



Certificate No:
TAP00002SW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Vent Head for Tank

with type designation(s)
DS/ES, FS

Issued to

Jiangsu Dingchuang Marine Equipment Co.,Ltd.
Taizhou, Jiangsu, 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 :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.
The air pipe-closing device are not approved in lines from cargo tanks on tankers or chemical carriers.

Type:	Sizes:
DS/ES	DN50 up to DN400 (11 sizes)
FS	DN50 up to DN600 (15 sizes)

Issued at **Hamburg** on **2023-11-14**

This Certificate is valid until **2023-11-14**.

DNV local unit: **Nantong**

for **DNV**

Approval Engineer: **Hagen Markus**

Sven Klinger
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.

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 300,000 USD.



Form code: TA 251

Revision: 2022-12

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Product description

Air Vent Head with disc metallic float (Type DS/ES) and ball non-metallic/metallic float (Type FS).
Flange standard GB2506, PN 0.6MPa.

Type	Float	Body	Application
DS	Disc float made of SS22053	Cast design	DS: oil tanks (screen 30 mesh fire-proof)
ES			ES: Drinking water (screen 12 mesh insect-proof), technical water and ballast water tanks.
FS	Ball float made of PTFE	Welded design	Drinking water (screen 12 mesh insect-proof) technical water and ballast water tanks, oil tanks (screen 30 mesh fire-proof).

Materials

Component	Material designation	
	DS/ES DCMV-039-00DS/ES	FS DCMV-39-00FS
Body	DCMV-039-01DS/ES	DCMV-039-01FS
	EN-GJS-400-18	EN-GJS-400-18
	Not applicable	Q235-B
	ZG230-450 Ferrous Alloys/Cast Steel	Not applicable
	SUS304/316	SUS304/316L
	Q235-A	Not applicable
Cover plate	Q235B	Not applicable
	SUS304/316L	
Casing	DCMV-039-04	
	SUS304/316L	SUS304/316L
	Q235-B	Q235-B
Screen	DCMV-039-05	
	304/316L	
	Water tank mesh size 30 Oil tanks mesh size 12	
Screws cover plate	SUS304/316	Not applicable
Screws casing	SUS304/316	SUS304/316
Float	DCMV-039-02 DS/ES	DCMV-039-02 FS
	Cylindrical	Ball
	Not applicable	RPTFE
	SS22053 Ferrous Alloys / Stainless steels	
Guide rod	DCMV-039-06 DS/ES	Not applicable
	304/316L	
	Sea water application SS22053	
Seat sealing	DCMV-039-06	
	NBR	NBR

Application/Limitation

For application on fuel and oil tanks filter screen with mesh size 30 and for potable water insect-proof size 12 may be provided. Vent Head on ballast water tanks should not be provided with wire mesh. Maximal air velocities (80% of air flow and air velocity at blocking condition) resulted from "Discharge / reverse flow test" reports whereas dynamic coefficient factors are from "Flow characteristics test (pressure drop)" as follows:

The air pipe-closing device are not approved in lines from cargo tanks on tankers or chemical carriers. 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).

For installation refer to document "Air pipe installation guide", 2023-10-18

Type DS / ES – Disc float / metallic

Size	Discharge / reverse flow test			Result of flow test	
	Air flow rate at block condition (m ³ /h)	Air velocity at block condition V _R (m/S)	Maximal Air velocity (80% V _R)	Flow rate m ³ /h @0.25bar	Dynamic coefficient
DN50	218.13	30.86	24.69	19.31	6.69
DN65	268.72	22.50	18.00	35.65	5.61
DN80	375.12	20.73	20.73	47.58	6.23
DN100	590.98	20.90	16.72	73.30	6.44
DN125	1011.50	22.90	18.32	108.26	6.95
DN150	1479.98	23.26	18.69	168.36	6.84
DN200	2226.29	19.68	15.74	275.94	6.94
DN250	3372.02	19.08	15.26	470.02	9.96
DN300	6670.79	26.21	20.97	719.52	6.25
DN350	6842.98	19.76	15.81	926.67	6.89
DN400	8049.18	17.79	14.23	1221.76	6.86

Type FS – Ball float / non-metallic

Size	Result of Discharge test			Result of flow test	
	Air flow rate at block condition (m ³ /h)	Air velocity at block condition V _R (m/S)	Maximal Air velocity (80% V _R)	Flow rate m ³ /h @0.25bar	Dynamic coefficient
DN50	215.01	30.42	24.34	31.52	4.51
DN65	349.99	29.3	23.44	41.82	4.08
DN80	405.38	22.40	17.92	71.35	4.22
DN100	577.70	20.43	16.34	85.55	5.46
DN125	929.62	21.04	16.38	130.41	5.74
DN150	1286.27	20.22	16.18	239.96	4.51
DN200	2263.57	20.01	16.01	368.27	4.72
DN250	3450.37	19.53	15.62	620.23	4.52
DN300	4817.19	18.93	15.14	771.33	5.44
DN350	7375.73	21.29	17.03	1065.74	5.28
DN400	8716.43	19.27	15.42	1207.95	6.82
DN450	9226.76	16.12	12.9	1629.60	6.17
DN500	9309.19	13.17	10.54	1965.42	6.47
DN550	11768.05	13.76	11.01	2235.82	6.72
DN600	12659.02	12.44	9.95	2848.95	6.38

