



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA000027U
Revision No:
1

This is to certify:

That the Remote Control System Steering Gear

with type designation(s)
Steering Gear Control System STCS5000

Issued to
Navis Engineering Oy
VANTAA, Finland

is found to comply with
DNV GL 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 **Høvik** on **2021-06-22**

This Certificate is valid until **2023-06-21**.

for **DNV**

DNV local station: **Helsinki FIS**

Approval Engineer: **Sergey Gilmiyarov**

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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.



Product description

The Steering and Thruster Control System includes the following elements:

Description	Unit Type Designation	SW version
Alarm and Control Station	ACS-F	0800XXYY 1400XXYY 0707XXYY
Alarm and Control Panel	ACP-5	0800XXYY
Steering Control Station	SCN-NFU, SCN-TWIN	0707XXYY
Non-Follow-Up & Full-Follow-Up Panel	LVR-NF, LVR-NF-m	3101XXYY
Non-Follow-Up Joystick	LVR-NJ	N/A
Electric Wheel	M05A	N/A
Rudder Feedback Unit	NavRFU-D	4000XXYY
Rudder Feedback Unit	NavRFU	N/A
RFU Interface Box	IB-RFU	2506XXYY
ADIV Interface Box	IB-ADIV	0506XXYY
VDR Interface Box	IB-VDR	1506XXYY
Rudder Angle and Order Indicator	IND-5-R	0900XXYY
Power Unit	MD-P	N/A
Hydraulic Lock Unit	HLU	N/A
NFU Selection Box	NSB	N/A
Feedback Distribution Unit	FDU	N/A
Power Distribution Unit	PWR-DU	N/A
Steering Mode Selector	SMS	N/A

XXYY shall be represented by fixed digits for implementation of minor changes not affecting DNV GL Rules' requirements.

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.

Places of manufacture

1. Navis Engineering Oy, Tuupakantie 3 A, VANTAA, Finland
2. Navis AO, 22-liniya V.O. 3 bld.5-E, Saint-Petersburg, Russian Federation

Application/Limitation

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 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.

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.

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. The configuration file, i.e. the output of the Configuration Tool AS as readable listing, is to be checked against this Certificate with respect to hardware and software versions. 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

Tests carried out

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

Functional test (Factory Acceptance test report No 14122018) performed at 2018-12-14 at St. Petersburg.

Marking of product

Name of the manufacturer

Model:

Cat. N:

Ser. N:

Supply Voltage:

Power Consumption:

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 at least at renewal of this certificate.

END OF CERTIFICATE