Certificate No: **2607241322531247**
TL Project No: **24-2460**

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This is to certify that the

INTERNAL COMBUSTION ENGINES

Manufacturer : **Rolls-Royce Solutions GmbH**

Address : **1. Maybachplatz 1, 88045, Friedrichshafen/ Germany**

Product Type : **1163 Mx4**

Reference Rule : **TL Rules, Part B, Chapter 4-1, Automation, 01.01.2022**
TL Rules, Part E, Chapter 103 - Metallic Materials, Special Materials for Naval Ships, 01.01.2022
TL Rules, Part E, Chapter 104 - Naval Ship Technology, Propulsion Plants, 01.01.2022
TL Rules, Part E, Chapter 105 - Naval Ship Technology, Electrical Installations, 01.01.2022
TL Rules, Part E, Chapter 106 - Naval Ship Technology, Automation, 01.01.2022
TL Rules, Part B, Chapter 5, Electric , 01.01.2024
TL Rules, Part A, Chapter 2, Material, 01.07.2024
TL Rules, Part B, Chapter 4, Machinery, 01.07.2024

Subject to the conditions referred to in the following pages, this certificate is valid until **25.02.2031**
Surveyor: **Sezer Mahir TUĞCU**
-

Issued at **İSTANBUL** on **25.07.2026**

This document is electronically signed and does not require a manual signature

Click here for the verification website

Emrah SÖĞÜTÇÜ
New Building Division Manager
TÜRK LOYDU

Expire Date of Previous Certificate: -
This certificate supersedes 2602191350131247 numbered certificate.

For Information Only

This certificate is subject to terms and conditions described below:
Any significant change in design or construction may render this Certificate invalid. Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.

Product	**: INTERNAL COMBUSTION ENGINES**
Type of Product	**: 1163 Mx4**
Product Description	**: Four stroke, v-engine, non-reversible, trunk-piston, with supercharging, with charge air cooling, constant-pressure charging system, direct injection, injection operation electronically controlled, valve operation by cams, liquid fuel**
Approval No / Date	**: - PAE-EPAS/020860/24-2460/VA, 18.03.2025** **- The electrical plans have been evaluated and found suitable within the scope of the TO.DEB.20-1963 certificate.**
Number of Cylinders	**: 16, 20**
Stroke	**: 280 mm**
Bore	**: 230 mm**
Method of Operation	**: Four Stroke**
Kind of Starting Device	**: Air/ Battery**
Kind of Cooling	**: Water**
Fuel Type	**: Diesel Oil**
Last Inspection Date	**: 25.02.2026**
Performed Tests	**: - Quality Audit** **- Controls According to Approved drawing** **- Subcomponent Controls (crankshaft, pistons, connecting road ete.)** **- Integration Controls** **- Fire protection Controls Leakage Test** **- Turbo Charger Checks** **- Review of calibration certificates of measurement and test tools** **- The type test reports of TL reviewed. (Type tests were conducted between 4 and 10 September 2014: Engine Type: 20V 1163 M84L, Engine No.: 514 0011) were found satisfactory.**
Performed Tests	**: - Quality Aduit** **- Controls According to Approved drawing** **- Subcomponent Controls (crankshaft, pistons, connecting road ete.)** **- Integration Controls** **- Fire protection Controls Leakage Test** **- Turbo Charger Checks** **- Review of calibration certificates of measurement and test tools** **- The type test reports of TL reviewed. (Type tests were conducted between 4 and 10 September 2014: Engine Type: 20V 1163 M84L, Engine No.: 514 0011) were found satisfactory.**
Test Place	**: ROLLS-ROYCE SOLUTIONS GMBH, Friedrichshafen, Germany**
Application/Limitation	**: 1--The ambient conditions are ;** **Inclination limits (degrees) Athwartships Fore --and--aft.** **Static Dynamic Static Dynamic** **Main@Auxiliary machinery ± 15,0° ± 22,5° ± 5,0° ± 7,5°** **Emergency machinery ± 22,5° ± 22,5° ± 10,0° ± 10,0°** **Seawater temperature: +32 °C** **Temperature range: 0°C ÷ +45 °C** **Atmospheric pressure: 1 bar** **Suction air temperature: +45 °C** **Relative humidity: 60 %** **For electric components: 0°C ÷ +55 °C** **2--Limitation** **2.1--In order for these machines to be used on ships with single-engine propulsion applications, the control of the engine (in case of failure of the regulator or actuator) must be done with another independent control system. In other words, two separate engine control systems should be arranged. The main engines must be fitted with stand-by cooling pumps that operate independently. If this equipments is not on the engine, the ships should be equipped with more than one main engine.** **2.2--Other Conditions;**

