

Type Approval Certificate



[Viscosity Sensor]

Initial Approval 4 June 1999

Manufacturer VAF Instruments B.V.
Vierlinghstraat 24, 3316 EL Dordrecht, The Netherlands

Product Description Type : ViscoSense VS3 & VS3D

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification of Steel Ships.

This Certificate is valid until 3 June 2029

Issued at Busan, Korea on 29 July 2024



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24037471279) and certificate No.(RTD03790-AE001).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

Note :

1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 29 July 2024

A. Product Description

1. Product Specification

- 1) ViscoSense VS3 consists of sensor (0279-0096) and interface box (0279-0112). ViscoSense VS3D consists of sensor (0279-0110) and interface box (0279-0111).
- 2) Sensor (0279-0096)

- Viscosity measuring range	:	0 ~ 50 mPa. s
- Temperature measuring range	:	0 ~ 200 °C
- Temperature transmitter	:	PT 100 element
- Flow rate	:	Max. 20 m³/h
- Fuel temperature	:	Max. 180 °C
- Material of sensor	:	Stainless steel 316
- Material of housing	:	Ductile iron
- Flange connection	:	DN 50 mm (2"), DIN, ANSI or JIS
	:	DN 65 mm (2,5"), DIN, ANSI or JIS
	:	DN 80 mm (3"), DIN, ANSI or JIS
	:	DN 100 mm (4"), DIN, ANSI or JIS
- Maximum Pressure Rating	:	40 bar
- 3) Sensor (0279-0110)

- Viscosity measuring range	:	0 ~ 50 mPa. s
- Temperature measuring range	:	0 ~ 200 °C
- Temperature transmitter	:	PT 100 element
- Flow rate	:	Max. 20 m³/h
- Fuel temperature	:	Max. 180 °C
- Material of sensor	:	Stainless steel 316
- Material of housing	:	Ductile iron
- Flange connection	:	DN 50 mm (2"), DIN, ANSI or JIS
	:	DN 65 mm (2,5"), DIN, ANSI or JIS
	:	DN 80 mm (3"), DIN, ANSI or JIS
	:	DN 100 mm (4"), DIN, ANSI or JIS
- Maximum Pressure Rating	:	40 bar
- 4) Interface box (0279-0111/0112)

- Supply voltage	:	100 ~ 230 VAC, 50/60 Hz
- Output of Viscosity	:	4 ~ 20 mA
- Output of temperature	:	4 ~ 20 mA
- Output of density	:	4 ~ 20 mA (0279-0111 Only)
- PC communication connection	:	ethernet (0279-0111 Only)
- Ambient temperature	:	-20 ~ +55 °C

2. Approved Drawings and Documents

- 1) Drawings
 - 0820-2033 Rev. G, 0395-0020 Rev. G, 0395-0021 Rev. E, 0279-0110 Rev. F, 0279-0111 Rev. 0, 0279-0112 Rev. I, 0379-0143 Rev. D, 0379-0144 Rev. A, 0379-0145 Rev. C, 0379-0146 Rev. B, 0409-0103 Rev. F, 0409-0107 Rev. B, VID03B4G Rev. 2
- 2) Manual
 - Technical Manual Visconsense®3, No. TIB-775-GB-0418 (2)
 - Technical Manual Visconsense®3D, No. TIB-778-GB-0418 (2)

3. Test Reports, etc.

- No. 99-CMC-MAR-R002 by TNO Centre
- No. 10097385/10106618 by N. M. I.
- No. M036-1999. 7052 & M01. 7055-2001. 7068 by SHAPE
- No. 01C00797RPT02. doc, 07C00076RPT02, 07C0079RPT03, 13C01765RPT02 by DARE
- No. 2169489. 0501-EMC, 2171208. 01-INC by DEKRA
- No. M14. 001-P14. 001, M16. 001-P16. 001 by Sebert Trillingstechniek B. V.
- Aluminum enclosure watertight testing report by 2Connect B. V.
- Test report VS3D No. 0279-0110 by VAF
- Test report Interface Box No. 0279-0111 and 0279-0112 by VAF
- Functional Test Result M10 and M20 by VAF
- No. 16C00550RPT03, 17C00339RPT04, 17C00340RPT01 by DARE
- No. 20200259RPT02, 21C00070RPT01, 20210621RPT0, 20210079RPT02 by KIWA
- No. M21. 001-P21. 001 by Sebert Trillingstechniek B. V.
- No. MFM-15-24 by Mean Well
- Performance Test Interfacebox dated 2021-09-16 by VAF

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B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) Degree of protection is to be complied with Rule Pt. 6 Ch.1 Sec. 2 201.2. (5).
- 3) The manufacturer is to inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition

Test	Condition	Remark
EMC	All locations excluding the bridge and deck zone	-
Temperature	5 °C ~ +70 °C	-
Vibration	Acceleration $\pm 0.7g$	-

< End of Certificate >