DNV·GL

Certificate No:
TAP000018Y

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
SAPAG - JHP

Issued to
Picardie Valves Industries
Ham, France

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves

Application :

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

Temperature range:	**-29°C to 400°C**
Max. working press.:	**10 bar to 25 bar**
Sizes:	**DN 50 to DN 900**

Issued at **Høvik** on **2018-02-28**
This Certificate is valid until **2021-12-30**.
DNV GL local station: **Dunkerque**

Approval Engineer: **Iselinn Vindstad**

for **DNV GL**

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

Lug and Wafer type butterfly valves designed to EN 12516-2.

Sizes:
DN50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, and 900.

Types:
1. With standard seat (RTFE, PTFE)
   DN50-DN600, 25 bar
   DN700-DN900, 10 bar
2. With fire safe seat (PTFE)
   DN50-DN600, 25 bar
3. With PP metal seat (316L)
   DN50-DN400, 10 bar
4. With HT metal seat (316L)
   DN50-DN200, 25 bar
   DN250-DN400, 16 bar

Materials:

Body:
Cast carbon steel: ASTM A216 WCB/ EN 10213 1.0619
Cast stainless steel: ASTM A351 CF8M/ EN 10213 1.4408
ASTM A351 CF3M/ EN 10213 1.4409
ASTM A351CD-4MCu/ EN 10213 1.4470
ASTM A351 CF8M-2.7% Mo/ EN 10213 1.4408 (2.7% Mo)
ASTM A351 CF8M-2.5% Mo/ EN 10213 1.4408 (2.5% Mo)
Cast aluminium-bronze: ASTM B148 C95800/ EN1982 CuAl10Ni5Fe5-C

Disc:
Cast carbon steel: ASTM A216 WCB/ EN 10213 1.0619
Cast stainless steel: ASTM A351 CF8M/ EN 10213 1.4408
ASTM A351 CF3M/ EN 10213 1.4409
ASTM A351 CF8M-2.7% Mo/ EN 10213 1.4408 (2.7% Mo)
ASTM A351 CF8M-2.5% Mo/ EN 10213 1.4408 (2.5% Mo)
EN 10222-5 1.4401 / AISI 316
EN 10222-5 1.4404 / AISI 316L
Duplex/Super Duplex: EN 10213-4 1.4517
ASTM A351CD-4MCu/ EN 10213 1.4470
EN 10222-5 1.4462
EN 10213-4 1.4469 / ASTM A890–Gr 5A-CE3MN
Cast aluminium-bronze: ASTM B148 C95800/ EN1982 CuAl10Ni5Fe5-C

Shaft:
Cast stainless steel: 1.4507 / X2CrNiMoCuN25-6-3
1.4401 / AISI 316
1.4404 / AISI 316L
1.4021 / A276 Gd420
1.4542 / A564 Gd630
Nickel alloy: 2.4375 / NiCu30Al
2.4856 / NiCrMo9Nb
Cast aluminium-bronze: ASTM B148 C95800/ EN1982 CuAl10Ni5Fe5-C
EN 12163: CuAl10Ni5Fe4

Seat:
RTFE
PTFE
AISI316L

Fire safe seat (with PTFE)
Metal PP (with AISI 316L)
Metal HT (with AISI 316L)

Application/Limitation

The approval is valid for ship, machinery & cargo piping systems onboard DNV GL classed ships and mobile offshore units.

Design temperatures depending on seat materials:

