



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.

Manufacturer	Norsk Analyse AS
Address	Wirgenesvei 10, Barkaaker, 3157, Norway
Type	Gas analyser units
Description	Exhaust Gas Monitoring System measuring CO2 and SO2 contents based on dry NDIR principle. Consisting of: <ul style="list-style-type: none">- Analysing Cabinet- Sample Conditioning Cabinet- Measuring Probe
Trade Name	ShipCEMS
Application	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.
Specified Standard	Continues monitoring of SO _x emissions according to MEPC.259(68) and MEPC.340(77) IEC60945 IEC60529

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Ratings	SO ₂ : 0 – 50 ppm / 0 – 1000 ppm Full Scale CO ₂ : 0 – 3 % / 0 – 15 % Full Scale
Additional Tests	Ingress protection: IP44
Other Conditions	In order to completely fulfil the requirements for SO _x 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.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 19/20023

The Design Appraisal Document HTS/ETS 38021-19 Issue 1 and its supplementary Type Approval Terms and Conditions form part of this Certificate.