

8080P-40205

5.5 kW Diesel DC Generator

**The Most Efficient Means to Charge Batteries and Power Loads using Diesel
Fully Automatic Battery Charging Options**

Telecommunications

Military APU

Solar Hybrid

Conventional Hybrid Power

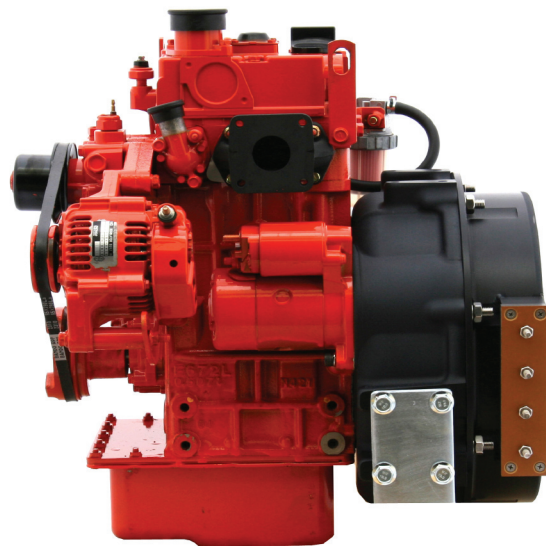
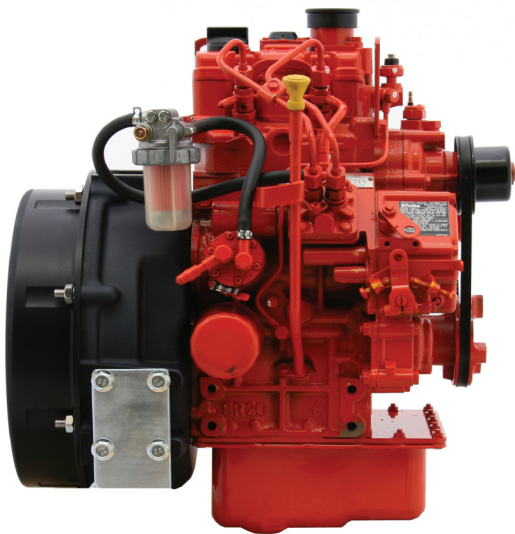
Marine Buoys

Transportation/Trucking

Oil Field

Features

- Maximum Continuous Output: 5.5 kW at 2900 RPM
- 100 amps at 54 Vdc (200 amps at 28 Vdc)
- Variable speed with 500 RPM span - full load to no load
- Lower engine speed options available
- 2 cylinder diesel, water cooled
- Engine Operational Life: 8,000 to 12,000 hours
- Temperature compensated battery charging
- Oil changes at 500 hours with 1,500 hour maintenance option
- Available with electric water pump in a beltless configuration
- Very light weight - 195 pounds without controls
- Alternator exceeding 85% efficiency



Description

Combining our lightweight 8080 alternator with the compact Perkins 402-05 engine delivers a DC power solution that offers significant advantages over air cooled generators. This is an ideal package covering the power range of 2 to 5.5 kW.

In cold climates, the water cooled engine can use its thermostat to regulate combustion temperatures improving fuel efficiency and reducing engine maintenance. (Conventional small air cooled engines do not have the ability to regulate combustion temperatures)

In hot and cold weather extremes the water cooled engine provides lower oil maintenance than the air cooled. In hot weather the water cooled engine's oil temperature is typically under 125°C whereas the air cooled engines typically operate at temperatures above 150°C reducing the service life of the oil. In cold weather the oil temperatures of air cooled engines can be too low to remove the absorbed water from the combustion process, this also reduces oil service life.

Water cooled engines normally have twice the oil capacity in the oil pan over the air cooled engine.

For low noise requirements, the water cooled engine can take advantage of its fluid lined cylinders for noise reduction at the source.

An electric fan radiator can be mounted external to the sound attenuating enclosure allowing a more efficient means of sound attenuation.

Even after it's enclosed into a sound enclosure unit, this generator is typically lighter in weight and more compact than conventional air cooled generators.

