

# TYPE APPROVAL CERTIFICATE

Certificate no.:  
**TAP00001SN**  
Revision No:  
**2**

**This is to certify:**  
**that the Butterfly Valves**

with type designation(s)  
**BVKI, Wafer type, BLKI, Lug type, BFKI, Double flange type, BVKA, Wafer type, BLKA, Lug type, BVKX, Wafer type, BLKX, Lug type, BVPD, Wafer type, BLPD, Lug type, BVTT, Wafer type, BLTT, Lug type**

issued to  
**Ghibson Italia S.r.l.**  
**Zola Predosa BO, BO, Italy**

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

## Application:

**Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

Type:	Temperature range:	Max. working press.:	Sizes:
BVKI, Wafer type	acc. to sealig/lining material	PN 16	DN 40 - DN 800
BLKI, Lug type	dto.	PN 16	DN 40 - DN 800
BFKI, Double flange type	dto.	PN 16	DN 80 - DN 600
BVKA, Wafer type	dto.	PN 20	DN 40 - DN 800
BLKA, Lug type	dto.	PN 20	DN 40 - DN 800
BVKX, Wafer type	dto.	PN 25	DN 50 - DN 250
BLKX, Lug type	dto.	PN 25	DN 50 - DN 200
BVPD, Wafer type	dto.	PN 10	DN 80 - DN 800
BLPD, Lug type	dto.	PN 10	DN 80 - DN 800
BVTT, Wafer type	dto.	PN 16	DN 40 - DN 600
BLTT, Lug type	dto.	PN 16	DN 40 - DN 600

Issued at **Hamburg** on **2024-08-29**

for **DNV**

This Certificate is valid until **2029-08-28**.

DNV local unit: **Venice**

Approval Engineer: **Hagen Markus**



Digitally Signed By:  
Sven Klinger  
Location: DNV Hamburg,  
Germany

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

Rubber lined butterfly valves for installation in piping systems according to DNV-RU-SHIP Pt.4 Ch.6 Piping systems and DNV-OS D101 Marine und machinery systems and equipment.

Valve design:	EN 12516; EN 736; EN 593; API 609
Butterfly valve design styles:	Lug type; Wafer type; Double flange
Pressure / Temperature rating:	ASME B 16.34
Valve face – to – face:	EN 558; ISO 5752/20
Valve face flanges:	EN 1092; ASTM B 16.5
Valve top flanges:	EN ISO 5211; DIN 3337

Butterfly valves may be equipped with manual, pneumatic or electric actuator.  
Performance testing of pneumatic and electric actuators is not confirmed by this type approval certificate.

## Overview of valve types

Design pressure PS16bar, Class ANSI 150

VALVE TYPE	DESIGN STYLE	SIZE	Design pressure PN	Available flange pressure rating <sup>1</sup> PN
BVKI	Wafer type	DN 40 to DN 500	16	6 – 10 - 16
		DN 600 to DN 800	10	6 – 10
BLKI	Full lug	DN 40 to DN 500	16	6 – 10 - 16
		DN 600 to DN 800	10	6 – 10
BFKI	Double flange	DN 80 to DN 500	16	6 – 10 - 16
		DN 600	16	6 – 10 - 16
BVPD	Wafer type	DN 80 to DN 500	10	6 – 10
		DN 600 to DN 800	6	6
BLPD	Full lug	DN 80 to DN 500	10	6 - 10
		DN 600 to DN 800	6	6
BVTT <sup>3</sup>	Wafer type	DN 32 - DN 200	16	10 - 16
		DN 250 to DN 500	10	10
		DN 600	6	6
BLTT <sup>3</sup>	Full lug	DN 32 - DN 200	16	10 - 16
		DN 250 to DN 500	10	10
		DN 600	6	6

Body material	Disc material
Nodular cast iron EN-GJS-400-15, (EN-JS1030)	Carbon steel forged ASTM A105
Carbon steel ASTM A216-WCB	Nodular cast iron EN-GJS-400-15, (EN-JS1030)
Stainless steel ASTM A351 CF8M	Stainless steel ASTM A351 CF8M, ASTM A351 CF3M
Alu-Bronze ASTM B148-C958.00 <sup>2</sup>	Alu-Bronze ASTM B148-C958.00, EN CC333G
Aluminium EN AB/AC 46400, AISi9Cu1Mg EN 1706/EN 1676 <sup>2</sup>	“DUPLEX” 1.4470 (GX2CrNiMoN22-5-3), ASTM A351-A890-A995 CD3MN

“Super Duplex” 1.4469 ((GX2CrNiMoN26-7-4), ASTM A995 Gr.5A (CE3MN) ASTM A995 Gr.CD3MWCuN/6A
“Hastelloy” ASTM A494 CX2MW (C22), ASTM A494 CW-12MW (C276)
“Monel” ASTM A494 M35-1

### Notes

<sup>1</sup> For elevated temperatures the maximum allowable pressure shall be reduced according to the applied valve design standard.

