DNV·GL

Certificate No:
TAP0000175

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
BFL S 460

Issued to
AFFCO Flow Control (Shanghai) Co., Ltd
Fengxian, Shanghai, China

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

Application :

See certificate

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

Temperature range:	**See certificate**
Max. working press.:	**PN 6, PN 10, PN 16 / ANSI Class 150**
Sizes:	**DN 50 to DN 600**

Issued at **Hamburg** on **2018-05-16**
This Certificate is valid until **2023-05-15**.
DNV GL local station: **Shanghai**

Approval Engineer: **Guido Friederich**

for **DNV GL**

Olaf Drews
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

Double flanged butterfly valve type BFL S460
Flange connections according to: EN 1092 – 1 / -2, ASME B16.1, ASME B16.5
JIS B2220, JIS B2239

Sizes: DN 50 to DN 600
Pressure ratings: PN 6, PN 10, PN 16 / ANSI Class 150
Design temperature range

Seat material	Temperature range [°C]
NBR	0° to 90°
EPDM	0° to 130°
VITON	0° to 150°

Materials[1]:

Item	Material type
Body	ASTM A 216 WCB EN-GJS-400-15 (EN-JS-1030) DIN EN 1563
Disc	EN-GJS-400-15 (EN-JS-1030) DIN EN 1563 EN 1.4408 and ASTM A351 CF8M, Duplex steel Aluminium Bronze CC333G EN 1982 and AB2 BS 1400, Monel, ASTM A494
Stem	EN 1.4122, ASTM A276 316, Duplex steel Aluminium Bronze Alloy UNS C63000 Monel, ASTM B865
Seat	NBR/EPDM/Viton

Application

The butterfly valves of type BFL S460 are type approved for class I to class III piping systems and the following applications:

Sea water, Bilge, Ballast water, Sanitary systems, Fresh water, Cargo oil filling and discharge, crude oil lubrication oil, hydraulic oil and thermal oil, Ventilation systems, water drain and steam systems.

Limitation

Butterfly valves are not approved for flammable gases and applications with flowing media specified as dangerous and toxic fluids.

Fuel oil, lubrication oil, hydraulic oil and thermal oil are in this context regarded as "Flammable liquids". See DNV GL Rules, Pt. 4 Ch. 1, Section 3 – Design principles

Valves for hydrocarbon service shall be equipped with an anti static device.

Limitation - continuation

Aluminium Bronze type AB2 acc. to BS 1400 is not to be used in sea water systems or hydrocarbon services where "fire safe" application is required.
See DNV GL Rules, Pt. 4 Ch. 1, Section 3 – Design principles

Valves fabricated of cast iron and nodular cast iron with specified elongation (A5) of < 12% are not permitted for the following installations and service conditions:

- Class I and II piping systems
- Media having temperature exceeding 120°C
- At the ship's side and bottom, on sea chest
- Collision bulkheads
- Valves under static head fitted on external wall of fuel oil tanks and tanks for other flammable liquids

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

Type Approval documentation

Tests carried out

Fabrication testing

The butterfly valves are subjected to the following scope of tests:

Test standards DNVGL Pt.4 Ch.6 DNV GL CP 0186 Title	Purpose
Pressure test / Shell strength	To confirm the pressure containing capability of the shell against internal pressure Test pressure = 1,5 times the design pressure Holding time: 2 min. for sizes up to 100 mm 5 min. for sizes 125 - 250 mm 10 min. for sizes 275 mm - 450 mm 15 min. for sizes 475 and larger No leakage is permitted. For valves intended for ship's side or bottom the test pressure is not to be less than 5 bar.
Seat tightness	To confirm the capability of the seat(s) to comply with the specified leakage rate Minimum test pressure: equal to design pressure Test to be performed with closed valve with the other end open to atmosphere. The pressure shall be applied independently on each side of the closed disc. Holding time: 5 min. for all sizes Acceptable leakage range: Drop tight

Certification

Application in machinery and piping systems
Valves intended to be installed in piping system listed in DNVGL Rules Pt.4,Ch.6 – Section 1 shall be certified according to DNV GL Rules Pt.4 Ch.6 – Piping systems, Section 9

Valve nominal size / Pressure rating	Type of Product Certificate (PC) / Issued by
DN > 100 mm / PN > 16 bar	VL Certificate / DNV GL
DN ≤ 100 mm / PN ≤ 16 bar	W Works Certificate / Manufacturer
Ship side valves DN > 100 mm regardless of pressure rating	VL Certificate / DNV GL

Material certificates (valve bodies)
In accordance with DNV GL Rules Pt.4 Ch.6 – Piping systems, Section 2 – Table 3

Marking of product

For traceability to this type approval the products are to be marked with:
- Manufacturers 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

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out. The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

END OF CERTIFICATE