

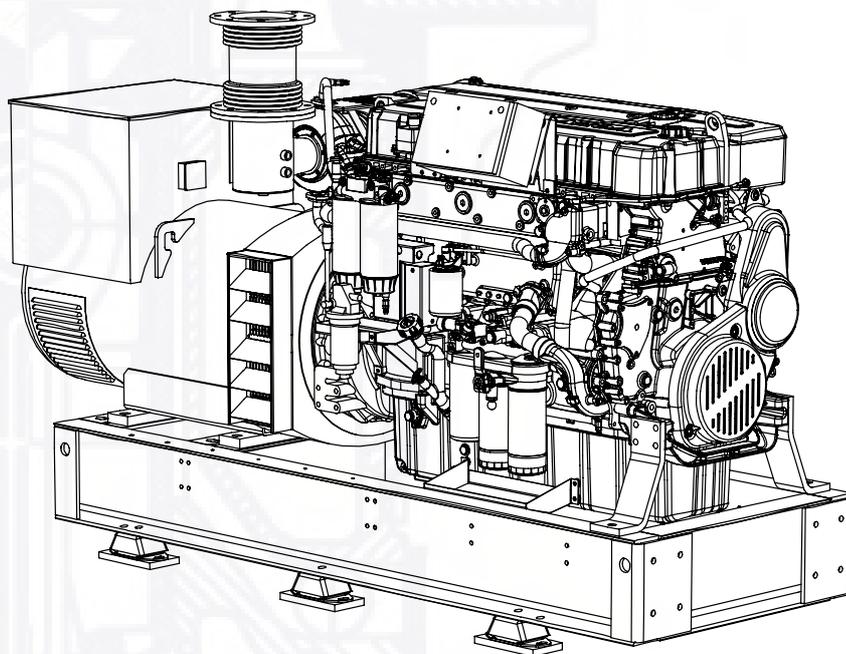
# D12 MG

## VOLVO PENTA MARINE GENSET

300-367 kVA (240-294 kWe) at 1500 rpm 50Hz, 375-437 kVA (300-350 kWe) at 1800 rpm 60Hz

### Technical Data

Engine designation ..... D12 MG  
No. of cylinders and configuration . . . in-line 6  
Method of operation ..... 4-stroke,  
..... direct-injected, turbocharged  
..... diesel engine with aftercooler  
Bore, mm ..... 131  
Stroke, mm ..... 150  
Displacement, l ..... 12.13  
Compression ratio ..... 17.5:1  
Crankshaft Power HE Cooling  
at 1500 rpm, kW (hp) ..... 310 (422)  
at 1800 rpm, kW (hp) ..... 370 (503)  
Crankshaft Power RC Cooling  
at 1500 rpm, kW (hp) ..... 292 (397)  
at 1800 rpm, kW (hp) ..... 339 (461)  
Crankshaft Power KC Cooling  
at 1500 rpm, kW (hp) ..... 310 (422)  
at 1800 rpm, kW (hp) ..... 370 (503)  
Recommended fuel to conform to .....  
..... ASTM-D975 1-D & 2-D  
..... EN 590 or JIS KK 2204  
Specific fuel consumption best point,  
g/kWh at 1500 rpm ..... 198 (100%)  
g/kWh at 1800 rpm ..... 212 (50%)  
10% overload available acc. 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. The engine is certified according to IMO.



### Volvo Penta Genset system

The Volvo Penta Genset systems are the complete solution for a ship's onboard power requirement. 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 rapidly growing care for the environment all over the world, emission regulations are becoming increasingly stricter. Today's Volvo Penta engines meet both existing and proposed emission regulations. 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.

# D12 MG

## 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 flexplate
- Flexible mountings including welding plates mounted under the frame
- Total torsion compatibility via calculation eliminate dangerous vibrations
- Full protection of rotating parts will be provided
- Set painted in Volvo Penta green

### 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

### Lubrication system

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

### Fuel system

- Six Electronic Unit Injectors, one per cylinder, vertically positioned at the center in between the four valves
- 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 level alarm.

### Turbocharger

- Water-cooled turbocharger

### Heat Exchanger cooled system (HE)

- For Seawater and central cooled Gensets
- Engine mounted tubular heat exchanger with expansion tank
- Gear driven fresh water pump
- Gear driven raw water pump (optional)

### Radiator cooled system (RC)

- For Air cooled Gensets
- V-belt driven radiator fan
- Gear driven fresh water pump

### Keel cooled cooling system (KC)

- For connection to one external cooler
- Gear driven fresh water pump

### Generator

- Tropical insulation class H
- Generator equipped with spacious terminal box
- Stator winding as standard with short 2/3 pitch winding, ideal for non-linear load (thyristor load)
- 4-pole, brushless, AC marine generator
- Dynamically balanced rotor
- Permanent magnet mounted on generator for independent power supply to AVR
- Permanent magnet system to obtain hard performance on motor start and to deliver stationary short circuit current
- Heavy damper cage for parallel operation and very low subtransient reactance values
- Automatic Voltage Regulator (AVR) for accurate Voltage regulation
- Single bearing generator as standard
- Windings are 12 wire reconnectable
- Voltage available range up to 600V
- IP23 enclosure as standard
- Anti condensation heating

### Control System

- MCU a new flexible and expandable control and monitoring system for classified installations. Incl. separate safety shutdown system
- Meets new classification requirements of separate shutdown and monitoring system
- Easy to interface with leading suppliers of ship control systems
- Possibility to connect relays for remote control functions (potential free contacts)
- Classifiable by all major classification societies

## Optional equipment

### Engine

- Twin engine mounted fine fuel filter of spin-on type, with water separator and water level alarm.
- Twin fuel pre-filter/water separator with shift 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
- Thermistors (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- PT100 elements (1 or 2 per phase) mounted in generator for temperature measurement of windings in generator
- Double bearing generator
- PT100 elements mounted in generator bearings for temperature measurement

### Miscellaneous

- Dry exhaust silencer with or without spark arrestor
- Batteries
- Battery main switch according to IP44
- Battery charger
- 60A alternator with integrated charging sensor
- Synchronizer unit
- Load sharing unit
- 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.

