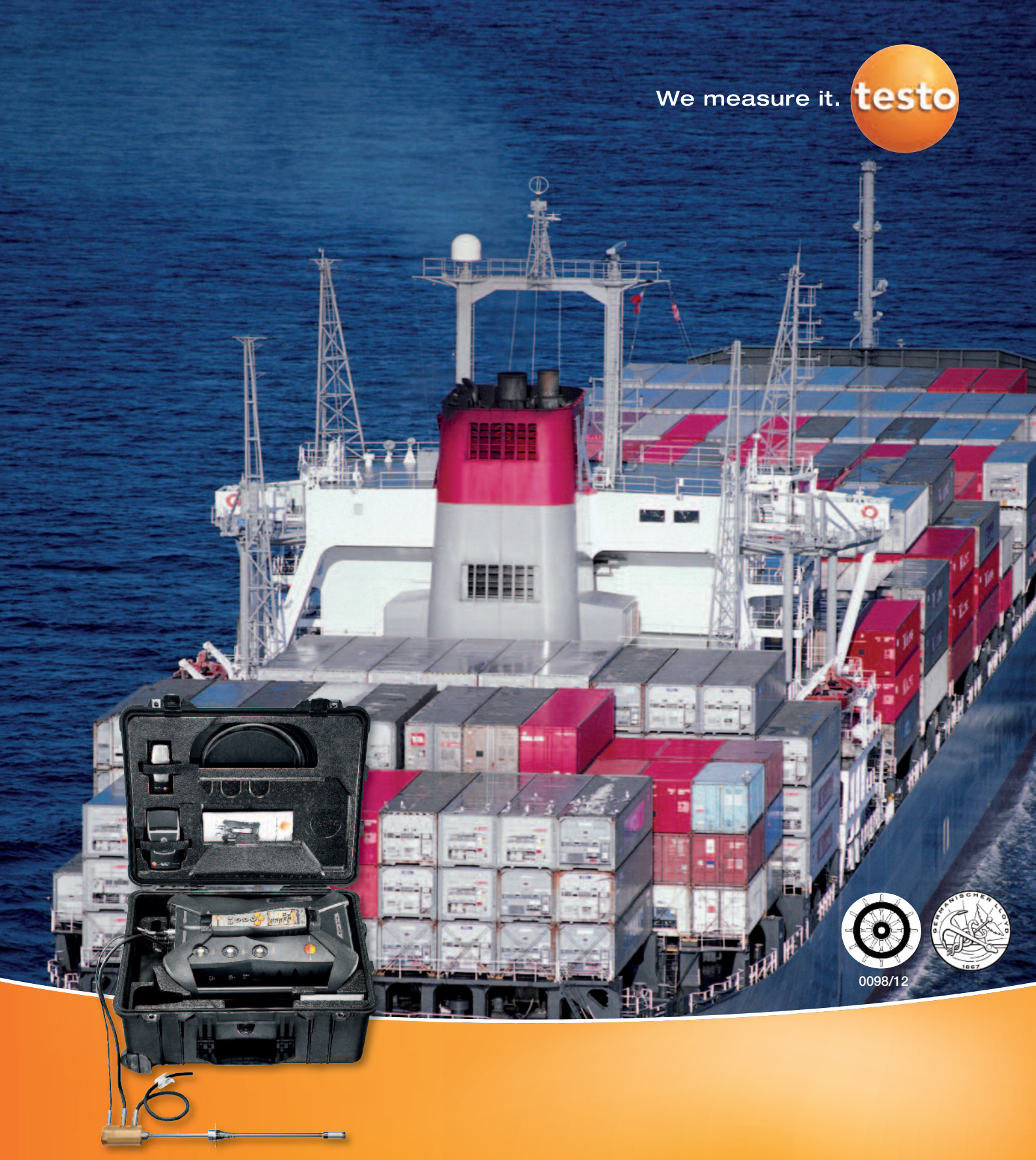
We measure it. testo



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# testo 350 MARITIME

Portable Emission Analyzer with GL-Certificate according to MARPOL Annex IV and NOx Technical Code 2008.

