



Certificate No.

03-002054/026259

TYPE APPROVAL CERTIFICATE

This is to certify that this product complies with the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products.

TYPE AND DESCRIPTION OF PRODUCT:

**EMISSION REDUCTION CONTROL SYSTEM
SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM
VariNOx® VN**

MANUFACTURER:

HUG Engineering AG
Elsau, Switzerland

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

Rules for the classification of ships, Part 12 – Electrical Equipment

Rules for the classification of ships, Part 13 – Automation

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

APPROVAL IS VALID UNTIL: **2028-07-05**

Place and date: Split, 2024-07-05

Seal

Marinko Popović, dipl.ing.

NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.

DETAILED PRODUCT DESCRIPTION:

The VariNOx® VN is a Control and Monitoring system for urea-water solution based NOx Selective Catalytic Reduction (SCR) system.

The VariNOx® VN system comprises of following components:

System	S0014
Installation configuration (single system ("ss") or interconnected system ("is")) ⁽¹⁾	"ss"
Control Units (VNC)	VNC24V VNC230V
Reactant Supply Unit (VNR)	VNR115 ⁽²⁾
Supply Pump Safety Cabinet (VNRE)	-
Dosing Unit (VND)	VND012 VND025
Injector Units (VNI)	VNI030
Auxiliaries	
Reactant Shut-off valve	-
Temperature sensor (TCB) ⁽³⁾	TCB201.1 TCB201.2
Air Mass Sensor (optional) ⁽³⁾	-
Sensor boxes ⁽³⁾	VNS1 VNS2
NOx Sensor ⁽³⁾	NOE1501
Differential Pressure Sensor ⁽³⁾	PEA100 PEA200

(1): In a single system (ss), the one reactant supply unit (VNR) serves one dosing unit (VND).

In an interconnected system (is), one reactant supply unit (VNR) serves more than one dosing units (VNDs).

(2): VNR095 and VNR115 are identical

(3): For information only, items not a part of this TAC.

SW-Versions VN system S0014:

- VNC control cabinet PLC: VNC_V212_U_S0014

- TPM Touch panel: TPM_V210_T_S0014

APPLICATION / LIMITATIONS:

The approval is valid for hardware and software listed under "Detailed product description".

The single system configuration is to be used with manual emergency stop according to document "Concept Emergency Stop for exhaust gas purification system VN S0014".

All changes in hardware or software are to be recorded as long as the system is in use on board. The record of all changes is to be forwarded to CRS for evaluation and approval.

TYPE APPROVAL DOCUMENTATION:

Approved by the Croatian Register of Shipping with letter No. 1884/TSE/NP/026259 dated 2024-07-05.

MARKING OF PRODUCT:

The cabinets are labelled as follows: Manufacturer's mark; location and year of manufacture; serial number; Name Control Unit (VNC), Dosing system (VND:xxx.y), Reactant dosing unit VNREx.yyyV, VNR; IP-rating; electric rating; software version sticker.

CONDITIONS FOR CERTIFICATION:

For each application on board CRS classed vessels complete technical documentation and drawings shall be submitted for examination and approval prior installation on board, with reference to this Type Approval Certificate.