# TYPE APPROVAL CERTIFICATE

Certificate no.:
**TAP000008J**
Revision No:
**3**

## This is to certify:

**that the Butterfly Valves**

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

issued to
## Center Tech Armaturen GmbH
**Laufeld, Rheinland-Pfalz, Germany**

is found to comply with
**DNV rules for classification – Ships Pt.4 Ch.6 Piping systems**
**DNV class programme DNV-CP-0186 – Type approval – Valves**

## Application:

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

| | |
|---|---|
| **Temperature range:** | **Dependent on seal material (see certificate)** |
| **Max. working press.:** | **Depending on rating (see certificate)** |
| **Sizes:** | **DN 40 to DN 600 / DN 1.5" to DN 24"** |

Issued at **Hamburg** on **2026-03-15**

This Certificate is valid until **2031-03-14**.
DNV local unit: **Essen**

Approval Engineer: **Jörg Hille**

for **DNV**

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

## Product description

Butterfly valves, designed as wafer or lug type. Body lining integrated with the valve seat.
Type: "BFL"
Series: "AW", "LT"

## Design data

| Nominal sizes (DN) metric | Nominal sizes (DN) inch | Pressure ratings (EN 12516-1[1], ASME 16.34[2]) |
|---|---|---|
| DN40, 50, 65, 80, 100, 125 | DN 1,5", 2", 2,5", 3", 4", 5" | up to PN40, Class 150 |
| DN150 | DN 6" | up to PN25, Class 150 |
| DN200, 250, 300, 350, 400 | DN 8", 10", 12", 14", 16" | up to PN40, Class 150 |
| DN450, 500, 600 | DN 18", 20", 24" | up to PN25, Class 150 |

Note
[1] Maximum allowable pressure shall be according to the relevant tables in EN 12516-1 and EN 12516-4 as appropriate.
[2] For maximum allowable working pressure at ambient and elevated temperatures see ASME B16.34 as appropriate.

Materials

| Valve item | Material types | Material standards |
|---|---|---|
| Valve body | Grey cast iron | EN-GJL-250 EN 1561:2011 |
| | Nodular cast iron (ferritic) | EN-GJS-400-15 EN 1563:2019 |
| | | EN-GJS-400-18-LT EN 1563:2011 |
| | Cast steel | GP240GH EN 10213:2007 |
| | | ASTM A216 WCB |
| | Low Carbon Steel | ASTM A352 LCB/LCC |
| | Stainless Steel | 1.4408 EN10213-4 |
| | | ASTM A3512CF8M |
| | Aluminium bronze | ASTM B148 GR.958 and 2.0975 |
| Disc | Nodular cast iron (ferritic) | EN-GJS-400-15 EN 1563:2011 with polyamide coating |
| | Carbon steel | GP240GH EN 10213:2007 |
| | | ASTM A216 WCB rubber lined |
| | Stainless steel | 1.4408 EN10213-4 |
| | | ASTM A3512CF8M |
| | Aluminium bronze | ASTM B148 GR.958 and 2.0975 |
| | Hastelloy | C, C4 or C4C |
| | Titan | Titanium Gr.2 / ASTM B348 |
| | Duplex Stainless Steel | UNS J93404 |
| Lining/seats | | EPDM, NBR, Viton, CR (neoprene), CSM (hypalon) |
| | | H-NBR, VSI (Silikon-Kautschuk) |

Design temperatures

| Body and seat lining material | Permissible design temperature |
|---|---|
| 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 |
| H-NBR | -30°C to + 140°C |
| VSI (Silikon-Kautschuk) | -30°C to + 180°C |

## Application

The valves are type approved for installation in machinery and piping systems of Class II, and III. Material certificates for valve bodies shall be in accordance with DNV-RU-SHIP Pt.4 Ch.6 – Piping systems, Section 2, Table 4.

The valves shall be certified according to DNV-RU-SHIP Pt.4 Ch.6 – Piping systems, Section 9:

| Valve nominal size / Pressure rating | Type of certification[1] |
|---|---|
| DN > 100 mm / PN > 16 bar | PC |
| DN ≤ 100 mm / PN ≤ 16 bar | PD |
| Ship side valves DN > 100 mm regardless of pressure rating | PC |

Note
[1] See also DNV-CG-0550 Sec.3 for further information.

The valves are type approved for the following operating media:
- Non-flammable gases, sea water, steam, fresh water, air, oil.

Note:
Fuel oil, lubrication oil, hydraulic oil and thermal oil are in this context regarded as “Flammable liquids”.
See DNV-RU-SHIP Pt. 4 Ch. 1 – Machinery systems, general, Section 3 – Design principles.

