

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Vent Head for Tank

with type designation(s)
Ball Float A

Issued to

Kwang San Co., Ltd.
Busan, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

Application :

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

Sizes: 2" to 20" (DN50 - DN500)

This Certificate is valid until **2021-01-10**.

Issued at **Høvik** on **2016-01-11**

DNV GL local station: **Pusan**

for **DNV GL**

Approval Engineer: **Simon Ratcliffe**

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

Air vent heads featuring a metallic spherical ball float and a mesh cover (30 mesh or 5 mesh).

The following sizes are covered by this certificate:

DN50, DN65, DN80, DN100, DN125, DN150, DN200, DN250, DN300, DN350, DN400, DN450, DN500.

Flange connections: JIS 5K, 10K and 16K

The following materials are covered by this certificate:

Body, top cover, side cover	SS400 (zinc coated hot galvanised 70 ~ 100 microns)
Ball	SS400 (zinc coated hot galvanised 70 ~ 100 microns)
Mesh	SS400 (zinc coated hot galvanised 70 ~ 100 microns)
Bolts and washers	SS400 (zinc coated hot galvanised 70 ~ 100 microns)
Seals/gaskets	NBR, EPDM, CR, SBR

Application/Limitation

The air vent heads are approved for use on pipes from tanks according to DNV GL Pt.4 Ch.6 Sec.4 Para.11.

The air pipe heads are not permitted for use on tanks containing fluids with a flashpoint below 60 °C.

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

A product certificate is not required for installation on DNV GL classed vessels.

Reverse flow velocities (30 mesh, JIS 5K flange)

Size (DN)	Flow velocity (m/s)			
	Water type		Oil type (flashpoint > 60 °C)	
	Max	80 %	Max	80 %
50	46.83	37.47	47.46	37.97
65	47.03	37.63	47.65	38.12
80	47.56	38.05	48.95	39.16
100	49.15	39.32	48.94	39.15
125	48.75	39.00	48.01	38.41
150	48.83	39.06	49.01	39.21
200	48.50	38.80	49.48	39.58
250	48.18	38.54	48.33	38.66
300	49.64	39.71	49.01	39.21
350	48.15	38.52	48.96	39.17
400	49.78	39.82	48.78	39.03
450	49.61	39.69	49.09	39.27
500	49.23	39.38	49.58	39.67

Type Approval documentation

Tests carried out

Flow test, tightness test (incl. 40° incline), reverse flow test, impact test of metallic ball (dry, ambient temperature). Type tests have been done in accordance with DNV TAP 5-793.10-1.

Job Id: **262.1-020016-1**
Certificate No: **TAP000003Z**

Marking of product

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

- Manufacturer's name or trade mark
- Type designation
- Size

Periodical assessment

For retention of the type approval, a DNV GL surveyor shall perform a survey, every second year and before the expiry date of this certificate, to verify that the conditions for the type approval are complied with.