

Solutions for Sugar, Ethanol and Cogeneration

Industrial Motors
Commercial &
Appliance Motors
Automation
Digital &
Systems
Energy
Transmission &
Distribution
Coatings

**Complete
portfolio** for
each phase of
the process



Driving efficiency and sustainability



Sugar & Ethanol

High performance and continuous productivity

Developing high-performance products, with national technology expresses our main objective: **offering solutions for your application.**

We are part of your industry **from the beginning to the end of the productive process.** We have specialized support teams for all the stages of the project, from the specification to the maintenance of your plant, in order to ensure your company will never stop.

Reliability and productivity. This is WEG.



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RECEPTION OF
SUGAR CANE

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PREPARATION

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MILLS

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PROCESSES

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POWER
GENERATION

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SUBSTATIONS



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01

Reception and cleaning system

Hilo unloaders and feeder table

WEG has the **complete solution for Hilo Unloaders and Feeder Tables**, being able to supply the motor + parallel gear unit or planetary gear unit + drive + couplings + frequency inverter + automation for the whole sugar cane reception system and feeder table.

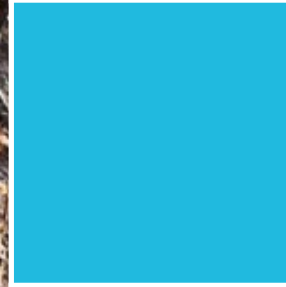


W22 IR3 Premium, W22 Super Premium and W22 Ultra Premium Lines

The W22 industrial motor lines are reference in high performance and guarantee much more energy saving. WEG has the most complete portfolio on the market, from the standard to the highest efficiency level, and services that make all the difference for your business.

Applications

Pumps, fans, exhaust fans, leaf shredders, leaf/earth/chopped sugar cane carriers, among others.



Dry cleaning system

This system **reduces environmental impacts**, as it replaces the traditional systems that use water. Therefore, a relevant amount of water used in this phase of the process is saved, in addition to the removal of the dirt and other impurities from the sugarcane through an efficient system of air flow from fans installed in the feeder table and the conveyor belt of the mill.

The high efficiency of this system can be achieved by using frequency inverters, controlling the motor speeds (control of the fan air flow), and automation integrated to the other phases of the process (reception, feeding table, conveyor belt of the mill).



Preparation



WEG's experience with preparation driving systems provides **the most reliable and efficient solutions** for sugar, ethanol and cogeneration plants.

At the beginning of the milling process, the leveler, chopper and shredder drives are subject to severer loads (overloads and inertia); therefore, those machines must be driven by a solution package that adapts to the characteristics of the plant and raw material to be processed. In view of those premises, WEG offers a smart solution with motors able to provide high torques, low starting currents, robustness and project flexibility, in addition to the respective low and medium voltage drives, transformers and switch board panels. Through its vast knowledge and innumerable references in the segment, WEG can provide dedicated solutions for each operating condition of the customers, always focusing on the application of more efficient equipment in terms of energy consumption and maintenance, generating the highest return on investment. In addition to motors, WEG offers solutions with steam turbines for mechanical drives in installations that do not require electrification.





The motor starting method is chosen by analyzing the operating and mechanical characteristics of the machines, the processes and the plant generation capacity, in addition to the financial feasibility, aiming at the best return on investment. Among the main WEG starting methods, the following types are available.

Main starting methods

- Direct On Line Start (DOL)
- Start with rheostat (wound rotor)
- Start by frequency inverter
- Pony-motor start
- Start with soft-starter or autotransformer

