DNV·GL

Certificate No:
TAP00000YF

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
NS DM-4020 series, NS MDM-4020 series, NS PDM-4060 series and NS ADM-4060 series

Issued to
Nakakita Seisakusho Co., Ltd.
Daito, Japan

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 all vessels classed by DNV GL.

Temperature range:	**Depending on system and body material, see cert**
Max. working press.:	**5 bar/10 bar/16 bar**
Sizes:	**DN 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550 and 600 mm**

Issued at **Høvik** on **2018-07-17**
This Certificate is valid until **2021-12-29**.
DNV GL local station: **Kobe**

Approval Engineer: **Mehdi Rowshan**

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

Metal seated butterfly valves. The torque is transferred from the stem to the disc by taper pins. The seat is hard facing overlay.

Table 1 Materials for normal systems (Non Fire Safe Type)

Part	Material	Grade acc. JIS (or ASTM)
Body	Grey Cast Iron Nodular Cast Iron Cast Steel Cast Stainless Steel Bronze Casting	FC 200, FC 250 FCD 400, FCD 450 SC 450, SC 480, SCPH 2 SCS 13, SCS 14, SCS 13A, SCS 14A, SCS 16 CAC 403, CAC 406
Stem	Stainless Steel Al-Bronze	SUS 304, SUS 316, SUS 316L, SUS 431, SUS 630 C6191, C63000 (ASTM)
Disc	Cast Steel Steel Cast Stainless Steel Bronze Casting Cast Al-Bronze	SC 450, SC 480, SCPH 2 S 25 C SCS 13, SCS 13 A, SCS 14, SCS 14A, SCS 16 CAC 403, CAC 406 CAC 702, CAC 703
Seat	Steel Stainless Steel Bronze Casting Cast Al-Bronze	S 25 C SUS 304, SUS 316, SUS 316L CAC 403, CAC 406 CAC 702, CAC 703

Table 2 Materials for systems where fire resistance is required (Fire Safe Type)

Part	Part / Material	Grade acc. JIS (or ASTM)
Body	Cast Steel Cast Stainless Steel	SCPH 2 SCS 13, SCS 14, SCS 13A, SCS 14A, SCS 16
Stem	Stainless Steel Al-Bronze	SUS 304, SUS 316, SUS 316L, SUS 431, SUS 630 C6191, C63000 (ASTM)
Disc	Cast Steel Steel Cast Stainless Steel Cast Al-Bronze	SCPH 2 S 25 C SCS 13, SCS 13 A, SCS 14, SCS 14A, SCS 16 CAC 702, CAC 703
Seat	Steel Stainless Steel Cast Al-Bronze	S 25 C SUS 304, SUS 316, SUS 316L CAC 702, CAC 703

Application/Limitation

Valves made of the material combination as given in Table 2 are regarded as Fire (high heat) resistant type.

Allowable temperature range (for valves of grey cast iron and nodular cast iron see additional limitations):

- Valves in fuel oil systems: -10 °C to 60 °C
- Valves in steam systems: -10 °C to 170 °C
- Other: -10 °C to 300 °C

Valves of grey cast iron (FC 200 / 250) and nodular cast iron with elongation, A_5, less than 12% (FCD 450) are not permitted fitted in/on the following:

- Media having temperature below 0 °C
- Class I and II piping systems
- Hydraulic piping systems
- Ship's side or bottom and on sea chest
- Collision bulkheads
- Under static head fitted on external wall of fuel oil tanks

- Ballast lines to forward tanks through cargo oil tanks
- Bilge and ballast piping in tunnels in double bottom
- Media having temperature exceeding 120°C

Valves of nodular cast iron (FCD 400) are not permitted fitted in/on the following:
- Media having temperature below 0 °C
- Class I piping systems
- Media having temperature exceeding 350°C

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

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

These valves can be used for bilge suction when fitted in connection with a non-return valve.

Butterfly valves are no to be used as quick closing valves or stop valves on fuel oil tanks.

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

Bilge valves and shipside valves should always be arranged for manual operation even if these valves are remote controlled. Manual operation by means of a portable hand pump is to be subject for case by case approvals.

Production Tests
The valve housing of each valve shall be subjected to a hydrostatic pressure test at minimum 1.5 times the design pressure. For valves intended for ship's side or bottom the test pressure is not to be less than 5 bar. No leakage is permitted

Certification
Each product/delivery is to be accompanied by the following documents:
- Product certificate prepared by the manufacturer under Manufacturing Survey Arrangement
- Work's Certificate for materials used in the valve body, stem and disc indicating mechanical and chemical properties. Valve bodies with nominal diameter 100 mm or less will be accepted with test report.
- Instruction manual/specification sheet.

Valves intended for ship's side or bottom is to be tested in the presence of a DNV GL Surveyor and supplied with a DNV GL product certificate when delivered to DNV GL Classed vessels or required by the purchaser

Type Approval documentation

Tests carried out
Fire test according to API Std 607

Marking of product
For traceability to this type approval, the products are at least to be marked with:
- Manufacturers name or trade mark
- Type designation

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.