Energy
Synchronous Alternators
WEG was established in 1961, and is one of the largest manufacturers of alternators in Latin America and of electric motors in the world. With extensive experience in the sector, WEG offers a wide range of alternators to meet the requirements of different applications in virtually any environment. The alternators are specially designed according to the specific characteristics of each application so as to meet the customer’s needs: generator sets, wind turbines, turbogenerators (steam or gas) and hydrogenators.

WEG offers the customer after sales technical support in applications and installations by means of its specialized customer service network.

This document presents WEG alternator options and applications in generator sets driven by internal combustion engines (diesel, gas, biodiesel, ethanol, oil, gasoline, bi-fuel, etc.). The use of a generator set ensures power supply regardless the power grid, which makes WEG alternators an excellent solution for emergency or continuous operation in maritime and ground applications.
G Plus Line

A reliable and high performance product which can operate in different applications, generating power with maximum benefit for the customer.

The G Plus alternators offer excellent cost effectiveness and easy maintenance by means of the latest performance and safety concepts for continuous, prime power and standby operation.

G Plus Technical Features
- Output: 12.5 to 4,000 kVA
- Frame: 160 to 400 (IEC)
- Low voltage: 220 to 690 V
- Frequency: 50 to 60 Hz
- Degree of protection: IP21 (IP23, IP21W and IP23W on request)
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4, 6, 8 and 10
- Voltage regulator without requiring external power supply (alternator with auxiliary coil)

Note: check the electrical and mechanical features at www.weg.net.

Applications
Standby, prime power or continuous operation in the areas: industrial, commercial, marine, construction, telecommunications, mining, condominiums, irrigation, hospitals, data centers, rural, poultry, airports, etc.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
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<tr>
<td>Versatility</td>
<td>Manufactured with different mountings and coupling types</td>
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<td>The same alternator can operate in different three-phase and single-phase voltage levels</td>
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<tr>
<td>Auxiliary coil</td>
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</tr>
<tr>
<td>Encapsulated voltage regulator</td>
<td>Withstand high vibration levels and harsh environments</td>
</tr>
<tr>
<td>Permanent magnets on the exciter stator</td>
<td>Ensure built-up without requiring external power supply after long stops</td>
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AG10 Line

AG10 line was developed in a platform to meet the global market. One of the differential is the power density increasing as result of innovations in the electromagnetic design, among them the new stator plate and polar shoe blades, in addition the geometry resizing.

Technical Features
- Output: 260 to 2,455 kVA (others on request)
- Frame: 250 to 400 (IEC)
- Low voltage: 220 to 690 V
- Frequency: 50 and 60 Hz
- Degree of protection: IP21 or IP23 (others on request)
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4
- Voltage regulator without requiring external power supply (alternator with auxiliary coil)

Note: check the electrical and mechanical features www.weg.net.

Applications
Standby, prime power or continuous operation in the areas: industrial, commercial, marine, construction, telecommunications, mining, condominiums, irrigation, hospitals, data centers, rural, poultry, airports, etc.

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G Truck Line

Manufactured in finned cast iron frames with degree of protection IP56W, essential for the application, ensuring protection against weather exposure and durability.

Driven by the truck tractor or another mechanical energy source of the truck, they supply the necessary energy to pump the gases or other truck load required.

Technical Features
- Output: 15 and 30 kVA
- Frame: 160 (IEC)
- Low voltage: 230/460 V
- Frequency: 60 to 120 Hz
- Degree of protection: IP56W
- Insulation class: 180 (H)
- Number of poles: 4

Applications
Power supply for the cryogenic gas pump on trucks and semi-trailers for unloading gases.

<table>
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<th>Features</th>
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<tbody>
<tr>
<td>Degree of protection IP56W</td>
<td>Protection against weather exposure and water jet ingress</td>
</tr>
<tr>
<td>Power supply in 12 or 24 V dc</td>
<td>Use the vehicle battery</td>
</tr>
<tr>
<td>Cast frame</td>
<td>Better cooling, greater strength and protection against weather exposure</td>
</tr>
<tr>
<td>Compact</td>
<td>Allow the installation in small spaces</td>
</tr>
</tbody>
</table>
G Aircraft Line

400 Hz frequency alternators developed for Ground Power Units (GPU) driven by diesel engines used as power supply of aircrafts on ground.

The GPUs are used in cases of maintenance and/or long stays of aircrafts on ground, replacing the aircraft APU (Auxiliary Power Unit) generator, providing greater fuel and maintenance savings, besides reducing the noise generated by the APU.