For Information Only

2.2.1--Flexible hoses with couplings are to be type approved.
2.2.2--Engine safety, control and monitoring systems, including sensors and actuators are not covered by this type approval certificate. Documentation for engine safety, control including speed governing and monitoring systems shall be submitted for approval according to the TL Part B- Chapter 4-1-Section 2 (January 2022). (It is only required for Turkish Lloyd's product certificate.)
2.2.3--Electric cables and cabling are not covered by this approval and must be verified to comply to the TL Part B- Chapter 5-Section 12 (January 2024). (It is only required for Turkish Lloyd's product certificate.)
2.2.4-- MTU and Rolls-Royce Solutions GmbH is responsibility to inform the shipbuilders and/or their subcontractors about the installation, use, general maintenance of the approved equipment and the conditions of this approval.
2.3--Service Restriction:
2.3.1--Unit Certification (Turkish lloyds product certification) is required for this product to be used on TL-classed ships.
2.3.2--Signalization and protection related to the engine shall be subjected to Turkish Lloyd approval in each particular case and will depend on service applied and the degree of the vessel's automation. These engines can be installed on ships with automation notation provided that all the conditions specified in our rules are followed. For this purpose, equipment that meets the requirements of the Automation Rules must be on the engine and our surveyors must check whether these requirements are met during FAT or ship trials.
2.3.3--Equipment must be provided for enabling turning gear engaged signal.
3--Comments
3.1--Torsional vibration analysis for the unit of each to be installed on ships must be carried out by the relevant organizations and It must be approved by the class.
3.2--The fitting of Rules required protective devices is to be verified at installation on board a vessel in class with the Turkish Lloyd as well as the Rule required quantity of pump units depending on actual installation arrangements.
3.3--For engines intended to be used for emergency services, supplementary tests in accordance with regulations of the Administration whose flag the vessel flies may be required.
3.4--Products requiring witnessed testing by a Surveyor as part of their Certification for use on a vessel,or facility classed by Türkish Lloyd ,as defined in the applicable section of the Rules,will continue to require witnessed testing. Each engine produced in future where Türkish Lloyd certification is required is to be shop tested in the presence of our Surveyor.
3.5--Minimum tensile strenght of crankshaft material is 930 N/mm².

Others **: Continuation of Application/Limitation*:**

3.6--This certificate does not cover the following plans which are to be reviewed for each installation:

3.6.1--Schematic diagram of engine control and safety system. Electronic monitoring and control system(s) software and hardware

3.6.2--Ship piping diagram of fuel oil system, lubricating oil system and cooling water system.

3.6.3--Governor Arrangements.

3.6.4--Turbocharger.

3.6.5--Flexible Hoses and Expansion Joint

3.6.6--The electrical and electronic equipment located within areas protected by local Fixed Pressure Water-spraying or Water-mist Fire Extinguishing system and those with in adjacent areas exposed to direct spray are to have a degree of protection not less than IP 44.

3.6.7) Crankcase explosion relief devices 3.6.8) Oil mist detection and alarm devices

3.6.9) Fuel management system (where dual fuel arrangements are fitted)

3.6.10) Engine driven pumps

3.6.11) Engine mounted filters

For Information only

3.7--The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. 3.8--Use of the Product for non-Turkish Lloyd units is subject to agreement between the manufacturer and intended client.

3.9--Non-overload machines can be used for special ships and special applications, only subject to class approval. Diesel engines to drive electric generators must be able to be overloaded.

	Serial Number	Application	Rated Power	Rated RPM	Mean Effective Pressure	Max Firing Pressure
1	Model Number: M94	Propulsion, multi engine plant; Definition: 1DS	370 [kW/cyl]	1325 - 1275 [rpm]	28.80 - 29.93 [bar]	185 [bar]
2	Model Number: M84L	Propulsion, multi engine plant; Definition: continious	336.5 [kW/cyl]	1285 - 1235 [rpm]	27.01 - 28.11 [bar]	185 [bar]
3	Model Number: M84	Propulsion, multi engine plant; Definition: continious	325 [kW/cyl]	1280 - 1230 [rpm]	26.19 - 27.26 [bar]	185 [bar]
4	Model Number: M74	Propulsion, multi engine plant; Definition: continious	300 [kW/cyl]	1250 - 1200 [rpm]	24.76 - 25.79 [bar]	185 [bar]

Approval Conditions **: -**

For Information Only