DNV·GL

Certificate No:
TAP00000Z6

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
NS CBT-1200, NS CBT-1204, NS PCBT-3200, NS ACBT-3290 & NS MCBT-2200

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 July 2015
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:	**Depending on the seat material**
Max. working press.:	**See page 2**
Sizes:	**DN 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750 and 800 mm**

Issued at **Høvik** on **2018-04-05**
This Certificate is valid until **2021-12-31**.
DNV GL local station: **Kobe**

Approval Engineer: **Sinisa Sedlan**

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

Remote controlled double eccentric type butterfly valves, in the following configurations:

NS CBT-1200 manual operation
NS CBT-1204 manual operation
NS MCBT-2200 motor operation
NS PCBT-3200 hydraulic operation
NS ACBT-3290 pneumatic operation

Design:
Through bolted flange type, wafer type (flangeless), tapped flange type and standard flange type.
Undivided centric shaft. 2 taper pins for sizes DN 80 mm to DN 125 mm. 3 taper pins for bigger sizes.
Minimum body thickness: according to DNV GL Pt.4 Ch.7

Materials:

Part	*Material category*	*Material designation / grade*
Body and cover	Grey Cast Iron	FC250 acc. to JIS 5501
	Nodular Cast Iron	FCD400 or FCD450 acc. to JIS 5502
	Cast Steel	SC480 acc. to JIS G 5101 or, SCPL1 acc. to JIS G 5152 or, SCPH2 acc. to JIS G 5151
	Cast stainless steel	SCS13, SCS14 acc. to JIS G5121
Stem	Stainless Steel	SUS304, SUS304L, SUS316, SUS316L, SUS431 acc. to JIS G 4303
	Al-Bronze	C6191 acc. to JIS H 3250
Disc	Cast Steel	SC480 acc. to JIS G 5101 or SCPH2 acc. to JIS G 5151
	Hard Steel	S25C acc. to JIS G 4051 (stainless steel welding)
	Cast Stainless Steel	SCS13, SCS13A, SCS14, SCS14A acc. to JIS G 5121
	Al-Bronze	C6191 acc. to JIS H 3250
	Cast Al-Bronze	CAC702 or CAC703 acc. to JIS H 5120
Seat	Non-metallic	NBR, CR, EPDM and FKM(VITON)

Max. working pressure: 5 bar / 10 bar / 16 bar – all materials
20 bar – only for SC480, SCPH2, SCPL1, SCS13 and SCS14

Application/Limitation

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

Temperature range depending on the seat material:

Type of rubber	*Minimum temperature*	*Maximum temperature*		
		Dry air	*Sea water, Steam*	*Mineral oil*
CR	-20°C	70°C	70°C	70°C
NBR	-25°C	70°C	70°C	70°C
EPDM	-35°C	130°C	130°C	N/A
FKM(VITON)	-20°C	150°C	150°C	150°C

The valves with EPDM seat shall not be used in systems containing hydrocarbons.

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

Austenitic stainless steels (e.g. grades 304, 316, 403, 431) are not seawater resistant and shall not be used in direct contact with seawater.

The valves may not be used as shut off or quick closing valves.

Sizes between DN 80 and DN 400 mm for NS CBT-1200, NS CBT-1204, NS PCBT-3200, NS ACBT-3290 and NS MCBT-2200 valves may be used in fire main/fire water systems.

This certificate does not cover valves to be installed in LNG/LPG applications.

Nodular cast iron of the ferritic type, with specified minimum elongation of 12%, may be used in class II and III piping (when the minimum design temperature is not less than 0°C) and in valves located on the ship's side and bottom and valves on the collision bulkhead.

Grey cast iron and nodular cast iron with elongation less than 12% may be used for class III piping, with the following exceptions:

- Valves fitted on ship sides and bottom and on sea chests
- Valves fitted on collision bulkhead
- Valves under static head fitted on the external wall of fuel tanks, lub. oil tanks and tanks for other flammable oils
- Valves for fluids with temperatures in excess of 120°C

Type Approval documentation

	BT3-E9051 Rev. 0	BT3-E9052 Rev. 1	BT3-E9053 Rev. 0
BT3-E9054 Rev. 0	BT3-E9055 Rev. 1	PBT3-E9056 Rev. 0	PBT3-E9057 Rev. 0
PBT3-E9058 Rev. 0	PBT3-E9059 Rev. 1	PBT3-E9060 Rev. 0	PBT3-E9061 Rev. 0
PBT3-E9062 Rev. 1	PBT3-E9063 Rev. 0	PBT3-E9064 Rev. 0	PBT3-E9065 Rev. 0
PBT3-E9066 Rev. 0	PBT3-E9067 Rev. 1	PBT3-C4982 Rev. 0	PBT3-C4983 Rev. 0
PBT3-C4984 Rev. 0	ABT3-E9068 Rev. 0	ABT3-E9069 Rev. 0	ABT3-E9070 Rev. 1
MBT3-E9071 Rev. 0	MBT3-E9072 Rev. 0	MBT3-E9073 Rev. 1	MBT3-E9074 Rev. 0
MBT3-E9075 Rev. 0	MBT3-E9076 Rev. 1	MBT3-E9077 Rev. 0	MBT3-E9078 Rev. 0
MBT3-E9079 Rev. 1	MBT3-E9080 Rev. 0	MBT3-E9081 Rev. 0	MBT3-E9082 Rev. 1
BT3-E6123 Rev. 0	BT3-E2069 Rev. 1	BT3-E6124 Rev. 1	

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 ISO 5208 (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 mm and design pressure > 16 bar, and for ship side valves where DN > 100 mm 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.