



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-13755

This is to certify that the
Vent Head for Tank

with type designation(s)

Aero 1.1, Aero 1.2, Aero 1.3, Aero 1.4, Aero 1.5, Aero 1.6 and Aero 1.3 modified

Manufactured by

John Gjerde AS
GJERDSVIKA, Norway

is found to comply with

Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Approval Program "Type Approval of Air Pipe Vent Heads".

Application

The vent heads can be used on air pipes on tanks acc. to Rules for Ships Pt.4, Ch.6, Sec.4, K where flame arrestors are not required.

Sizes: ND 40, 50, 65, 80, 100, 125, 150, 175, 200, 250, 300, 350 and 400 mm

Høvik, 2011-02-17
for Det Norske Veritas AS



This Certificate is valid until
2013-06-30


Marianne Spæren
Head of Section

DNV local office:
Ulsteinvik


Øyvind Skåra
Surveyor

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: P-13755
File No.: 793.10
Job Id.: 262.1-007074-2

Product description

AERO 1.1-1.6:

Self-closing air vent head w/ non-metallic float disc on guiding pin.

AERO 1.3 modified:

Additional spring loaded pressure/vacuum vent valves in the housing, for pressure balance when closing device is activated.

Materials:

Body:	Steel St. 37 hot dip galvanized	Stainless steel AISI 316L.	Aluminium EN AW5052
Float:	PE disc, ABS coated		
Seal:	Neoprene		
Guiding pin:	Stainless steel 316.		

The air vent heads are manufactured at Saldus Welding in Saldus, Latvia.

Application/Limitation

Maximum air inlet speed:

Aero 1.1, Aero 1.3 and Aero 1.4:

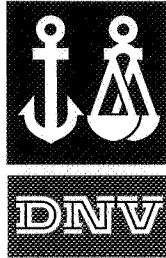
Size	[m/s]
50	17.07
65	15.35
80	17.13
100	11.09
125	9.81
150	12.58
200	13.19
250	19.30
300	19.31
350	18.72
400	13.69

Aero 1.2, Aero 1.5 and Aero 1.6:

Size	[m/s]
50	38.16
65	17.49
80	20.00
100	13.49
125	10.92
150	10.39
200	23.65
250	17.75
300	13.40
350	14.45
400	12.03

The vent heads may be used on air pipes on tanks acc. to Rules for Ships Pt.4, Ch.6, Sec.4, K where flame arrestors are not required, including fuel oil tanks, lubrication oil tanks and ballast tanks.

Aero 1.3 inert modified may be used on inerted ballast tanks.



Certificate No.: P-13755
File No.: 793.10
Job Id.: 262.1-007074-2

Type Approval documentation

Drawings:

No. 001.1, dated 28.08.03, Aero 1.1 vent check valve
No. 001.2, dated 28.08.03, Aero 1.2 vent check valve w/overflow
No. 001.3, dated 28.08.03, Aero 1.3 vent check valve w/closing device
No. 001.4, dated 28.08.03, Aero 1.4 vent check valve w/sounding cap
No. 001.5, dated 28.08.03, Aero 1.5 vent check valve w/elbow
No. 001.6, dated 28.08.03, Aero 1.6 inverted vent check valve w/overflow
No. 002.3, dated 14.01.04, Aero 1.3 vent check valve w/closing device, inert modified
Nos. A1S000001, A2S000001, A3S000001, A4S000001, A5S000001, A6S000001

Test reports:

Compression Loading Test and Impact Test of Float, Møreforsking 1995-03-08
Tightness Test of Closing Device. Johan Gjerde AS
Capacity Test. Johan Gjerde AS

Function test of Aero1.03 modified, DNV Ulsteinvik, dated 1998.10.05
Leakage test of AERO 1, ND175,250 &300. 2003.08.06/ 2003.10.10. LR witnessed
Tightness test for Aero performed August 6th, October 10th, December 16th 2004 and January 4th 2005. LR witnessed
Flow test report Aero 1.1 and Aero 1.2

Retention survey report dated 2009-03-27

Test report – Reverse flow through tank vent valves – Aero 1 series
NTNU Document; Design av en rigg for testing av ventilasjonsventiler

Tests carried out

Compression loading test and impact test of float, tightness tests and capacity tests of closing device.
Function test of type Aero1.03 modified.
Reverse flow test.

Marking of product

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

- Manufacturer's name or trade mark
- Type designation

Certificate Retention Survey

For retention of the Type Approval, a DNV 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.