# Monitoring

# Coating Thickness Measurement

CHRIS-MARINE®

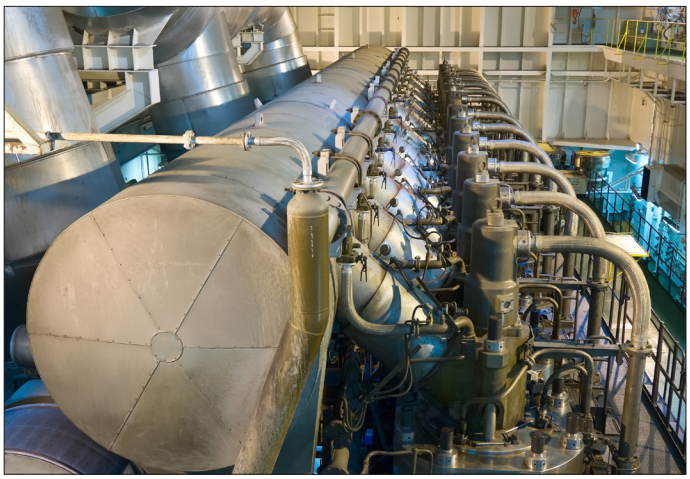
## CTM

CTM measures coating thickness with high precision on magnetic and non-magnetic base materials.







**Application area**

- 2-stroke diesel and gas engines

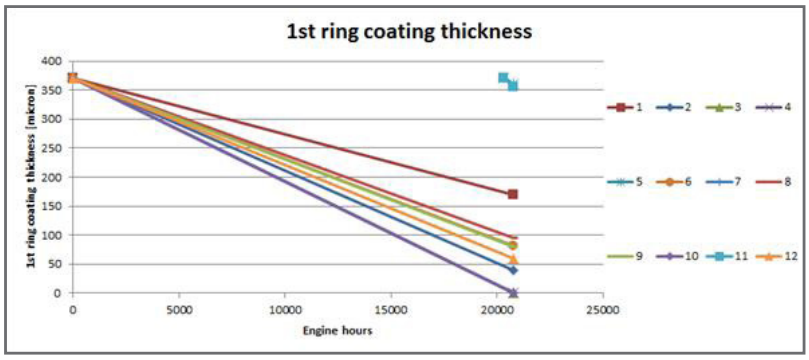
**Key benefits**

- Easy-to-use condition-based maintenance and wear monitoring of piston rings in 2-stroke engines
- Automatically detects whether the base material is magnetic or non-magnetic
- Compatible with the Chris-Marine LDM
- Trend-plotting software included
- Reliable and non-destructive measurements even in hard-to-reach areas

## Ideal for daily use

- Easy-to-perform calibration (calibration films included).
- Statistics functions for display of mean value, standard deviation, MIN, MAX.
- Quick, one-hand operation: Place instrument on specimen and see the measured value.
- Two backlit LCD displays for readings in all instrument positions, even overhead.
- Automatic On/Off function.
- Durable, rugged housing and hard-material coated probe.

## Easy prediction of time to next piston overhaul




The graph shows how the estimated time to next piston overhaul can be predicted using the CTM on the top piston ring of a modern 2-stroke engine. The piston ring wear rate varies from unit to unit, as a result from production tolerances and operating conditions giving opportunity for safer and less costly overhauling by practising condition-based monitoring with the CTM.



## Important monitoring

Picture of chrome-ceramic coated 1st piston ring breaking through the coating and into the base material.

The piston ring coating serves as protection against cylinder scuffing. Without coating, the risk of cylinder scuffing or high cylinder wear rate increases.

Cylinder scuffing means high repair costs and costly operational disturbance (often paid on the fuel bill).

Regular CTM monitoring of coated piston rings is a pre-requisite for safe cylinder condition.

| Technical specifications | |
|---|---|
| • Measuring Principle | Magnetic induction and eddy current |
| • Thickness range | 0 - 2000 µm |
| • Accuracy | Magnetic<br>up to 75 µm ± 1.5 µm<br>75 to 1000 µm: < 2%<br>1000 TO 2000 µm: < 3%<br>Eddy current<br>up to 50 µm: ± 1 µm<br>50 to 1000 µm: < 2%<br>1000 to 2000 µm: < 3% |
| • Operating temperature | 5-60°C |
| • Data memory | 1000 measurements |
| • Weight | 132 g |
| • Battery | 2 x 1.5V |
| • Dimensions/Weight | 140 x 50 x 70 mm/400 g |





## Chris-Marine Headquarters and Subsidiaries


**CHRIS-MARINE SWEDEN HEADQUARTERS**
Tel: +46 - 40 671 2600
info@chris-marine.com

**CHRIS-MARINE DENMARK**
Tel: +45 - 4498 3833
iop@chris-marine.com

**CHRIS-MARINE GERMANY**
Tel: +49 4101 5880 0
lemag@chris-marine.com

**CHRIS-MARINE SINGAPORE**
Tel: +65 - 6268 8611
info.sg@chris-marine.com

**CHRIS-MARINE CHINA**
Tel: +86 - 21 6575 9331
info.cn@chris-marine.com

**CHRIS-MARINE INDIA**
Tel: +91 - 712 224 2719
info.in@chris-marine.com

**CHRIS-MARINE ECUADOR**
Tel: +593 979 000 379
info.ec@chris-marine.com

**CHRIS-MARINE USA**
Tel: +1 786 212 9592
info.us@chris-marine.com


Contact one of our offices to get in touch with your local agent.

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