

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP000015X**  
Revision No:  
**3**

## This is to certify:

That the **Butterfly Valves**

with type designation(s)

**EVS, EVBS, EVMS, EVFS, EVTLS, EVCS, EVBLS, EVUS, EVML, EVFL, EVS-VG**

Issued to

**Wouter Witzel EuroValve B.V.**  
**Losser, Overijssel, Netherlands**

is found to comply with

**DNV class programme DNV-CP-0186 – Type approval – Valves**  
**DNV rules for classification – Ships Pt.4 Ch.6 Piping systems**  
**DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021**

## Application :

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

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

Issued at **Høvik** on **2023-05-12**

for **DNV**

This Certificate is valid until **2028-02-19**.

DNV local unit: **Netherlands CMC**

Approval Engineer: **Jane Lozanov**

**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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

Butterfly valves designed in accordance with EN 12516-2/-4.

Type	Size	Pressure rating	Type
EVS	DN 50, 65	PN25	Wafer
	DN 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 900, 1000, 1200, 1400	PN16	
EVBS	DN 50, 65	PN25	Wafer
	DN 80, 100, 125, 150, 200, 250, 300	PN16	
EVMS	DN 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 750, 800, 900, 1000	PN16	Wafer
EVFS	DN 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650	PN25	Flanged
	DN 700, 750, 800, 900, 1000, 1200, 1400, 1500, 1600, 1800, 2000, 2100, 2200	PN16	
EVTLS	DN 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 750, 800, 900, 1000, 1200	PN16	Lugged
EVCS	DN 50, 65	PN25	Wafer
	DN 80, 100, 125, 150, 200, 250, 300	PN16	
EVBSL	DN 50, 65	PN25	Wafer
	DN 80, 100, 125, 150, 200	PN16	
EVUS	DN 600, 700, 750, 800, 900, 1000, 1200, 1400, 1500, 1600, 1800, 2000	PN16	Flanged
	DN 2200	PN10	
EVML	DN 80, 100, 125, 150, 200, 250, 300	PN25	Wafer
	DN 350, 400, 450, 500, 600, 700, 750, 800	PN16	
EVFL	DN 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600	PN25	Flanged
	DN 700, 800, 900, 1000, 1200, 1400, 1500	PN16	
EVS-VG	DN 50, 65, 80, 100, 125, 150, 200, 250, 300	PN16	Wafer

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	Cast iron, nodular ferritic	0°C – 350°C
60-40-18, ASTM A536	Cast iron, nodular ferritic	0°C – 350°C
EN-GJS-400-15, EN 1563	Cast iron, nodular ferritic	0°C – 200°C
EN-GJS-400-18U-LT, EN 1563	Cast iron, nodular ferritic	0°C – 350°C
GP240GH (1.0619), EN 10213	Cast steel	-20°C – 450°C
WCB, ASTM A216	Cast steel	-20°C – 450°C
LCB, ASTM A352	Cast steel	-46°C – 371°C
EN-GJL-250, EN1561*	Grey cast iron	0°C – 120°C
G-CUSn10Zn, DIN1705	Copper alloy	0°C – 20°C
UNS C95800, ASTM B 148	Al-Bronze casting	-29°C – 350°C
EN AC-42100 from EN 1706, grade: EN AC-ALSi7Mg0.3 (T6) **	Aluminium alloy	20°C – 200°C

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

\*\* Can only be used for models EVS and EVS-VG up to and including DN 300

### Disc:

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

**Seat:**

EPDM  
 NBR  
 FPM  
 VMQ (silicone)

**Application/Limitation**

Pressure-temperature ratings shall be in accordance with the design standard(s) for the selected metallic material of the valve, also limited to the temperature ranges for sealings as following:

EPDM: -29°C – 120°C  
 NBR: 0°C – 80°C  
 FPM: 0°C – 200°C  
 VMQ: -40°C – 200°C

EPDM sealing shall not be used in Hydrocarbon applications.

Valves covered by this certificate may be used in general machinery service.

The approval does not include any operating gear 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 or ESD valves,
- to be installed in LNG/LPG applications

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

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

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 more than 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**

Drawing No.	Rev. /Date	Title
/	jan.16	Guide to Nickel Aluminium Bronze for Engineers
/	Feb. 14.2018	Data Sheet Compound VV708D
/	/	Silicone Rubber - VMQ, PMQ, or PVMQ
/		viton-selection-guide
SPP9602/20	12.05.2017	Technical Data Sheet NBR
/	09.06.2015	Datablad NGW-70
/	11.01.2007	Datablad ESW-70

