TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA00000X6
Revision No:
7

This is to certify:

that the Remote Control System Steering Gear

with type designation(s)
NAVIGUIDE 4000

issued to
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 **2025-06-30**

This Certificate is valid until **2027-06-29**.
DNV local unit: **Hamburg**

Approval Engineer: **Jan Reinecke**

for **DNV**

This document has been digitally signed and will therefore not have handwritten signature

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.

Product description

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

Description	***P/N***
Steering Control Unit and Software 020801-0000-000 Rev.: x	074851-0000-xxx
Output Boards:	
DC Solenoid Board for On/Off solenoid valves	020040-0000-xxx, or 020041-0000-xxx
AC Solenoid Board for On/Off solenoid valves	020042-0000-xxx, or 020043-0000-xxx
Isolated Proportional Output Board ±10 V or 4..20 mA	020044-0000-xxx
SyncroHelm FU Handwheel	
- ±45 °, with 3 potentiometers	074741-0000-xxx, or
- ±45 °, with 6 potentiometers	074817-0000-xxx, or
- ±70 °, with 6 potentiometers	074818-0000-xxx
FU-Miniwheel and Display Unit and Software 020238-0000-000 Rev.: x	074691-0000-xxx
SyncroHelm FU-Miniwheel and Display Unit and Software 020238-0000-000 Rev.: x	074692-0000-xxx
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	074687-0000-xxx
Bus Interface Control Unit (3 Keys) with following functions: Wheel Control Unit, FU Device Interface / Display Unit and Software 020238-0000-000 Rev.: x	074709-0000-xxx
Override Unit	074783-0000-xxx
FU Handwheel for rudder angles up to 35 °	
- with 2 potentiometers	074889-0000-xxx
- with 3 potentiometers	074890-0000-xxx
- with 4 potentiometers	074891-0000-xxx
- with 6 potentiometers	074892-0000-xxx
FU Handwheel for rudder angles up to 45 °	
- with 1 potentiometer	074670-0000-xxx
- with 2 potentiometers	074694-0000-xxx
- with 3 potentiometers	074755-0000-xxx
- with 4 potentiometers	074756-0000-xxx
- with 6 potentiometers	074802-0000-xxx
FU Handwheel for rudder angles up to 70 °	
- with 1 potentiometer	074697-0000-xxx
- with 2 potentiometers	074698-0000-xxx
- with 3 potentiometers	074757-0000-xxx
- with 4 potentiometers	074758-0000-xxx
- with 6 potentiometers	074781-0000-xxx
FU Miniwheel for rudder angles up to 45 °, 2 potentiometers	074733-0000-xxx
FU Miniwheel for rudder angles up to 70 °, 2 potentiometers	074739-0000-xxx
NFU Tiller	
- for two steering gear pumps	074753-0000-xxx
- for four steering gear pumps	074853-0000-xxx
- for two steering gear pumps, with protection against unintended use	074754-0000-xxx
- for four steering gear pumps, with protection against unintended use	074855-0000-xxx

Selector Switch, 8 layers, 4 positions	074205-0000-xxx
Selector Switch, 12 layers, 8 positions	074832-0000-xxx
Selector Switch, 20 layers, 8 positions	074852-0000-xxx
FU amplifier	060197-0000-xxx
Feedback Unit for rudder angles up to ± 45°:	
- with 1 potentiometer, one set of limit switches	074720-0000-xxx
- with 1 potentiometer, one set of limit switches, one rudder midship switch	074721-0000-xxx
- with 1 potentiometer, two sets of limit switches, one rudder midship switch	074795-0000-xxx
- with 2 potentiometer, one set of limit switches	074722-0000-xxx
- with 2 potentiometer, two set of limit switches, one rudder midship switch	074796-0000-xxx
- with 3 potentiometer, two set of limit switches, one rudder midship switch	074788-0000-xxx
- with 4 potentiometer, two set of limit switches, one rudder midship switch	074784-0000-xxx
Feedback Unit for rudder angles up to ± 70°:	
- with 1 potentiometer, one set of limit switches	074724-0000-xxx
- with 2 potentiometer, one set of limit switches	074725-0000-xxx
- with 3 potentiometer, two set of limit switches, one rudder midship switch	074791-0000-xxx
- with 4 potentiometer, two set of limit switches, one rudder midship switch	074785-0000-xxx
Limit Switch Unit	074723-0000-xxx
All Feedback Units / Limit Switch Unit Temperature: A, Vibration: B	
Lever linkage for Feedback Units / Limit Switch Unit:	
- with a maximum length of 350/1200 mm	020508-0000-xxx
- with a maximum length of 600/1500 mm	022051-0000-xxx
Emergency Dual NFU Control Box	074479-0000-xxx
Power Supply Unit	
- input 380/440 V AC, output 24 V DC, 3A	060208-0000-xxx
- input 440 V AC, output 24 V DC, 10 A	060281-0000-xxx
- input 115 V AC, output 24 V DC, 10 A	060290-0000-xxx
- input 230/400 V AC, output 24 V DC, 10 A	060272-0000-xxx
- input 690 V AC, output 24 V DC, 10 A	047891-0000-xxx
Relays	044744-0000-xxx 047276-0000-xxx 046154-0000-xxx 046104-0000-xxx
Diode Board	046673-0000-xxx
Relay Box	074736-0000-xxx
Steering Failure Alarm Unit (SFA), Firmware version: 1.1xx,	074848-0000-xxx
in compliance with USCG requirement 46CFR Ch.1 Subpart 113.43.	
Wire Break Detection Unit (WBDU), Software No.: 5044-0000-96, Rev. A	074921-0000-xxx

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 2025-06-25, Rev.90, 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 20250619.

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.2 (2022).

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