

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00001X7
Revision No:
1

This is to certify:
that the Butterfly Valves

with type designation(s)
Double- and Triple-Offset HP Butterfly Valves
Series 4A to 4F

Series 44 to 49 and

issued to
Delval Flow Controls Pvt. Ltd.
Satara, Maharashtra, India

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

Temperature range: See certificate
Max. working press.: PN 10 to PN 40 / ASME Class 150 + 300 (see certificate)
Sizes: DN 50 to DN 600 / DN 2" to DN 24"

Issued at **Hamburg** on **2025-02-10**

This Certificate is valid until **2030-02-06**.

DNV local unit: **Mumbai NB & CMC**

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

for **DNV**



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 USD 300 000.

Product description

I. Double Offset HP Butterfly Valve Series: 44, 45, 46, 47, 48 and 49 for installation in piping systems.

Valve design: API 609 Category B; EN 593
 Valve side flanges: DIN EN 1092; ASME B 16.5, JIS B2220
 Valve top flange: EN ISO 5211
 Testing Standard: API 598; EN12266-1

Butterfly valve design styles according to the following types:
 Wafer type; Lug type; Double Flange type

Butterfly valve nominal sizes:

Wafer type: DN 50 to DN 600 (2" to 24")

Lug type: DN 50 to DN 600 (2" to 24")

Double Flange type: DN 80 to DN 600 (3" to 24")

Pressure ratings: PN 10, PN 16, PN 25, PN 40
 [Depending on valve nominal sizes]
 ANSI Class 150; ANSI Class 300

Design temperature: -29°C to +220°C (-20°F to 428°F)
 ASTM A216 Gr. WCB

Design temperature: -50°C to +220°C (-58°F to 428°F)
 ASTM B148 Gr. C95800
 NAB/NES 747 Part 2
 ASTM A995 Gr. 4A and Gr. 6A
 ASTM A351 Gr. CF8 & CF8M

Butterfly valves may be equipped with manual, pneumatic or electric actuator¹.

Materials Double Offset; ANSI Class 150 and ANSI 300:

Valve	Material type	Standard
Body	Carbon Steel	ASTM A216 Gr.WCB;
	Stainless Steel	ASTM A351 Gr.CF8 & CF8M
	Duplex Stainless Steel	A995 Gr.4A and Gr.6A
	Cast Copper Alloy	ASTM B148 Gr.C95800
	Nickel Aluminium Bronze	NES 747 Part 2
Disc	Stainless Steel	ASTM A351 Gr.CF8 & CF8M; A995 Gr.4A and Gr.6A
	Cast Copper Alloy	ASTM B148 Gr.C95800
	Nickel Aluminium Bronze	NES 747 Part 2
Stem	Stainless steel	ASTM A479 Type SS410; A564 type 630; (17-4PH); A479 Type XM-19; UNS S31803, S32760 (F55)
	Copper Alloy Bars	Monel K500; NES 833
Seat	RPTFE/ULTRA/Firesafe	

II. Triple Offset HP Butterfly Valve Series: 4A, 4B, 4C, 4D, 4E and 4F for installation in piping systems.

Valve design: API 609 Category B; EN 593
 Valve side flanges: DIN EN 1092, ASME B 16.5, JIS B2220
 Valve top flange: EN ISO 5211
 Testing Standard: API 598; EN12266-1

Butterfly valve design styles according to the following types:
 Wafer type; Lug type; Double Flange type

Butterfly valve nominal sizes for all type:
 DN 80 to DN 600

Pressure ratings: PN 10, PN 16, PN 25, PN 40
 [Depending on valve nominal sizes]
 ANSI Class 150 & ANSI Class 300

Design temperature:
 ASTM A216 Gr. WCB: -29°C to +425°C (-20°F to 797°F)

Design temperature:
 ASTM A995 Gr.4A and Gr.6A: -50°C to +325°C (-58°F to 617°F)
 ASTM B148 Gr.C95800
 NES 747 Part 2, NAB
 ASTM A351 Gr.CF8 & CF8M: -50°C to +500°C (-58°F to 932°F)

Butterfly valves may be equipped with manual, pneumatic or electric actuator¹.

Materials Triple Offset Class 150# and 300#:

Valve	Material type	Standard
Body	Carbon Steel	ASTM A216 Gr.WCB;
	Stainless Steel	ASTM A351 Gr.CF8 & CF8M
	Duplex Stainless Steel	ASTM A995 Gr.4A and Gr.6A
	Cast Copper Alloy	ASTM B148 Gr.C95800
	Nickel Aluminium Bronze	NES 747 Part 2
Disc	Stainless Steel	ASTM A351 Gr.CF8 & CF8M; A995 Gr.4A and Gr.6A
	Cast Copper Alloy	ASTM B148 Gr.C95800
	Nickel Aluminium Bronze	NES 747 Part 2
Stem	Stainless Steel	ASTM A479 Type SS410; A564 type 630; (17-4PH); A479
	Cast Copper Alloy Bars	Type XM-19; UNS S31803, S32760 (F55) Monel K500; NES 833

Note 1:

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

Application

Butterfly valves for control and shut-off applications.
 Operating media: Nonflammable gases, sea water, 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 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 materials of copper, copper alloys and Al-Bronze are subjected to requirements according to DNV Rules Pt.2, Ch.2 – Metallic Materials, Section 10 and 11 and to operating temperatures limits specified in DNV 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 (392°F)
- Copper nickel: 300°C (572°F)

Tests carried out/Production testing

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

Test standard: EN 12266-1/API598 DNV Pt.4, Ch.6 DNV 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 <ul style="list-style-type: none"> - at the time of manufacture - In the direction(s) for which the valve is designed No visible leakage
Functional test	Valve assembly	Function test of complete assembled valve

Type Approval documentation

Renewal: TAP00001X7

Type Approval Assessment Report dated on 2025-01-31

Letter statement dated 2025-01-31

Drawings No.:

PDBFV55080, PDBFV55070, PDBFV5, PDBFV51080, PDBFV51090, PDBFV51060, PDBFV51070, PDBFV51050, PDBFV51040, PDBFV50650, PDBFV50651, PDBFV50661, PDBFV51030, PDBFV50660, PDBFV50641, PDBFV50630, PDBFV50631, PDBFV50640, PDBFV50621, PDBFV50620, PDBFV50411, PDBFV50410, PDBFV50600, PDBFV50610

Valve Test Certificates, diverse, dated on 2019-11-20

TA401_TA Assessment dated on 2019-11-24

Test certificate dated on 2019-11-20

Certification

Application in machinery and piping systems.

Valves intended to be installed in piping system listed in DNV Rules Pt.4, Ch.6 – Section 1 shall be certified according to DNV 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 Certificate / Issued by

PC Product Certificate / DNV

PD Product Declaration / Manufacturer

PC Product Certificate / DNV

Material certificates (valve bodies)

In accordance with DNV 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 according to EN 19 [2016] and in particular with:

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

Place of manufacturing

Delval Flow Controls Pvt. Ltd.
 Gat No. 25, Kavathe
 Javale PO, Tal.Khandala,
 Dist Satara PIN 412801,
 Maharashtra State
 INDIA

Periodical assessment

For retention of the Type Approval, a DNV 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 DNV-CP-0338, Sec.4.

This 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.dnv.com>

End of Certificate