

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000CE
Revision No:
2

This is to certify:

That the **Butterfly Valves**

with type designation(s)

Wafer type, Lug type, Double flanged type

Issued to

Qingdao Huaan Xinda Machinery Co., Ltd.
Qingdao, China

is found to comply with

DNV class programme DNV-CP-0186 – Type approval – Valves

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems

DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
Wafer type	See page 2	PN10, PN16 & PN25	DN40 to DN600 (for PN10 & PN16), DN40 to DN300 (for PN25)
Lug type	See page 2	PN10, PN16 & PN25	DN40 to DN900 (for PN10 & PN16), DN40 to DN300 (for PN25)
Double flanged type	See page 2	PN10, PN16 & PN25	DN50 to DN1200 (for PN10 & PN16), DN50 to DN300 (for PN25)

Issued at **Høvik** on **2023-01-31**

This Certificate is valid until **2027-12-31**.

for **DNV**

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

Approval Engineer: **Jane Lozanov**

Bosman van der Merwe
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.

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 300,000 USD.



Product description

Butterfly valve of wafer, lug & double flanged type with non-metallic lining designed according to EN 593:2011 and tested according EN 12266-1.

Valve type	Temperature Range	Max. working pressure:	Sizes (DN)
Wafer Type	see detail	PN10 & PN16	DN40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500 & 600
		PN 25	DN40, 50, 65, 80, 100, 125, 150, 200, 250 & 300
Double Flanged Type	see detail	PN10 & PN16	DN50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 650, 700, 750, 800, 900, 1000 & 1200
		PN 25	DN50, 65, 80, 100, 125, 150, 200, 250 & 300
Lug Type	see detail	PN10 & PN16	DN40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800 & 900
		PN 25	DN40, 50, 65, 80, 100, 125, 150, 200, 250 & 300

Materials for valve components (Wafer, Lug & double flanged type):

Part	Material	Standard designation	Application
Body	Nodular cast iron	EN-GJS-400-18-LT (BS EN 1563) EN-GJS-400-15 (BS EN 1563)	PN10-PN16: DN40-DN1200, PN25: DN40-DN300
	Grey cast iron	EN-GJL-250 (BS EN 1561)	PN10-PN16: DN40-DN600, PN25: DN40-DN300
	Carbon steel casting	ASTM A216 Gr. WCB	PN10-PN16: DN40-DN1200, PN25: DN40-DN300
Disc	Duplex steel	1.4469 EN 10283	PN10-PN16: DN40-DN1200, PN25: DN40-DN300
	Nodular cast iron	EN-GJS-400-18-LT (BS EN 1563) EN-GJS-400-15 (BS EN 1563)	
	Stainless steel	ASTM A351 Gr. CF8M	
	Aluminum-Bronze casting	ASTM B148 UNS C95400 & C95800	
Shaft	Stainless steel	ASTM A276 type 316 ASTM A582 type 416 ASTM A564 type 630 (S17400)	For all pressure ratings and sizes
	Duplex steel	ASTM A276 UNS S32205	
Liner/seat	Viton		PN10-PN16: DN40-DN1200, PN25: DN40-DN300
	PTFE		
	EPDM		
	NBR		
	Silicone rubber		
	Neoprene		
	Nitrile rubber		
	Hypalon		

Detail working temperature range depending on body materials and liner/seat materials:

		Grey cast iron, Nodular cast iron	Carbon steel casting
Liner/seat	Viton	0 °C – 204 °C	-18 °C – 204 °C
	PTFE	0 °C – 200 °C	-18 °C – 200 °C
	EPDM	0 °C – 121 °C	-29 °C – 121 °C
	NBR	0 °C – 100 °C	-18 °C – 100 °C
	Silicone rubber	0 °C – 200 °C	-18 °C – 200 °C
	Neoprene	0 °C – 100 °C	-29 °C – 100 °C
	Nitrile rubber	0 °C – 80 °C	0 °C – 80 °C

	Hypalon	0 °C – 80 °C	0 °C – 80 °C
--	---------	--------------	--------------

Application/Limitation

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

Valves of stainless steel shall not be used in seawater applications.

Valves of carbon steel casting with design temperature lower than 0 °C shall be impact tested as per requirements from DNV-RU-SHIP Pt.2 Ch.2 Section 8 table 14.

Valves of grey cast iron shall not to be used for piping subject to pressure shock, excessive strains and vibration.

Valves of grey cast iron may be used for class III piping, with the following exceptions:

- pipes and 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 & lub. oil tanks

Valves having EPDM lining are not to be used for hydrocarbon service.

Nodular cast iron of the ferritic type (EN-GJS-400-18-LT, EN-GJS-400-15), with specified minimum elongation of 12%, may be used in class II and III piping and in pipes and valves located on the ship's side and bottom and valves on the collision bulkhead.

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

Valves covered by this certificate with non-metallic liner/seats are not to be considered fire safe and shall not be installed in systems where fire safe applications are required.

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

Type Approval documentation

Tests carried out

Burst test

Production Testing and Certification

Production Testing and Certification for the actual intended application shall follow the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

Marking of product

Minimum marking requirements shall be as outlined in the valve design standard.

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