



Certificate No:
TAA00002Y4

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Remote Control System Steering Gear

with type designation(s)
PMH Steering Gear Control System

Issued to
PMH Norway AS
Bosberg, Norway

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2021-03-25**

This Certificate is valid until **2023-03-24**.

DNV local station: **Trondheim**

for **DNV**

Approval Engineer: **Geir Bjørn Alnes**

Jan Tore Grimsrud
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.



Form code: TA 251

Revision: 2021-03

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Product description

Non follow up rudder control system comprising the following main components:

- Bridge steering gear control panel with joystick, alarm indication and interface towards external systems.
- Control cabinet with motor starter (located in steering gear compartment)
- Rudder angle indicators with rudder angle transmitters

The following two configurations are covered by this approval:

- Single rudder control with two separate control systems. (one for each actuating system)
- Double rudder configuration with single control system. Required additional means of steering shall be by independent control of the two propulsion lines. The vessels steering capability using propulsion lines must be demonstrated and approved for each delivery.

The hardware used is type approved, see Type Approval Certificate Nos:

Programable Electronic system:	TAA00001EN & TAA00001GA
Power Supply:	TAA00000MG
Rudder angle indicator:	MEDB000003AN
Rudder angle transmitter:	TAA000029F
Electronic fuse:	TAA0000281
Signal converters:	TAA00001RW
Solid State Relays:	TAA00001E5

The following software is included in the Type Approval: SGC-EL-SW-PLC-1.2A

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Circuit diagrams including rudder angle indication
- Test program for certification

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

The current software numbers and versions are listed in document SGC-EL-I-SW-01.2A, Software Change Handling Procedure.

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.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

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

Tests carried out

Functional testing according to document SGC-EL-P-FAT-01-400, Revision 01-400, Factory Acceptance Test Procedure

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:



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- 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