

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Vent Head for Tank

with type designation(s)
SWS-S

Issued to

Se-Won Ind. Co., Ltd.
Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0187 – Type approval – Air vent heads

Application :

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

Sizes: DN65, 80,100,125,150,200,250,300,350,400,450

This Certificate is valid until **2021-08-08**.

Issued at **Høvik** on **2016-08-09**

DNV GL local station: **Gimhae MC & FIS**

for **DNV GL**

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

SWS-special type (SWS-S) air vent heads, with plastic floating disc. Body, guide bar, top cover & flange are made of SS400 (Hot dip galvanized - zinc layer is 70 to 100 microns). Gasket, disc packing and top cover packing are NBR. Wire mesh made of Duplex stainless steel.

Application/Limitation

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 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).

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

Results of Discharge test and flow test on air vent heads with wire mesh:

Size	80% of blocking velocity (m/s)	Flow resistance coefficient (*)	Size	80% of blocking velocity (m/s)	Flow resistance coefficient (*)
DN65	25.7	1,67	DN250	13.8	7,88
DN80	23.4	2,36	DN300	13.6	14,83
DN100	17.0	7,05	DN350	12.7	12,73
DN125	13.0	6,91	DN400	19.1	14,06
DN150	13.0	7,57	DN450	23.5	9,57
DN200	12.2	6,18			

(*)Flow resistance coefficients are calculated at a pressure drop equal to 250 mbar

Type Approval documentation

- Drawings:
 - SW-A01-A-SP Rev.0 dated 2015-12-14
 - SW-SWS-W-Ball-001 Rev.0 dated 2012-08-27
- Document number SW20-16T-003 Rev.0 dated 2016-05-06
- Prototype test report number SW-TR16-0501 dated 2016-05-27 witnessed by DNV GL surveyor (containing flow characteristics, discharge/reverse test & tightness test reports)
- Prototype test report number SW-TR14-0201 witnessed by DNV GL surveyor (containing impact test and compression loading test on plastic float)

Tests carried out

Flow Characteristics test, leakage test, discharge/reverse flow test, compression test of float, float impact test

Marking of product

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

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

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform periodical assessment every second year and before the expiry date of this certificate. The scope of the periodical assessment survey, is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.