DNV·GL

Certificate No:
TAP000015X

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
EVS, EVBS, EVMS, EVFS, EVTLS, EVCS, EVBLS, EVUS, EVML, EVFL

Issued to
Wouter Witzel EuroValve B.V.
Losser Overijssel, Netherlands

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.

Temperature range:	**see certificate**
Max. working press.:	**PN10/PN16/PN25 (see page 2)**
Sizes:	**DN50 - DN2200 (see page 2)**

Issued at **Høvik** on **2018-02-20**

This Certificate is valid until **2023-02-19**.

for **DNV GL**

DNV GL local station: **Rotterdam, Product Certification /Verification**

Approval Engineer: **Iselinn Vindstad**

Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

Ten types of butterfly valves designed in accordance with EN 12516-2/-4.

Type	Size	Pressure rating	Type
EVS	DN 50 – DN 65 DN 80 – DN 1400	PN25 PN16	Wafer
EVBS	DN 50 – DN 65 DN 80 – DN 300	PN25 PN16	Wafer
EVMS	DN 350 – DN 1000	PN16	Wafer
EVFS	DN 50 – DN 600 DN 700 – DN 2000	PN25 PN16	Flanged
EVTLS	DN 50 – DN 1200	PN16	Lugged
EVCS	DN 50 – DN 65 DN 80 – DN 300	PN25 PN16	Wafer
EVBLS	DN 50 – DN 65 DN 80 – DN 200	PN25 PN16	Wafer
EVUS	DN 600 – DN 2000 DN 2200	PN16 PN10	Flanged
EVML	DN 80 – DN 300 DN 350 – DN 800	PN25 PN16	Wafer
EVFL	DN 50 – DN 600 DN 700 – DN 1500	PN25 PN16	Flanged

Valve ends for flanged types (EVFS, EVUS, EVFL) are in accordance with EN 1092-1/EN1092-2.

Material:

Body:	Group	Design temperature
60-40-18, ASTM A395:1999	Cast iron, nodular ferritic	0°C – 350°C
60-40-18, ASTM A536:1999	Cast iron, nodular ferritic	0°C – 350°C
EN-GJS-400-15, EN 1563:1997	Cast iron, nodular ferritic	0°C – 200°C
EN-GJS-400-18U-LT, EN 1563:1997	Cast iron, nodular ferritic	0°C – 350°C
GP240GH(1.0619), EN 10213:2007	Cast steel	-20°C – 450°C
WCB, ASTM A216:2003	Cast steel	-20°C – 450°C
LCB, ASTM A352:2003	Cast steel	-46°C – 371°C
EN-GJL-250, EN1561:1997*	Grey cast iron	0°C – 120°C
G-CUSn10Zn, DIN1705:1981	Copper alloy	0°C – 20°C
UNS C95800, ASTM B 148	Al-Bronze casting	-29°C – 350°C

*Can only be used for models EVBS, EVBLS, EVS for sizes DN50-DN600

Disc:

1.4057, EN 10088-3, stainless steel
1.4462, EN10088-3, stainless steel
1.4469, EN 10213:2007, stainless steel
5A UNS J93404, ASTM A890:2003, cast iron
1.4408, EN 10213:2007, stainless steel
F51 S31803, ASTM A 182:2002, stainless steel
CF8M UNS J92900, ASTM A351:2003, stainless steel
1.4517, EN 10213:2007, stainless steel
CC333G, EN 1982:2008, copper alloy
UNS C95800, ASTM B 148, Al-bronze casting
60-40-18, ASTM A395:1999/ASTM A536:1999, cast iron
UNS J26625, ASTM A494:20030 nickel alloy
UNS C95500, ASTM 148

Shaft:

1.4057, EN 10088-3, stainless steel
1.4462, EN10088-3, stainless steel
1.4501, EN 10272, stainless steel
CW307G, EN 1653, copper alloy
NA 18 (Monel K-500), BS 3076:1999, nickel alloy

Seat:

EPDM
NBR
FPM
VMQ (silicone)

Application/Limitation

Pressure temperature rating depending on seat materials:
EPDM: -29°C – 120°C
NBR: 0°C – 80°C
FPM: 0°C – 200°C
VMQ: -40°C – 200°C

The valves covered by this certificate are not:

- Considered fire safe
- To be used as ESD-valves (emergency shut down)
- To be installed in LNG/LPG applications

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions.
Austenitic stainless steels (A351 CF8M, 1.4057 and 1.4408) are not to be used in direct contact with seawater.

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

Grey cast iron shall not to be used for piping subject to pressure shock, excessive strains and vibration.

Grey cast iron shall not be used for class I and II piping with the following exceptions:

- components in hydraulic piping systems where failure would not render the system inoperative or introduce a fire risk
- pump and filter housings in fuel and lubrication oil systems where the design temperature does not exceed 120°C.

Grey cast iron may be used for class III piping, with the following exceptions:

- pipes and valves fitted on ship sides and bottom and on sea chests
- valves fitted on collision bulkhead
- valves under static head fitted on the external wall of fuel tanks, lub. oil tanks and tanks for other flammable oils
- valves for fluids with temperatures in excess of 120°C.

Nodular cast iron of the ferritic type, with specified minimum elongation of 12%, may be used in class II and III piping and in pipes and valves located on the ship's side and bottom and valves on the collision bulkhead. The use of nodular cast iron in class I piping shall be subject to consideration for approval in each case.

Type Approval documentation

Production testing

Each valve body shall be subjected to a hydrostatic pressure test at;

- 1.5 times the allowable pressure at room temperature

In addition each valve shall be subject to seat leakage testing as follows:

- 1.1 times the design pressure in the valve flow direction.

Testing shall follow procedures and acceptance criteria in EN 12266-1 (leakage rate A).

Valves fitted on ship's side and bottom are also to be hydrostatically tested at a pressure equal to 5 bar applied independently on each side of the closed disc.

Certification

Valve bodies shall be delivered with material certificates in accordance with DNV GL Ship Pt.4 Ch.6 Sec.2 Table 3. Materials with VL and W certificates shall be manufactured in a foundry approved by the Society.

DNV GL product certificates are required for valves with DN>100 and design pressure ≥ 16 bar, and for ship side valves where DN>100 regardless of pressure. For other valves a manufacturer's product certificate may be accepted.

Marking of product

For traceability to this type approval, the final products are to be marked with:
— manufacturer's name or trade mark
— valve type designation
— size
— maximum design pressure and temperature
— arrow to indicate direction of flow on one way flow valves.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.