

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

FL(W) wafer serie 20, FG(W) double flanged serie 20, LUG(W) lugged serie 20, BBNV(W) double flanged serie 13 family valves

Issued to

SIGIVAL, S.A.
Torrejón de Ardoz, Madrid, Spain

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 :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****Temperature range:** dep. on seat and body material, see cert.
Max. working press.: See the certificate
Sizes: See the certificateThis Certificate is valid until **2025-12-03**.Issued at **Høvik** on **2020-12-04**for **DNV GL**DNV GL local station: **Madrid**Approval Engineer: **Mehdi Rowshan**

Zeinab Sharifi
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.

Job Id: **262.1-011956-3**
Certificate No: **TAP000006F**
Revision No: **1**

Product description

Wafer, lug and flanged type butterfly valves with soft seats.
Design basis: EN-12516-2:2004

Design types:

Types FL(W) and FG(W) with 10 bar:

Sizes: DN200, 250, 300, 350, 400, 450, 500, 600, 700, 800

Types LUG(W) with 10bar:

Sizes: DN200, 250, 300, 350, 400, 450, 500, 600

Types FL(W) and LUG(W) with 16 bar:

Sizes: DN25, 32, 40, 50, 65, 80, 100, 125, 150

Types FG(W) with 16 bar:

Sizes: DN200, 250, 300, 350, 400, 450, 500, 600, 700, 800

Types FL(W), LUG(W) and FG(W) with 25 bar:

Sizes: DN25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300

Types BBNV(W) with 16 bar:

Sizes: DN40, 50, 65, 80, 100, 125, 150

Types BBNV (W) with 10 bar:

Sizes: DN 200, 250, 300, 350, 400, 450, 500, 600, 700, 800

Materials:

Part	Material
Body	
Grey Cast Iron	EN GJL250
Ferritic Nodular Cast Iron	EN GJS400-15
Cast Steel	ASTM A216/A216M WCB
Cast Stainless Steel	ASTM A351/A351 M CF8-CF8M
Cast Tin Bronze	CuSn10-C (CC480K)
Carbon Steel	EN10025 S275JR S355J2N
Stainless Steel	AISI 304/316
Disc	
Cast Stainless Steel	ASTM A351/A351 M CF8/CF8M
Ferritic Nodular Cast Iron	EN GJS400-15
Cast Tin Bronze	CuSn10-C (CC480K)
Cast Aluminum Bronze	CuAl10Fe5Ni5 (CC333G)
Super duplex	1.4469 Super duplex
Stem	
Stainless Steel	AISI 420, 304 or 316
Seat	EPDM, NBR or Viton

Application/Limitation

Valves are approved for ship piping systems, machinery piping systems and cargo piping systems onboard ships and offshore mobile units (considering below limitations).

Maximum working temperatures for valves with the following seats:

Job Id: **262.1-011956-3**
Certificate No: **TAP000006F**
Revision No: **1**

Sealing	Temperature
EPDM	-40°C to 110°C
NBR (e.g. Perbunan)	-10°C to 100°C
Viton	-20°C to 210°C

EPDM sealing shall not be used in hydrocarbon systems.

The valves may not be used where "fire safe" application is required.

Valves of grey cast iron are not permitted fitted in the following systems:

- Class I and II piping systems
- Service temperatures below 0 °C and above 120°C
- Hydraulic piping systems
- Ship's side or bottom and on sea chest
- Collision bulkheads
- Under static head fitted on external wall of fuel tanks
- Ballast lines to forward tanks through cargo oil tanks
- Bilge and ballast piping in tunnels in double bottom

Valves of nodular cast iron are not permitted fitted in/on the following:

- Class I piping systems
- Service temperatures below 0 °C and above 350°C

When used as shipside valves the disc must not extend outside the hull plating in open position.

The maximum output torque from actuators used on butterfly valves must not exceed the limit at which the valve spindle or disc can be damaged if the disc is restrained in any position.

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

In seawater applications, surface preparation and coating of cast iron and cast steels shall be approved by society. Stainless steels AISI 420 and SUS 304 & 316 are not considered as seawater resistant material.

Type Approval documentation

Drawing Nos :

FG(W)-001-DT, rev.08, General Dimensions DN150-DN800

FG(W)-010-DT, rev.04, Technical sheet DN200

FG(W)-011-DT, rev.05, Technical sheet DN250- DN500

FG(W)-012-DT, rev.06, Technical sheet DN600- DN800

FL(W)-001-DT, rev.08, General Dimensions DN32-DN800

FL(W)-010-DT, rev.04, Technical sheet DN32-DN200

FL(W)-011-DT, rev.05, Technical sheet DN250-DN500

FL(W)-012-DT, rev.05, Technical sheet DN600-DN800

LUG(W)-001-DT, rev.07, General Dimensions DN32-DN600

LUG(W)-010-DT, Technical sheet DN32-DN200

LUG(W)-011-DT, rev.05, Technical sheet DN250-DN500

LUG(W)-012-DT, rev.06, Technical sheet DN600

PN25-FL(w) -001- DT, FL(w) PN 25 valve general dimensions.

PN25-FL(w) -005- DT, FL(w) PN 25 valve assembly screwing.

PN25-FL(w) -014- DT, rev.01, FL(w) DN 25/200 PN 25 valve material details

PN25-FL(w) -015- DT, rev.01, FL(w) DN 250/300 PN 25 valve material details

PN25-LUG(w)-001- DT, LUG(w) PN 25 valve general dimensions.

PN25-LUG(w)-005- DT, LUG(w) PN 25 valve assembly screwing.

PN25-LUG(w)-014- DT, rev.01, LUG(w) DN 25/200 PN 25 valve material details

PN25-LUG(w)-015- DT, rev.01, LUG(w) DN 250/300 PN 25 valve material details

PN25-FG(w)-001- DT, FG(w) PN 25 valve general dimensions.

PN25-FG(w)-005- DT, FG(w) PN 25 valve assembly screwing.

PN25-FG(w)-014- DT, rev.01, FG(w) DN 125/200 PN 25 valve material details

PN25-FG(w)-015-rev.01, DT, FG(w) DN 250/300 PN 25 valve material details

Job Id: **262.1-011956-3**
Certificate No: **TAP000006F**
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BBNV(W)-001-DT, rev.02, DN 40/1200, General Dimensions
BBNV(W) -010-DT, rev.02, DN40/200, Materials
BBV(W) -011-DT, rev.02, DN250/500, Materials
BBV(W) -012-DT, rev.02, DN600/1200, Materials
Design Reports & calculations

Production testing

Each valve body shall be subjected to a hydrostatic pressure test at;
- 1.5 times the allowable pressure at room temperature

In addition each valve shall be subject to seat leakage testing as follows:
- 1.1 times the design pressure in the valve flow direction.

Testing shall follow procedures and acceptance criteria in EN 12266-1 (leakage rate A).

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.

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