

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
S365, S366

Issued to

AFFCO Flow Control (Shanghai) Co., Ltd
Fengxian District, Shanghai, P.R.C.

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 :

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

Temperature range: see certificate
Max. working press.: 5 bar/ 10 bar /16 bar
Sizes: DN 50-DN 1200

Issued at **Hamburg** on **2020-06-04**

This Certificate is valid until **2025-06-03**.

DNV GL local station: **Shanghai**

for **DNV GL**

Approval Engineer: **Ana Cristina Do Carmo Insfran**

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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.



Product description

Butterfly valve type: S365 and S366 for installations in piping systems.

Valve design: U-Type Double Flange Butterfly, JIS F7480

Flange connections according to: JIS B2239/JIS B2220 JIS 5K, JIS 10K, JIS 16K

Top Flange: ISO 5211

Face to Face: JIS F7480 series 122

Testing Standard: JIS F7400

Butterfly valve nominal sizes: DN 50 to DN 1200

Pressure ratings: JIS 5K, JIS 10K, JIS 16K

Design temperature: Depending on seat materials

Seat design type	Temperature range [°C]
NBR	-15° to 80°
EPDM	-23 to 120°
VITON	-15° to 200°

Butterfly valves may be equipped with manual, pneumatic or electric actuator hydraulic¹.

Note 1:

Actuators, remote operating control devices and additional mountings are not included in this type approval.

Job Id: **262.1-032264-1**
Certificate No: **TAP00001Y0**

Materials:

Valve Body	Material type	EN Standard	ASTM Standard	JIS Standard
	Ductile Iron	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	Carbon Steel	-	WCB ASTM A216	SCPH2 JIS G5151
	Stainless Steel	1.4408 EN 10213	CF8, CF8M, CF3, CF3M ASTM A351	-
	Aluminium Bronze	AB2 BS 1400	C95500, C95800 ASTM B148	-
Disc	Ductile Iron 300um Rilsan coated/Halar coating	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	Stainless Steel	1.4408 EN 10213	CF8M ASTM A351	-
	Duplex	1.4470 EN 10213	Gr.4A,5A,6A ASTM A890	-
	Aluminium Bronze	AB2 BS1400	C95500, C95800 ASTM B148	-
Shaft	Stainless Steel	1.4122 EN 10088-3	431 ASTM A276/ F316, F316L ASTM A182	-
	Duplex	1.4462 EN 10088-3	F51, F53, F55 ASTM A182	-
	Alloy steel	-	Monel (K500) UNSN05500 ASTM B865	-
Seat	NBR(NITRILE)			
	EPDM			
	VITON			

Application

The butterfly valves of type S365 and S366 are type approved for the following operating media:

Non flammable gases, sea water, fresh water, air, oil.²

Note 2:

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

Limitation

Butterfly valves may not be used for flammable gases and applications with flowing media specified as dangerous and toxic fluids.

Body material of copper and copper alloys are subjected to requirements according to DNV GL Rules Pt.2, Ch.2 – Metallic Materials, Section 10 and 11 and to operating temperatures limits specified in DNV GL Rules Pt.4, Ch. 6 – Piping Systems, Section 2 – Materials.

Valves fabricated of copper and copper alloy shall not be used for media having temperature above the following limits:

- Copper and aluminium brass: 200°C
- Copper Nickel: 300°C

Tests carried out

The butterfly valves have been tested in accordance with the following standards:

Test standard: JIS F7400 DNVGL Pt.4 Ch.6 DNV GL CP 0186		Purpose
Title	Test reference	
Hydrostatic Pressure Test	Valve Body	To confirm the pressure containing capability of the shell against internal pressure Test pressure = 1,5 times the design pressure No leakage is permitted.
Hydrostatic/Pneumatic Seat tightness	Valve seat	To confirm the capability of the seats to comply with the specified leakage rate At the manufacture In the direction(s) for which the valve is designed No visible leakage..
Functional test	Valve assembly	Function test of completed assembled valve.

Type Approval documentation

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

DN > 100 mm / PN > 16 bar

DN ≤ 100 mm / PN ≤ 16 bar

Ship side valves DN > 100 mm
regardless of pressure rating

Type of Product Certificate (PC) / Issued by

VL Certificate / DNV GL

W Works Certificate / Manufacturer

VL Certificate / DNV GL

Material certificates (valve bodies)

In accordance with DNV GL Rules Pt.4 Ch.6 – Piping systems, Section 2 – Table

Marking of product

For traceability to this type approval the products are to be marked in particular with:

- Manufacturer's name or trade mark
- Valve type designation
- Size
- Maximum design pressure and temperature
- Arrow to indicate direction of flow

Production Place

AFFCO Flow Control (Shanghai) Co., Ltd

Building 3, No. 99, Desheng Road, Fengcheng Town, Fengxian District, Shanghai, P.R.C.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4.

- The certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>