**Technical Features**
- Output: 30 to 320 kVA
- Frame: 315 (IEC)
- Low voltage: 200/115 or 208/120 V
- Frequency: 400 Hz
- Degree of protection: IP21 or IP23
- Insulation class: 180 (H)
- Number of poles: 20, 24 and 26
- Ambient temperature: -25 °C up to 50 °C

**Applications**
Alternators driven by diesel engine for power supply of aircrafts on ground - GPU (Ground Power Unit).

<table>
<thead>
<tr>
<th>Features</th>
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<tbody>
<tr>
<td>Framework project</td>
<td>Designed to operate in mobile and stationary GPU with great durability</td>
</tr>
<tr>
<td>Compact</td>
<td>Allow the installation in small spaces and/or cabinets</td>
</tr>
<tr>
<td>Encapsulated voltage regulator</td>
<td>Withstand high vibration levels and harsh environments</td>
</tr>
<tr>
<td>Permanent magnets on the exciter stator</td>
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</table>
GTK Line

Solution developed for harsh environments, where the product robustness and quality are determining factors for the application.

The cast iron frame provides protection against weather exposure and resistance to corrosion, extending the product life cycle.

Technical Features
- Output: 7.5 to 700 kVA
- Frame: 160 to 400 (IEC)
- Low voltage: 220 to 690 V
- Frequency: 50 to 60 Hz
- Degree of protection: IP54W, IP55W and IP56W
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4

Applications
Metallurgical and mechanical industry, mining, oil & gas and off-road trucks.

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<td>Degree of protection</td>
<td>Protection against weather exposure and water jet ingress</td>
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<td>Permanent magnets on the exciter stator</td>
<td>Ensure built-up without requiring external power supply after long stops</td>
</tr>
<tr>
<td>Cast frame</td>
<td>Better cooling, greater strength and protection against weather exposure, providing an even longer life cycle</td>
</tr>
<tr>
<td>Compact</td>
<td>Allows the installation in small spaces</td>
</tr>
</tbody>
</table>
G Traction Line

Brushless (three-phase or polyphase) synchronous traction alternators are manufactured with steel plate or cast iron frame (depending on the selected protection level), meeting the requirements established in IEEE Std 11, IEC 60034, IEEE Std 115, IEC 60349 and IEC 61373, with focus on bus, trucks and off-road vehicles.

Technical Features
- Output: 50 to 2,455 kVA
- Frame: 160 to 500 (IEC)
- Voltage: 220 to 6,600 V
- Frequency: 50 and 60 Hz
- Degree of protection: IP23 and IP54
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4 and 6
- Other features on request

Applications
Alternators applicable to road (buses, trucks), airport (buses, towing vehicles, load carriers, baggage tractors, passenger steps, conveyors, loaders), farming (tractors, sprayers, harvesters), building (pavers, compactors, excavators, drilling) and mining (off-road trucks, buses and hybrid trucks, excavators).

<table>
<thead>
<tr>
<th>Features</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Versatility</td>
<td>They are manufactured with the most varied constructive forms and coupling types for combustion engines</td>
</tr>
<tr>
<td></td>
<td>It meets several three-phase and single-phase voltage levels in the same alternator</td>
</tr>
<tr>
<td>Voltage regulators</td>
<td>Our encapsulated analogue regulators, which are able to operate in the rigid traction applications, provide effective responses meeting the performance needs of the application. Digital regulator is available</td>
</tr>
<tr>
<td>Brushless excitation system</td>
<td>It minimizes maintenance interventions providing productivity and longer useful life to the equipment</td>
</tr>
</tbody>
</table>
G Rail Line

Brushless or brush (three-phase or polyphase) synchronous traction alternators for railway application are manufactured with steel plate or cast iron frame (depending on the selected protection level), meeting the requirements established in IEEE Std 11, IEC 60034, IEEE Std 115, IEC 60349 and IEC 61373.

Technical Features
- Output: 30 to 4,000 kVA
- Frame: 250 to 900 (IEC)
- Voltage: 220 to 4,000 V
- Frequency: 50 and 60 Hz
- Degree of protection: IP23
- Insulation class: 180 (H)
- Excitation: brushless or slip ring
- Number of poles: 4 to 12
- Winding system with preformed coils
- Other features on request

Applications
Freight locomotives, industrial locomotives, rail maintenance vehicles.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Versatility</td>
<td>WEG presents flexibility in order to adapt the design, mounting and ventilation system to the customer technical needs</td>
</tr>
<tr>
<td>Digital voltage regulator</td>
<td>Voltage regulator for panel installation and follow the project requirements. DVR have a proper number of inputs and outputs (analogue and digital) and background protection functions to effective cover the application needs</td>
</tr>
<tr>
<td>Brushless or slip ring excitation</td>
<td>WEG and the customer define the excitation system according the locomotive specification, design and required performance. This selection is a result between several factors, among time response, range of speed and maintenance plan designed</td>
</tr>
</tbody>
</table>
AN10 Line

An alternator with optimized performance, designed according to the naval standards especially to operate in marine environments. The product presents special electromechanical features which ensure durability, mechanical strength and robustness.

