



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00001Y2
Revision No:
1

This is to certify:

That the **Ball Valve**

with type designation(s)
MSB-F and MSB-T

Issued to

Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd.
Suzhou City, China

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0186 – Type approval – Valves

Application :

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

Temperature range: see certificate
Max. working press.: **Class 900 (PN 150 [bar])**
Sizes: see certificate

Issued at **Hamburg** on **2022-08-01**

for **DNV**

This Certificate is valid until **2025-08-24**.

DNV local station: **Shanghai**

Approval Engineer: **Ana Cristina Do Carmo Insfran**

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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.

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.



Form code: TA 251

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Product description

Ball valve type MSB-F (Floating Ball Valve) and MSB-T (Fixed Ball Valve) for installations in piping systems.

Valve design: Double Flange Type API 608

Nominal Pressure: Class 150 (PN 20 bar), Class 300 (PN 50 bar), Class 600 (PN 100 bar)
and Class 900 (PN 150bar)

Flange connections: ASME B16.5

Face to Face: ASME B16.10

Testing Standard: API 598

Fixed Ball Valve nominal sizes:

Class 150: DN 76 to 489 DN (NPS 3 to NPS 20)
 Class 300: DN 76 to DN 591 (NPS 3 to NPS 24)
 Class 600: DN 50 to DN 559 (NPS 2 to NPS 24)
 Class 900: DN 38 to DN 282.5 (NPS 1½ to NPS 12)

Floating Ball Valve nominal sizes:

Class 150: DN 13 to DN 102 (NPS ½ to NPS 4)
 Class 300: DN 13 to DN 102 (NPS ½ to NPS 4)
 Class 600: DN 13 to DN 38 (NPS ½ to NPS 1½)
 Class 900: DN 13 to DN 25 (NPS ½ to NPS 1)

Pressure and temperature ratings: ASME B16.34

Design temperature: Depending on seal materials

Sealing Material	Temperature range [°C]
STL 6	-46° to 425°
Ni 60	-46° to 425°
Ni 55	-46° to 425°

Materials of MSB-F and MSB-T:

Valve	Material type	ASTM Standard
Body	Carbon Steel	ASTM A 105
	Duplex	F304, F304L, F316, F316L, F51 ASTM A182
	Stainless Steel	CF8M, CF3M, CF3, CF8 ASTM 351
Disc	Alloys	Inconel 750
Ball	Carbon Steel	ASTM A 105
	Duplex	F304, F304L, F316, F316L, F51 ASTM A182
Seal	STL 6	
	Ni 60	
	Ni 50	

Application

MSB Floating- and MSB Fixed Ball valves may be used for applications in piping systems of DNV pipe class I, II and III.

Operating media may:

Flammable fluids: cargo oil, crude oil washing, vent, cargo oil lines, fuel oil, lubrication oil, hydraulic oil, thermal oil²

Inert gas: inert gas, water seal effluent lines, scrubber effluent lines, main lines, distribution lines

Sea water: bilge lines, fire main and water spray, foam, sprinkler, ballast, cooling water, tank cleaning, non-essential

Fresh water: cooling water, condensate return, non-essential

Miscellaneous: starting /control air, service air (non-essential), brine, CO₂, steam, sanitary.

Note 2:

Fuel oil, lubrication oil, hydraulic oil and thermal oil are in this context regarded as "Flammable liquids".

See DNV Rules, Pt. 4 Ch. 1, Section 3 – Design principles

Limitation

Ball valves may not be used for ship's LNG and gas (methane) systems, sea water systems and flowing media specified as dangerous and toxic fluids.

Valves fabricated of copper and copper alloy shall not be used for media having temperature above the following limits:

- Copper and aluminum brass: 200°C
- Copper Nickel: 300°C

Test carried out

The ball valves are subjected to the following scope of tests

Test standard: API 598 DNV Pt.4 Ch.6 DNV CP 0186		Purpose
Title	Test reference	
Hydrostatic Pressure Test	Valve Body	To confirm the pressure containing capability of the shell against internal pressure Test pressure = 1,5 times the design pressure No leakage is permitted
Hydrostatic/Pneumatic Seat tightness	Valve Seat	To confirm the capability of the seat(s) to comply with the specified leakage rate: - at the time of manufacture - In the direction(s) for which the valve is designed Test pressure = 1,1 times the design pressure No visible leakage

Type Approval documentation

Type Approval Application dated on 2019-09-09
 Inspection testing Outline dated on 01-08-2020
 Type Approval Assessment report dated on 2020-08-10
 Prototype testing report of 4 ball valves dated on 2020-07-16
 Drawings: 1016001001-A; 1016001001-B; 1016001002-A; 1016001002-B

Certification

Application in machinery and piping systems

Valves intended to be installed in piping system listed in DNV Rules Pt.4, Ch.6 – Section 1
 shall be certified according to DNV Rules Pt.4 Ch.6 – Piping systems, Section 9

Valve nominal size / Pressure rating

DN > 100 mm / PN > 16 bar

DN ≤ 100 mm / PN ≤ 16 bar

Ship side valves DN > 100 mm
 regardless of pressure rating

Type of Product Certificate (PC) / Issued by

VL Certificate / DNV

W Works Certificate / Manufacturer

VL Certificate / DNV

Material certificates (valve bodies)

In accordance with DNV Rules Pt.4 Ch.6 – Piping systems, Section 2 – Table

Place of Manufacture

Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd.

No. 988, Yuexiu Rd., Lili Town, Wujiang Zone, Suzhou City, Jiangsu Province, China

Marking of product

For traceability to this type approval the products are to be marked in particular with:

- Manufacturer's brand
- Valve type designation
- Serial no.
- Lot no.

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment as per DNV-CP-0338, Sec.4 to verify that the conditions for the Type Approval are complied with.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>.

End of certificate