Material: RTFE			Material: PTFE			Material: fire safe (with PTFE/316L)	
Pressure	DN50 to DN600	DN700 to DN900	Pressure	DN50 to DN600	DN700 to DN900	Pressure	DN50 to DN600
	Temperature			Temperature			Temperature
10	-29°C/ 230°C		10	-29°C/ 180°C		10	-29°C/ 230°C
11	-29°C/ 230°C		11	-29°C/ 170°C		11	-29°C/ 230°C
12	-29°C/ 230°C		12	-29°C/ 170°C		12	-29°C/ 230°C
13	-29°C/ 220°C		13	-29°C/ 170°C		13	-29°C/ 220°C
14	-29°C/ 220°C		14	-29°C/ 170°C		14	-29°C/ 220°C
15	-29°C/ 220°C		15	-29°C/ 170°C		15	-29°C/ 220°C
16	-29°C/ 220°C		16	-29°C/ 170°C		16	-29°C/ 220°C
17	-29°C/ 210°C	-	17	-29°C/ 160°C	-	17	-29°C/ 210°C
18	-29°C/ 210°C	-	18	-29°C/ 160°C	-	18	-29°C/ 210°C
19	-29°C/ 210°C	-	19	-29°C/ 160°C	-	19	-29°C/ 210°C
20	-29°C/ 200°C	-	20	-29°C/ 160°C	-	20	-29°C/ 200°C
21	-29°C/ 200°C	-	21	-29°C/ 140°C	-	21	-29°C/ 200°C
22	-29°C/ 200°C	-	22	-29°C/ 120°C	-	22	-29°C/ 200°C
23	-29°C/ 200°C	-	23	-29°C/ 100°C	-	23	-29°C/ 200°C
24	-29°C/ 170°C	-	24	-29°C/ 90°C	-	24	-29°C/ 170°C
25	-29°C/ 120°C	-	25	-29°C/ 70°C		25	-29°C/ 120°C

Material: HT metal (with 316L)			Material: PP metal (with 316L)	
Pressure	DN50-DN200	DN250 to DN400	Pressure	DN50 to DN400
	Temperature			Temperature
10	-29°C/ 260°C		1	-29°C/ 300°C
11	-29°C/ 260°C		2	-29°C/ 300°C
12	-29°C/ 260°C		3	-29°C/ 300°C
13	-29°C/ 260°C		4	-29°C/ 300°C
14	-29°C/ 260°C		5	-29°C/ 300°C
15	-29°C/ 260°C		6	-29°C/ 300°C

16	-29°C/ 260°C		7	-29°C/ 300°C
17	-29°C/ 260°C	-	8	-29°C/ 300°C
18	-29°C/ 260°C	-	9	-29°C/ 300°C
19	-29°C/ 260°C	-	10	-29°C/ 300°C
20	-29°C/ 260°C	-		
21	-29°C/ 250°C	-		
22	-29°C/ 230°C	-		
23	-29°C/ 200°C	-		
24	-29°C/ 170°C	-		
25	-29°C/ 120°C	-		

ASTM A216 WCB and ASTM A351 CF8M are not seawater resistant and shall not be used in direct contact with seawater.

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

Butterfly valves fitted with fire safe seat are considered fire safe and are approved for use as closing valves, and for use as either closing or regulating valves in fire mains, water spray, foam, and sprinkler systems.

Type Approval documentation

Tests carried out
Fire test to API 607 Rev.5 carried out on KEYSTONE HiLok-SF DN 50 to DN 600 PN 20 valve. This covers all sizes of fire safe valves up to PN 25.

Production testing
All valve bodies shall be subjected by the manufacturer to a hydrostatic test at a pressure equal to 1.5 times the nominal pressure (The nominal pressure is the maximum allowable working pressure at room temperature).

All valve assemblies shall be subjected to seat leakage test at 1.1 times maximum working pressure at closed position.

Production Testing and acceptance criteria shall be in accordance with EN12666-1:
- Leakage rate A for valves with PTFE, RTFE, or fire safe seat
- Leakage rate D for valves with PP metal seat
- Leakage rate C for valves with HT metal seat

Valves fitted on ship's side and bottom are also to be hydrostatically tested at a pressure equal to 5 bar applied independently on each side of the closed disc.

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

Marking of product
For traceability to this type approval, the final products are to be marked with:
— manufacturer's name or trade mark
— valve type designation
— size
— maximum design pressure and temperature
— arrow to indicate direction of flow on one way flow valves.

Certificate Retention Survey
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 approval are complied with. Reference is made to DNVGL-CP-0338.