

## Statement of Compliance

This is to confirm that the undernoted product has been tested in accordance with the relevant requirements of MEPC.340(77) in respect of emission testing.

### Continuous Emission Monitoring System Danfoss IXA MES 1002

**Company** Danfoss IXA A/S  
Marsvej 5  
DK-6000 Kolding  
Denmark

**Product Description:** Continuous Emission Monitoring System

**Type** MES 1002

**This is to Confirm:** The "MES 1002" is found to be suitable as a continuous emission monitoring system of SO<sub>2</sub> and CO<sub>2</sub> according MEPC.340(77), "2021 Guidelines for exhaust gas cleaning systems", Chapter 6 "Emission Testing".

The functional testing has been demonstrated under surveillance and to the satisfaction of DNV in accordance with MEPC.340(77) as well as with relevant requirements of Revised MARPOL Annex VI and NO<sub>x</sub> Technical Code 2008 and meets the following requirements:

- |                          |                                  |
|--------------------------|----------------------------------|
| - Principle of detection | MEPC.340(77), 6.2                |
| - Accuracy               | NTC 2008; Appendix III, 1.6      |
| - Precision              | NTC 2008; Appendix III, 1.7      |
| - Noise                  | NTC 2008; Appendix III, 1.8      |
| - Zero and span drift    | NTC 2008; Appendix III, 1.9/1.10 |
| - Calibration curve      | NTC 2008; Appendix IV, 5.5.1     |

The "MES 1002" measures SO<sub>2</sub> and CO<sub>2</sub> on a wet basis with an in situ system and therefore the requirement of MEPC.340(77) regarding SO<sub>2</sub> loss is not applicable.

According to MEPC.340(77), 6.8, both gas concentrations (CO<sub>2</sub> and SO<sub>2</sub>) will be measured at the same residual water content in the sample and therefore no dry-to-wet conversion factors are required in the calculation of the CO<sub>2</sub>/SO<sub>2</sub> ratio.

**Documents:** "MES 1002 MEPC.340(77) Compliance Report",  
Doc No.: 101536-REP-B; dated 2023-11-10

"Installation and Operation Guide MES 1002"  
Doc No.: 101404-MAN-3B; dated: October 2023

"Data Sheet MES 1002"  
Doc No.: 100723-DSH-1F1; dated: October 2023

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## Technical Data

Component	Sensor type	Measurement range
SO <sub>2</sub>	NDUV (in situ)	0 - 200 ppm
CO <sub>2</sub>	NDIR (in situ)	0 - 15 vol.-%

## This is to Note

1. No additional equipment is needed to fulfil the requirements of MEPC.340(77) for "Emission Testing".
2. In case ambient temperature is below 0°C or above +55°C the "MES 1002" may only be operated with air conditioning cooling device.
3. In case exhaust temperature is above 100°C the "MES 1002" will temporarily stop the measurement.
4. The "MES 1002" shall be installed, calibrated and operated in compliance with the manufacturer's instructions and in acc. with the requirements and intervals as specified in MEPC.340(77) as well as the NTC 2008.
5. The calibration interval is 24 months without exceeding the zero and span drift according to NTC 2008, Appendix III, 1.9 and 1.10, because of the automatic zero-point calibration integrated in the MES 1002.
6. Checking of gas calibration with zero and span gas is not needed within the 24-month calibration interval.

## Remark

The compliance with relevant requirements of the DNV rules for classification - Ships, offshore units, and high speed and light craft has been type approved by DNV, Certificate No: TAA00003BS