

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Ball Valve**with type designation(s)
2019D, 2021D, 2013KM

Issued to

Haitima China Corporation
Zhongshan, China

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 vessels classed by DNV GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
2019D	-20 to +200°C	15.2/38.5 bar	DN15,20,25,32,40,50,65,80,100,125,150,200,250
2021D	-20 to +200°C	Class 150	DN25,40,50,65,80,100
2013KM	-20 to +200°C	61.2/97.1/147.6 bar	DN15,20,25,32,40,50,65,80

Issued at **Høvik** on **2019-03-04**This Certificate is valid until **2023-12-31**.for **DNV GL**DNV GL local station: **Guangzhou FiS**Approval Engineer: **Adel Samiei**

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.



Product description

Description	One piece flanged end ball valve	Two pieces flanged end ball valve	Three pieces screwed end ball valve
Designation	2021D	2019D	2013KM
Body thickness	ASME B16.34	EN 12516-1	EN 12516-1
End connection	Flange acc. to ASME B16.5	Flange acc. to EN1092-1	Welded and/or threaded
Face to face	ASME B16.10	EN 558-1	DIN 3202-4 M3
Sizes	DN25,40,50,65,80,100	DN15,20,25,32,40,50,65,80,100,125,150,200,250	DN15,20,25,32,40,50,65,80
Part	Material		
Body	ASTM A351- CF8M ASTM A216 - WCB	1.4408 1.0619	ASTM A351- CF8M ASTM A216 - WCB
Stem	ASTM A276 - 316	ASTM A276 - 316	ASTM A276 - 316
Ball	ASTM A351 - CF8M	ASTM A351 - CF8M	ASTM A351 - CF8M
O-ring	Viton	Viton	Viton
Packings	Graphite / CTFE	PTFE / Graphite	Graphite / CTFE
Seat	RTFE	PTFE /RTFE / TFM1600	PTFE / RTFE

Application/Limitation

Valves covered by this certificate are approved to be use in ship piping, machinery piping and cargo piping systems.

Pressure/Temperature rating of each Type/Size:

Type	P/T	Sizes	Maximum working Pressure
2021D	Class 150 (ASME B16.34)	DN25,40,50,65,80,100	19.0 bar
2019D	PN16/40 (EN 12516-1)	DN15,20,25,32,40,50,65,80,100	38.5 bar
	PN16 (EN 12516-1)	DN125,150,200,250	15.2 bar
2013KM	Class 900 (ASME B16.34)	DN15,20,25	147.6 bar
	PN 100 (EN 12516-1)	DN32,40,50	97.1 bar
	PN 63 (EN 12516-1)	DN65,80	61.2 bar

Note: the effect of seat material as per manufacturer document «Pressure-temperature rating» of seats shall be considered.

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

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

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

The below valves covered by this certificate are considered fire safe:

Designation	Sizes	Pressure rating
2021D	DN40,50,65,80	Class 150
2019D	DN40,50,65,80,100	PN 40
2013KM	DN15,20,25	Class 900
	DN32,40,50	PN 100

Valves other than listed in the above table shall not be installed wherever fir safe application is required.

For 2013KM: The leakage tightening are made on the threads (no O-rings present), therefore the valves will have the following limitations:

- Valves with tapered threads:
 - Class I, outside diameter not more than 33.7 mm,
 - Class II and Class III, outside diameter not more than 60.3 mm.
- Valves with parallel threads are only allowed for Class III, outside diameter not more than 60.3 mm.

- In any case, valves 2013KM shall not be installed in systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.

Type Approval documentation

Tests carried out

Fire test according to API 607 fourth edition

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). The test pressure need not be more than 70 bar in excess of the nominal pressure.

All valves assembly 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 API EN12266-1, Rate A.

Certification

The Society's product certificates are required for valves with DN>100 mm having a design pressure, P>16 bar and for ship side valves with DN>100 mm regardless of pressure rating. For other valves, works certificate will be accepted.

Valve bodies shall be delivered with material certificates in accordance with DNVGL-RU-SHIP Pt.4 Ch.6 Sec.2 Table 3. Approval of manufacturer is required for VL and W material certificates.

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- manufacturer's name or trade mark
- valve type designation
- size
- maximum design pressure and temperature
- arrow to indicate direction of flow

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.