



Certificate No. 02-004454/026228

## 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

**D2V (V158TI, V180TI, V222TI,  
AD158TI, AD180TI, AD222TI)**

MANUFACTURER:

**HD HYUNDAI INFRACORE Co., Ltd.**

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

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: **2028-05-23**

Place and date: Split, 2024-05-23

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	<b>8, 10, 12</b>
Cylinder arrangement	<b>In-Vee</b>
Working cycle	<b>4- stroke</b>
Cylinder bore (mm)	<b>128</b>
Stroke (mm)	<b>142</b>
Kind of fuel	<b>Liquid</b>
Fuel injection	<b>Cam controlled, direct injection type</b>
Valve operation	<b>Cam controlled</b>
Turbocharging system	<b>With turbocharging and charge air cooling</b>

**APPLICATION / LIMITATIONS:**

**Application: Propulsion engines**

Engine model	No. of cylinders	Rated power (kW)	Rated speed (rpm)	Pressures (bar)		Rating <sup>3)</sup>
				MFP <sup>1)</sup>	MEP <sup>2)</sup>	
V158TIH	8	353	1800	121,5	16,1	H
V158TIM		397	2100	134,4	15,5	M
V158TIL		500	2300	147,1	17,9	L
V180TIH	10	441	1800	121,5	16,1	H
V180TIM		478	2100	134,4	15,5	M
V180TIL		603	2300	147,1	17,9	L
V222TIH	12	530	1800	121,5	16,1	H
V222TIM		588	2100	134,4	15,5	M
V222TIL		736	2300	147,1	17,9	L

**Application: Auxiliary and emergency genset engines**

Engine model	No. of cylinders	Rated power (kW)	Rated speed (rpm)	Pressures (bar)	
				MFP <sup>1)</sup>	MEP <sup>2)</sup>
AD158TIF	8	302	1500	118,6	16,5
AD158TIS		353	1800	121,5	16,1
AD180TIF	10	357	1500	118,6	15,6
AD180TIS		441	1800	121,5	16,1
AD222TIF	12	446	1500	118,6	16,3
AD222TIS		530	1800	121,5	16,1

1) Max. firing pressure (bar)

2) Mean effective pressure (bar)

3) Reference is made to manufacturer marine rating classification.

Power ratings (at the same rated speed) 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): 370/TS/IA/024067 (2017-02-28)

**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.