



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP000001G**  
Revision No:  
**2**

## This is to certify:

**That the Vent Head for Tank**

with type designation(s)  
**WIN2000 HIAS, WIN2000 type 1, WIN2000 type 1-B, WIKO5000 type 1-A, WIKO5000 type 1, WIKO5000 Gooseneck type 1-B**

Issued to

**Winteb B.V.**  
**Winschoten, Groningen, Netherlands**

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 vessels classed by DNV.**

Type:	Sizes:
WIN2000 HIAS	DN 50,65,80,100,125,150,200,250,300,350,400,450,500
WIN2000 type 1	DN 50,65,80,100,125,150,175,200,250
WIN2000 type 1-B	DN 50,65,80,100,125
WIKO5000 type 1-A	DN 50,65,80,100,125,150,200,250,300,350,400
WIKO5000 type 1	DN 300,350,400
WIKO5000 Gooseneck type 1-B	DN 50,65,80,100,125,150,175,200,250

Issued at **Høvik** on **2022-04-12**

for **DNV**

This Certificate is valid until **2023-06-30**.

DNV local station: **Netherlands FIS**

Approval Engineer: **Maheshraja Venkatesan**

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**Zeinab Sharifi**  
**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

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### Product description

Air vent heads with PE-float balls (totally 7 types)

**Material:**

- Housing : AIMg3Si/AIMg5Si/AIMg7Si according to EN 1706  
 Duplex stainless steel grade 1.4462 according to EN 10213  
 Galvanized carbon steel grade S235J0 according to EN 10025-2
- Float : PE
- Sealing : NBR
- Screen : duplex stainless steel DMV 22.5 & DMV 25.7

Vent heads may be provided with anti-icing protection (heating element).

### 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.

Air vent heads made of galvanized steels shall be protected by hot dip galvanizing. The zinc layer shall be 70 to 100 microns.

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).

Heating elements functionality is not a part of this approval.

Size	WIN2000 HIAS with Screen	WIN2000 HIAS without Screen	WIN2000 Type 1 with Screen	WIN2000 Type 1-B with Screen	WIKO5000 type 1 with Screen	WIKO5000 type 1-A with Screen	WIKO5000 Gooseneck Type 1-B with Screen
<b>80% of blocking velocity resulted from Discharge/Reverse test:</b>							
DN50	15.12	15.76	8.24	7.52	-	13.52	13.20
DN65	14.64	14.96	7.68	7.84	-	8.48	13.52
DN80	29.04	32.72	8.16	8.32	-	5.68	17.12
DN100	50.72	50.72	6.32	5.60	-	8.40	18.00
DN125	43.84	48.00	7.76	6.80	-	7.20	17.76
DN150	34.96	34.40	8.40	-	-	11.04	18.00
DN175	-	-	6.64	-	-	-	-
DN200	20.08	22.40	8.00	-	-	10.80	10.88
DN250	12.48	12.56	7.68	-	-	9.20	18.00
DN300	32.96	32.32	-	-	9.68	11.84	-
DN350	28.80	28.72	-	-	7.28	7.76	-
DN400	22.00	21.68	-	-	7.20	8.00	-
DN450	27.04	26.72	-	-	-	-	-
DN500	24.48	24.40	-	-	-	-	-
<b>Dynamic coefficient resulted from flow characteristic tests (ΔP=250 mbar)</b>							
DN50	8.2	7.0	7.1	7.9	-	3.0	3.5
DN65	12.0	9.5	6.5	7.0	-	7.2	3.8
DN80	10.2	8.6	5.7	6.4	-	12.9	1.6
DN100	9.5	8.2	6.8	8.2	-	7.6	2.0
DN125	10.6	8.5	7.1	7.9	-	16.5	2.2
DN150	8.1	6.9	5.8	-	-	8.8	2.4
DN175	-	-	8.8	-	-	-	-
DN200	9.7	7.1	8.2	-	-	9.6	1.1
DN250	9.8	8.8	8.9	-	-	22.1	1.0
DN300	7.8	6.2	-	-	9.1	12.4	-
DN350	7.0	5.8	-	-	17.9	23.4	-
DN400	7.4	6.2	-	-	29.1	38.7	-
DN450	9.3	7.5	-	-	-	-	-
DN500	6.9	5.6	-	-	-	-	-

Product certificate is not required for both ship and offshore installations.

## Type Approval documentation

### Drawings:

- General arrangement drawing for WIN2000 type 1 & type 1-B WIN2000-01 rev.04 dated 2005-06-28
- General arrangement drawing for WIKO5000 type 1-A (sizes DN50, 65, 80, 100, 125, 150) 50-150-01-A rev.01 dated 2004-08-05
- General arrangement drawing for WIKO5000 type 1-A (sizes DN200, 250, 300, 350, 400) & WIKO5000 type-1 (sizes DN300, 350, 400) 200-400-01-A rev.01 dated 2005-08-10
- General arrangement drawing for W5GN rev. E for WIKO5000 Gooseneck type 1 & type 1-B
- General arrangement for WIKO5000 type-1A Rev. C
- General arrangement drawing for WIN2000 HIAS WIN2000-01 rev. W

### Test reports:

- Test report WINTeB 2005/1 dated 2005-05-31 done by Hochschule BREMEN UNIVERSITY of APPLIED Sciences (for WIN2000 type 1, WIN2000 type 1-B, WIKO5000 type 1-A & WIKO5000 type 1):
  - Annex 1 and annex 3: flow characteristics test data
  - Annex 2: Tightness test reports
- Discharge/Reverse test report for WIN2000 HIAS done by TECHNISCHE UNIVERSITÄT DRESDEN dated April 2014
- Tightness/leakage test reports for WIN2000 HIAS:
  - For DN65/80/100/125/150/200/250: report no. WINTeB 2014/IR1 dated 2014-06-18
  - For sizes 300/350/400/450/500: report no WINTeB 2014/IR2 dated 2014-11-06
- Flow characteristic test report for WIN2000 HIAS:
  - For sizes 50/65/80/100/125/150/200/250/300/350: report no. WINTeB 2014/3 dated 2015-04-13
  - For sizes 350/400/450/500: Test reports done by Nijhuis Pompen BV dated 2014-05-12
- WIN2000 HIAS Flow areas (document no. WIN2000-FA rev.0 dated 2015-06-08)
- Report no. WINTeB 2009/1 dated 2009-12-18 done by Hochschule BREMEN UNIVERSITY of APPLIED Sciences containing tightness and flow characteristic test reports for WIKO5000 Gooseneck type 1 & 1-A
- Discharge/Reverse test report for WIN2000 (type 1 & type 1-B), WIKO5000 (type 1 & type 1-A) & WIKO5000 Gooseneck types done by TECHNISCHE UNIVERSITÄT DRESDEN dated March 2011
- Flow characteristics test data for tests dated 2009-11-30 & 2009-12-01 done by Norit Nijhuis for WIKO5000 type-1
- Tightness test report on WIN2000 HIAS – DN300 done by Hochschule BREMEN UNIVERSITY of APPLIED Sciences dated 2015-09-14.
- Impact and compression test report on PE floats dated 2018-04-12 witnessed by DNV GL surveyor

## 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 at least with the following particulars:

- Manufacturer's name or trademark
- Type designation
- Size

## Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.