



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000NZ
Revision No:
3

This is to certify:

That the Viscosity Transmitter

with type designation(s)
ViscoSense VS3 and VS3D

Issued to

VAF Instruments B.V.
Dordrecht, Zuid-Holland, Netherlands

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Temperature	B (Sensor 180°C)
Humidity	B
Vibration	A
EMC	A
Enclosure	B / IP66

Issued at **Høvik** on **2023-02-15**

for **DNV**

This Certificate is valid until **2027-12-31**.

DNV local unit: **Netherlands CMC**

Approval Engineer: **Ståle Sneen**

Frederik Tore Elter
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.



Product description

ViscoSense® VS3 and VS3D with measuring sensor, comprising the following parts:

Part No.	Description
0279-0096	VS3 combined viscosity and temperature measuring sensor
0279-0110	VS3D combined viscosity, density and temperature measuring sensor
0279-0111	Interface box VS3D
0279-0112	Interface box VS3

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

- DEKRA EMC Test Report for an Interface Box model VS3, No. 2169489.0501-EMC, dated 2014-02-10
- DARE EMC Test Report of an Interface Box of the viscosity sensor model VS3 No. 13C01765RPT02, dated 2014-02-19
- Sebert Trillingstechniek B.V. Maritime vibration test on an Interface Box, No. M14.001-P14.001, dated 2014-01-29
- VAF Instruments Test Report of the Viscosense Interface Box VS3, carried out on part No. 0297-0111, dated 2014-02-20
- VAF Instruments Test Report of the Viscosense Interface Box for part No: 0297-0111, 0297-0112, dated 2017-07-19
- Aluminum Enclosure Watertight Testing Report by 2 Connect B.V., dated 2014-03-20
- DEKRA Test Report for degree of protection IP6X, No. 2171208.01-INC, dated 2014-04-08
- Test report of the Viscosense Sensor VS3D (PN: 0279-0110), dated 2016-06-22
- Sebert Trillingstechniek report No. M16.001-P16-.001, dated 2016-05-20
- DARE!! Measurements report No. 16C00550RPT03, dated 2016-06-16
- DARE!! Measurements report No. 17C00339RPT04, dated 2017-07-19
- DARE!! Measurements report No. 17C00340RPT01, dated 2017-06-01
- Power supply datasheet No. MFM-15-SPEC, dated 2019-12-13
- Power supply interfacebox - Comparison between old and new model power supply Rev.A, dated 2021-05-18
- Analyses document – scope of type approval tests Rev.B, dated 2021-05-18
- Kiwa Dare Services report No. 20210079RPT02, dated 2021-09-07
- Kiwa Dare Services report No. 20210621RPT01, dated 2021-09-07
- Kiwa Dare Services report No. 21C00070RPT01, dated 2021-08-24
- Sebert Trillingstechniek report No. M21.001-P21.001, dated 2021-09-06
- Performance test interfacebox – new power supply – DNV witnessed 2021-09-16
- Technical Manual Viscosense®3, No. TIB-775-GB-0722
- Technical Manual Viscosense®3D, No. TIB-778-GB-0620
- Drawings:
 - VS3
 - 0279-0112 Rev.I
 - 0395-0020 Rev.G
 - 0395-0021 Rev.E
 - 0820-2033 Rev.H
 - VID03B2H Rev.1.0
 - VS3D
 - 0279-0110 Rev.F
 - 0279-0111 Rev.O
 - 0379-0143 Rev.E
 - 0379-0144 Rev.A
 - 0379-0145 Rev.C
 - 0379-0146 Rev.B
 - 0409-0103 Rev.F
 - 0409-0107 Rev.B
- Type approval renewal assessment report for TAA00000NZ, DNV Netherlands CMC 2022-12-23

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:

- manufacturer name
- Part No. as listed under Product description
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE