

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Check Valve**

with type designation(s)
DF192, DF193, DF195, DF208, DF209 & DF185 Series

Issued to

Dalian Marine Valve Co., Ltd.
DALIAN LIAONING, China

is found to comply with
DNV GL rules for classification – Ships
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves

Application :

The valves may be used in the following service: Fresh water, sea water, sanitary, ballast water, lube oil transfer, fuel oil transfer, cargo oil filling & discharge on open deck and exhaust gas.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Temperature range: See Certificate
Max. working press.: See Certificate
Sizes: See Certificate

This Certificate is valid until **2021-06-30**.

Issued at **Hamburg** on **2016-07-01**

DNV GL local station: **Dalian**

Approval Engineer: **Guido Friederich**

for **DNV GL**

Olaf Drews
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: **262.1-013126-5**
Certificate No: **TAP00000HJ**

Product description

Valve type	Description		Pressure (Lb)	Material	Seat Material
DF192 Series	Stop check valve DN15-300 Designed according to ASME/ANSI B16.34		150	A), B), C)	Metal seat
DF208 Series	Stop check valve DN15-50 Designed according to ASME/ANSI B16.34		150/300/600	D), E)	Metal seat
DF193 Series	Lift check valve DN15-300 Designed according to ASME/ANSI B16.34		150	A), B), C)	Metal seat
DF209 Series	Lift check valve DN15-50 Designed according to ASME/ANSI B16.34		150/300/600	D), E)	Metal seat
DF195 Series	Swing check valve Designed according to ASME/ANSI B16.34		DN15-50	150/300/600	D), E)
DF195 Series DF185 Series	Swing check valve Designed according to ASME/ANSI B16.34	DN50-300	150	A), B), C)	Metal seat
	Self closing drain valve DN15 and DN25 Designed according to ASME/ANSI B16.34	150	A)	Metal seat	Metal seat

Materials:

A) Cast steel ASTM A216/A216M Grade WCB (Not suitable for seawater)

B) Cast stainless steel ASTM A351/351A Grade CF8, CF8M, CF3 and CF3M

C) Cast copper alloy ASTM B584-06a Grade C83600

D) Forging steel ASTM A105/A105M-94

E) Forging stainless steel ASTM A182/A182M-94c Grade F304, F304L, F316, F316L (F304 and F304L are not suitable for seawater)

Application/Limitation

The valves may not be used for sea water systems or hydrocarbon services where "fire safe" application is required ref. DNV GL Rules for Ships Pt.4 Ch.1 Sec. 3 - Design principles

Material used, shall be resistant to the fluid carried through the valves.

Flanges shall be attached to valve body (DF195 Series) with full penetration butt weld according to approved WPS.

Heat treatment and non-destructive testing shall be done according to DNV GL Rules Pt.2 - Materials and welding, Ch.4 - Fabrication and testing

Generally acceptable temperature range for rubber used for some media:

Type of rubber	Minimum temperature, °C	Maximum temperature, °C		
		Dry air	Seawater steam	Oil
Perbunan (Nitrile or NBR)	-10 to -30	100	80 - 90	60 - 90
Viton (FPM)	-20 to -45	150 - 200	100 - 150	150 - 170

Valves design temperature: For Stainless steel <350 °C
For copper alloy <200 °C

Using valves with screw thread connection are limited as following:

Tapered thread:

- Class I piping system, outside diameter not more than 33.7 mm
- Class II and Class III piping system, outside diameter not more than 60.3 mm.

Parallel thread

- Class III piping system, outside diameter not more than 60.3 mm.

Note: Valves with screw thread connection is not allowed for flammable media.

Fabrication testing

Each product is to be accompanied by the following documents:

- Product certificate prepared by the manufacturer.
- Material certificate for valve components according to DNV GL Rules Pt.4 Ch.6 Sec.2 Table 3

Max. pressure to be de-rated dependant on temperature.

The approval does not cover systems with oxygen.

Valves for hydrocarbon service must be equipped with an anti static device.

The valve housing of each valve shall be subjected to a hydrostatic pressure test at minimum 1.5 times the design pressure.

Holding time: 2 min. for sizes up to 100 mm
5 min. for sizes 125 - 250 mm
10 min. for sizes 275 mm - 450 mm
15 min. for sizes 475 and larger

No leakage is permitted.

The valve assembly shall be subjected to a hydrostatic seat leakage test. The test pressure shall at least be equal to the design pressure. The test shall be performed with closed valve with the other end open to atmosphere. The pressure shall be applied independently on each side of the closed disc. For valves intended for ship's side or bottom the test pressure is not to be less than 5 bar.

Holding time: 5 min. for all sizes.

Acceptable leakage range: Drop tight

Each valve to be surveyed and certified by DNV GL when required by DNV GL Rules, or by the Purchaser. DNV GL product certificates are required for valves with DN > 100 mm and PN > 16 bar and for ship side valves DN>100mm regardless of pressure rating. For other valves manufacturers certificate may be accepted.

Type Approval documentation

- Assembly drawings
- Design standard overview
- Valve housing wall thickness overview

Tests carried out

Hydrostatic pressure test

Marking of product

For traceability to this type approval, each valve is to be marked with:

- Manufacturer's name:
- Type designation
- Size
- Max. design pressure(s) or pressure class
- Direction of flow

Periodical assessment

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out. Periodical assessments will be carried out bi-yearly.

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.