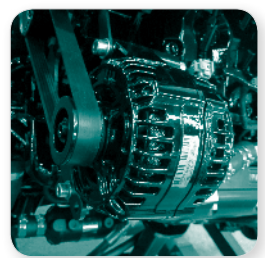


green energy solutions



Power Generation: AC BeltPower (230V), DC BeltPower (12, 24VDC)



Smart power generation

Belt driven alternators



Total independence, at any time. WhisperPower provides the right electrical power solution at places without standard utility power. We cover all sorts of applications in commercial- and recreational marine and mobile markets. For power consumption a power source is needed. Batteries can be used to supply power to DC and AC consumers for a period of time, but at a certain moment this power source has to be re-powered or re-generated. This can be done by solar (PV) panels, wind generators or diesel generators. But also with a add-on alternators, to be mounted to existing (main) engines. This is featured by our DC BeltPower range of products. Our AC BeltPower system can be used a a power generator for a 230VAC/ 50Hz power provision.



Perfect solution for 12/24VDC or 230V/120VAC power demand

In addition to our extended range of auxiliary diesel generators and genverters based on hybrid technology, we offer a comprehensive range of belt driven ALTERNATOR SYSTEMS which generate power when the main engine of the vehicle, yacht or vessel is running.

We can provide 2 voltage principles, covering 12 or 24 VDC power needs or 230 VAC alternating current (230 V, 50 Hz AC) power needs. Our DC range consist of high-output alternators supplying 12 or 24 VDC to the battery or DC consumers directly. In this brochure we explain the difference and the use of both type of systems.

DC BeltPower

Standard alternators, fitted to craft/ vehicle engines are designed just to charge the starter battery of that particular engine. The voltage is restricted to a FLOAT level, which is insufficient to top up a larger battery, and the charge current is

in general very limited. The current is tapering of already after some time of engine running. In case LARGER BATTERIES, of any kind, are to be charged, we recommend to install a 2e alternator, which is more powerful. Our DC BeltPower alternators are capable to charge FAST and COMPLETE as a result of the ACR 3-step charge method. Main hallmarks:

- Charging 12 or 24 VDC
- At very LOW RPM of the engine already a HIGH CURRENT
- Suitable charge for 2 or more separate banks
- Programmable for open lead acid, GEL, AGM or Li ion batteries
- Available from 75 – 150 A, 12 or 24 VDC
- Microprocessor controlled Automatic Charge Regulator (ACR) included
- Temperature compensation as standard.

DC BeltPower + Inverter

Our sine wave inverters and inverter/ charger combinations are ideal to be combined with our DC BeltPower systems. For power demands not exceeding 3 kW for a period of time, and an average consumption of 1 kW, an Inverter/ BeltPower solution is ideal and can be used as alternative to an auxiliary gasoline or diesel generator. In such systems both 230 VAC/ 50 Hz or 120 V/60 Hz AND 12 /24 VDC users are powered by the inverter from the battery. Re-powering will take place when the engine is started.

Another ideal combination is to add a DC BeltPower system to one of the two engines of a twin powered yacht. A 24 VDC /110 A alternator for example, can supply 3 kW of electrical power to the various users via the battery. The battery is acting as the power storage, large loads including airconditioning devices can be operated via the inverter and batteries, the auxiliary generator can be left off in such situations.

AC BeltPower system

In case 230 V 50 Hz power is required directly from a power source, an AC BeltPower can be a good alternative to an auxiliary gasoline or diesel generator. Continuous power should not exceed 2

