



Certificate No. 02-002826/024829

TYPE APPROVAL CERTIFICATE

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

TYPE AND DESCRIPTION OF PRODUCT:

DIESEL ENGINE, type C9.3

MANUFACTURER:

CATERPILLAR INC.
3701 South Street
Lafayette, IN 47905-4856, USA

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: **2023-07-16**

Place and date: Split, 2019-11-07

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:

4-stroke, single acting diesel engine

Cylinder bore: 115 mm
Piston stroke: 149 mm
Cylinder number: 6 in line
Compression ratio: 17.0:1

APPLICATION / LIMITATIONS:

Mean effective pressure, bar	Rated continuous output, kW	Rated speed, rpm	Rating Type
20,1	280	1800	B
19,0	310	2100	C
19,9	355	2300	D

Application: for propulsion

Mean effective pressure, bar	Rated continuous output, kW	Rated speed, rpm
19,7	275	1800
23,3	325	
18,8	218	1500
23,2	270	

Application: for auxiliary duties

TYPE APPROVAL DOCUMENTATION:

Drawings approved by CRS with letter: **1427/TS/IA/023661 (2015-07-16)**
2718/TSE/DL/024829 (2019-11-07)

MARKING OF PRODUCT:

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

CONDITIONS FOR CERTIFICATION:

Minimal tensile strength of crankshaft material is 850 MPa.
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.
Must not be used when duplication of cooling water pump is requested.
Torsional vibration calculation shall be submitted for each installation in accordance with the Rules of CRS.