



Certificate no.:
TAA00003UA

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Engine Control System

with type designation(s)
SaCoSone

issued to

Everllence SE
Augsburg, Germany

is found to comply with

DNV rules for classification – Ships Pt.6 Ch.5 Sec.21 Cyber security

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV. The Type Approval covers security capabilities in accordance with DNV security profile 1 and IACS UR E27 Rev.1, subject to conditions stated in this certificate.

Issued at **Høvik** on **2026-02-09**

This Certificate is valid until **2028-02-08**.

for **DNV**

DNV local unit: **Augsburg**

Approval Engineer: **Knut Omberg**

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 USD 300 000.

Product description

This certificate applies for the SaCoSone engine control system for LARGEBORE, PROPULSION AND GENSET consisting of hardware and software components specified in the asset inventory in Type Approval documentation below.

Application/Limitation

- The SaCoSone LAN for Engine control may be connected to an IAS/PMS in the same security zone.
- The SaCoSone mS1 may be connected to a Customer EDS PC
- The SaCoSone mGuard router/firewall may be connected to a customer network providing external connectivity.
- The interconnection of multiple SaCoSone engine control systems is subject to case-by-case approval in accordance with requirements for relevant class notations, see TAA0000002.

Approval conditions

SaCoSone has been found to meet the intention of DNV class notation Cyber secure(Essential) and IACS UR E27 by applying a combination of inherent security controls and compensating countermeasures specified in user documentation by Everllence.

Each type approved system intended for DNV classed vessels shall be delivered with a vessel-specific Product certificate (PC). The Product certificate shall confirm compliance with applicable DNV rules for the project and shall be issued based on approval of design documents and certification survey with testing as specified in DNV-RU-SHIP Pt.4 Ch.9.

For newbuilding projects, design documents for identical deliveries to sister vessels with the same DNV project ID shall be submitted for approval in one common document transmittal.

When the type approved system is delivered to a vessel with class notation Cyber secure(Essential), the following additional verification applies as per DNV-RU-SHIP Pt.6 Ch.5 Sec.21:

- 1) The architecture of each delivered system shall be documented in a project-specific system topology demonstrating consistency with F030 in Type Approval documentation below.
- 2) The hardware and software components of each delivered system shall be documented in a project-specific asset inventory demonstrating consistency with F071 in Type Approval documentation below.
- 3) Configuration and hardening of each system shall be documented in a test report demonstrating consistency with F141-documents in Type Approval documentation below.

Certification testing of cyber security capabilities is not required if the delivery is fully covered by this TA certificate. If a delivered system differs from the type approved design, this shall be described and submitted for approval.

Type Approval documentation

Topology diagram (F030):

- LARGEBORE: DLC_Architecture_SaCoSone+SaCoS5000. V.1.0.7. Oct.15.2025 (DNV #91)
- PROPULSION: Block_Diagramm_CS_SaCoSone_SB_Propulsion. V.1.0.2. Mar.27.2025 (DNV #225)
- GENSET: Block_Diagramm_CS_SaCoSone_SB_1.0.1. V.1.0.1. Aug.28.2024 (DNV #165)

Asset inventory (F071):

- Hardware & Software-Inventory-List_Classes_4-S_V1.520250226. V.1.5. Feb.21.2024 (DNV #87)

Configuration and hardening guidelines (F141):

- Configuration of a Wago controller, W0398DE. Ed.7 (DNV #116)
- System hardening EV-PC. V.1.0. Dec.8.2023 (DNV #11)
- Changing the battery in the Engine Vault PC EA010.285.000-75-0001 (DNV #121)
- Hardware Tests – SCR-Cabinet SL/ML. V.2.0 (DNV #133)
- SaCoSone GENSET Commissioning Protocol –Cyber Security V1.2 (DNV #217)
- SaCoSone GENSET DF Commissioning Protocol –Cyber Security V1.4 (DNV #218)
- MAN SCR-SL 1.8.0 Commissioning Protocol –Cyber Security (without DLC+) V.1.1 (DNV #219)
- Configuration Guidelines Sacos One Largebore V.1.1 (DNV #235)
- Engine Vault with SaCoSone Commissioning Protocol – Overview V.1.3 (DNV #238)
- Engine Vault with SaCoS Commissioning Protocol – DLC+ V1.4 (DNV #241)
- Engine Vault with SaCoSone Commissioning Protocol – Engine Control System (ECS) V1.5 (DNV #243)
- Engine Vault with SaCoSone Commissioning Protocol – Cyber Security (SCR) V1.4 (DNV #245)

- Correct Software and Configuration Checklist – DLC+ V.1.1 (DNV #240)
- Correct Software and Configuration Checklist – Engine Control System V1.2 (DNV #242)
- Correct Software and Configuration Checklist – SCR System V1.1 (DNV #244)

Tests carried out

Internal tests carried out as per test procedures registered as DNV document # 104, 211, 216, 229, 234, 267

Witnessed tests carried out as per test procedures registered as DNV document # 102, 103, 125, 157, 210, 215, 220, 221, 228, 246, 247, 270, 271

SDL processes demonstrated February 2023

Marking of product

Type and version of hardware and software is identified as specified in the asset inventory in Type Approval documentation.

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 renewal of this certificate.

END OF CERTIFICATE