



Lloyd's  
Register

## Type Approval Certificate

*This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.*

This certificate is issued to:

<b>PRODUCER</b>	Norsk Analyse AS Wirgenesvei 10 N-3157 Barkåker Norway
<b>DESCRIPTION</b>	Exhaust Gas Monitoring System measuring CO <sub>2</sub> and SO <sub>2</sub> contents based on dry NDIR principle
<b>TYPE</b>	ShipCEMS  Consisting of: <ul style="list-style-type: none"><li>- Analysing Cabinet</li><li>- Sample Conditioning Cabinet</li><li>- Measuring Probe</li></ul>
<b>APPLICATION</b>	Marine, Offshore and Industrial application in environmental categories ENV1 and ENV2 as defined in LR Test Specification No. 1: 2015 where the Test Specification is applicable for the service.
<b>ADDITIONAL TESTS</b>	Ingress protection: IP44
<b>STANDARD</b>	Continues monitoring of SO <sub>x</sub> emissions according to MEPC.259(68) IEC60945 IEC60529
<b>Certificate No.</b>	19/20023
<b>Issue Date</b>	28. March 2019
<b>Expiry Date</b>	27. March 2024
<b>Sheet</b>	1 of 2

Lloyd's Register EMEA  
71 Fenchurch Street, London EC3M 4BS



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**RATINGS**

SO<sub>2</sub>: 0 – 50 ppm / 0 – 1000 ppm Full Scale  
CO<sub>2</sub>: 0 – 3 % / 0 – 15 % Full Scale

**OTHER CONDITIONS**

In order to completely fulfil the requirements for SO<sub>x</sub> monitoring additional equipment (e.g. data recording, engine performance measurements) have to be installed.

For the purpose of automatic calibration of the ShipCEMS, one (1) vessel of span gas' shall be connected during operation.

**PLACE OF PRODUCTION**

Norsk Analyse AB  
Nyängsgatan 5  
S-66434 Grums  
Sweden

*The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.*

*The Design Appraisal Document No. HTS/ETS 38021-19 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

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