



Certificate No. 02-003795/025677

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 ENGINE Type B-Series

MANUFACTURER:

Cummins, Inc.
4500 Leeds Avenue, Suite 301
Charleston, SC 29405
United States

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

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: **2026-11-29**

Place and date: Split, 2022-11-29

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:

| | |
|----------------------|--|
| Number of cylinders | 4, 6 |
| Cylinder arrangement | In-line |
| Working cycle | 4- stroke |
| Cylinder bore (mm) | 102 |
| Stroke (mm) | 120 |
| Kind of fuel | Liquid |
| Fuel injection | Cam control, direct injection |
| Valve operation | Cam control |
| Turbocharging system | Constant-pressure (type 4BT3.9-M; 6BT5.9-M; 6BTA5.9-M; 4BT3.9-D(M); 6BT5.9-D(M)) with charge air cooling (type 6BTA5.9-M) |

APPLICATION / LIMITATIONS:

Application: Propulsion engines

| Engine type | 4B3.9-M | | 4BT3.9-M | | 6B5.9-M | |
|-------------------------------|----------------|--|-----------------|--|----------------|--|
| Rated power (kW) | 57 | | 112 | | 86 | |
| Rated speed (rpm) | 2500 | | 2800 | | 2500 | |
| Mean effective pressure (bar) | 6,7 | | 12,2 | | 11,9 | |
| Max. firing pressure (bar) | 96,5 | | 127,6 | | 129,6 | |

Application: Propulsion engines

| Engine type | 6BT5.9-M | | | 6BTA5.9-M | | |
|-------------------------------|-----------------|--|--|------------------|--|--|
| Rated power (kW) | 113 | | | 134 | | |
| Rated speed (rpm) | 2500 | | | 157 | | |
| Mean effective pressure (bar) | 9,2 | | | 10,9 | | |
| Max. firing pressure (bar) | 139,3 | | | 125,8 | | |

Application: Auxiliary engines

| Engine type | 4B3.9-D(M) | | 4BT3.9-D(M) | | | |
|-------------------------------|-------------------|--|--------------------|--|--------------|--|
| Rated power (kW) | 37 | | 44 | | 46 | |
| Rated speed (rpm) | 1500 | | 1800 | | 50 | |
| Mean effective pressure (bar) | 7,5 | | 7,5 | | 9,9 | |
| Max. firing pressure (bar) | 95,2 | | 82,8 | | 108,9 | |

Application: Auxiliary engines

| Engine type | 6B5.9-D(M) | | 6BT5.9-D(M) | | | |
|-------------------------------|-------------------|--|--------------------|--|--------------|--|
| Rated power (kW) | 54 | | 66 | | 78 | |
| Rated speed (rpm) | 1500 | | 1800 | | 91 | |
| Mean effective pressure (bar) | 7,3 | | 7,5 | | 10,3 | |
| Max. firing pressure (bar) | 86,2 | | 88,6 | | 110,3 | |

Power ratings lower than those stated is accepted as long as they are within the values approved by engine designer.

TYPE APPROVAL DOCUMENTATION:

Approved by the Croatian Register of Shipping with letter No.(dated): 392/187/105093/PB/S/BŠ (1993-04-16)
653/107078/TS/BŠ/DV (1995-06-12)

MARKING OF PRODUCT:

- manufacturer's mark
- 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.