



Certificate No. 02-003906/025747

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:

DIESEL ENGINES Series 4000 Mx3 Workboat

MANUFACTURER:

ROLLS-ROYCE SOLUTIONS GmbH

Maybachplatz 1
88045 Friedrichshafen
Germany

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

CRS: Rules for the classification of ships, Part 9. - Machines.

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

APPROVAL IS VALID UNTIL: **2027-02-15**

Place and date: Split, 2023-02-15

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:

<i>Number of cylinders</i>	8, 12, 16
<i>Cylinder arrangement</i>	V (90°)
<i>Working cycle</i>	4- stroke
<i>Cylinder bore (mm)</i>	170
<i>Stroke (mm)</i>	210
<i>Kind of fuel</i>	Liquid
<i>Turbocharging system</i>	Constant pressure, with intercooler
<i>Valve operation</i>	Cam control
<i>Fuel injection system</i>	Direct, electronically controlled injection, common rail

APPLICATION / LIMITATIONS:

<i>Application</i>	Propulsion (multi engine plant), auxiliary duty
<i>Rated power (kW/cyl.)</i>	140
<i>At speed (rpm)</i>	1800
<i>Mean effective pressure (bar)</i>	19,6
<i>Max. cylinder pressure (bar)</i>	190

MARKING OF PRODUCT:

- *manufacturer's mark*
- *location and year of final fitting*
- *CRS mark*

TYPE APPROVAL DOCUMENTATION:

The documentation approved by CRS with letter dated: 306/TSEv/KF/024574, 2019-02-12

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- *location and year of final fitting*
- *CRS mark*

CONDITIONS FOR CERTIFICATION:

Signalization and protection related to the engine shall be subject to CRS approval in each particular case and will depend on service applied and the degree of automation of the engine plant.