

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Butterfly Valves**with type designation(s)
EVS-i, EVFS-i, EVTLS-i

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.:** PN16**Sizes:** DN400-DN600Issued at **Høvik** on **2020-04-22**This Certificate is valid until **2025-04-21**.DNV GL local station: **Netherlands CMC**for **DNV GL**Approval Engineer: **Rob Oerlemans**

Zeinab Sharifi
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.



Product description

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

Type	Size	Pressure rating	Type
EVS-i	DN 400, 450, 500, 600	PN16	Wafer
EVFS-i	DN 400, 450, 500*, 600*	PN16 (*PN10 or PN16)	Flanged
EVTLS-i	DN 400, 450, 500, 600	PN16	Lugged

Valve ends for flanged type (EVFS-i) are in accordance with various parts of EN 1092, as appropriate to the materials used.

Material:

Body:	Group	Design temperature
60-40-18, ASTM A395:2015	Cast iron, nodular ferritic	0°C – 350°C
60-40-18, ASTM A536:2006	Cast iron	0°C – 350°C
EN-GJS-400-15, EN 1563:2011	Cast iron, nodular ferritic	0°C – 200°C
EN-GJS-400-18-LT, EN 1563:2011	Cast iron, nodular ferritic	0°C – 350°C
GP240GH (1.0619), EN 10213:2014	Cast steel	-20°C – 450°C
WCB, ASTM A216:2015	Cast steel	-20°C – 450°C
LCB, ASTM A352:2015	Cast steel	-46°C – 371°C
EN-GJL-250, EN1561:2011	Grey cast iron	0°C – 120°C
CuSn10-C, EN1982:2008	Copper alloy	0°C – 20°C
UNS C95800, ASTM SB-148:2015	Al-Bronze casting	-29°C – 350°C

Disc:

1.4057, EN 10088-3, stainless steel
1.4462, EN 10088-3, stainless steel
1.4469, EN 10213:2007, stainless steel
1.4408, EN 10213:2007, stainless steel
1.4517, EN 10213:2007, stainless steel
F51 S31803, ASME SA-182:2015, stainless steel
CF8M UNS J92900, ASME SA-351:2015, stainless steel
5A UNS J93404, ASTM A 890:2003, cast iron
CuAl10FeNi5-C, CC333G, EN 1982:2008, copper alloy
UNS C95800/C95500, ASTM B 148:2015, Al-bronze casting
60-40-18, ASTM A395:2015/ASTM A536:2006, cast iron
UNS J26625, ASTM A494:20030 nickel alloy
EN-GJS-400-18-LT, EN 1563, cast iron
CW-6MC (Inconel Alloy 625) UNS J26625 ASME SA-494 : 2015

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

Valves covered by this certificate may be used in General machinery service

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

EPDM may not be used for hydrocarbon services.

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions. Valves of austenitic stainless steel shall not be used in direct contact with seawater.

Nodular cast iron of the ferritic/pearlitic (ASTM A536 60-40-18):

- shall not to be used for piping subject to pressure shock, excessive strains and vibration
- shall not be used for class I and II piping with the following exceptions:
 - valves in hydraulic piping systems where failure would not render the system inoperative or introduce a fire risk
- 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 (ASTM A395 Gr 60-40-18, EN-GJS-400-15, and EN-GJS-400-18-LT), 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. Maximum temperature is limited to +350°C.

The approval does not include actuator and/or other equipment for remote control of the valves.

The valves covered by this certificate are not to be considered fire safe and therefore shall not be installed wherever fire safe application is required; e.g. as shut off or quick closing valves.

Type Approval documentation

Production testing

Each valve body shall be subjected to:

- hydrostatic pressure test at 1.5 times the maximum working pressure at room temperature.
- seat leakage testing at 1.1 times the maximum working pressure in the valve flow direction.

Testing shall follow procedures and acceptance criteria in EN12266-1 (leakage rate A).

Certification

The Society's product certificates are required for valves with DN > 100 mm having a design pressure, p > 16 bar and for ship side valves with DN > 100 mm regardless of pressure rating. For other valves, works certificate will be accepted.

Valve bodies shall be delivered with material certificates in accordance with DNVGL-RU-SHIP Pt.4 Ch.6 Sec.2 Table 3. Approval of manufacturer is required for VL and W material certificates..

Marking of product

Job Id: **262.1-033282-1**
Certificate No: **TAP000022F**

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.