# D12 MG

## Technical Data HE Genset

Dimensions L x W x H, mm

D12 MG / HCM434F-1 ..... 2850x1038x1565

D12 MG / HCM534C-1 ..... 2918x1038x1565

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

D12 MG / HCM434F ..... 300 (240)

D12 MG / HCM534C ..... 367 (294)

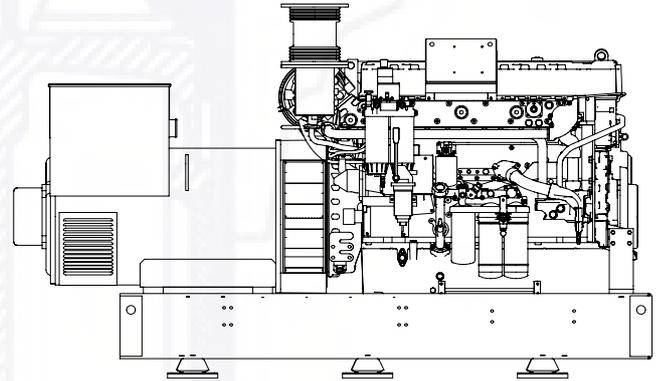
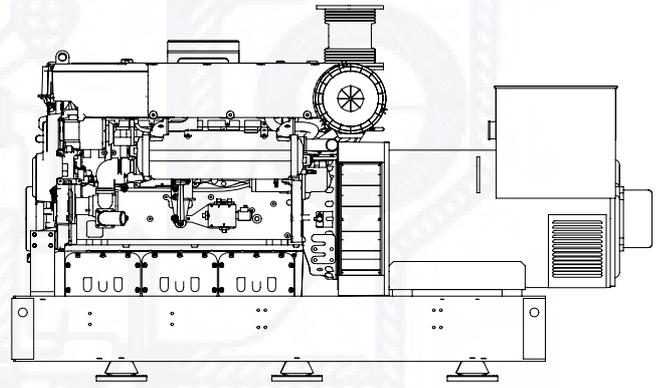
Power output at 1800 rpm 60Hz, kVA (kWe)

D12 MG / HCM434F ..... 375 (300)

D12 MG / HCM534C ..... 437 (350)

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

Dimensions L x W x H, mm

D12 MG / HCM434F-1 ..... 3290x1148x1944

D12 MG / HCM534C-1 ..... 3326x1148x1944

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

D12 MG / HCM434F ..... 300 (240)

D12 MG / HCM534C ..... 346 (277)

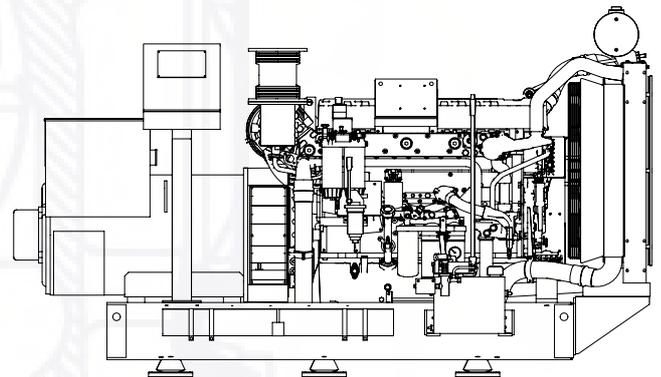
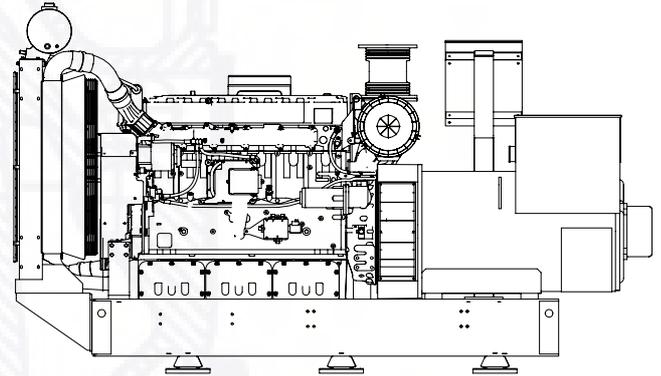
Power output at 1800 rpm 60Hz, kVA (kWe)

D12 MG / HCM434F ..... 375 (300)

D12 MG / HCM534C ..... 400 (320)

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.



# D12 MG

## Technical Data KC Genset

Dimensions L x W x H, mm

D12 MG / HCM434F-1 ..... 2850x1038x1565

D12 MG / HCM534C-1 ..... 2918x1038x1565

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

D12 MG / HCM434F ..... 300 (240)

D12 MG / HCM534C ..... 367 (294)

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

D12 MG / HCM434F ..... 375 (300)

D12 MG / HCM534C ..... 437 (350)

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.