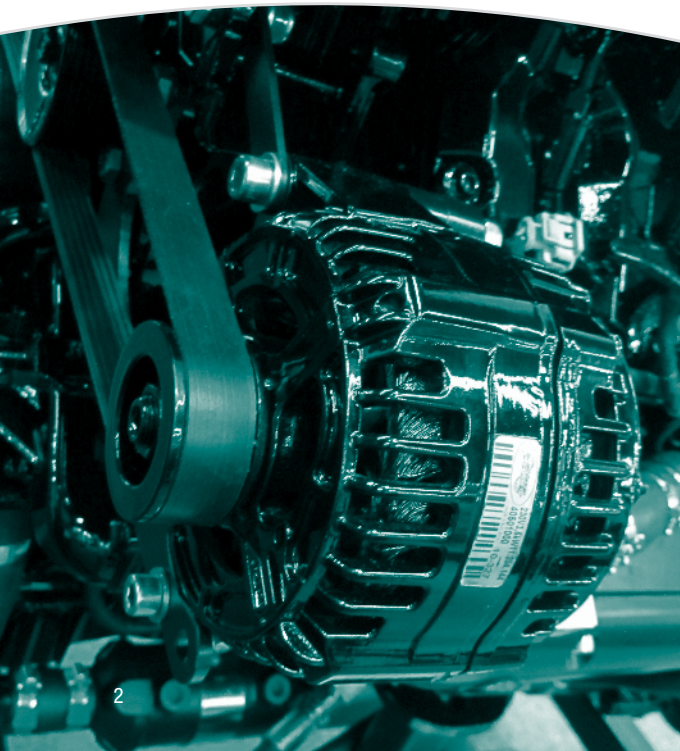
kW, we offer a 3.5 or 5 kW systems, but this power rating is for intermittent use. This system consists of the following components:

- A compact alternator, which should be added to the existing engine, which is driven by a V belt or a rope (we offer both choices).
- An inverter converts the incoming variable voltage and frequency into a stable, pure sine wave 230 V 50 Hz.
- Various components like pulley, connection cables etc.

Installation brackets, to mount the alternator to the engine, are NOT provided by WhisperPower, but can be obtained from recommended specialists.

AC BeltPower + WPC Power Centre

This is an ideal solution to create a high efficient power system: the AC BeltPower is operating various 230 V 50 Hz appliances in a direct way. At the same time, an auxiliary battery is charged/ maintained. To this battery, our WPC Power Centre inverter is connected. In case the engine is running at idle (i.e. is not providing 230 V 50 Hz power any longer) the WPC inverter will take over the 230 V 50 Hz AC Power provision, smoothly and without interruption. The total power, generated by this system, based on a 12 V battery, is 5 kW intermittent.



Power generation for 12 or 24VDC systems

WP-DC BeltPower

Charging the battery or batteries within a short time to 100%, with minimum engine running hours. Extend battery life by using the right 3-step charge method, with proper temperature sensing. Generate sufficient power to operate a complete 12 / 24VDC AND 230V / 50Hz (120V/60Hz) power system.

Smart, heavy duty and for any engine

Most standard DC alternators are designed specifically to meet the limited needs of an engine starting battery. Extended mobile or maritime electrical systems require much more power for DC lights, pumps, electrical motors, refrigeration and communication equipments etc. The 'step-in' system of WhisperPower is based on our DC BeltPower systems. They are designed to provide the right charging for the battery or batteries, are robust and suitable for non-stop operation under hot conditions. A custom wound rotor/stator configuration, built in a heavy duty housing with strong brackets plus a water proof ACR 3-step charge regulator make the difference: this professional kit it is a one time investment.

Any engine

Yanmar? Volvo? Steyr? Our DC (and AC BeltPower!) can be fitted to any engine make. Just ask your dealer or your engine supplier to provide you with the right brackets. All the rest is provided by WhisperPower through the same Technical Sales dealer.

DC BeltPower system basics

Ask your dealer to assist you to make the right choice.

Step 1: Determine the size of the battery by counting all the DC loads, and eventually the AC loads in case an inverter is installed as well. Our system will operate with ANY battery type, including Li Ion. For Li Ion however, the TOTAL system should be reviewed including DC distribution and the other charging sources! Our rule of thumb for selecting the right alternator size: 1:4, so a 360 Ah battery should be charged with a 90 A DC BeltPower. When using a WhisperPower battery (AGM or GEL) this ration can even be 1: 2, with Lithium Ion the charge current can be increased to even a 1 to 1 ratio.

Step 2: Take the highest current draw as departing point: this is the minimum amperage the DC BeltPower should supply. In case you want to a. operate the load in the system and b. re-charge the battery, select a larger model.