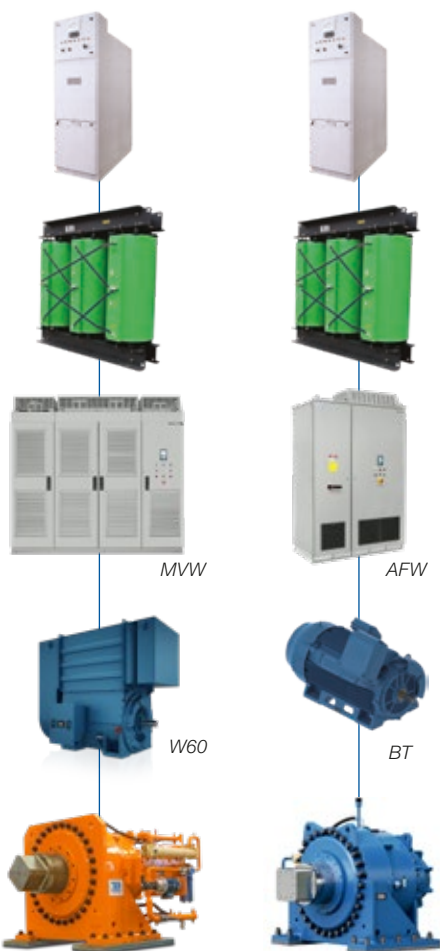
References



Mill & Diffuser

Sugar cane mill

WEG has the solution to replace steam turbine drives by electric drives on the three-roll mills, for both single (center) drive and multimotor (roll by roll) drive.



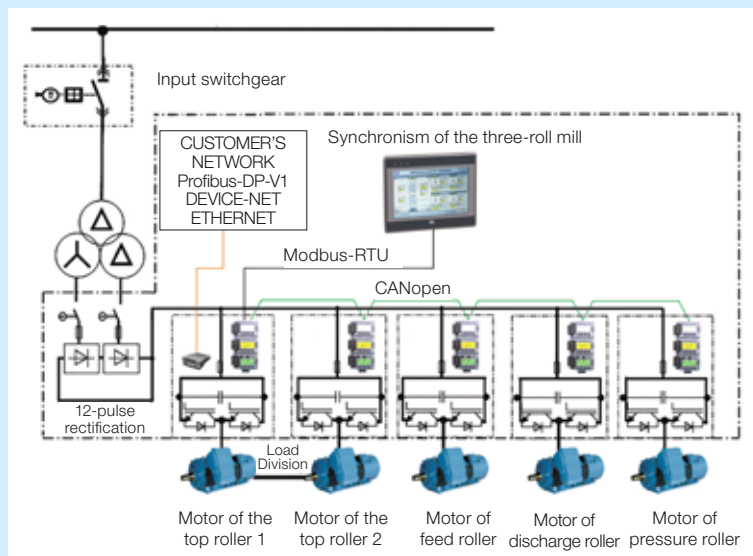
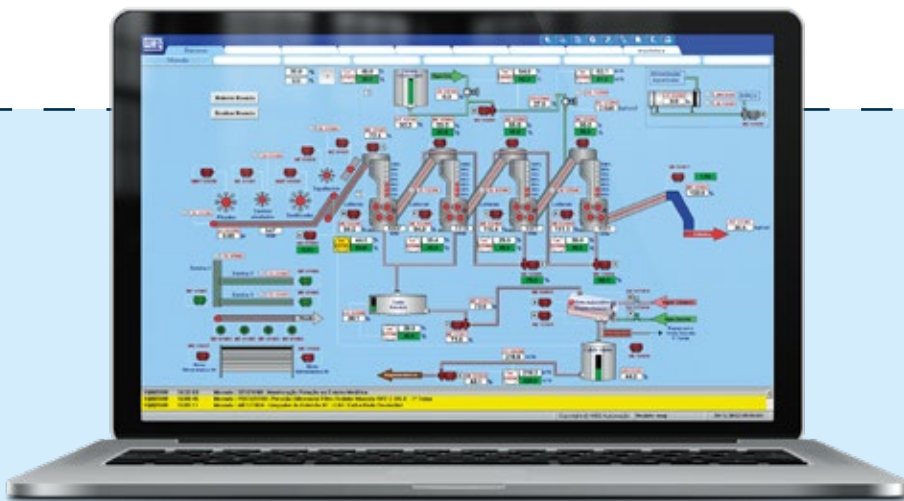
The motors have protections and coatings suitable for the environment, being driven by LV or MV inverters, which incorporate modern technologies that enable torque control throughout the motor speed range, network communication, easy parameter view and change, providing great operation flexibility. The drive of the three-roll mills can be fed by dry-type or oil transformers, which were developed to withstand special operating conditions and to feed applications with 12, 18, 24 or 36-pulse inverters.

