



Certificate No:
TAA0000381

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Safety Unit for Rotating Machinery

with type designation(s)

Cylinder Pressure Monitoring (CPM) + Splash Oil Monitoring System (SOMS),

Issued to

Bergen Engines AS
Bergen, Norway

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.

References to hardware certificates and location classes are found on page 2.

Issued at **Høvik** on **2023-03-07**

This Certificate is valid until **2025-02-27**.

DNV local unit: **Mid-North Norway CMC**

for **DNV**

Approval Engineer: **Sergey Gilmiyarov**

Siri Tag
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.



Place of system manufacture

The Systems are manufactured, assembled, mounted and tested at:

Bergen Engines AS,
Hordvik,
Norway

Product description

Splash Oil Monitoring System (SOMS) is providing additional engine protection by measuring temperature on splash oil from big end bearings, detecting temperature deviation between the bearings, and signal for an engine shutdown if the deviation indicates bearing failure. SOMS is not intended to replace Oil Mist Detection (OMD).

SOMS is installed as a standalone unit with dry contact hardwired interface with engine control system, and to alarm systems if applicable.

Cylinder Pressure Monitoring (CPM) is providing both additional engine protection and balancing, and is functioning as a stable engine load reference.

Separately Type Approved hardware SOMS		
Module type	Description	Type Approval Certificate ¹⁾
SIMATIC S7-300, CPU 315-2 PN/DP	PLC, CPU	TAA0000225
SIMATIC S7-300, Digital Module SM323	PLC, IO-Module	
SIMATIC S7-300, Analog Input SM 331	PLC, IO-Module	
SIMATIC HMI TP700 Comfort	HMI, Touch Panel	TAA000016S
Separately Type Approved hardware CPM		
SIMATIC S7-300, CPU 315-2 PN/DP	PLC, CPU	TAA0000225
SIMATIC S7-300, Digital Module SM323	PLC, IO-Module	
SIMATIC S7-300, Analog Input SM 331	PLC, IO-Module	
SIMATIC S7-300, Analog Output SM 332	PLC, IO-Module	
SIMATIC S7-300, CP341 Communications Processor	PLC, CP	
SIMATIC HMI TP1200 Comfort	HMI, Touch Panel	TAA000016S
Helmholz CAN300	PLC, CP	TAA000028G
AVAT E2PRECON-M	Controller	TAA0000242
1) These are the TA numbers valid at the date of issue of this TA. When the TA are renewed during the period of validity of this TA, the new TA applies.		

Numbering of software revisions is performed according to the document EL4023_51_0 "Software Revisions Control CPM SOMS"

Software update notification

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Application/Limitation

The Type Approval covers hardware and software listed under Product description.

Approval conditions

Design of CPM and SOMS systems is approved by present Type Approval. Case by case documentation submission for approval is not required.

After installation on the engine and prior to being taken in operation, systems to be tested according to (as applicable):

SOMS Standalone Test Procedure EL4008/96
CPM Standalone Test Procedure Marine EL4001/87

Product certificate

As long as CPM and SOMS systems are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 will not be required.

Application software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board.

Type Approval documentation

Marking of product

Model Identification (CPM or SOMS)
Manufacturers identification (Bergen Engines AS)
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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE