DNV·GL

Certificate No:
TAP000008J

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
"BFL" Series: "AW", "LT"

Issued to
Center Tech Armaturen GmbH
Laufeld, Germany

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme CP-0186 – Type Approval of valves

Application :

Butterfly valves approved for use in ship piping, machinery piping and cargo piping systems.

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

Temperature range:	**Dependent on seal material (see certificate)**
Max. working press.:	**Depending on rating (see certificate)**
Sizes:	**1.5" to 24" (DN40 to DN600)**

This Certificate is valid until **2020-12-31**.

Issued at **Høvik** on **2016-02-15**

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Simon Ratcliffe**

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

Butterfly valves, wafer or lug type. Body lining integrated with the valve seat.

Type: "BFL"
Series: "AW", "LT"

Sizes (DN or NPS equivalent)	*Ratings (EN 12516-1, ASME 16.34)*
DN40, 50, 65, 80, 100, 125	Up to PN40, Class 150
DN150	Up to PN25, Class 150
DN200, 250, 300, 350, 400	Up to PN40, Class 150
DN450, 500, 600	Up to PN25, Class 150

Body	Grey cast iron	EN-GJL-200 EN 1561:2011 EN-GJL-250 EN 1561:2011
	Nodular cast iron (ferritic)	EN-GJS-400-18-LT EN 1563:2011
	Cast steel	GP240GH EN 10213:2007 ASTM A216 WCB
	Aluminium bronze	ASTM B148 GR.958 and 2.0975
Disc	Grey cast iron	EN-GJL-200 EN 1561:2011
	Carbon steel	GP240GH EN 10213:2007 ASTM A216 WCB
	Stainless steel	1.4408 EN10213-4 ASTM A3512CF8M
	Aluminium bronze	ASTM B148 GR.958 and 2.0975
	Hastelloy	C, C4 or C4C
Lining/seats		EPDM, NBR, Viton, CR (neoprene), CSM (hypalon)

Application/Limitation

The valves are approved for use in ship piping, machinery piping and cargo piping systems.

Maximum allowable pressure shall be according to the relevant tables in EN 12516-1 and EN 12516-4 as appropriate.

Permissible temperatures dependant on lining/seat materials:
NBR (Buna-N): -20°C to + 80°C
CR (Neoprene): -10°C to + 100°C
EPDM: -30°C to + 120°C
FPM (Viton): -12°C to + 180°C
CSM (Hypalon): -20°C to + 135°C

The valves may not be used for sea water systems or hydrocarbon services where "fire safe" application is required, or as shut off or quick closing valves.

Parts in contact with seawater shall be suitably protected. Stainless steel valves are not permitted in seawater systems.

Valves made from grey cast iron shall not be used in;

- systems subject to pressure shock, excessive strains and vibration.
- class I and II piping systems.
- systems with fluids temperatures below 0 °C.

Valves made from grey cast iron may be used in 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.

Valves made from nodular cast iron shall not be used for media having a temperature exceeding 350°C or below 0 °C.

These valves may be used for bilge suction when fitted in connection with a non-return valve.

Bilge valves and shipside valves shall be arranged for manual operation even if these valves are remote controlled. A portable hand pump is not accepted as equivalent to manual operation.

When used as shipside valves the disc must not extend outside the hull plating in open position.

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

Type Approval documentation

Tests carried out
N/A

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.

- 5 bar applied independently on each side of the disc.

Testing shall follow procedures and acceptance criteria in EN 12266-1.

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

Marking of product

For traceability to this type approval, each valve is at least to be marked with:

- Type designation
- Size
- Pressure rating
- Manufacturer's name or trade mark

Periodical assessment

For retention of the Type Approval a DNV GL surveyor shall perform a survey at the manufacturer's premises every second year and before the expiry date of this certificate, to verify that the conditions for Type Approval complied with.