This small water cooled engine has three heavy duty bearings supporting the crankshaft, whereas conventional air

cooled engines in the similar power range have only two light duty bearings. This feature has a very large impact increasing engine durability.

To configure a DC Generator system we start with the DC generator then add the accessories as the application requires including: Engine monitoring, Load Battery monitoring, Communication options, Enclosure or Frame, Cooling system, Lubrication system.

Accessories

Electric Fuel Pump

The mechanical fuel pump that is supplied reliable, but an electric fuel pump is more reliable and facilitates a rapid start.

Oil Refining Pack Filter

This is a bypass filter that processes a partial flow of oil to remove particles in the sub-micron level. This filter is also effective in removing moisture that the oil absorbs from the combustion process and marine air. Using synthetic oil and this refining pack filter you can change oil at 1,500 hours intervals.

Automatic Oil Adder

This is option automatically adds oil that is normally consumed in the lubrication / combustion process. Recommended when you are not able to inspect oil at 300 to 500 hour intervals.

Fuel Refining Pack

The same filter that is used for refining the oil can be used for refining the fuel. This filter is used in conjunction with the present fuel filter as supplied by Volvo Penta. This filter process the fuel before it reaches the filter on the engine. This filter uses 185 grams of paper which this typically more than most diesel filters. Electric fuel pump is required for this filter.

Fluid Cooled Alternator

This option allows the alternator to run more efficiently when installed inside compartment with poor air circulation. We recommend air cooling over fluid cooling because it is a simpler system.

Oil Cooler

This option is used for generators installed in poorly ventilated compartments and provides additional cooling to the engine through oil.

24 Vdc Generator Electrical System

This option upgrades the starter and glow plug to 24 Vdc.

24 Vdc Starting Battery Alternator

Standard alternator voltage is 12 Vdc. In special applications it may be desirable to upgrade the engine alternator to 24 Vdc for charging the starter battery. In most applications the alternator is not required, starter battery charging is accomplished through a DC to DC power supply or in military 24 / 28 Vdc applications the starting battery and the load battery are combined in function.

For details regarding engine, alternator, and battery monitoring and control options please see the data sheets on the Supra System.

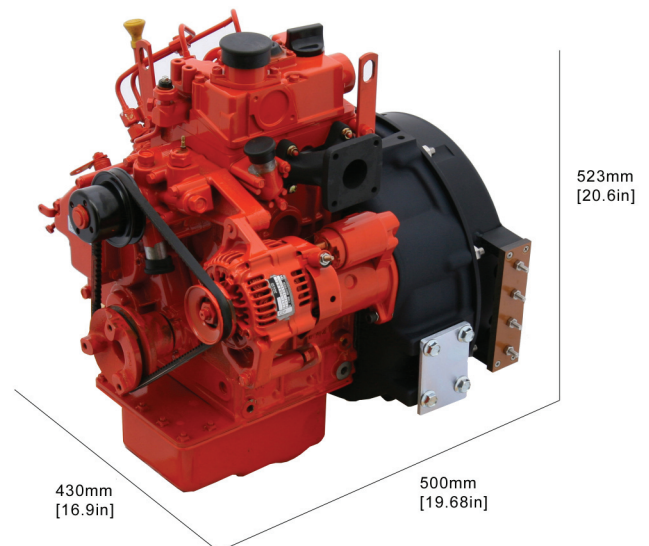
There are specific data sheets on Output Power Filters, Electric Radiator, Frames and Enclosures, Lubrication, and Starting Accessories.

For engine speeds verses electrical loads please see alternator data sheets.

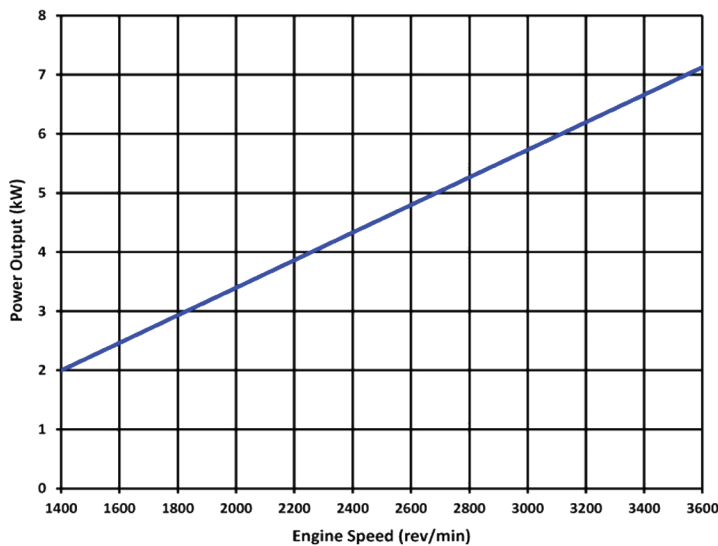
Engine Specifications

- Cast iron engine block
- Flywheel and flywheel housing
- Fuel injection pump
- Spin on fuel filter
- Glow plug starting aid

- Cast iron exhaust manifold - side outlet
- Coolant pump belt driven
- Starter battery alternator - 12 volts, 14 amps
- Lube oil pressure switch
- Standard cold starting capacity to -20°C
- Coolant pump belt driven
- Standard cold start capacity to -20°C
- Naturally aspirated
- Gradeability 35°C continuous



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Ratings kW (continuous)	5.5 kW @ 2900 rpm
Output DC voltage	12, 24/28, 48, 72, 96
Perkins Engine	402D-05 Series
Cylinders	2 in-line
Cylinder Volume	.51 liters
Weight (dry)	89 kg [196 lb]
Coolant Capacity	1.1 liters
Oil Capacity	3 liters
Operating Temperature (Ambient/Compartment)	-40C° to 72°C
Fuel Consumption	279 g/kWhr (calculated)
Emmissions Certification	Tier 4
Dimensions	Length: 500mm [19.7in] Width: 430mm [16.9in] Height: 523mm [20.6in]



Generator must be derated for Fuel, Altitude and Temperature.

4 to 6% derate for JP-8

3% Derate for every 300 m (1000 ft) above 91 m (300 ft)

1% Derate for every 5.6 C (10 F) above 25 C (77 F).

Limited Warranty

Polar Power Inc. (hereinafter "Polar"), hereby warrants goods manufactured and sold by it to be free from defects in material and workmanship for 24 months after the date of shipment.

The warranty is limited to repair or replacement at 22520 Avalon Blvd., Carson, CA 90745 or other point designated by Polar of such parts as they appear to Polar, upon inspection, to be defective in material or workmanship. This warranty is extended to the first user only and no warranty is made or authorized to be made assignable on resale by the first end user.

The above warranty includes a pass-through warranty from the engine and controller manufacturers for whatever period and warranty is in effect by the manufacturer at that time. The above warranty only extends to applications and installations which are approved by mutual agreement between Polar and the first end users.

To obtain performance of any obligation under this warranty, contact must be made with Polar in writing at 22520 Avalon Blvd., Carson, CA 90745. Submission of a claim does not obligate Polar to accept such claim in full or in part. No bills for service, labor or

other expenses that have not been previously approved and authorized by Polar will be allowed.

No goods or materials may be returned until authorized in writing by Polar and, where the return of the material is authorized, it shall be F.O.B. to whatever point Polar designated within the U.S.A.

Repairs or alterations made to the goods without Polar written concurrence or the operation of the goods in excess of rated capacity will invalidate this warranty.

There is no implied warranty or condition of merchantability. There is no other warranty or condition expressed or implied, statutory or otherwise, except such as is expressly set forth herein. Neither Polar nor manufacturers will be liable for any general, consequential or incidental damages, including without limitation any damages for loss of use or loss of profits, for any breach of warranty or condition or for negligence; Polar's and manufacturer's liability and the buyer's exclusive remedy being expressly limited to the repair or replacement of the goods sold by polar as provided herein.