Supervision and control of the mill

With a team of experts in the sector, WEG can develop the supervisory and control system for the whole mill automation, providing a high level of integration with the other automation systems of the plant. The automation focused on the needs of each customer allows to create integrated and customized systems, simplifying the operation and maintenance of the plant.

Main characteristics

- Speed synchronism between rolls
- Load distribution control
- Supervision of the auxiliary systems
- Cascade control for the three-roll mill level
- Local operation and supervision via HMI
- Automatic control for imbibition
- Production totalizers and indicators



Supervisory and control system of the Sugar

Diffuser - Dewatering mill



Supervision and control of the diffuser

WEG has a **complete solution for optimizing and controlling the extraction in the Diffuser**, being able to supply equipment for optimized control of the percolation, acting accurately on the process indicators (KPIs) and adjusting levels, speeds and temperatures, including protections against misalignment, water/juice pump control, synchronizing the dewatering and drying.

All that to ensure the highest efficiency in the separation of juice from bagasse. In order to do so, we use frequency inverters and soft-starters, direct on line starters with smart relays, advanced control strategies and interlocks - everything assembled in panels and tested at the factory so as to enable the fastest start-up of the equipment in the field.



Processes

WEG supplies **full solutions for the whole processing area of the plant** with a wide range of motors, gear units and gearmotors for different applications, frequency inverters, soft-starters, relays and motor control centers.

- WATER TREATMENT PLANT / DEMINERALIZATION
- Production of Ethanol / 2G Ethanol
- Juice Treatment
- Vinasse Treatment
- Production of Sugar





In those areas, due to the high number of motors, the LV Motor Control Centers (MCCs) are widely used. Designed with a high degree of standardization, these products allow ease of assembly, installation, maintenance, future expansion and interchangeability between units of the same CCM model and of the same size and function. Certified according to DIN 61439-1 / 2, and coordination type 1 and type 2 according to IEC 60947, the WEG MCCs ensure high reliability of operation and maintenance safely.



