

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Vent Head for Tank**with type designation(s)
DS, ES, FS

Issued to

Dongtai Oceangoing Marine Fitting Co., Ltd.
DONGTAI, JIANGSU, China

is found to comply with

DNV GL class programme DNVGL-CP-0187 – Type approval – Air vent heads
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.****Type: Sizes:****DS DN50, DN65 - DN450****ES DN50, DN65 - DN450****FS DN50, DN65 - DN450**Issued at **Hamburg** on **2019-09-04**This Certificate is valid until **2024-09-03**.for **DNV GL**DNV GL local station: **Shanghai**Approval Engineer: **Andrii Pishchanskyi**

Olaf Drews
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

The air vent heads consist of:

- Cast iron body with soft sealing;
- Float:
 - Cast iron disk for the types DS and ES;
 - Stainless steel ball for the type FS;
- Stainless steel wire mesh.

The main components and their materials are as follows:

Part	Remark
Body	QT400-15 (Cast iron)
Jack bolt	QA19-2 (Copper alloy)
Float	022Cr25Ni6Mo2N (Stainless steel according to GB/T3280(2015))
Side cover	A3 (Non alloy steel according to GB700 (1965))
Cover	QT400 (Cast iron)
Seal seat	HN 8433 (NBR)
Protect net	022Cr25Ni6Mo2N (Stainless steel according to GB/T3280(2015))

Application/Limitation

The air vent heads are type approved for application on air/overflow pipes of tanks as required by DNVGL Rules Pt.4 Ch.6 Sec. 4 - 11 "Air, overflow and sounding pipes".

The air vent heads are not approved as devices to prevent the passage of flame into cargo tanks and shall not be installed on oil tanks containing oil with flash point <60°C (closed cup). Moreover, it shall not be installed on oil tanks containing oil with flash point <60°C.

On fuel oil service tanks, settling tanks and any other oil tanks with media temperatures above 60°C, the air vent heads are to be fitted with flame screens.

Air pipe 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.

Manufacturer's instructions are to be observed for selection and installation of the air vent heads.

Flow characteristics

Size\ Type	Flowrate at 0.25 bar pressure drop [m³/h]		
	DS	ES	FS
DN50	17	20	32
DN65	29	35	42
DN80	44	47	71
DN100	71	73	86
DN125	129	130	108
DN150	222	239	167
DN200	328	367	273
DN250	512	622	434
DN300	727	763	708
DN350	1062	1113	972
DN400	1267	1276	1020
DN450	1407	1427	1122

Discharge / reverse flow

To prevent blocking of the air vent head by a float during tank discharge the following maximum allowable air velocity shall be observed.

Size \ Type	80% of blocking velocity [m/s]		
	DS	ES	FS
DN50	30.7	33.5	32.8
DN65	22.6	28.5	26.5
DN80	20.6	16.4	23.6
DN100	15.4	21.4	14.8
DN125	15.4	22.2	18.2
DN150	16.3	18.2	18.6
DN200	16.3	15.3	30.7
DN250	17.3	17.2	29.0
DN300	15.8	13.6	20.1
DN350	15.9	14.9	15.7
DN400	16.5	11.0	12.6
DN450	13.0	11.1	10.2

Type Approval documentation

Tests carried out

1. Flow characteristics test;
2. Float impact test;
3. Tightness test;
4. Discharge/reverse flow test;
5. Measurement of shape/wall thickness of ball floats.

Job Id: **262.1-029226-1**
Certificate No: **TAP00001GB**

Marking of product

For traceability to this type approval each air vent head is to be provided with a name plate specifying at least the following data:

Content	Example
Manufacturer's name	Dongtai Oceangoing Marine Fitting Co., Ltd.
Standard	QB/T3594-94
Model	ES150QT
Product No.	17120124
Oil tank / water tank	Oil tank
Factory date	2017.12

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 Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>.