



CERTIFICATE NUMBER

12-LD866279-PDA

DATE

01 March 2012

ABS TECHNICAL OFFICE

London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
VOLVO PENTA AB - GOTEBOG

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT: **Diesel Engine**

MODEL: **D13**

This Product Design Assessment (PDA) Certificate 12-LD866279-PDA, dated 01/Mar/2012 remains valid until 28/Feb/2017 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Stephen C. Sexstone
Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).



Attachment for PDA Certificate No: 12-LD866279-PDA

Rating Table

D13			
Speed (rpm)	Power (kW)	Ratings	Max Firing Press. (Bar.g)
1500-1800	330-360	D13MG-AUX360	146-154
1500-1800	360-400	D13MG-AUX400	170-176
1800	294	D13MH-400	144
1800	331	D13MH-450	144.1
1800	368	D13MH-500	167.8
1900	404	D13MH-550	179
1900	451	D13MH-600	183

Crankshaft Details

Engine Type	Material	Min. Tensile Strength, (N/mm ²)	Manufacturing Method	Max. Torsional Vibration Stress, (N/mm ²)
D13	V-1649-01	600 (Unhardened) 1590 (Induction Hardened)	Drop Forged	81

MARINE COMMERCIAL RATINGS:

Please consult with the engine manufacturer for full details and suitability for intended application.

RATING 1 (Heavy Duty Commercial)

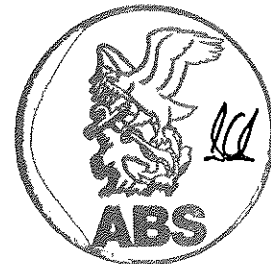
For power rating is intended for commercial vessels with displacement hulls in heavy operation, unlimited number of running hours per year. Engine running hours per year shall be unlimited. Load and speed could be constant, and full power can be used without interruption. Applications such as; coastal fishing boats.

RATING 2 (Medium Duty Commercial)

This power rating is intended for commercial vessels with semi planing or displacement hulls in cyclical operation, running hours less than 3000 h per year. Engine running hours less than 3000 hours per year. Full power could be utilized maximum 4 hour per every 12 hour operation period. Between full load operation periods, engine speed should be reduced at least 10 % from the obtained full load engine speed. Applications such as; patrol and pilot boats, coastal fishing boats in cyclical operation (gill-netters, purse seiners, light trawlers), passenger boats and coastal freighters with short trips.

NOTE

Technical data is according to ISO 3046/1 and ISO 8665. All data present net performance with standard accessories under the conditions of 100 kPa barometric pressure, 25 °C ambient temperatures and 30% relative humidity.





Drawing List

Drawing No	Revision No	Drawing Title
BASE ENGINE	-	BASE ENGINE
FUEL LINE SYSTEM	-	FUEL LINE SYSTEM
LUBRICATION OIL SYSTEM	-	LUBRICATION OIL SYSTEM
OTHER SYSTEMS AND COMPONENTS	-	OTHER SYSTEMS AND COMPONENTS
20110905155758120	0	CONNECTING ROD STRENGTH ANALYSIS
21267849-02	1	THRUST WASHER
7749490-21-35677	0	CAMSHAFT
D13 R2 PMAX	0	COMBUSTION PRESS GRAPH
D13MG-AUX360_CYLPRESS	0	PRESSURE DATA
D13MG-AUX400_CYLPRESS	0	PRESSURE DATA
D13MH-400_CYLPRESS	0	PRESSURE DATA
D13MH-450_CYLPRESS	0	PRESSURE DATA
D13MH-500_CYLPRESS	0	PRESSURE DATA
D13MH-550_CYLPRESS	0	PRESSURE DATA
D13MH-600_CYLPRESS	0	PRESSURE DATA
D13 MCC	0	OPERATING MANUAL
17255202(2)	2	CORRECTED CRANKSHAFT CALCULATIONS
47702494	-	OPERATION MANUAL

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*Please see the PDA attachment for the description of ratings.

Crankshaft Details

Engine Type	Material	Min. Tensile Strength, (N/mm ²)	Manufacturing Method	Max. Torsional Vibration Stress, (N/mm ²)
D13	V-1649-01	600 (Unhardened) 1590 (Induction Hardened)	Drop Forged	81.5 N/mm ²

VOLVO PENTA AB

GOTEBORG
S-405 08
Sweden

Product: Diesel Engine

Model: D13

Intended Service:

For propulsion, auxiliary drives and emergency services for marine vessels.

Description:

High speed. 6 Cylinder in-Line. Four Stroke. Direct Injection. Turbocharged. Aftercooled.

Ratings:

Bore:131 mm , stroke:158 mm .For approved ratings click on the link "[Click here to view more details](#)".

Service Restrictions:

Unit Certification is required for this product.If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

1)Torsional vibration analysis showing compliance with 4-3-2/7.5 of the Rules is required for each propulsion installation. 2) The fitting of Rule required protective devices is to be verified at installation on board a vessel or marine structure intended for, or in, class with the Bureau as 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, MODU, or facility classed by ABS, as defined in the applicable section of the Rules, will continue to require witnessed testing. Each engine produced in future where ABS certification is required is to be shop tested in the presence of our Surveyor as per 4-2-1/13.9 of the Rules.5) Strength analysis for the engine supports and the seating arrangements should be submitted for review as per 4-2-1/1.9 of the Rules, on a case-by-case basis.6)This PDA 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 (Including 4-2-1/7.3 and 7.5 of the Rules). 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 within adjacent areas exposed to direct spray are to have a degree of protection not less than IP44. See 4-8-3/Figure 1 of the Rules.

Notes / Drawings / Documentation:

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

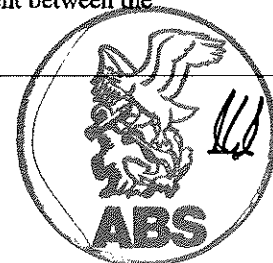
Term of Validity:

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GOTEBORG

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STANDARDS

ABS Rules:

2012 Steel Vessel Rules 1-1-4/7.7 and 4-2-1

National:

NA

International:

NA

Government Authority:

NA

EUMED:

NA

Others:

NA

