



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000X6
Revision No:
4

This is to certify:

That the Remote Control System Steering Gear

with type designation(s)
NAVIGUIDE 4000

Issued to

Northrop Grumman Sperry Marine B.V. - German Branch
Hamburg, 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:

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules to be provided upon installation on board

Issued at **Hamburg** on **2023-02-01**

for **DNV**

This Certificate is valid until **2025-01-31**.

DNV local station: **Hamburg**

Approval Engineer: **Jan Reinecke**

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Alexandra Maciolowska
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

The NAVIGUIDE 4000 Manual Steering System based on the NAVINET 4000 Steering Control Network may consist of the following equipment:

<i>Description</i>	<i>Type</i>
Steering Control Unit and Software 020801-0000-000 Rev.: x	4961-AB rev. Jx
Output Boards: DC Solenoid Board for On/Off solenoid valves	4961-1083 rev. Bx 4961-1084 rev. Bx
AC Solenoid Board for On/Off solenoid valves	4961-1085 rev. Bx 4961-1086 rev. Bx
Isolated Proportional Output Board ±10 V or 4..20 mA	4961-1087 rev. Bx
SyncroHelm FU Handwheel	4944-xx; xx = DA, DB, DC; rev. Cx
FU-Miniwheel and Display Unit and Software 020238-0000-000 Rev.: x	4956 rev. Kx
SyncroHelm FU-Miniwheel and Display Unit and Software 020238-0000-000 Rev.: x	4956-AA rev. Kx
Bus Interface Control Unit (6 Keys) with following functions: Steering Mode Selector, Steering Position Selector, Dual Rudder Sync/Indep. Selector, Steering Alarm Indicator, Setup Unit and Software 020238-0000-000 Rev.: x	4955 rev. Kx
Bus Interface Control Unit (3 Keys) with following functions: Wheel Control Unit, FU Device Interface / Display Unit and Software 020238-0000-000 Rev.: x	4955-AA rev. Kx
Override Unit	4987 rev. Bx
FU Handwheel	4944-xx; xx = none, BE; rev. Dx xx = AA, AB, AC, AD, AE, BA, BB, BC, BD, FA, FB, FC, FD; rev. Cx
FU Tiller	4970-xx; xx = none, AB; rev. Cx
NFU Tiller	4930-xx; xx = AB, AC; rev. Bx xx = BA rev. Ax, BB rev. 0x
Selector Switch	4516 rev. Ex, 4518-AB rev. Fx, 4876-AB rev. Fx
FU amplifier	60197 rev. Cx or Dx
Feed-back Unit incl. Lever Linkage (Temperature: A; Vibration: B)	4968-xx xx = none, AA, AD, AE, AF, BA, BB, BE; rev. Ex xx = AB, AC, BC; rev. Fx xx = BD; rev. Dx
Emergency Dual NFU Control Box	4870 rev. Bx
Power Supply Unit	60208 rev. 2x, 60281 rev. Bx, 60290 rev. Bx, 60272 rev. Ax, 47891 rev. Ax
Relays	44744 rev. Ax, 47276 rev. 4x, 46154 rev. 0x, 46104 rev. 0x
Relay Box	4971 rev. Cx
Diodes	46673 rev. 2x

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
- Power supply arrangement (may be part of the System block diagram)
- Test program for product certification

The Type Approval covers hardware and software listed under Product description. No further application software is necessary for delivery of an application system.

The software numbers and versions are listed in document PN300.02 containing the respective latest versions. The document status from 2022-11-01 is the basis for this Type Approval Certificate.

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated document PN300.02. 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 software control will be put into force.

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

[NAVIGUIDE 4000 - Overview Test Reports 20230105.](#)

Tests carried out

Applicable tests according to class guideline DNV-CG-0339 (2021-08), IEC/EN 60945 (2002) including Corrigendum 1 (2008) and IACS UR E25, Rev.1 (2019).

Marking of product

- Components are marked with product name and product number as listed in the table above.
- Basic software version is displayed in the system graphical user interface.
- Each project application configuration is documented in a dedicated version log file which is specific for each vessel.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE