Volvo Penta Genset system

The Volvo Penta Genset systems are the complete solution for a ship’s onboard power requirements. You will not only get reliable marine diesels, well-matched generators and a monitoring system, but also a wide range of products and services to optimize your investment.

Each Volvo Penta Genset is built in the Volvo factory fully adapted to the customer’s requirements and comes complete and tested, ready for installation onboard. The basis for the Volvo Penta Gensets is the smooth running and reliable marine diesel engines. Compact in design, they occupy less space in the engine room, and their good accessibility makes service and maintenance easy. Auto-start and synchronizing is rapid and reliable, meeting all standards with a comfortable margin.

All the Volvo Penta Gensets are type approved by the major classification societies and can be delivered under complete certification.

Engine

The Volvo Penta engines are well balanced and have excellent emission performance. With growing care for the environment all over the world, emission regulations are becoming increasingly stricter. The D9 MG engine is certified for IMO NOx and the comprehensive emission requirements EPA Tier 2, and EU IWW.

Volvo’s basic engine design in combination with a highly efficient speed control system gives superior load taking capability.

Generator

All the standard Gensets are equipped with a generator built by Newage Stamford. Stamford is the market leader in this power range and provides for worldwide service coverage. These generators are of a long proven design, based on years of experience of power generation for land-based and marine applications.

Warranty and service

For all Volvo Penta marine Gensets we can offer the additional benefit and security of the Cost Control Program, a unique system of operator support and financial control – from installation to after-sales service. This optional three-year warranty provides the owner peace of mind.

Qualified Volvo Penta dealers stand by for service and support in more than 100 countries all over the world. A complete set of documentation will be delivered with the set according to Volvo’s high quality publication standard.

Technical Data Engine

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine designation</td>
<td>D9 MG</td>
</tr>
<tr>
<td>No. of cylinders and configuration</td>
<td>in-line 6</td>
</tr>
<tr>
<td>Method of operation</td>
<td>4-stroke, direct-injected, turbocharged</td>
</tr>
<tr>
<td>Bore, mm</td>
<td>120</td>
</tr>
<tr>
<td>Stroke, mm</td>
<td>138</td>
</tr>
<tr>
<td>Displacement, l</td>
<td>9.4</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>20.2:1</td>
</tr>
<tr>
<td>Crankshaft Power HE Cooling, kW</td>
<td>239</td>
</tr>
<tr>
<td>Crankshaft Power RC Cooling, kW</td>
<td>227</td>
</tr>
<tr>
<td>Crankshaft Power KC Cooling, kW</td>
<td>239</td>
</tr>
<tr>
<td>Specific fuel consumption, g/kWh</td>
<td>213 (50%)</td>
</tr>
<tr>
<td></td>
<td>205 (75%)</td>
</tr>
<tr>
<td></td>
<td>204 (100%)</td>
</tr>
<tr>
<td>Specific fuel consumption, g/kWh</td>
<td>218 (50%)</td>
</tr>
<tr>
<td></td>
<td>208 (75%)</td>
</tr>
<tr>
<td></td>
<td>206 (100%)</td>
</tr>
<tr>
<td>Recommended fuel to conform to</td>
<td>ASTM-D9751-D &amp; 2-D, EN 590 or JIS KK 2204</td>
</tr>
</tbody>
</table>

10% overload available acc. to class requirements. Fuel temperature 40°C (104°F). Technical data according to ISO 3046 Fuel Stop Power with a tolerance ±4%. Fuel with a lower calorific value of 42700 kJ/kg and density of 840 g/liter at 15°C (50°F). Merchant fuel may differ from this specification which will influence engine power output and fuel consumption. The engine is certified according to IMO NOx, EPA Tier 2 and EU IWW.
Technical description
Complete Genset
- High system efficiency as a result of system optimization of the complete Genset
- All used components of highest quality from well reputed suppliers
- Reinforced set dimensioned for high output and low sound level
- Mono-block engine/generator rigidly mounted on a common bed frame
- Engine directly coupled to generator via a flexible coupling
- Flexible mountings including welding plates mounted under the frame

Engine and block
- Cylinder block and cylinder head made of cast iron
- One piece cylinder head
- Replaceable wet cylinder liners and valve seats/ guides
- Drop forged crankshaft with induction hardened bearing surfaces and fillets with seven main bearings
- Four valve per cylinder layout with overhead camshaft
- Each cylinder features cross-flow inlet and exhaust ducts
- Gallery oil cooled forged aluminum pistons, three piston rings (keystone top ring)
- Senders for oil pressure (after filter), oil temp, oil pressure piston cooling, oil level, fuel pressure, freshwater pressure, exhaust temp, crankcase pressure, speed crank and cam, boost pressure/ temp, seawater pressure (HE), coolant level, coolant temp, water in fuel (not classifiable)

Lubrication system
- Freshwater-cooled oil cooler integrated in cylinder block
- Twin full flow oil filter of spin-on type and single by-pass filter

Fuel system
- Electronic Unit Injectors
- Gear-driven fuel pump, driven by timing gear
- Electronically controlled injection timing
- 5-hole high pressure injector nozzles
- Single engine-mounted fine fuel filter of spin-on type, with water separator and water in fuel sensor
- Twin engine-mounted fine fuel filter of spin-on type with change over valve
- Twin fuel pre-filters/water separator with change over valve
- Flexible exhaust compensator
- Cooling water connection bellows
- Electrical, air or hydraulic starting systems in various combinations
- Raw water pressure indication (only in combination with raw water pump)
- Exhaust temperature indication
- Engine heater 2000W