## Limitation

The valves must not be used as emergency shut-off or quick-closing valves. They are not classified as fire-safe and may only be installed where fire-safe design is not required. Additionally, they are not permitted for flammable gases or for media classified as hazardous or toxic.

Valves fabricated of nodular cast iron of the ferritic type with specified elongation (A5) of 12% may be used on the following installations:
- Class II and class III piping systems
- Ship’s side and bottom and on the collision bulkhead

Nodular cast iron shall not be used for media having a temperature exceeding 350°C.

Valves fabricated of grey cast iron and nodular cast iron with specified elongation (A5) of < 12% are not permitted for the following installations and service conditions:
- Media having temperature below 0 °C
- Class I and II piping systems
- Media having temperature exceeding 120°C
- At the ship’s side and bottom, on sea chest and collision bulkheads
- Valves under static head fitted on external wall of fuel oil tanks and tanks for other flammable liquids
- Systems subject to pressure shock, excessive strains and vibration.

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

## Type Approval documentation

TA renewal TAP000008J rev.3

- Type Approval Assessment Report, dated: 2026-03-13

Upgraded drawings as received in 03/2021

| Size (DN, inch) | | **Serie AW** | Revison | **Serie LT** | Revison |
|---|---|---|---|---|---|
| 40-600 | Datasheets | AW-O.---.00 | 05 | LT-O.---.00 | 05 |
| | | **Drawings of the housings** | | | |
| Nominal valve sizes | | **Serie A** | Revison | **Serie LT** | Revison |
| 40 | 1,5" | BHAK.04X.00 | 01 | BHLK.04-.00 | 01 |
| 50 | 2" | BHAK.05X.00 | 03 | BHLK.05-.20 | 01 |
| 65 | 2,5" | BHAK.06X.00 | 03 | BHLK.06-.00 | 04 |
| 80 | 3" | BHAK.08X.00 | 02 | BHLK.08-.00 | 03 |
| 100 | 4" | BHAK.10X.00 | 02 | BHLK.10-.00 | 02 |
| 125 | 5" | BHAB.12X.00 | 02 | BHLB.12-.00 | 03 |
| 150 | 6" | BHAB.15X.00 | 02 | BHLB.15-.00 | 03 |
| 200 | 8" | BHAM.20X.00 | 02 | BHLM.20-.00 | 03 |
| 250 | 10" | BHAC.25X.00 | 03 | BHLC.25-.00 | 02 |
| 300 | 12" | BHAD.30X.00 | 03 | BHLD.30-.00 | 03 |
| 350 | 14" | BHAD.35-.00 | 04 | BHLD.35-.00 | 03 |
| 400 | 16" | BHAD.40-.00 | 05 | BHLD.40-.00 | 04 |
| 450 | 18" | BHAN.45-.00 | 03 | BHLN.45-.00 | 03 |
| 500 | 20" | BHAN.50-.00 | 04 | BHLN.50-.00 | 03 |
| 600 | 24" | BHAF.60-.00 | 02 | BHLF.60-.00 | 02 |
| | | **Calculation and minimum body thicknesses** | | | |
| | | QMH 608, dated 2009-03-03 | | | |

Zeichnungsübersicht CTA-DNV Zulassung Rev. 2021.01.27

## Type approval tests carried out

N/A

## Production testing

The valves shall be tested in accordance with DNV-RU-SHIP Pt.4 Ch.6 Sec.9, DNV-CP-0186 and EN 12266-1:2012.

| Test title / Test reference | Purpose | Accepted result |
|---|---|---|
| Hydrostatic pressure test | To confirm the pressure containing capability of the shell against internal pressure<br><br>Test pressure 1,5 times the design pressure | No leakage |
| Seat leakage test | Confirmation of leak tightness of the shell including the operating mechanism sealing against internal pressure<br><br>Test pressure:<br>1,1 times the design pressure in the valve flow direction<br>5 bar applied independently on each side of the disc | Leakage rate as specified |

## Manufactured by:

**Production place**
CENTER TECH Armaturen GmbH, Walter-Densbornstraße 8, 54533 Laufeld, Germany.

**Responsibility**
CENTER TECH Armaturen GmbH, located Walter-Densbornstraße 8, 54533 Laufeld, Germany, assumes responsibility for the design and manufacturing processes in order to ensure continuous and consistent production of type-approved products.

## 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 Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Program DNV-CP-0338, Section 4.

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

--- END OF CERTIFICATE ---