Certificate No: **2606051108171247**
TL Project No: **23-1024**

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This is to certify that the

INTERNAL COMBUSTION ENGINES

Manufacturer : **SOCIETE INTERNATIONALE DES MOTEURS BAUDOUIN**

Address : **Technoparc du Brégadan, 13260 Cassis, FRANCE**

Product Type : **6F21**

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 4, Machinery, 01.07.2022
TL Rules, Part B, Chapter 5, Electric, 01.07.2022
TL Rules, Part A, Chapter 2, Material, 01.01.2023

Subject to the conditions referred to in the following pages, this certificate is valid until **21.09.2031**
Surveyor: **Devran YAMAN**
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Issued at **İSTANBUL** on **22.09.2026**

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: -

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	**: 6F21**
Product Description	**: The engine 6F21 is an Electronically Controlled Engine, liquid-cooled diesel engine, with direct injection, in-line, trunk piston, non-reversible, charge air cooled, common Rail injection type, Dual stage turbocharged : GT45 & GT55.**
Approval No / Date	**:** **- PAE-EPAS/018255/23-1024/ŞÜ, 11.03.2024** **- PAE-EPAS/016542/23-1024/ŞÜ, 14.07.2023** **- PAE-EPAS/016491/23-1024/ZKÖ, 10.07.2023**
Number of Cylinders	**: 6**
Stroke	**: 165 [mm]**
Bore	**: 127 [mm]**
Method of Operation	**: Four Stroke**
Kind of Starting Device	**: Battery with Electric Starter**
Kind of Cooling	**: Water**
Fuel Type	**: Diesel Oil**
Last Inspection Date	**: 05.06.2026**
Performed Tests	**:** **- Quality Audit** **- Controls According to Approved drawing** **- Subcomponent Controls (crankshaft, pistons, connecting road etc.)** **- Functional Test** **- Load Tests** **- Integration Controls** **- Fire protection Controls** **- Leakage Test** **- Turbo Charger Checks** **- Review of calibration certificates of measurement and test tools** **- Type Test Report is Type 8M21Y900-21E200 having No.8 cylinders and Serial No P17F-0006 on dated 2022.4-2022.5.** **were found satisfactory.**
Test Place	**: SOCIETE INTERNATIONALE DES MOTEURS BAUDOUIN, Cassis, France**
Application/Limitation	**:** **Application/Limitation:** **1.Environmental conditions according to TL Engine Rules and IACS UR M28.** **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** **İnclination limits (degrees)** **Athwartships Fore and Aft.** **Static Dynamic Static Dynamic** **± 15,0° ± 22,5° ± 5,0° ± 7,5°** **For the purpose of determining the power of main and auxiliary reciprocating internal combustion engines, the following ambient reference conditions apply for ships of unrestricted service:** **Total barometric pressure 1000 mbar** **Air temperature +45°C** **Relative humidity 60%** **Sea water temperature 32°C** **(charge air coolant-inlet)** **The ambient reference conditions of the company in determining the power of the motors are given below.** **Total barometric pressure 1000 mbar**

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Air temperature +35°C
relative humidity 60%
Sea water temperature 25°C
(charge air cooler inlet)
Max Tilt:
Static longitudinal :± 10°
Dynamic longitudinal :± 10°
Dynamic transversal :± 22,5°
2. Limitation
2.1. In order for these Engines 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.

Others **:**

Continuation of Application/Limitation (Approval conditions)*

Comments:
1) Torsion vibration analysis is required for each propulsion installation unit.
2) The fitting of Rules required protective devices is to be verified at installation on board a vessel in class with the Turk Loyduas well as the Rule required quantity of pump units depending on actual installation arrangements.
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.
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.
5) Minimum tensile strenght of crankshaft material is 950 N/mm². After forging quenched and tempered.
6) This certificate does not cover the following plans which are to be reviewed for each installation:
a) Schematic diagram of engine control and safety system.
b) Piping diagram of fuel oil system,lubricating oil system and cooling water system.
c) Governor Arrangements.
d) Turbocharger.
e) Flexible Hoses.
f) 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.
7) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
8) Use of the Product for non-Turk Loydu units is subject to agreement between the manufacturer and intended client.

	Application	Rated Power	Rated RPM	Engine Type
1	These internal combustion engines were intended for	551 kW	2200 rpm	6F21

	marine main propulsion on ships.			
2	These internal combustion engines were intended for marine main propulsion on ships.	545 kW	2228 rpm	6F21
3	These internal combustion engines were intended for marine main propulsion on ships.	600 kW	2300 rpm	6F21
4	These internal combustion engines were intended for marine main propulsion on ships.	662 kW	2300 rpm	6F21
5	These internal combustion engines were intended for marine main propulsion on ships.	735 kW	2300 rpm	6F21

Approval Conditions **: Power ratings (at the same rated power) lower than those stated is accepted as long as they are within the values approved by engine designer.**

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