# Flue gas emissions from marine diesel engines

## Fast and easy measurement for compliance with MARPOL Annex VI and $NO_x$ Technical Code

The type approved testo 350 MARITIME is the first portable emission analyzer in the world developed for measurements of flue gas emissions subject to MARPOL Annex IV and NOx Technical Code 2008.

testo 350 MARITIME has the following type approval certificate:

**Germanischer Lloyd (GL) type approval certificate no 37 811 – 12 HH, subject to MARPOL Annex IV and NOx Technical Code 2008. The testo 350 MARITIME additionally fulfils the guideline on ship's equipment and has the MED mark of conformity 0098/12**

Gas sampling is carried out using a special sampling probe which can be installed with the help of a flange.The certified and durable electrochemical gas sensors (ECS) provide a highly accurate and long-term stable determination of the concentration of the exhaust gas components $O_2$, CO, $NO_x$ (NO + $NO_2$ separately) and $SO_2$. $CO_2$ is recorded using the certified IR measurement principle. In order to meet the tough conditions at sea, the complete exhaust gas analyzer is housed in a robust protective case.

**The emission analyzer testo 350 MARITIME provides the following benifits:**

- Easy fitting of the sampling probe
- Operational readiness – directly after switching-on
- Easy and fast replacement of gas sensors due to pre-calibrated "plug & play" gas sensors
  - high availability
  - reduced cost of ownership
- Easy & comfortabl transportation in the tough protection case with trolley function

# The applications of testo 350 MARITIME at a glance

## On-board verification survey subject to $NO_x$ Technical Code

**The testo 350 MARITIME can be used to measure the gaseous exhaust gas concentrations of $O_2$, CO, $CO_2$, $NO_x$ and $SO_2$ as one system component for the following procedures:**

- On-board Direct Measurement and Monitoring method for periodical surveys and intermediate surveys
- On-board Simplified Measurement Method

for instance if any adjustment or modification has been carried out on an engine.

**Inspection of $NO_x$ limit values stipulated in MARPOL Annex IV**

- for governmental $NO_x$ control measurements on board

**NOx-measurement as verification in regions with local or national legislation**

- e.g. proof of $NO_x$ reduction measures subject to the $NO_x$ Tax in Norway

Gas sampling probe with probe pre-filter

## Technical data testo 350 MARITIME

| Parameter | Measuring range | Accuracy |
|---|---|---|
| °C, flue gas | -40 up to 1000°C | max. ±5 K |
| $O_2$ | 0 to 25 Vol% | Meets and exceeds the requirements of NOx Technical Code as Type approved by GL |
| CO | 0 to 3000 ppm | |
| NO | 0 to 3000 ppm | |
| $NO_2$ | 0 to 500 ppm | |
| $SO_2$ | 0 to 3000 ppm | |
| $CO_2$ (IR) | 0 to 40 Vol% | |
| $p_{abs}$ | 600 to 1150 hPa | ±5 hPa at 22 °C<br>±10 hPa at –5 °C up to 45 °C |

| | |
|---|---|
| Storage temperature | -20 °C up to 50 °C |
| Operation temperature | -5 °C up to 45 °C |
| Power supply | · Li-Ionen rechargeable battery<br>· AC mains unit 100V ... 240V (50 ... 60 Hz) |
| Electrical power consumption | max. 40 W |
| Max. positive pressure / flue gas | 50 hPa |
| Max. negative pressure / flue gas | -300 hPa |
| Weight (system including case) | appr. 17 kg |
| Dimensions (case) | 56.5 x 45.5 x 26.5 cm |

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Certificate No.
37 811 - 12 HH

# The complete set in a handy trolley:

## testo 350 MARITIME

- Analyzer box testo 350-MARITIME fitted with: $O_2$, CO, $CO_2$-(IR), NO, $NO_2$ and $SO_2$,incl. gas preparation , differential pressure sensor, 2 temperature probe inputs, connection Testo data-bus, fresh air valve for long-term measurement, integrated battery, integrated combustion air probe (NTC), trigger input, measurement data store, USB interface
- Control-Unit testo 350-MARITIME V2
- Robust protection case with trolley function (without protective cap in the bottom)
- Exhaust gas probe for industrial engines with probe pre-filter, 335 mm immersion depth incl. cone and heat shield, Tmax 1000 °C, special hose for $NO_2$-/$SO_2$ measurements, length 5.2 m, incl. thermocouple for exhaust gas temperature measurement (NiCr-Ni, length 400 mm, Tmax. +1000 °C) with 5.4 m connection line and additional temperature protection
- Connection cable between Control Unit and analyzer box, length 5 m
- testo fast printer with wireless infrared interface, 1 roll of thermal paper and 4 mignon batteries for printing readings out on site
- Humidity/temperature instrument testo 610
- Silicon connection hose (Ø 4mm, length 5 m) incl. hose connector to exhaust gas probe to measure back pressure in the measurement
- Germanischer Lloyd (GL)-certificate no. 37 811 - 12 HH

**Order No. 0563 3503**

Practical trolley

Locally available from

ANSAC

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www.testo.com



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