CCM



AFW11 / AFW11M



SRW01



SSW



CFW11



W51 HD



W22 WELL



W22 Wash



W60



W22 Super Premium

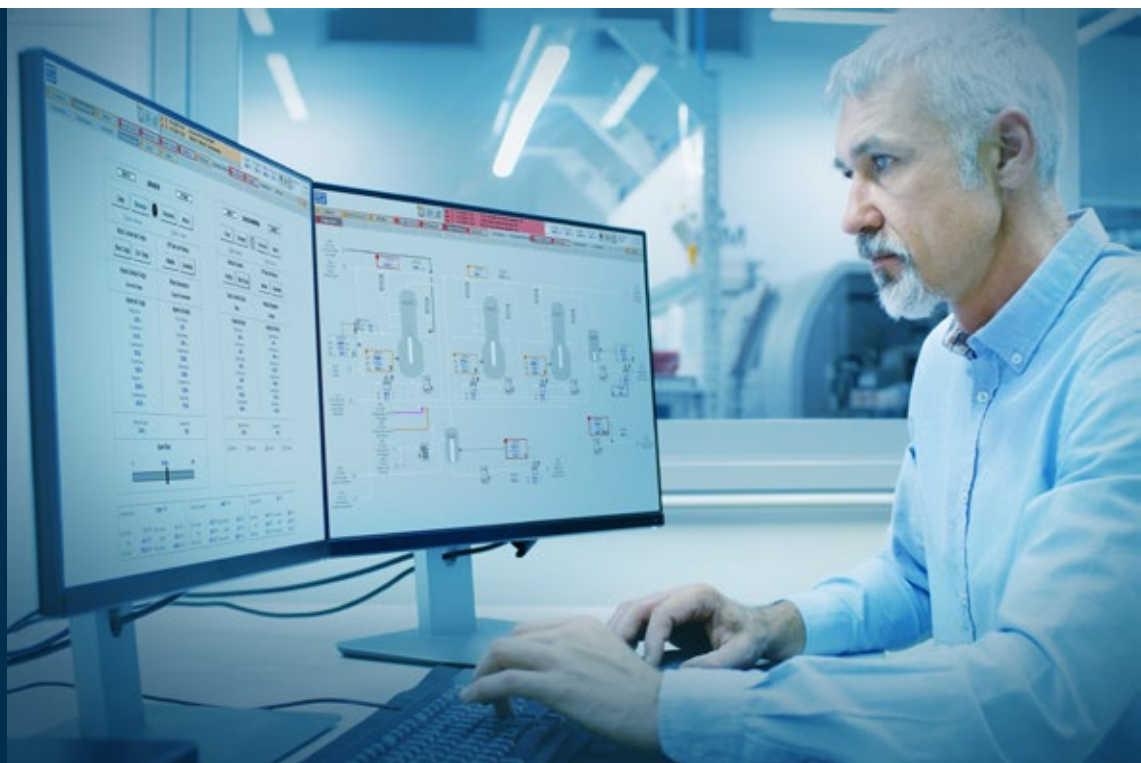


W22Xdb

Process supervision and control

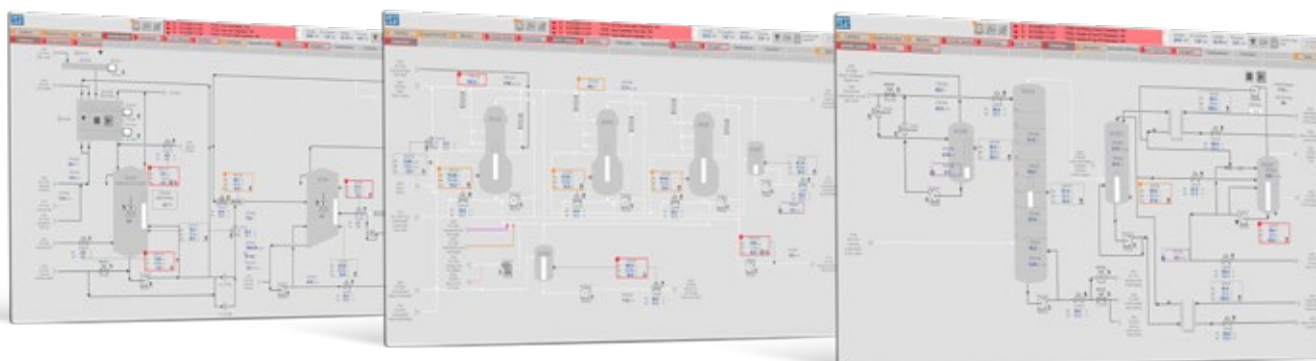
Full automation solution for the whole process of Sugar & Ethanol production, from the instrumentation project to the development of the supervisory control system.

Through specialists in the sector, the solution provides a high integration level between the different process control and automation levels. The automation focused on the needs of each customer allows to create integrated and customized systems, simplifying the operation and maintenance of the plant.



Main characteristics of the system integration

- Automation architecture and networks
- Details of control variables
- P&I diagrams
- P&I data
- Interconnection diagram
- Descriptions of the loops and interlocks for the control
- Instrumentation data sheets
- Field project with routing and bulletin of materials
- Typical instrumentation details
- Calculation memories for process
- Calculation memories for communication networks
- Development of the application software for PLC, supervision and HMIs
- Integration of Smart MCCs



Motors for hazardous locations

W22Xdb line

They meet the requirements of hazardous locations, such as Zone 1 and 2 and follow high safety standards. With a robust construction, they are the most modern drives for machines in explosive atmospheres in the form of gas or vapor. Applications: ethanol distilleries, and sugar and bagasse handling.



W22Xtb line

Reliability and safety are basic; therefore, WEG developed the W22Xtb line for applications with combustible dust suspended in the air (cloud) or in layers (up to 5 mm) in the hazardous locations such as Zone 21 and 22. Application: sugar plant.



W22Xdb WELL line

With the operating reliability of WEG W22 Extra Long Life motor and the special characteristics of W22Xdb line, W22Xdb WELL line offers maximum performance and availability for the plant. It is the perfect motor for applications requiring extended life in environments with explosive atmospheres. Applications: ethanol distilleries, sugar and bagasse handling.