Step 3: Select the appropriate engine dealer to help you to figure out the a. the brackets (installation of the alternator to the engine) and b. the pulley ratio. In our DC BeltPower manual you will find the upper and lower rpm values.

Step 4: When the DC alternator is installed, the ACR regulator and cable harness can be installed. Make sure the batteries are reasonable close to the engine, so cable losses are limited to the max. The ACR can be SET to the required SET MODE.

Features of our ACR Regulator

- High charge current at low rpm of the alternator
- Recharging the battery for the full 100% within a short period
- Three step charge algorithm, suitable for GEL, AGM and 'wet' batteries
- Extends battery life considerable
- Temperature sensor as standard
- Water proof IP 65 enclosure



Technical Data

DC BELT POWER - OUTPUT ALTERNATORS - 12 AND 24V

60212091	WP-DC Beltpower 12V / 90A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect
60212131	WP-DC Beltpower 12V / 130A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect
60212161	WP-DC Beltpower 12V / 160A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect
60224076	WP-DC Beltpower 24V / 75A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect
60224111	WP-DC Beltpower 24V / 110A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect
60224151	WP-DC Beltpower 24V / 150A Alternator, incl. ACR charge regulator and connectioncable, Temp. Sensor, WP Connect

DC BELTPOWER IS AVAILABLE WITH THE FOLLOWING PULLEYS:

60212001	Pulley Double V $\frac{5}{8}$ " 73,6mm	for 12V / 90A Beltpower
60212006	Pulley Flat belt $\frac{7}{8}$ " 89mm	for 12V / 130A;12V/160A;24V/75A;24V/110A;24V/150A Alternator

OPTIONAL

60212002	Pulley Flat belt $\frac{5}{8}$ " 73,6mm	for 12V / 90A Alternator (option)
60212005	Pulley Double V $\frac{7}{8}$ " 89mm	for 12V / 130A;12V/160A;24V/75A;24V/110A;24V/150A Alternator (option)

ACR CHARGE REGULATOR, BOSCH

60115100	WP-ACR 12V Alternator Charge Regulator,	incl. temp. Sensor and WP Connect
60115200	WP-ACR 24V Alternator Charge Regulator,	incl. temp. Sensor and WP Connect



DC Beltpower 12V / 90A



ACR 3-stage regulator

*) The ACR can also be used with a standard BOSCH alternator.

For Marine and Mobile use

WP-AC BeltPower

In case of limited space availability, we offer our AC BeltPower system as an 'engine' driven generator. This is another method to produce stable, sine wave 230 V/ 50 Hz AC for power tools, measurement equipment, lights and other AC appliances. In addition we offer our WPC inverter system as an extension to the Beltpower, enabling interruption free switching from 'running' power to 'silent' power.

How the system works

The AC BeltPower system consists of two essential parts. A small specialty alternator with a pulley and a belt are the part to be mounted to the diesel or gasoline main engine of the vehicle or vessel. The mounting brackets to connect the alternator to the engine block can be made by your local dealer or by one of our WhisperPower alternator specialists partners. The second part consists of a power electronics box (inverter), a cable harness to connect the box to the alternator and an AC (230V 50Hz) output terminal which is integrated in the inverter box. The inverter has to be installed in a dry, well vented part of the vehicle or vessel. After installation the system is ready to GO. The rpm range of the engine should be programmed via a separate actuator.

3.5 and 5 kW power rating

We offer a 3.5kW and a 5 kW model. Both units are physically similar. In case higher power is required, or when devices are connected requiring the nominal power during the duration of many hours, or when peak powers occur in the system, we advice to add the WPC inverter with a small battery capacity. (see drawing at the left page). The system is completely protected against overload, short circuit, too high or too low rpm of the alternator and over temperature. AC BeltPower is fully CE certified.

