

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Vent Head for Tank**with type designation(s)
CM type

Issued to

Winel B.V.
Assen, Netherlands

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 July 2015****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: DN40,50,65,80,100,125,150,175, 200,250,300,350,400,450,600**Issued at **Høvik** on **2017-08-02**This Certificate is valid until **2022-08-01**.for **DNV GL**DNV GL local station: **Rotterdam**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

Air vent head CM (cylindrical model) type with non-metallic float (made of PE). Material of body is AIMg4.5. (Size DN600 made of double floating balls)

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 flow velocity before blockage	Dynamic coefficient (*)	Size	80% of flow velocity before blockage	Dynamic coefficient (*)
DN40	37,2 m/s (**)	5,37	DN175	10,8	4,88
DN50	15,5 m/s	5,37	DN200	9,0	6,85
DN65	13,5 m/s	5,83	DN250	10,6	7,60
DN80	14,2 m/s	4,46	DN300	15,8	5,61
DN100	10,3 m/s	5,06	DN350	13,8	3,46
DN125	10,8 m/s	5,23	DN400	14,5	3,88
DN150	8,9 m/s	4,78	DN450	12,8	3,42
			DN600	21,4	4,75

(*) Flow resistance coefficients are calculated at a pressure drop equal to 235 mbar.

(**) No blockage was happened.

Type Approval documentation

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.