/	11.01.2007	Datablad EDJ-70
/	27.07.2004	Datablad EAF-70
/	/	Calculation note DN1600-2200-flanges-PN10
GD102.01.01.001-A.06	/	Dim Body WAFER
GD102.01.01.001-A.06	/	Dim Body FLANGED
GD102.01.01.001-A.06	/	Mech Prop (CALC)
/	/	Design calculation - Body-EV-Wafer type
/	/	Design calculation - Body-EV-Flanged type
PDS01.11.001	2015.04.01	Product data sheet - Wouter Witzel - EVFL
PDS01.10.001	2015.04.01	Product data sheet - Wouter Witzel - EVFS
PDS01.09.001	2015.04.01	Product data sheet - Wouter Witzel - EVML
PDS01.08.001	30.11.2018	Product data sheet - Wouter Witzel - EVMS
PDS01.07.001	2015.04.01	Product data sheet - Wouter Witzel - EVUS
PDS01.06.001	2015.04.01	Product data sheet - Wouter Witzel - EVTLS
PDS01.05.001	2014.04.01	Product data sheet - Wouter Witzel - EVBLS
PDS01.04.001	2015.04.01	Product data sheet - Wouter Witzel - EVBS
PDS01.03.001	2015.03.02	Product data sheet - Wouter Witzel - EVCS
PDS01.01.001	01.08.2017	Product data sheet - Wouter Witzel - EVS
PDS01.12.001	2015.04.01	Product data sheet - Wouter Witzel - EVTLLS
D-AWA016	D	Butterfly valve, 50-300- EVCS
D-AUA058	D	Butterfly valve, 600-2200, EVUS
D-AJA019	D	Butterfly valve, 50-1500, EVFL
D-AHA291	D	Butterfly valve, 50-2200, EVFS
D-AGA003	D	Butterfly valve, 80-800, EVML
D-AFA025	E	Butterfly valve, 80-1000, EVMS
D-ADA150	D	Butterfly valve, 50-1200, EVTLS
D-ACA003	D	Butterfly valve, 50-200, EVBLS
D-ABA071	D	Butterfly valve, 50-300, EVBS
D-AAA279	D	Butterfly valve, 50-1400, EVS
D-AAA199	F	Butterfly valve, 50-2200, EVS
GD102.01.01.001-B- Body EV - Wafer_DN50_EVS-VG - LA0218_2020-09-25	B	Design Calculation, DN50_EVS-VG
GD102-01-01-001-B-Body EV-Wafer_DN65_EVS-VG-LA2507_2020-09-25	B	Design Calculation, DN65_EVS-VG
GD102.01.01.001-B - Body EV - Wafer_DN80_EVS-VG - LA0320_2020-09-25	B	Design Calculation, DN80_EVS-VG
GD102.01.01.001-B - Body EV - Wafer_DN100_EVS-VG - LA0419_2020-09-25	B	Design Calculation, DN100_EVS-VG

GD102.01.01.001-B - Body EV - Wafer_DN125_EVS-VG - LA0514_2020-09-25	B		Design Calculation, DN125_EVS-VG
GD102-01-01-001-B-Body EV-Wafer_DN150_EVS-VG-LA0621_2020-09-25	B		Design Calculation, DN150_EVS-VG
GD102-01-01-001-B-Body EV-Wafer_DN200_EVS-VG-LA0818_2020-09-25	B		Design Calculation, DN200_EVS-VG
GD102-01-01-001-B-Body EV-Wafer_DN250_EVS-VG-LA1007_2020-09-25	B		Design Calculation, DN250_EVS-VG
GD102-01-01-001-B-Body EV-Wafer_DN300_EVS-VG-LA1215_2020-09-25	B		Design Calculation, DN300_EVS-VG
LA0218-A		2020-05-04	Body Machine Detail DN50_EVS-VG
LA2507-A		2020-05-04	Body Machine Detail DN65_EVS-VG
LA0320-A		2020-05-04	Body Machine Detail DN80_EVS-VG
LA0419-A		2020-05-04	Body Machine Detail DN100_EVS-VG
LA0514-A		2020-05-04	Body Machine Detail DN125_EVS-VG
LA0621-A		2020-05-04	Body Machine Detail DN150_EVS-VG
LA0818-A		2020-05-04	Body Machine Detail DN200_EVS-VG
LA1007-A		2020-05-04	Body Machine Detail DN250_EVS-VG
LA1215-A		2020-05-04	Body Machine Detail DN300_EVS-VG
FA0206 A		2019-05-28	Body Cast Detail DN50_EVS-VG
FA2506 A		2019-05-28	Body Cast Detail DN65_EVS-VG
FA0308-A		2019-05-28	Body Cast Detail DN80_EVS-VG
FA0408-A		2019-05-28	Body Cast Detail DN100_EVS-VG
FA0506-A		2019-05-28	Body Cast Detail DN125_EVS-VG
FA0607-A		2019-05-28	Body Cast Detail DN150_EVS-VG
FA0805-A		2019-05-28	Body Cast Detail DN200_EVS-VG
1-401010-20121205		2019-05-28	Body Cast Detail DN250_EVS-VG
1-401009-20121205		2019-05-28	Body Cast Detail DN300_EVS-VG
DTAAA000-A		2020-05-08	GA Drawings EVS-VG 50-300

### Production testing and Certification

Production Testing and Certification for the actual intended application shall follow the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

### Marking of product

Minimum marking requirements shall be as outlined in the valve design standard i.e., EN 19.

### Periodical assessment

For retention of the Type Approval, a DNV 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 DNV-CP-0338.