Benefits that WEG can provide through the high technology used in the products and knowledge of the application.

Technical Features
- Output: 1,100 to 3,000 kVA
- Frame: 450 to 560 (IEC)
- Voltage: 440, 690 and 4,160 V
- Frequency: 50 to 60 Hz
- Degree of protection: IP55W
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4

Applications
Especially designed to operate on ships and platforms, WEG alternators are used in different solutions including diesel electric propulsion, shaft generator, emergency or harbor application.
- PSVs (Platform Supply Vessels)
- OSRVs (Oil Spill Recovery Vessels)
- AHTSs (Anchor Handling Tug Supply Vessels)
- PLVs (Pipe Layer Vessels)
- DRUs (Drilling Rig Units)
- Pusher tugs, commercial vessels, tankers, etc.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
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<tbody>
<tr>
<td>Special coating, components parts and windings</td>
<td>High resistance to corrosion, environments with oil vapor, salt, high humidity and high temperatures</td>
</tr>
<tr>
<td>Excellent performance</td>
<td>Electric project with high efficiency, reactances according to the needs of the application and low level of harmonics distortion</td>
</tr>
<tr>
<td>Compact</td>
<td>Its reduced dimensions make it suitable for vessels with strict space limitations in the engine room</td>
</tr>
<tr>
<td>Flexibility</td>
<td>A line that allows adaptation to each project</td>
</tr>
<tr>
<td>Reliability</td>
<td>The product presents special electromechanical features which ensure durability, mechanical strength and robustness</td>
</tr>
</tbody>
</table>

Synchronous Alternators | 11
SG10 Line

Designed to be used in many applications, the line meets the requirements of all industrial and marine segment, ensuring excellent performance in high powers.

From the main generation to the auxiliary generation, on land or sea, the line has the features to guarantee a reliable operation.

Technical Features
- Output: 4,000 to 50,000 kVA
- Voltage: 380 to 13,800 V
- Frequency: 50 to 60 Hz
- Degree of protection: IP23 or IP55
- Insulation class: 180 (H)
- Excitation: brushless
- Number of poles: 4, 6, 8, 10 and 12

Applications
Especially designed to operate where the application requires a custom product in order to provide the necessary performance. Used on platforms, ships and power plants.
- Diesel Electric Propulsion (DEP) or shaft generator
- Main, emergency and auxiliary generation
- PSVs (Platform Supply Vessels)
- DRUs (Drilling Rig Units)
- FPSOs (Floating, Production, Storage and Offloading units)
- Data centers, critical power

<table>
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<tr>
<th>Features</th>
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<tbody>
<tr>
<td>Robustness</td>
<td>Excellent performance in demanding applications</td>
</tr>
<tr>
<td>Versatility</td>
<td>Can be supplied with air to air and air to water cooling or self-ventilated</td>
</tr>
<tr>
<td>Low reactance</td>
<td>Meet the main load start requirements</td>
</tr>
</tbody>
</table>
Genuine WEG Parts and Components

After years of operation, the alternators need to be restored so as to continue working properly. For this restore, it is recommended the use of genuine parts supplied by the manufacturer. WEG’s team can provide immediate support for the proper component identification.

Technical Assistance

WEG offers its customers technical assistance services, responsible for all the post-sale support. Those services include support to general questions and service in the field, including diagnostics, machine commissioning and operation 24x7. WEG’s Technical Assistance network is present worldwide. The technical assistance offers a qualified and experienced team, able to perform in different situations in the field and give remote support, using state-of-the-art equipment, providing reliability to the results.

Services

WEG, leader on the motor and generator market, offers checkup, restore and repowering in medium and large electric machines, executed at the factory or in the field, including other brands, as follows:

- Direct current generators and motors
- Alternators
- Three-phase induction motors (squirrel cage or slip rings/low, medium and high voltage)
- Synchronous motors (with or brushes or brushless/low, medium and high voltage)
- Synchronous condensers
- Turbogenerators
- Hydrogenerators
- Wind turbines
- Hydraulic turbines
Warranty

WEG warrants its products against defects in material and workmanship for a period of 12 (twelve) months from issue date of the factory invoice. In case of products purchased through retailers/distributors/manufacturers, the warranty will be of 12 (twelve) months from the issue date of the retailer/distributors/manufacturer invoice, limited to 18 (eighteen) months from the manufacturing date.

Certifications

WEG’s quality system is certificated as per the requirements of the standard ISO 9001 and ISO 9001/14001. The quality system is audited and certified by the Bureau Veritas Quality Institute. In order to operate in the most demanding markets, the synchronous alternators are certified by important institutions such as C.E. (European Community) and UL (Underwrites Laboratories).

In the marine version, WEG synchronous alternators can be supplied, under request, with certifications of entities like: Lloyds, Bureau Veritas, ABS, Germanischer Lloyd, DNV and others.
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