Certificate No: LR26146735TA
Issue Date: 14/04/2026
Expiry Date: 12/08/2029

# Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

**Manufacturer** **HD Construction Equipment Co., LTD.**

**Address** 477 Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 13553, South Korea

**Place of Production** HD Construction Equipment Co., LTD.

489, Injung-ro, Dong-gu, Incheon, 22502, South Korea

**Type** Internal Combustion Engines

**Description** 4-stroke, direct injection, single acting and Vee-type trunk piston diesel engine

**Trade Name** AD158TIF, AD158TIS, AD180TIF, AD180TIS, AD222TIF, AD222TIS

**Application** Marine emergency generator drives
Suitable for operation with marine diesel oil

**Specified Standard** Part 5, Chapter 2 of Lloyd's Register's Rules and Regulations for the Classification of Ships (July 2024)

**Ratings** Performance rating:-

| | AD158TIF/TIS | AD180TIF/TIS | AD222TIF/TIS |
|---|---|---|---|
| Number of cylinders : | 8 Vee | 10 Vee | 12 Vee |
| Rated power (kW) : | 302/353 | 357/441 | 446/530 |
| Engine speed (rpm) : | 1500/1800 | 1500/1800 | 1500/1800 |
| Maximum firing pressure (bar) : | 118.6/121.5 | 118.6/121.5 | 118.6/121.5 |

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**Jong-Yong Ha**

Lead Specialist to Lloyd's Register Asia
A member of the Lloyd's Register group

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Mean Indicated pressure (bar) : 18.75/18.30 17.75/18.30 18.48/18.30

**Other Conditions**

Where the engines are intended to be installed on a ship classed with LR, conditions of approval in paragraph 2 of Machinery General Design Appraisal Document No. BTS/ENG/M241019 is to be satisfied.

Limitations:-

1) Type approval does not eliminate the need for normal inspection survey procedures required by the Rules and Regulations.

2) If the specified standards are amended during the validity of this certificate, the product is to be reapproved prior to it being supplied to vessels to which the amended standards apply.

3) (in case of applications other than Marine) The application of this Type Approval Certificate will be limited to the relevant scope of the specified standards and acceptance thereof by the local authorities.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Asia of any modification or changes to the equipment in order to obtain a valid Certificate.

**Previous Version:** LR24109023TA

The Design Appraisal Document LR26146735TA-01 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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