WP-AC BeltPower

- Power sources/ power generation: utility power, diesel or gasoline generator, DC or AC alternator, charged battery, solar panel, wind generator.
- Voltage is the difference in voltage between plus and minus.
- Amperage: size of current = intensity of electrical power.
- Watt or VA: capacity = voltage x power intensity.
- Power demand: amount of Watts necessary to use connected equipment. Standard power circuits
- 12V or 24V circuit for direct current. 48VDC relevant to electrical propulsion.
- 230V or 120V circuit for alternating current.
- 380/ 400V circuit for high voltage current (heavy equipment).
- Circuits are often combined in one system, so appliances utilizing various voltages can be used.
- WhisperPower systems are designed to operate with various land/ shore power voltages and frequencies.

Direct Current: DC - 12V, 24V or 48V

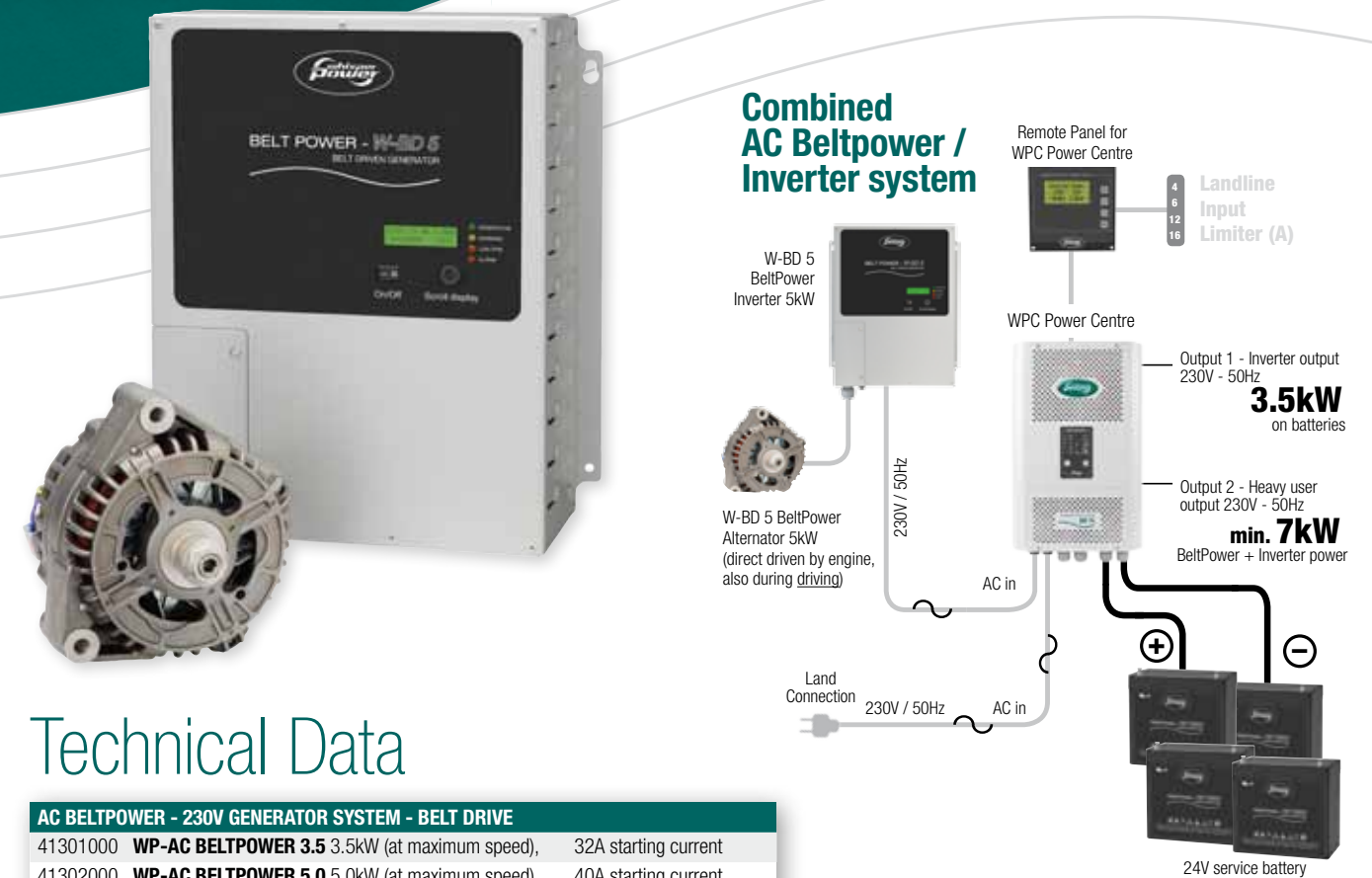
- 12 or 24 Volt DC or Direct Current.
- To be stored in batteries or supplied by battery chargers/ power supplies/ converters.
- Current flows in a single direction, from positive pole to negative.
- Low voltage: Thick wires are required to deliver high currents. Alternating current: AC - 230V/50Hz or 120V/60Hz
- 230V/50Hz alternating current.
- In America: 120V/60Hz, Japan/ Taiwan 100 - 110V/50Hz
- Current is constantly switching directions: From positive poles to negative poles.
- High voltage: Relatively thin wires.
- Cannot as such be stored in batteries, only DC to AC via inverter.

