



Marine & Offshore

Certificate number: 12157/D0 BV

File number: ACM 145/2314/003

Product code: 2205I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

WOUTER WITZEL EUROVALVE B.V.
LOSSER - NETHERLANDS

for the type of product

BUTTERFLY VALVES
DYNAXE High Performance Butterfly Valves

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 25 Apr 2023

For Bureau Veritas Marine & Offshore,
At BV GRONINGEN, on 25 Apr 2018,
John Mondt



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

DYNAXE High Performance Butterfly Valves

1.1 Design Specifications

Valve type	DN Range	PN / Class range	End connections
DYNAXE LS	50 / 2" up to 900 / 36"	PN 10/16, ANSI Class 150	Tapped lug
DYNAXE WS	50 / 2" up to 900 / 36"	PN 10/16, ANSI Class 150	Wafer
DYNAXE F131	50 / 2" up to 600 / 24"	PN 10/16, ANSI Class 150	Double Flange
DYNAXE LL	50 / 2" up to 600 / 24"	PN 25/40, ANSI Class 300	Tapped lug
DYNAXE WL	50 / 2" up to 600 / 24"	PN 25/40, ANSI Class 300	Wafer
DYNAXE F142	50 / 2" up to 600 / 24"	PN 25/40, ANSI Class 300	Double Flange

1.2 Temperature range according to manufacturer's recommendations

Seat Material	Temperature range (°C)
RTFE (TH)	-29 up to 204
RTFE (TF - Fire safe design)	-29 up to 204
Metal solid seat (MS)	-29 up to 540
Metallic laminated seat (M)	-29 up to 425

The maximum service pressure and temperature are not to exceed those specified by the manufacturer.

1.3 Materials

Part	Material
Body	Carbon steel EN GP 240GH - 1.0619 / ASTM A216 WCB Stainless steel EN GX5 CrNiMo 19-11-2 - 1.4408 / ASTM A351 Gr. CF8M Stainless steel 1.4529, EN 10028-7 / ASTM A351, CK-3MCuN Nickel aluminium bronze, EN 1982, CC333G / ASTM B148 C95800 Duplex Stainless Steel 1.4517, EN 10213 / ASTM 995 4A Super Duplex Stainless Steel 1.4469, EN10213 / ASTM A995 5A/6A Titanium 3.7035, Ti 2
Disc	Carbon steel EN GP 250GH - 1.0460 / ASTM A105 N Carbon steel EN GP 240GH - 1.0619 / ASTM A216 WCB Carbon steel, EN 10273, P250GH - 1.0460 Stainless steel EN X5 CrNiMo 17-12-2 - 1.4401 / ASTM A182 Gr. F316 Stainless steel EN GX5 CrNiMo 19-11-2 - 1.4408 / ASTM A351 Gr. CF8M Stainless steel 1.4529, EN 10028-7 / ASTM A351, CK-3MCuN Duplex Stainless Steel 1.4462, EN 10222-5 / ASTM A182, F51 Super Duplex Stainless Steel 1.4469, EN10213 / ASTM A995 5A/6A Nickel aluminium bronze, EN 1982, CC333G / ASTM B148 C95800 Titanium 3.7035, Ti 2

Part	Material
Shaft	X20Cr13 - 1.4021 / ASTM A276 420 X2 CrNiMnMoNNb 21-16-5-3 - 1.3964 / ASTM A479 XM-19 Nickel aluminium bronze, EN 12163, CW307G Monel, BS 3076, NA 18 DuplexStainless Steel 1.4462, EN 10272 / ASTM A182, F51 Super Duplex Stainless Steel, 1.4501, EN 10272 / ASTM A479, UNS 32760 Titanium 3.7035, Ti 2/TI 5
Seat	RTFE (TH) / RTFE (TF) / Metal solid seat (MS) / Metallic laminated seat (M)

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- N° D-CACA015-D : Dynaxe LS DN50-900 Rev. D dated 24/06/2008
- N° D-CAAA027-D : Dynaxe WS DN 50-900 Rev. D dated 24/06/2008
- N° D-CAEA010-C : Dynaxe F131 DN 50-600 Rev. C dated 24/06/2008
- N° D-CABA004-D : Dynaxe WL DN50-600 Rev. D dated 24/06/2008
- N° D-CADA001-D : Dynaxe LL DN 50-600 Rev. D dated 24/06/2008
- N° D-CAFA006-C : Dynaxe F142 DN 50-600 Rev. C dated 24/06/2008
- Product data sheet PDS03.00.003 dated 24/04/2018