Lower operational cost motors

W22 Wash line

In the Sugar & Ethanol industry, the high concentration of dust and sugarcane bagasse on the engines makes this environment unsuitable for standard motors. With the W22 Wash it is possible to eliminate moisture infiltration and sanitize the equipment without damaging the motors. Applications: pumps, fans, mixers, agitators, mats, saws cutting, among others.



W22 WELL line

The WEG WELL (WEG Extra Long Life) line of motors is suitable for continuous processing industries, such as the sugar and ethanol segment, which requires low vibration and noise levels, high mechanical precision, and where the reduction of maintenance interventions is essential. Developed for long service life, W3Seal®'s unique corrosion-resistant sealing system prevents penetration of contaminants (dust, water or mixtures thereof), which results in reduced temperature in the bearings and windings and, consequently, offers greater stability to the process.



Problem found	WEG Solution
Water	High degree of protection (IPW66)
Weathering	WELL motor (reliability and high torque)
Accumulation of waste	Special painting plan for severe environments

Motors and gearboxes dedicated to the sugar, ethanol and energy sector



Helimax 1st Stage



Coupling



WCG50



W22 WELL

Steam power generation

Complete, integrated and intelligent solution

With a complete line of products and solutions for steam power generation, WEG manufactures and installs steam turbines, gear boxes, generators and control and automation panels. Produced with high technology and international quality standards, they are available for the most varied industrial segments and operate with steam from sources such as biomass, biogas, municipal solid waste (MSW), among others.

Main advantages



All components manufactured and installed with 100% WEG technology



Larger steam turbines facility of Latin America



Customized solutions



High efficiency equipment, technology and reliability



Complete supply of the energy generation and cogeneration system

Steam turbines

WEG has a complete line of steam turbines from 0.1 MW to 150 MW to drive small to large generators. Can also be used in mechanical drives such as pumps, blowers, among others. With modular construction, ensures greater flexibility in installation.

Technical features

- Action and reaction technology
- Back pressure and condensation
- With or without extraction and/or induction
- Rated output power up to 150 MW
- Inlet pressure up to 140 bar
- Inlet temperature up to 540 °C

Turbo gearboxes

Manufactured in state-of-the-art facilities, the turbo gearbox lines are designed and manufactured according to international standards with high quality machines, guaranteeing the better contact between gears and low noise levels. Developed for power generation or mechanical drive, they deliver high resistance, more efficiency, safety and operational availability.

Lines

- SuperTurbo
- RTS/RTM



Generators

Designed for power generation, the turbogenerators are available in a wide range of power, based on WEG's experience on the supply and dimensioning of rotating machines. They can be driven by steam or gas turbines.

Lines

- ST20
- ST40
- ST41

Control and automation

WEG automation facilitates the operation and control of the power generation ensuring safety and reliability of measurement information for equipment maintenance management and production and energy consumption reports.

Integrated systems

- Distribution, control and protection panels
- MV operation and control panels
- Monitoring and control

Boiler motors

We also have a complete line of motors for pumps, fans and boiler exhausters, meeting various medium voltage drive solutions with rotation variation.



Services

WEG solutions for steam power generation are delivered with specialized services in the field, including installation, commissioning and start-up. In addition, we provide after-sales services for WEG and other manufacturers, such as: retrofit, technical assistance, long-term contract, planned maintenance, field services and training.

Steam power generation

Power generation system

WEG offers products able to meet the application requirements of steam power generation systems. With robust panels, the entire structure undergoes a special **treatment for application in harsh environments**, typical of Sugar and Ethanol plants.

- Control panel, protection and measurement of the generator
- Power inlet/outlet panel
- Generator's neutral closing switchgear
- Generator's surge switchgear
- Switchgears for interconnection with the utility company
- Utility measuring switchgears
- Supply Switchgears
- Control desk
- Grounding resistor
- Battery bank
- LV distribution panels
- MCC - Turbine
- MCC - Boiler
- MCC - Biomass Yard



Control, protection, measurement and inlet/outlet panels

Following the line of PNW panels, these WEG panels were developed to comply with international standards. They are equipped with multifunction microprocessor-based relays, magnitude meters, columns for synchronization with analog instruments (optional), switches and push-button for the generators/generation system control.

