



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA00001NH**  
Revision No:  
**2**

## This is to certify:

**That the Pressure Indicator**

with type designation(s)  
**MarPrime®, MarPrime® Ultra**

Issued to

**MARIDIS Maritime Diagnose & Service GmbH**  
**Rostock, Germany**

is found to comply with

**DNV rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

### Location classes:

<b>Temperature</b>	<b>A</b>
<b>Humidity</b>	<b>A</b>
<b>Vibration</b>	<b>A</b>
<b>EMC</b>	<b>A*</b>
<b>Enclosure</b>	<b>NA</b>

\* see Application/Limitation

Issued at **Hamburg** on **2023-02-28**

for **DNV**

This Certificate is valid until **2028-02-27**.

DNV local unit: **Hamburg – CMC North/East**

Approval Engineer: **Heinz Scheffler**

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**Joannis Papanuskas**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



## Product description

Handheld cylinder pressure measuring device for 2 and 4 stroke engines with indicator cook with dynamical TDC correction.

- Pressure Range: 0...300 bar, accuracy 1% to fullscale output
- Speed Range: 25...2000 rpm
- Max. Numbers of Cylinders: 24

Measurements:

- Pmax./ Pcomp. /Power (ind.) /Speed
- MarPrime® Ultra additionally injection timing, valves timing, valves leakage

Interfaces: USB, RJ45 network

Software Version: V1.10

Circuit board MAR01:

- Connection for pressure sensor
- Connection for Ultrasonic sensor (MarPrime® Ultra)
- 3 x Indication LED
- 1 x operating button
- 1 x USB port
- 1 x LAN (10 Mbit)

Pressure Sensor HTT04

- Measuring Range: 0...300 bar
- Signal output: 4...20 mA
- Max. temperature at measuring cell: 300 °C

Ultrasonic Sensor: VS 900M

- Measuring Range: 100...500Hz
- Temperature Range: -50...100°C

PC based Condition Monitoring System

- Cylinder Pressure Analysis
- Leakage Detection

Software Version 3.2.9.104

## Application/Limitation

Unless compliance with DNV-CG-0339:2021 is documented, the certificate will be renewed with a note/ (see\* under Tests carried out) describing the requirements for installation on board.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified / recognized Certification Body.

Equipment for installation and/ or use outside a distance of 5 m from a standard or a steering magnetic compass.

DNV CLASS GUIDELINE DNV-CG-0052 "Survey arrangement for machinery condition monitoring" to be observed for Survey Arrangements CM.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed.

## Type Approval documentation

See ANNEX

### Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

\* EMC in the range 2 GHz to 6 GHz according to DNV-CG-0339, August 2021, has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

### Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

### Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE



Job Id: **262.1-028225-2**  
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## ANNEX

### Type Approval documentation (hidden)

Test Report Treo 205-12, (EMC),	2012-11-21
Test Report Treo 234-12, (ENV)	2012-12-19
Protokoll EMV Test MarPrime Ultra	2012-11-02
Protokoll Klimatest Test MarPrime Ultra	2012-11-02
Dokumentation.odt (Technical documentation)	2012-01-19
Software Specification/Documentation MarPrime Version 1.0.2	2012-11-07
MarPrime - Softwareübergabe Protokoll Version 3.2.9.104	2018-06-26