Type Approval documentation

Drawings

DS/ES	Issue date	F/FSF	Issue date
DCMV-039-00DS/ES Assembly	22.08.2023	DCMV-39-00FS Assembly	22.08.2023
DCMV-039-01DS/ES Body	22.08.2023	DCMV-039-01FS Body	22.08.2023
DCMV-039-04 Casing	22.08.2023	DCMV-039-04 Casing	22.08.2023
DCMV-039-05 Screen	22.08.2023	DCMV-039-05 Screen	22.08.2023
DCMV-039-06 DS/ES Guide rod	23.10.2024	Not applicable	--
DCMV-039-02DS/ES Float Cylindrical	22.08.2023	DCMV-039-02FS Float Ball	22.08.2023
DCMV-039-06 Seat NBR	22.08.2023	DCMV-039-06 Seat NBR	22.08.2023
Name plate DCMV-039-07	22.08.2023	Name plate DCMV-039-07	22.08.2023

Test plan

"Air pipe closing device – Initial type approval", 2023-10-18

Test reports

Type DS/ES

Air pipe head type report No.: JSDC221014, 2023-10-18

Page	Test procedure	Product model	Test condition	Acceptance criteria
1	Hydrostatic test air pipe head body, DN50 up to DN400	CB20037-2012 DS/ES	Tp: 0.3bar	Tightness of body
2	Test report of float (ball) and sealing ring DN50 up to DN400	CB20037-2012 FS	30min water flow @0.5bar inlet pressure drop	No damage to seal or screen
3 to 5	Float impact test (disc float), DN50 up to DN400	CB20037-2012 DS/ES	CP-0187 Sec.3 -2.1	No crack, deformation
6 to 11	Float compression loading test (disc float) DN50 up to DN400	CB20037-2012 DS/ES	CP-0187 Sec.3 -2.2	No crack, deformation
12 to 22	Tightness test DN50 up to DN400 Screen mesh 30	CB20037-2012 DS	CP-0187 Sec.3 - 6	Leakage rate <2ml/mm
23 to 33	Tightness test DN50 up to DN400 Screen mesh 12	CB20037-2012 ES	CP-0187 Sec.3 - 6	Leakage rate <2ml/mm

Test report University of Shanghai for Science and Technology No.: WT- 0348, 25th April 2023

Page	Test procedure	Product model	Test condition	Acceptance criteria
1 to 17	Flow Characteristic (pressure drop) Test Data Air pipe heads, DN50 up to DN400	CB20037-2012 DS/ES	CP-0187 Sec.3 - 5	Not applicable
18	Tightness test DN50 up to DN400	CB20037-2012 DS/ES	CP-0187 Sec.3 - 6	Leakage rate <2ml/mm

Test reports

Product model, CB20037-2012 FS

Air pipe head type report No.: JSDC221015, 2023-10-18

Page	Test procedure	Test condition	Acceptance criteria
1	Hydrostatic test air pipe head body, DN50 up to DN600	Tp: 0.3bar	Tightness of body
2	Test report of float (ball) and sealing ring, DN50 up to DN600	30min water flow @0.5bar inlet pressure drop	No damage to seal or screen
3 to 6	Float impact test (ball float), DN50 up to DN600	CP-0187 Sec.3 -2.1	No crack, deformation
7 to 14	Float compression loading test (ball float), DN50 up to DN600	CP-0187 Sec.3 -2.2	No crack, deformation
15 to 29	Tightness test, DN50 up to DN600, Screen mesh 12	CP-0187 Sec.3 - 6	Leakage rate <2ml/mm

Test report University of Shanghai for Science and Technology No.: WT- 0349, 25th April 2023

Page	Test procedure	Test condition	Acceptance criteria
1 to 24	Flow Characteristic (pressure drop) Test Data Air pipe heads, DN50 up to DN650	CP-0187 Sec.3 - 5	Not applicable
25 to 26	Tightness test, DN50 up to DN650	CP-0187 Sec.3 - 6	Leakage rate <2ml/mm

Miscellaneous documents

- Air Pie Head Type Material Report, JSDC221012, 2023-10-18
- Document "Air pipe installation guide", 2023-10-18

Tests carried out

DNV CP-0187 Air vent heads

Test on floats: Impact test, compression loading test, shape and wall thickness (ball float)

Test on fully assembled air vent heads in the following order:

Tightness test, Flow characteristic test (pressure drop test) including tightness test, Discharge / reverse test

In addition

Hydrostatic test air pipe head body

Marking of product

For traceability to this type approval the ait pipe heads are to be marked by a name plate with at least the following content:

空气管头	
Air Pipe Closing Device	
型号:	通径:
Type	DN
标准:	舱室:
Standard	Kind of tank
阀号:	产品编号:
Valve NO.	Serial No.
船检:	出厂日期:
Class	Date
江苏鼎创船舶设备有限公司	
JIANGSU DINGCHUANG MARINE	
EQUIPMENT CO., LTD	

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, Sec.4.

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

End of certificate