Switchgears

Following the line of MTW switchgears, WEG switchgears were developed to comply with IEC standard 62271-200, keeping the characteristic easy assembly and maintenance, as well as the flexibility to adapt to the different market requirements.

MCC

They can be conventional or smart, certified according to NBR IEC 60439 -1 -TTA/PTTA, coordination type 1 and 2, according to IEC 60947, which ensures high operating and maintenance reliability, in addition to complying with the safety requirements of NR10 standard. The method of internal separation can be 3b and 4b.

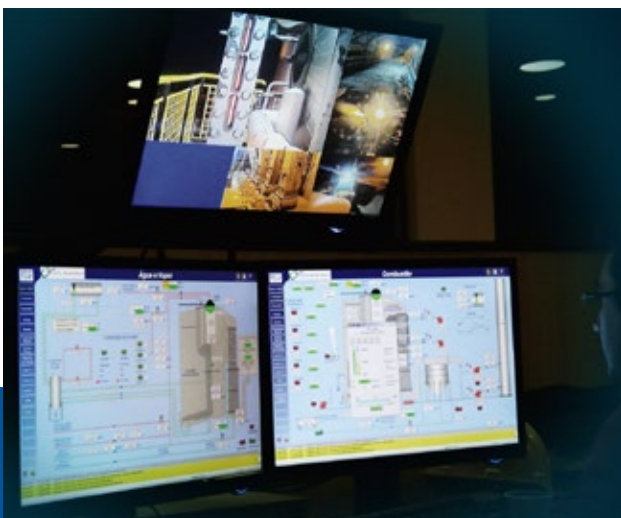
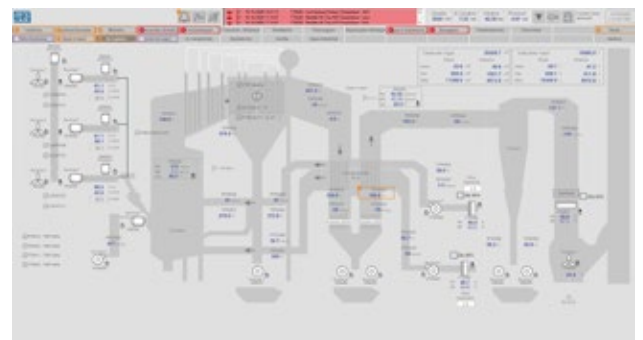
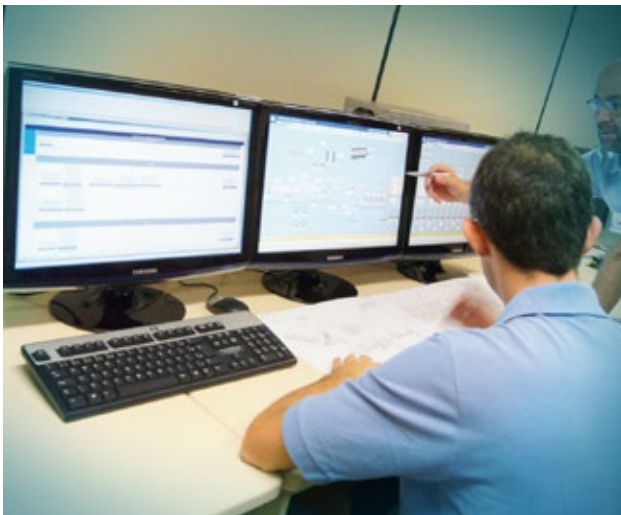
The configuration of the fixed or removable drawers can be supplied with WEG direct on line starters with smart relays, frequency inverters and soft-starters, with operating voltage up to 690 Vac, controlled via Fieldbus communication network.

