



Certificate No.

03-002079/026271

## 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) AFTERTREATMENT SYSTEM (AIR ASSISTED)

MANUFACTURER:

**CATERPILLAR Inc.**  
3701 South Street  
Lafayette, Indiana 47905-4856  
UNITED STATES OF AMERICA

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: **2028-08-21**

Place and date: Split, 2024-08-21

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 SCR Aftertreatment system (air assisted) is designed for reduction of NOx emissions and approved for the use on propulsion and auxiliary marine diesel engines.*

*The NOx reduction is obtained by a catalytic process in an SCR reactor installed in the exhaust gas line after the combustion process. In the SCR reactor, the NOx is reduced catalytically to nitrogen and water by adding Diesel Exhaust Fluid – DEF (32.5% or 40% aqueous urea solution) as a reducing agent.*

*The SCR Aftertreatment system (air assisted) is designed for use with Caterpillar diesel engine models C18, C32, 3500, C280 and MaK Marine diesel engines.*

*The SCR Aftertreatment system (air assisted) comprises of following components:*

<b>Part(s)</b>	<b>Designation</b>
<i>Clean Emissions module (CEM) including injector, mixer, catalyst block</i>	<i>C18/ C32/3500 C280/MaK</i>
<i>Pump Electronic Tank Unit (PETU) including DEF pump, air regulation system, control system</i>	<i>60 lph First Fit (C32/3500/MaK) 120 lph First Fit (C280/MaK) 60 lph Retrofit (C18/C32/3500)</i>
<i>DEF Transfer pump</i>	<i>Part No. 582-2402 Part No. 587-3866</i>
<i>CEM Inlet Pressure Sensor</i>	<i>Part No. 330-6719</i>
<i>Cabinet Temperature Sensor</i>	<i>Part No. 256-6453</i>
<i>DEF Manifold Temperature Sensor</i>	<i>Part No. 195-2150</i>
<i>SCR Dosing Reagent Pressure</i>	<i>Part No. 298-6488</i>
<i>SCR 1 Intake Gas Temperature and SCR 1 Outlet Gas Temperature</i>	<i>Part No. 373-5283</i>
<i>Air Supply Pressure</i>	<i>Part No. 320-3061</i>
<i>NOx Sensor Gen 3.5 (Tailpipe Out)</i>	<i>Part No. 539-0118</i>
<i>NOx Sensor Gen 3.5 (Engine Out)</i>	<i>Part No. 539-0117</i>
<i>NOx Sensor Gen 4.0 (Tailpipe Out)</i>	<i>Part No. 570-1260</i>
<i>NOx Sensor Gen 4.0 (Engine Out)</i>	<i>Part No. 570-1261</i>
<i>DEF Tank Level and Temperature</i>	<i>Part No. 456-4323</i>
<i>Aftertreatment ID</i>	<i>Part No. 342-9070</i>
<i>A4E4 ECM Controller</i>	<i>Part No. 488-4881</i>
<i>Dosing Pump (C280)</i>	<i>Part No. 397-5278</i>
<i>Dosing Pump (3500)</i>	<i>Part No. 447-7102</i>

**APPLICATION / LIMITATIONS:**

*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. 2234/TSE/NP/026271 dated 2024-08-21.*

**MARKING OF PRODUCT:**

*In accordance with IEC60945 – Marking and identification (The Manufacturer and Type Designation of the product, serial number, date of manufacture, safe distance to magnetic compass-if app., supply voltage, software version...).*

**CONDITIONS FOR CERTIFICATION:**

*For each application on board CRS classed vessels, the following documentation shall be submitted for examination and approval prior installation on board:*

- *Reference to this Type Approval Certificate,*
- *System block diagram, including power supply arrangement,*
- *SCR Control and monitoring signal list including setpoints,*
- *Reference to software version,*
- *System manual.*