonable allowance for attorney's fees and judgment may be entered upon any award made hereunder in any court having jurisdiction. ABS and client hereby mutually waive any and all claims to punitive damages in any forum.

Client shall be required to notify ABS within thirty (30) days of the commencement of any arbitration between it and third parties which may concern ABS's work in connection with this Agreement and shall afford ABS an opportunity, at ABS's sole option, to participate in the arbitration.

8. TIME BAR TO LEGAL ACTION

Any statutes of limitation notwithstanding, Client expressly agrees for itself and its affiliated companies that its right to bring or to assert against ABS any and all claims, demands or proceedings whether in arbitration or otherwise shall be waived unless (a) notice is received by ABS within thirty (30) days after Client or its affiliates had notice of or should reasonably have been expected to have had notice of the basis for such claims; and (b) arbitration or legal proceedings, if any, based on such claims or demands of whatever nature are commenced within one (1) year of the date of such notice to ABS.

9. LIMITATION OF LIABILITY

The combined liability of American Bureau of Shipping, its officers, employees, agents or subcontractors for any loss, claim, or damage arising from negligent performance or non-performance of any services under this Agreement, of from breach of any implied or express warranty of workmanlike performance in connection with the services, or from any other reason, to any person, corporation, partnership, business entity, sovereign, country or nation, shall be limited to the greater of a) \$100,000 or b) an amount equal to ten times the sum actually paid for the services alleged to be deficient.

The limitation of liability may be increased up to an amount twenty-five times that sum paid for services upon receipt of Client's written request at or before the time of performance of service and upon payment by Client of an additional fee of \$10.00 for every \$1,000.00 increase in the limitation.

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Tier: 3 - Type Approved, unit certification not required

Product: Valve, Butterfly

Model: Butterfly Valves type EVS, EVBS, EVBLS, EVCS, EVML/S, EVFS, EVFL, EVTLS, EVUS lined with NBR, EPDM, FPM Linings

Intended Service:

For use in fresh water seawater, sanitary, hydrocarbons (oils and gases), compressed air, steam, chemicals and solvents.

Description:

Butterfly valves models EVS wafer DN 50-1400, EVBS semi-lug DN 50-300, EVCS wafer with centering lugs DN 50-300, EVML/S monoflange DN 50-1000, EVFS double flange DN 50-2000, EVFL double flange DN 50-1500, EVTLS tapped lug DN 50-900, EVUS u-section wafer short type DN 600-2200.

Body materials - Cast iron, nodular cast iron, steel and bronze.

Disc materials - Stainless steel, stainless steel duplex and NiAlBronze, Super Duplex

Linings - NBR (Acrylonitrile Butadiene Rubber), EPDM (Ethylene Propylene DM) or FPM (Fluoroelastomer) lining.

Rating:

EVS: DN 50 - 1400, 2.5 - 16 bar/Class 150

EVCS: DN 50 - 300, 6 - 16 bar/Class 150

EVBS: DN 50 - 300, 6 - 16 bar;

EVBLS: DN 50 - 200, 6 - 16 bar;

EVMS: DN 350 - 1200, 2.5 - 16 /Class 150

EVML: 80 - 800, 2.5 - 16 bar/Class 150

EVFS: DN 50 - 2000, 2.5 - 16 bar/Class 150

EVFL: 50 - 1400, 2.5 - 10 bar;

EVTLS: DN50 - 1000, 2.5 - 16 bar/Class 150

EVUS: DN 600 - 2200, 2.5 - 16 bar/Class 150

Temperature rating: -18 °C to 200 °C

Service Restriction:

1. Following EV-type butterfly valves have been qualified as fire resistance in accordance to ISO 19921.

EVTLS, DN50 up to DN600, 12 bar,

EVFS, DN125 up to DN250, 12 bar,

EVUS, DN600 up to DN1200, 12 bar.

Body/Bonnet material: EN-JS1030.

Disc material: 1.4462

Disc seat material: NBR

2. Valves are not to be used as a isolation valves on main fire system.

3. Gray cast iron valves are not to be used for the following applications: (ABS Steel Vessels Rules 4-6-2/3.1.3)

- Temperature above 220 °C

- Connected the shell of the vessel

- Connected to collision bulkhead

- Fitted on the outside of fuel oil, lubricating oil, hydraulic oil and cargo oil tanks were subject to a static head of oil

- Mounted on boilers

- Cargo oil weather decks for pressure exceeding 16 bar.

- Cargo oil manifolds for connection to cargo handling hoses.

4. Wafer type valves are not permitted to be used as shell valves (ABS Steel Vessels Rules 4-6-2/9.13.2).

5. Materials rendered ineffective by heat are not to be used in shell valves.

6. Nodular iron may be used for Classes I and II piping systems and for valves listed in (4-6-2/3.1.3 of Steel Vessels Rules), provided it has an elongation of not less than 12% in 50 mm (2 in.). (4-6-2/3.1.4 of ABS Steel Vessels Rules)

7. Wafer type butterfly valves are not to be installed next to rubber expansion joints with beaded end flange. (4-6-

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Tier: 3 - Type Approved, unit certification not required

2/9.5 vi) of ABS Steel Vessels Rules).

