



DNV

DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-9899

This Certificate consists of 3 pages

This is to certify that the
Monitoring System
with type designations

Oil Mist Detector VISATRON
VN115,116,215/93, VN115,116, 215/87 EMC
See page 2

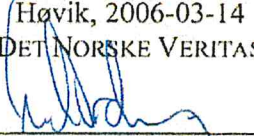
Manufactured by
Schaller-Automation Industrielle
Automationstechnik KG
Blieskastel, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Det Norske Veritas' Offshore Standards

Application
Location classes:

Temperature	B
Humidity	B
Vibration	B
EMC	B
Enclosure	B

Place and date
Høvik, 2006-03-14
for DET NORSKE VERITAS AS


Knut Svein Ording

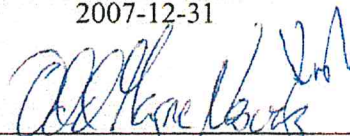
Head of Section

Notice: 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.



Local Office
DNV Essen

This Certificate is valid until
2007-12-31


Odd Magne Nesvåg

Surveyor

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.



Cert. No.: A-9899
File No.: 866.80

Product description

Visatron Oil Mist Detector for diesel engine crankcase monitoring, types:
VN115/93, VN116/93, VN215/93, VN115/87 EMC, VN116/87 EMC,
VN215/87 EMC.

Approval condition

Adaption to the engine in question to be approved in each case.
Spare parts are to be supplied in accordance with recommendation in manual.

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 Ships Pt.4 Ch.9 Control and Monitoring Systems.

All suction points from crankcase to oil mist detector unit to be equipped with "sampling funnels" of Schaller make. Special labyrinths inside the funnels prevent oil droplets from entering into suction pipes.

Suction pipes to be arranged according to Schaller instructions, with continuous gravity fall back to crankcase, with no low "pockets" where liquid oil may assemble and block the path between crankcase and oil mist detector unit.

The oil mist detectors have not been tested according to IACS UR M67 standard. Full compliance with this standard will be required for sensors applied to engines ordered after 1.1.2007.

Type Approval documentation

Manual for Oil Mist Detector, Visatron System
VN 115/93, VN 116/93, VN 215/93 No. 10980 Ed. 04W
Manual for Oil Mist Detectors, Art.no.<10024-EMC, Edition 04T for
VN 115/87-EMC, VN 116/87-EMC, VN 215/87-EMC

Drawings:
050072-012, 070055-010, 070022-009, all dated 95-04-12.
094 001, 094 002, 094 003, VN93 (16)

Massbild VN115/87 EMC EP115/99, 050072
Software PVdoc V1.15,
Oil Mist Detector Operating Instructions, Article No.: 2100 edition 06 99



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Test reports: 330/97, 515/99, Cetecom 4-1055-1-1/03
Test reports for VN XXX/87 type approval of 12.08.99
EMC test report ESW 03509.023.95 dated 95-03-08
Test report no. 356/97 from GHMT regarding EMC testing of VISATRON VN 215/87-EMC.

Certificate retention survey

The scope of the retention/renewal survey 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 survey 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.

Survey to be performed at renewal of this certificate.

END OF CERTIFICATE