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

- Pressure test report N°3123RTD02 dated 27/09/2002 witnessed by a BV Surveyor.
- Fire tests according to ISO 10497, second edition 2004 were carried out at the SwRI Department of Fire Technology and found in order per the following test reports:
 - N° 6-995 dated 25/08/2005 (Valve model Dynaxe WS201 - Cast stainless steel body - DN 200 / 8" Class 150)
 - N° 6-1012 dated 18/01/2006 (Valve model Dynaxe WS201 - Cast carbon steel body - DN 100 / 4" Class 150)
 - N° 6-1013 dated 18/01/2006 (Valve model Dynaxe WS201 - Cast carbon steel body - DN 200 / 8" Class 150)
 - N° 6-1024 dated 19/04/2006 (Valve model Dynaxe W201 - Cast carbon steel body - DN 50 / 2" Class 150)
- Fire performance tests in accordance with UK DOT appendix D, *Fire test requirements for fire mains and fittings* were carried out at the SwRI Department of Fire Technology. Each test was conducted for 20 min at a furnace temperature of 540 °C and an internal water pressure was maintained at 8.3 bar and found in order per the following test report:
 - N° 01.10933.01.719 dated August 2005 (Valve model Dynaxe L201 - albronz casting body/disc - DN 100 / 4" and DN 200 / 8" PN 10/16 Class 150)

4. APPLICATION / LIMITATION

4.1 May be used for the following services on board:

- Shiplside valves, sea water and fresh water, bilge and ballast, washing and fire extinguishing, fuel oil and lubricating oil, hydraulic oil, compressed air, inert gas, domestic and sanitary systems, cargo systems of oil tankers, non essential systems.

4.2 The butterfly valves belong to class I, class II and class III according to the relevant requirements stated in Part C, Chapter 1, Sec 10 of the BUREAU VERITAS Rules. Valves fitted on the ship side and collision bulkhead and valves under static pressure on fuel oil tanks or lub oil tanks belong to class II.

4.3 The use of stainless steel is to be restricted as per the Rules.

4.4 The installation on board where fire resistance properties is required is to be approved on a case by case basis.

4.5 The butterfly valves body, disc and sealing should be of a suitable type for use with cargoes intended to be carried.

4.6 The approval does not include any operating gear for remote control of the valves.

4.7 The valve is to be installed according to manufacturer's instructions and BUREAU VERITAS Rules.

4.8 When the butterfly valves are not fitted with flanges their use may be accepted as shiplside valves provided that arrangement are made to allow a possible disassembling at sea of the pipes immediately inboard without any risk of flooding.

4.9 Bilge valves will be fitted in association with a non return valve.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **Wouter Witzel EuroValve B.V.** in compliance with the type and the requirements described in this certificate.

5.2 This type of product is within the category IBV of Bureau Veritas Rule Note NR320

5.3 BV product certificate is required

5.4 BV Certificate is required for materials of valve housings of class I (DN \geq 50) or class II (DN \geq 100). Materials of valve housings of class I (DN $<$ 50) or class II (DN $<$ 100) and for other parts are to be with Work's certificates

5.5 Each valve housing for class I and class II is to be hydraulically pressure tested to 1.5 times the design pressure. Valves intended to be fitted on the shipside below the load waterline are to be tested by hydraulic pressure not less than 0,5 MPa

For information, **Wouter Witzel EuroValve B.V.** has declared to Bureau Veritas the following production site:

Wouter Witzel EuroValve B.V.
Industrieterrein De Pol 12
7581 CZ LOSSER
NETHERLANDS

6. MARKING OF PRODUCT

The product shall be marked with at least:

- Manufacturer's name or logo
- Type designation
- Size
- Society's brand as relevant

7. OTHERS

It is **Wouter Witzel EuroValve B.V.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

This certificate supersedes the Type Approval Certificate N° 12157/C1 BV issued by the Society.

***** END OF CERTIFICATE *****