8. EPDM seated valves are not to be used for hydrocarbon services.

9. Are not to be used on the outside of oil tanks where subjected to a static head of oil.

10. Unit Certification is not required for these products. If the manufacturer or purchaser request ABS Certificate for compliance with a specification or standards, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

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

2. This certificate may not be used for EU and US Flagged Vessels (MED and/or USCG have their own specific/requirements).

3. Valves intended for installation on ship-side shell, including valves at sea chests, are to be hydrostatically tested, before installation, to a pressure of at least 5 bar, in the presence of the Surveyor. (4-6-2/7.3.2 of ABS Steel Vessels Rules)

4. Remote control valves are to be provided with a readily accessible manual means of operation upon loss of power. (4-6-2/9.13.2 iv), 4-6-4/7.5.2 & 5C-1-7/3.5.1 of ABS Steel Vessels Rules)

5. Open or closed indicators are to be provided. (4-6-2/9.13.2 iii) of ABS Steel Vessels Rules)

6. Wafer type valves with non-conductive gaskets 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. (4-6-2/9.15 of the ABS Steel Vessels Rules)

7. Valves are to be of a type with positive holding arrangements, or equivalent that will prevent movement of the valve position due to vibration or flow of fluids. (4-6-4/7.5.1 of ABS Steel Vessels Rules)

8. All valves are to bear permanent identification, such as manufacturer's name or trademark, standard of compliance, material identity, pressure rating, etc., as required by the standard of compliance or the manufacturer's specification. 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.

Notes/Drawing/Documentation:

DAAA281-A, EVS DN 50- 2200 Free Shaft,

DAAA282-A, EVS DN 50 - 1400 - Free Shaft GA drawing,

DABA072-A, EVBS DN 50 - 300 Free Shaft GA drawing,

DACA004-A, EVBLS DN 50 - 200 Free Shaft GA Drawing,

DADA151-A, EVTLS DN 50 - 1200 Free Shaft GA drawing,

DAFA027-A, EVMS DN 350 - 1000 Free Shaft GA Drawing,

DAGA010-A, EVML DN 80 - 800 Free Shaft GA Drawing,

DAHA294-A, EVFS DN 50 - 2000 Free Shaft GA Drawing,

DAJA020-A, EVFL DN 50 - 1500 Free Shaft GA Drawing,

DAUA061-A, EVUS DN 600 - 2200 Free Shaft GA Drawing,

DAWA018-A, EVCS DN 50 - 300 Free Shaft GA Drawing,

PDS01.01.001, Wouter Witzel - EVS,

PDS01.03.001, Wouter Witzel - EVCS,

PDS01.04.001, Wouter Witzel - EVBS,

PDS01.05.001, Wouter Witzel - EVBLS,

PDS01.06.001, Wouter Witzel - EVTLS,

PDS01.07.001, Wouter Witzel - EVUS,

PDS01.08.001, Wouter Witzel - EVMS,

PDS01.09.001, Wouter Witzel - EVML,

PDS01.10.001, Wouter Witzel - EVFS,

PDS01.11.001, Wouter Witzel - EVFL,

PDS01.12.001, Wouter Witzel - EVTLLS,

Rep. No. IBB 1340/LRDTM 1489855/1, Report Flame Resistance Test - ISO 19921 - EVTLS DN 300, dated 19.12.2014, Dr.-Ing. T. Bäumer GmbH · Altensenner Weg 75 · D-32052 Herford.

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Tier: 3 - Type Approved, unit certification not required

Rep. No. IBB 1342/LRDTM 1489855/2, Report Flame Resistance Test - ISO 19921 - EVTLS DN 125, dated 19.12.2014, Dr.-Ing. T. Bäumer GmbH · Altensenner Weg 75 · D-32052 Herford

Rep. No. IBB 1344/LRDTM 1489855/3, Report Flame Resistance Test - ISO 19921 - EVTLS DN 50, dated 19.12.2014, Dr.-Ing. T. Bäumer GmbH · Altensenner Weg 75 · D-32052 Herford

Rep. No. IBB 1346/LRDTM 1489855/4, Report Flame Resistance Test - ISO 19921 - EVFS DN 125, dated 19.12.2014, Dr.-Ing. T. Bäumer GmbH · Altensenner Weg 75 · D-32052 Herford

Rep. No. IBB 1356/LRDTM 1489855/5, Report Flame Resistance Test - ISO 19921 - EVUS DN 600, dated 19.12.2014, Dr.-Ing. T. Bäumer GmbH · Altensenner Weg 75 · D-32052 Herford

Terms of Validity:

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1 - 2018 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2018 Steel Vessels Rules 4-6-1/7, 4-6-2/3, 4-6-2/5.11, 4-6-2/9.13

Rules for Conditions of Classification, Part 1 - 2018 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2018 Mobile Offshore Drilling Units Rules 4-2-2/9, 4-2-2/17, 4-2-2/21.3

National:

EN 593:2009+A1:2011

API 609:2009

International:

ISO 5208:2008

ISO 5752:1982

Government:

NA

EUMED:

NA

OTHERS:

NA