Supervision and control system of the steam power production (Turbogenerator and Boiler)

WEG automation systems for the electrical system comprise the whole cycle for power generation: transportation control and biomass preparation, automatic boiler control and automatic operation of the turbine and generator. **Currently, hundreds of projects in the energy sector are in operation with WEG control systems.**

Main characteristics of the steam power production

- Complete automation of biomass boilers (sugar cane bagasse, straw)
- Automatic control of energy inlet and outlet
- Full monitoring of steam turbines
- Integration of the water treatment system and biomass yard
- Integration of the medium voltage switchgears with high performance grids
- Process variable control by means of PID algorithms and advanced control



Power supply

Power supply is vital for any operation.

By offering complete solutions, WEG counts on a wide range of transformers and conventional substations, ensuring **full reliability in the power supply for a great variety of applications.**



Power transformers

Weight and size reduction, different insulating oil types, longer useful life and monitoring systems are just a few of the items assessed by WEG technical team to develop oil transformers that **provide high level solutions** for the customers.

The portfolio includes a full line of distribution and power transformers up to 550 kV, insulated with mineral oil, to reduce the equipment cost, or vegetable oil, to reduce the environmental impacts significantly.



Dry-type transformers

Transformers insulated with epoxy are the best option to fulfill the demand for transformers that provide **greater safety, use less space and reduce installation and maintenance costs.**

This product line offers solutions for all kinds of environments. Vacuum pressure encapsulated with class H resin (certification UL at 200 °C), WEG transformers withstand to partial discharges and a relevant increase in the useful life of the equipment. They are available in rated powers from 112.5 to 20,000 kVA, voltage classes up to 36.2 kV, with degrees of protection up to IP55.



Conventional high-voltage substations

WEG Substation team has know-how and **extensive experience in designing and building medium and high-voltage electrical systems**. It offers solutions for turnkey conventional substations, from the standard to engineered designs, comprising electrical studies, product and material supply, as well as specialized works and services, which include commissioning and after-sales support, coordinating and integrating all the participants of the process.

Proven experience in the delivery and energization of more than 350 substations at voltages up to 550 kV.



High-voltage equipment

With a wide solutions portfolio, WEG offers a complete line of Switch-Disconnectors, which are electromechanical devices capable to interrupt or establish low-intensity currents when switched. In operating conditions, in the closed position, they are capable to withstand high-amplitude currents, such as those typical of short circuits.

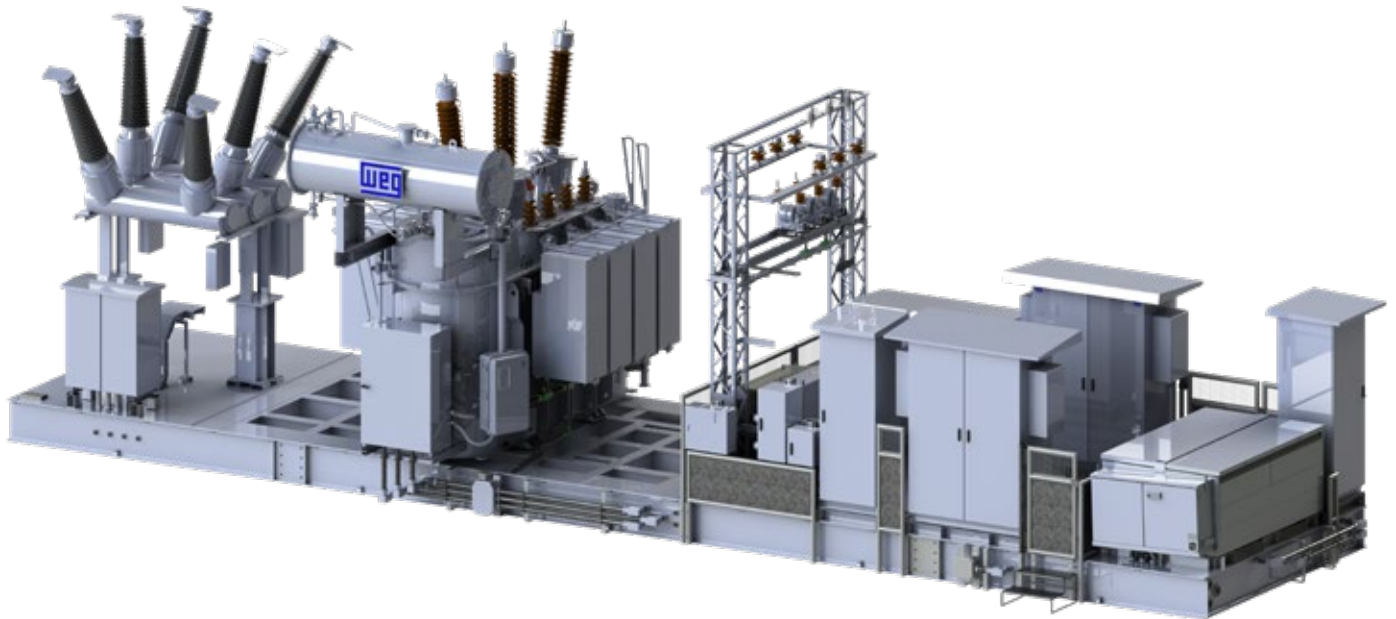
They are intended to ensure the insulation of equipment or parts of lines or substations, allowing to confirm visually that the insulated segment is de-energized.