Power storage/ batteries and battery chargers

- Batteries store power for consumption on demand.
- To be charged by mains utility (shore/land power, diesel or gasoline generator, DC or AC alternator, solar panel, wind generator).
- Charging process requires safe power management.
- WhisperPower provides safe and reliable charging equipment.

Features of our WP-AC BeltPower

- 3.5 kW - 5 kW - 230 VAC/50 Hz
- Heavy-duty system to generate 230VAC/50Hz
- Stable, sine wave power at variable speed
- Compact & easy to install
- High efficient & compact generator solution
- Suitable to operate with Combi's



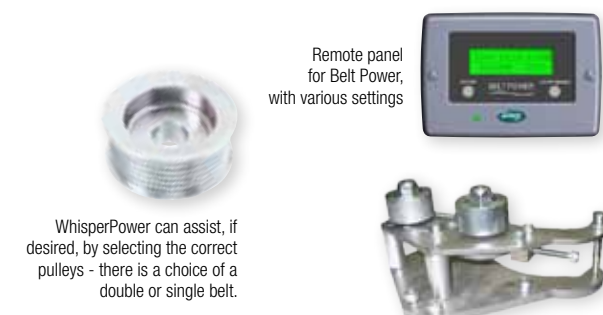
Technical Data

AC BELTPOWER - 230V GENERATOR SYSTEM - BELT DRIVE		
41301000	WP-AC BELTPOWER 3.5 3.5kW (at maximum speed),	32A starting current
41302000	WP-AC BELTPOWER 5.0 5.0kW (at maximum speed),	40A starting current
41303000	WP-AC BELTPOWER 8.0 7.0kW (at maximum speed),	

REMOTE CONTROL PANEL	
41301030	Remote control panel

ACCESSORIES		
41301020	Shielded power supply cable	5 m
41301021	Shielded power supply cable	8 m
41301022	Shielded power supply cable	10 m
41301025	Cable remote control panel	5 m
41301026	Cable remote control panel	10 m
50209133	Cable remote control panel	15 m

STANDARD PULLEYS AND PULLEYS TO CLIENT SPECIFICATION		
41301050	Pulley poly 6 groove	Ø 60 mm (recommended)
41301051	Pulley poly 6 groove	Ø 50 mm
41301052	Pulley double V groove 12.7 mm	Ø 70 mm
41301053	Pulley double V groove 10 mm	Ø 60 mm



WhisperPower can assist, if desired, by selecting the correct pulleys - there is a choice of a double or single belt.

The main components of the AC and DC Belt Alternator system are the brackets for mounting the alternator to the engine. Mounting bracket kits are available on the market for numerous brands of vans and marine engines.

 International

 Benelux

 United Kingdom

 Germany

 France

 Spain & Portugal

 America

 China

 Pacific

green
energy
solutions

Information and contact

For more information and advice about WhisperPower products and services you can contact our local distributors and technical sales partners. For an up-to-date list of addresses and phone numbers go to www.whisperpower.com.

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