<sup>2</sup> Not applicable to valve type BVTT, BLTT

<sup>3</sup> without coating disc

## Overview of valve types

Design pressure PS 20 bar, Class ANSI 150

VALVE TYPE	DESIGN STYLE	SIZE	Design pressure PN	Available flange pressure rating <sup>1</sup> PN
BVKA	Wafer type	DN 40 to DN 800	20	6 – 10 -16
BLKA	Full lug	DN 40 to DN 800	20	6 – 10 - 16

Design pressure PS 25 bar, Class ANSI 150

VALVE TYPE	DESIGN STYLE	SIZE	Design pressure PN	Available flange pressure rating <sup>1</sup> PN
BVKX	Wafer type	DN 50 to DN 250	25	16 - 25
BLKX	Full lug	DN 50 to DN 200	25	16 - 25

## Body material

Body material	Disc material
Nodular cast iron EN-GJS-400-15, (EN-JS1030) <sup>2</sup>	
Alu-Bronze ASTM B148-C958.00, EN CC333G	
Stainless steel ASTM A351 CF8M	Stainless steel ASTM A351 CF8M, ASTM A351 CF3M
Carbon steel ASTM A216-WCB	"DUPLEX" 1.4470 (GX2CrNiMoN22-5-3), ASTM A351-A890-A995 CD3MN  "Super Duplex" 1.4469 (GX2CrNiMoN26-7-4), ASTM A995 Gr.5A (CE3MN) ASTM A995 Gr.CD3MWCuN/6A  "Hastelloy" ASTM A494 CX2MW (C22), ASTM A494 CW-12MW (C276)  "Monel" ASTM A494 M35-1

### Notes

<sup>1</sup> For elevated temperatures the maximum allowable pressure shall be reduced according to the applied valve design standard.

<sup>2</sup> Not applicable to type BVKX, BLKX

## Application/Limitation

The butterfly valves are type approved for application "shut-off" valves in pipe class II and III piping systems listed in DNV-RU-SHIP Pt.4 Ch.6 - Table 2 Documentation requirements.

The valve seat/lining material shall be compatible with fluid in the system.

## Sea water application

The standard stainless-steel material such as 1.4571 is not approved for application in sea water systems or unprotected installation on the open deck.

It shall be noted that the selection of the materials considers the intended service condition and installation area of the piping system. In particular, the resistance to corrosion, erosion, oxidation and other deterioration which may occur during intended service life.

Reference is made to DNV-RU-SHIP Pt.4 Ch.6 – Section 2 – Materials.

### Service temperature range

The service temperature range applicable depends on valve material and seat/lining material selected. In addition, temperature limits with regard to seal durability with hydraulic fluids are to be observed.

Temperature rating depends on the seat/lining materials.

EPDM <sup>1</sup> -35°C to +130°C	EPDM <sup>1</sup> HT -40°C to +150°C	EPDM <sup>1</sup> White -35°C to +130°C	FKM -20°C to +200°C	PTFE -55°C to +190°C	MVQ -55°C to +190°C
NBR -25°C to +100°C	NR -40°C to +80°C	CR -20°C to +100°C	CSM -20°C to +125°C	PU Polyurethane -20°C to +80°C	CARBOXIDE -25°C to +100°C

#### Notes

<sup>1</sup> EPDM shall not be used for hydrocarbon service.

### Temperature range examples

Ferritic nodular cast iron valve EPDM seat/lining	0°C up to +130°C (EPDM)
Stainless valve with EPDM or FKM sealing	-35°C up to +130°C (EPDM)
	-20°C up to +200°C (FKM)

### Limitation

Valves made of aluminium are not approved for fire extinguishing systems such as fire mains, water spray, foam and sprinkler systems.

### Tests carried out

DNV CP 0186

Design approval according to valve standard, Visual inspection, Pressure test on valve body and seat tightness test.

### Production testing

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the nominal pressure PN at room temperature

In addition, seat leakage testing with 1.1 times PN 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 to be at least hydrostatically tested at a pressure equal to 5 bar, applied independently on each side of the closed disc.

### Product Certification

Valve bodies shall be delivered with material certificates in accordance with DNV-RU-SHIP Ship Pt.4 Ch.6 Sec.2 - Table 3 Material certificates.

Materials with material certificate "MC issued by the Society" (3.2 acc. to EN10204) or "MD issued by manufacturer" (3.1 acc. to EN10204) shall be purchased from DNV approved material manufacturer (AoM).

DNV product certificate (PC) is required for valves with DN>100 and design pressure  $\geq 16$  bar, and for ship side valves where DN>100 regardless of pressure. For other valves, a manufacturer's product certificate may be accepted.

## Type Approval documentation

TAP00001SN, Rev.2

Scope of work: Renewal with the following modifications

1. Modification of the Top Flange of the DN350, DN400, DN450 and DN500 valves for which the operating pin changes from round to square, always in compliance with ISO EN 5211 for coupling to part-turn actuators
2. Correction of temperature range sealing material EPDM HT

### Documents

#### Drawings

TOP FLANGE SOFT VALVE.

- DN 350 - (PD-KI-KA-KX) - TOP\_SOFT\_DN350\_SQ, 2024-03-05
- DN 400 SQUARE 27x27 - (PD - KI - KA - KX) - TOP\_SOFT\_DN400\_SQ, 2021-09-15
- DN 450 SQUARE 36X36 - (PD - KI - KA - KX) - TOP\_SOFT\_DN450\_SQ, 2022-12-22
- DN 500 SQUARE VERSION 36x36 (PD KI KA KX) - TOP\_SOFT\_DN500\_SQ, 2011-08-03

DNV Assessment report of assessment at production site Via Giuseppe Dozza, 2 -40069 - Zola Predosa (BO), dated 2024-06-28.

## Marking of product

For traceability to this type approval the products are marked according to EN 19 [2016] and PED (2014/68/EU) and in particular with:

### Example



## Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the DNV Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

### End of certificate