Certificate no.:
TAA00003J3

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Conning Display

with type designation(s)
MNS-100C Series

issued to
MRC Inc.
Busan, **Korea, Republic of**

is found to comply with

DNV rules for classification – Ships
IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management
MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays
IMO Res. A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2025-02-26**
This Certificate is valid until **2030-02-25**.
DNV local unit: **Gimhae Station**

for **DNV**

Approval Engineer: **Tommi Juhani Rifaat**

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 MNS-100C Conning Display consists of the following components:

Unit	Type	Location
Processor Unit	HTC03-i5-AC-yzzzzzz or HTC03-i7-AC-yzzzzzz or DPC-OT-22B	Protected
Display Unit	HD27T22 MMD-MA4-FAGA or ER2701	Protected
Keyboard & Trackball	NSI KSML106-MC1 Series or HiINS KPD B + HiINS TPD	Protected
Network Hub	Cisco C9200L-48P-4G-E or HP Aruba Instant 1930 series HPE JL686A	Protected
Mini DP to DP Cable	NVIDIA PNY mini Display Port Male to Display Port Female Adapter 91008582V3	Protected
Power Cable	Hatteland TP52/TC01-1.8M	Protected
Sensor Adapter Unit	Hatteland HT 00262 OPT-A1 (USB to 4x RS422/485) or MDCU-100S (LAN to RS422/485)	Protected

Software version: 1.1.x where x is higher than 0
Operating system: Windows 10 Pro 64bit

Application/Limitation

- The installation shall be verified and tested onboard according to manufacturer's installation instruction.
- For installation onboard ship with NAUT notation, information about display layout and information presented shall be submitted for assessment.
- MNS-100C Series Conning Display may be used as an additional user interface for MNS-100CA Series Central Alert Management System.

Type Approval documentation

DNV No	Drw No	Rev	Title
45	TAA000039Z		Certificate: DNV, Bridge Monitor ER2701 ECDIS Monitor
44	MRA000003D	2	Certificate: DNV, Hatteland Computers
43	MRA0000016	7	Certificate: DNV, Hatteland Monitors
46	TAA00003A2		Certificate: DNV, Maritime Computer DPC-OT22B
47	MNS-MCI-001-ED1		Manual: MRC, MNS-100C Series CID Instruction Manual
30	MNS-MCT-001-ED1		Manual: MRC, MNS-100C Series Technical Manual
39	DANAK-19/17020		Report: Delta, KSML 106 Keyboards and E38 Trackball unit IEC 60945 test report
18	DREKETC2208-0086		Report: DT&C, Cisco 9200L Series EMC Test Report IACS E10 additional testing
17	DREKETC2208-0085		Report: DT&C, Cisco 9200L Series EMC Test Report IEC 60945
19	DRCKRELC2204-0225		Report: DT&C, Cisco 9200L Series Temp and Vibration Test Report IEC 60945
21	DREKETC2208-0058		Report: DT&C, HP 1930 Series EMC Test Report IACS E10 additional testing
20	DREKETC2208-0057		Report: DT&C, HP 1930 Series EMC Test Report IEC 60945
22	DRCKRELC2204-0226		Report: DT&C, HP 1930 Series Temp and Vibration Test Report IEC 60945
8	DOC206425-1		Report: Hatteland, GEV2 Similarity of digital inputs test
9	DOC208293-1		Report: Hatteland, GPU Similarity test HTC03 NVIDIA Quadro P620
7	DOC206156-1		Report: Hatteland, IEC 62288 Flicker Test Report HD 27T22 MMD
23	DREKETC2212-0141	2022-12-20	Report: KOLAS, HiINS Operating Kit IACS UR E10 EMC Test

DNV No	Drw No	Rev	Title
27	DRCKREL2301-0007	2023-01-02	Report: KOLAS, HilNS Operating Kit IEC 60945 Enclosure and Enviromental Test Report
26	DREKETC2212-0140	2022-12-20	Report: KOLAS, HilNS Operating Kit IEC 60945 Immunity Test Report
28	DRCKREL2301-0005	2023-01-02	Report: KOLAS, HilNS Operating Kit IEC 60945 Vibration Test Report
40	ICRT-TR-I220661-0A	1	Report: KOLAS, IP 2x test report Network Switches
42	ICRT-TR-I230347-0A	1	Report: KOLAS, MDCU-100 Series IEC 60945 Temperature and Vibration Test Report
36	MNS-TSC-006	1.0.1	Report: MRC, CID DNV-RU-SHIP Pt.6 Ch.3 Test Report
32	MNS-TSC-002	1.0.1	Report: MRC, CID IEC 61162-1 Edition 6.0 Test Report
33	MNS-TSC-003	1.0.1	Report: MRC, CID IEC 61162-2 Edition 2.0 Test Report
34	MNS-TSC-004	1.0.1	Report: MRC, CID IEC 61162-450 Edition 2.0 Test Report
35	MNS-TSC-005	1.0.1	Report: MRC, CID IEC 61924-2 Edition 2.0 Test Report
31	MNS-TSC-001	1.0.1	Report: MRC, CID IEC 62288 Edition 3.0 Test Report
37	MNS-TSC-007	1.0.1	Report: MRC, CID IEC 62923-1 Edition 1.0 Test Report
38	MNS-TSC-008	1.0.1	Report: MRC, CID IEC 62923-2 Edition 1.0 Test Report
24	MNS-TSR-008	1.0.0	Report: MRC, IEC 61162-1/2 Test Report for MDCU box
41	F690501-RF-EMC001335	0	Report: SGS, MDCU-100 series IACS UR E10/ IEC 60945 EMC Test Report

Tests carried out

- Environment testing: IEC 60945 (2002)
- Serial Interface testing: IEC 61162-1 (2024)
- Serial Interface testing: IEC 61162-2 (2024)
- LAN interface testing: IEC 61162-450 (2018)
- Bridge Alert Management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Presentation testing: IEC 62288 (2021)
- Performance testing: IEC 61924-2 (2021)
- Performance testing: DNV Type Approval program 847.60 for Conning Display DNV-RU-SHIP Pt.6 Ch.3. Sec. 3 (2023)

Marking of product

The manufacturer and Type Designation to be applied to the equipment in a clear visible location and in addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.
The scope of the periodical/renewal assessment is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.