

Type Approval Certificate



Certificate No. 37382-06 HH

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This is to certify that the Diesel Engine noted hereunder has been approved in accordance with the relevant requirements of the GL Approval System

Engine Manufacturer AB Volvo Penta
41715 Göteborg, Sweden

Engine Series / Type D16

Design / Working Process in-line engine, four stroke, trunk-piston type, non-reversible

Combustion Method / Kind of Air Charging direct injection, with supercharging

Technical Data

Rated Power [kW/Cylinder]	79.67	83.33	75
Rated Speed [1/min]	1800	1800	1500
Mean effective Pressure [bar]	19.77	20.67	22.33
Max. Firing Pressure [bar]	165	176	169
Application	Propulsion	Auxiliary	Auxiliary

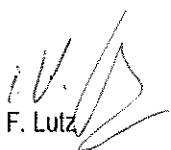
Approval Standard Rules for Classification and Construction, I Ship Technology, Part 1, Chapter 2, Section 2.E Tests and Trials

Approval Documents 04-075193, 04-093363, 05-152188, 06-001025

Hamburg, 2012-06-11

valid until 2017-06-11

Germanischer Lloyd


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Notice: This Certificate is subject to remarks and details overleaf. Any significant change in design, up-fit or construction may render this Certificate invalid. The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable. German law applies.



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Technical Data (cont'd):

Number of cylinders	6
Cylinder bore [mm]	144
Stroke [mm]	165


Type Approval Test Documentation:


Test Program Ref. No.	06-001025
Test Program Approval Date	2006-01-04
Place of Test	Göteborg
Date of Test	2006-02-01 until 2006-02-08
Test Report	Type test D16
Test Report Ref. No.	06-035010
Date of Test Report	

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Technical Data of engine tested:

Serial No. of Engine tested	1016001219
No. of cylinders	6
Compression ratio	17,5
Fuel used for Test	VSD 50 (Euro 3/4)
Exhaust gas turbocharger	BorgWarner, S500
Injection pump	Delphi EUI200
Injector	Delphi EUI200
Governor	Volvo EMS II
Actuator	-
Engine safety and monitoring system	Volvo EMS II
Starter	Melco

- Remarks
1. The type approval is valid for application of these engines as auxiliary engines or as main propulsion engines for multiple engine plants on board ships with Germanischer Lloyd class. For application as a single main engine on board ships with Germanischer Lloyd class a separate individual approval by the society is required.
 2. The EMS II Electronic Control Module is type approved with Certificate 20053-04 HH.
 3. Local instrumentation equipment (lubricating oil pressure, fuel pressure, cylinder cooling water pressure, cooling water temperature, engine speed) is to be fitted according to the application of engine.

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