Generator
- Air inlet filters according to IP23
- Air inlet louvres/filters according to IP44
- Parallel equipment mounted in generator
- Thermostats (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- PT 100 elements (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- Double bearing generator
- PT 100 elements mounted in generator bearings for temperature measurement

Optional equipment
Engine
- Twin engine-mounted fine fuel filter of spin-on type with change over valve
- Twin fuel pre-filters/water separator with change over valve
- Flexible exhaust compensator
- Cooling water connection bellows
- Electrical, air or hydraulic starting systems in various combinations
- Raw water pressure indication (only in combination with raw water pump)
- Exhaust temperature indication
- Engine heater 2000W

Generator
- Air inlet filters according to IP23
- Air inlet louvres/filters according to IP44
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- Thermostats (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- PT 100 elements (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- Double bearing generator
- PT 100 elements mounted in generator bearings for temperature measurement

Miscellaneous
- Dry exhaust silencer with or without spark arrester
- Batteries
- Battery main switch according to IP44
- Battery charger
- 80A alternator with integrated charging sensor
- Basic toolkit
- Spare parts according to classification recommendations

Contact your local Volvo Penta dealer for further information. Not all models, standard equipment and accessories are available in all countries. All specifications are subject to change without notice.
The Genset illustrated may not be entirely identical to production standard Gensets.
Technical Data HE Genset

Power output at 1500 rpm 50Hz/400V, kVA (kWe)

- D9 MG / HCM434C-1: 210 (168)
- D9 MG / HCM434D-1: 230 (184)
- D9 MG / HCM434E-1: 275 (220)
- D9 MG / HCM434F-1: 282 (225)

Power output at 1800 rpm 60Hz/440V, kVA (kWe)

- D9 MG / UCM274H-1: 213 (170)
- D9 MG / HCM434C-1: 245 (196)
- D9 MG / HCM434D-1: 270 (216)
- D9 MG / HCM434E-1: 313 (250)

10% overload available according to class requirements. Fuel temperature 40°C (104°F). Technical data according to ISO 3046 Fuel Stop Power and ISO 8665. Fuel with a lower calorific value of 42700 kJ/kg and density of 840 g/liter at 15°C (60°F). Merchant fuel may differ from this specification which will influence engine power output and fuel consumption.

Technical Data RC Genset

Power output at 1500 rpm 50Hz/400V, kVA (kWe)

- D9 MG / UCM274H-1: 170 (136)
- D9 MG / HCM434C-1: 210 (168)
- D9 MG / HCM434D-1: 230 (184)
- D9 MG / HCM434E-1: 268 (214)

Power output at 1800 rpm 60Hz/440V, kVA (kWe)

- D9 MG / UCM274H-1: 213 (170)
- D9 MG / HCM434C-1: 245 (196)
- D9 MG / HCM434D-1: 270 (216)
- D9 MG / HCM434E-1: 288 (230)

10% overload available according to class requirements. Fuel temperature 40°C (104°F). Technical data according to ISO 3046 Fuel Stop Power and ISO 8665. Fuel with a lower calorific value of 42700 kJ/kg and density of 840 g/liter at 15°C (60°F). Merchant fuel may differ from this specification which will influence engine power output and fuel consumption.
Technical Data KC Genset

Power output at 1500 rpm 50Hz/400V, kVA (kWe)
D9 MG / HCM434C-1 ........................................... 210 (168)
D9 MG / HCM434D-1 ........................................... 230 (184)
D9 MG / HCM434E-1 ........................................... 275 (220)
D9 MG / HCM434F-1 ........................................... 282 (225)

Power output at 1800 rpm 60Hz/440V, kVA (kWe)
D9 MG / UCM274H-1 ........................................... 213 (170)
D9 MG / HCM434C-1 ........................................... 245 (196)
D9 MG / HCM434D-1 ........................................... 270 (216)
D9 MG / HCM434E-1 ........................................... 313 (250)
D9 MG / HCM434F-1 ........................................... 2750 x 1161 x 1712/1919

10% overload available according to class requirements. Fuel temperature 40°C (104°F). Technical data according to ISO 3046 Fuel Stop Power and ISO 8665. Fuel with a lower calorific value of 42700 kJ/kg and density of 840 g/liter at 15°C (60°F). Merchant fuel may differ from this specification which will influence engine power output and fuel consumption.

Dimensions L x W x H₁/H₂ (mm), not for installation
D9 MG / UCM274H-1 ........................................... 2492 x 1161 x 1712/1919
D9 MG / HCM434C-1 ........................................... 2660 x 1161 x 1712/1919
D9 MG / HCM434D-1 ........................................... 2660 x 1161 x 1712/1919
D9 MG / HCM434E-1 ........................................... 2660 x 1161 x 1712/1919
D9 MG / HCM434F-1 ........................................... 2750 x 1161 x 1712/1919

Weight, kg
D9 MG / UCM274H-1 ........................................... 2160
D9 MG / HCM434C-1 ........................................... 2380
D9 MG / HCM434D-1 ........................................... 2470
D9 MG / HCM434E-1 ........................................... 2555
D9 MG / HCM434F-1 ........................................... 2690

H₁ = Height including exhaust compensator
H₂ = Total genset height including control box