

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000V9

This is to certify:

That the Diesel Engine

with type designation(s)
Himsen H25/33

Issued to

**Hyundai Heavy Ind. Co., Ltd. Engine & Machinery Division
- Ulsan, Republic of Korea**

is found to comply with

**DNV GL Rules for classification, Ships - DNVGL-RU-SHIP-Pt4 Ch3 Sec1, Reciprocating Internal Combustion Engines
DNVGL's Offshore Standard DNVGL-OS-D101 "Marine and Machinery Systems and Equipment"
DNVGL's Statutory Interpretations DNVGL-SI-0166 "Verification for Compliance with Norwegian Shelf Legislation".**

Application :

The approval is valid for propulsion, auxiliary and emergency duty as specified overleaf.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **31st December, 2022**.

Issued at **Høvik** on **5th April, 2018**

DNV GL local station: **Ulsan**

for **DNV GL**

Approval Engineer: **Geir Olav Moen**

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Oddvar Deinboll
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Four stroke engine, in-line and V engine, non-reversible, trunk-piston, with supercharging, direct injection, liquid fuel.

Cylinder bore [mm]	250
Piston stroke [mm]	330
No. of cylinders	5, 6, 7, 8, 9 in-line
	12, 14, 16, 18, 20 in-V

Application/Limitation

1. Approval according to DNVGL's Rules for Classification of Ship:

The approval is valid for propulsion, auxiliary and emergency duty with the following main data:

	HiMSEN H25/33 in-vee	HiMSEN 6/7/8/9 H25/33 in-line
Mean indicated pressure, [bar]:	31,8/28,8	29,9 30,4 29,1 27,9
Max. cylinder pressure, [bar]:	215	210 210 210 210
Rated cont. output, [kW/cyl.]:	340	260 270 315 330
Corresponding to, [RPM]:	900/1000	720 750 900 1000

2. Approval according to DNVGL's Offshore Standard DNVGL-OS-D101 "Marine and Machinery Systems and Equipment":

The approval is valid for emergency duty onboard mobile offshore units with main data as specified in above table.

3. Approval according to DNVGL's Statutory Interpretations DNVGL-SI-0166 "Verification for Compliance with Norwegian Shelf Regulations":

The approval covers compliance with DNVGL-SI-0166 (NMA 856/87 §11) but is limited to the in-V configuration, in combination with generator type HSJ7 91x (maker: HHI-EEs), and is valid for emergency duty onboard mobile offshore units with main data as specified in above table.

The approval is only valid for the given combination of engine and generator type.

Type Approval documentation

Tests carried out

Test report title	Type Approval Test HiMSEN Engine H25/33
Place of test	Ulsan, Rep. of Korea
Date of test	2002-10-23 until 2002-10-25
Engine Model	H25/33
Serial no.	BE0008
No. of cylinders	9
Power [kW/cyl.]	300
Speed [rpm]	900

Test report title	Type Approval Test HiMSEN Engine H25/33V
Place of test	Ulsan, Rep. of Korea
Date of test	2011-02-21 until 2011-02-22
Engine Model	H25/33V
Serial no.	YE0594
No. of cylinders	18
Power [kW/cyl.]	340
Speed [rpm]	900

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment

Job Id: **262.1-010707-5**
Certificate No: **TAM00000V9**

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued.

In case where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

Other Conditions

Flexible hoses to be Type Approved by DNV GL.

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 DNVGL Rules Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant type approval certificates.

Electric cables and installation of this is not covered by this approval and must be verified to comply with the requirement of the DNVGL Rules Pt.4 Ch.8 - Electrical Installation.

END OF CERTIFICATE