



Certificate no.:
TAP00002ZH

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Vent Head for Tank

with type designation(s)

Air Vent Head JIS-KS91A-121 (CB20037-2012, 53-ON)

issued to

Qingdao Highs Valve Co., Ltd.
Qingdao, Shandong Province, China

is found to comply with

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

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

DNV class programme DNV-CP-0187 – Type approval – Air vent heads

Application:

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

Sizes: DN50 to DN750

Issued at **Hamburg** on **2025-04-15**

This Certificate is valid until **2030-04-14**.

for **DNV**

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

Approval Engineer: **Jörg Hille**

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 USD 300 000.

Product description

The air vent head of type JIS-KS91A-121 (CB20037-2012, 53-ON) consist of a cast valve body with soft sealing, metallic float (ball shape) made of stainless steel, wire mesh for application on water tanks and tanks containing flammable fluids.

Welded stainless steel products are fully coated with epoxy paint and all body material has a pitting resistance equivalent number (PREN) $W \geq 30$.

Openings protected by filter mesh protection screen screwed to the housing together with the screen cover for following applications:

- insect prevention (mesh size 12 x 12 meshes per inch) and
- oil tank fire prevention (mesh size 30 x 30 meshes per inch).

Scope of application: seawater, fresh water, sewage, etc.

When suitable for seawater medium, inner cavity is coated with Akzo-Nobel® epoxy paint.

Outline dimension tolerances in mm (0-100 ± 2) (100-400 ± 4) ($> 400 \pm 8$).

Components and materials

Component	Material	Standard	Applicable Temperature range
Body	FC200	JIS G 5501-2016	-20° C to +80° C
	FCD400-15	JIS G 5502-2016	-30° C to +82° C
	Q235B	GB/T 3274-2017	0° C to +82° C
	SUS304 *)	JIS G4305:2012	-40° C to +82° C
	SUS316 *)	JIS G4305:2012	-40° C to +82° C
Cover	Q235B galvanized	GB/T 3274-2017	0° C to +82° C
Float	SAF2205	ASTM A240/A240M	-40° C to +82° C
Guide Bolt	SUS304 *)	JIS G4305:2012	-40° C to +82° C
Sealing Ring	NBR	GB/T 36089-2018	-29° C to +82° C
Hexagon Bolt	SUS304 *)	GB/T 5782-2016	-40° C to +82° C
Encloser/Side Cover	Q235B galvanized	GB/T 3274-2017	-40° C to +82° C
Filter screen	SUS304 *)	GB/T 36089-2018	-40° C to +82° C
Seal Seat, Sealing Cushion	NBR	GB/T 36089-2018	-29° C to +82° C

*) Conventional stainless steels, including Type 304 or 316, must not be used for seawater applications.

Temperature range

The applicable temperature range of the operating media for the air vent head depends on the selected materials of its components.

It is the manufacturer's responsibility to ensure that the materials applied in specific piping systems are suitable for the intended service conditions.

Manufacturing locations

- Qindao Highs Valve Co., Ltd., Qingda Industrial Park Jihongtan Street Chengyang District, Qingdao 2666111 Shandong Province China

Responsibility

Qindao Highs Valve Co., Ltd., Qingda Industrial Park Jihongtan Street Chengyang District, Qingdao 2666111 Shandong Province China, is responsible for the design and the production procedures with relation to ensuring continued consistent production of the type approved products.

Reference DNV CP-0338 Type approval scheme, Section 4.

Application/ Limitation

The air vent heads are type approved for application on air/overflow pipes of tanks as required by DNV Rules Pt.4 Ch.6 Sec. 4 – “10 Air, overflow and sounding pipes”.

The air vent heads are not considered as devices to prevent the passage of flame into cargo tanks. They shall not be installed on oil tanks (flash point < 60°C).

On fuel oil service tanks, settling tanks and any other oil tanks with heating temperature above 60°C, the air vent heads are to be fitted with flame screens with mesh size 8 for water tanks and mesh size 30 for oil tanks.

Air vent heads on ballast water tanks are not approved for permanent discharge/exchange of ballast water flowing through the closing device of the air pipe heads.

The certificate covers design assessment of air vent heads. Installation and other additional requirements related to installation are out of scope of this certificate.

The materials 304 or 316 are not suitable for use in conjunction with sea water. The ventilation heads made of this materials must not be installed on seawater or salt water tanks.

Product certificate is not required for air vent heads installed in ship class vessels.

Flow characteristics

Model: JIS-KS91A-121 (CB 20037-2012, 53ON)		
Size	80% of blocking velocity (m/s)	Flow resistance coefficient (ζ) @ pressure drop (ΔP) 25 kPa
DN50	36.57	6.77
DN65	25.40	6.61
DN80	18.64	6.94
DN100	17.69	6.70
DN125	16.46	6.78
DN150	17.41	6.45
DN200	16.06	6.63
DN250	14.58	5.64
DN300	16.76	3.65
DN350	16.30	4.21
DN400	14.88	5.46
DN450	14.46	6.51
DN500	11.96	6.85
DN550	10.51	6.93
DN600	8.97	6.97
DN650	7.82	6.75
DN700	6.91	6.77
DN750	6.30	6.84

Results of discharge test and flow test on air vent heads with stainless steel wire mesh, 30 x 30 meshes per inch.

Type Approval documentation

Tests carried out

1. Impact test on metallic floats;
2. Shape and wall thickness for ball floats;
3. Flow characteristic test;
4. Tightness test;
5. Discharge / reverse flow test.

Tests performed on type JIS-KS91A-121 (CB 20037-2012, 53-ON).

Marking of product

For traceability to this type approval certificate each air pipe head is to be provided with:

Marking content	Example
Type	JIS-KS91A-121
Nominal diameter	DN450
Manufacturer	Qingdao Highs Valve Co. Ltd.
Production date	2025-02
Valve No.	202501HS01

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Section 4.

In addition, burst pressure testing on selected sizes to be carried out in the course of renewal of the certificate.

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

--- END OF CERTIFICATE ---