- Rated current: 630 to 4,000 A
- Voltage class: 15 to 550 kV



Mobile substations and transformers

The Transportable Solution (SKID) is the result of WEG's know-how in the manufacture of mobile solutions, in addition to the alignment with market needs, which are increasingly demanding for safety and reliability in temporary or permanent applications. Thus, we have developed a complete line of **mobile, compact and modular substations**, which optimize the implementation time and reduce costs with civil works.



Applications

- A complete substation, designed for high voltage and completely assembled on a base with structures in steel (SKID platform).
- Lightweight and compact for easy transport, with robustness necessary for assembling the equipment, distributing the weight throughout the steel structure.
- High voltage power inlet of up to 138 kV, with medium voltage outlets up to 34.5 kV, other transformation ratios available.
- Practical, flexible and reliable for application in mining industries, energy distribution concessionaires and power generation such as wind, solar and hydro.

Total support

When the objective is to act faster in order to bring energy to the end-user, more than the Transportable Solutions, WEG also offers its own highly specialized team support in all processes, from design, construction, tests, to technical assistance, allowing the best service from development phase of the product to any later stage follow-ups.

E-houses

The ELW E-Houses represent an integrated solution, with design and manufacturing tailored to meet the specific needs of each client.

E-house functions

Mounted on a single platform, WEG E-Houses integrate electrical and automation systems, such as transformers, medium voltage control and control sets, MCCs and auxiliary equipment, delivered assembled, interconnected and factory tested.

It represents a customized solution, eliminating the need for masonry constructions and contracting of several suppliers. Also, WEG E-Houses do not have size limitations, and can be used in small installations to large, in various types of environments (including aggressive) and industrial activities.

Advantages

- Reduction of the execution time of the projects
- Less assembly time in the field
- Requires small infrastructure of construction site (lower cost of mobilization and demobilization)
- Factory set-up and field installation are not affected by weather conditions
- Unique engineering for the integration of all equipment and systems
- Reduction of storage area and interference in the field
- Better control of processes and quality systems
- Special lines of credit for being treated as equipment
- Reduction of customer resources for engineering, project management and supplies (optimization of the purchasing process)
- System does not generate taxation IPTU / ITR (does not add built-up area)
- Logistic gain in manufacturing, platform testing, start-up and commissioning
- Lead time of minor delivery



Power house

WEG solutions are also present in the control and supervision of substations for industries and utility companies, with automation of substations using **the latest technology on the market**. WEG MCC-MV (MV Switchgear and Control) is assembled and tested at the factory for voltages from 2.3 kV to 36 kV, interrupting current from 25 kA to 50 kA with vacuum or SF6 circuit breaker. They were developed to comply with the strict national and international standards NBR IEC 62271-200.



Substation supervision and control system

Main characteristics

- Integration using IEC protocol 61850
- Time synchronism by GPS
- Remote monitoring via internet
- Oscillography tools



Coatings



In the Sugar, Ethanol & Cogeneration industry, quality is essential in the supply of the end product for the great consuming companies, especially in the food and beverage industries. The process itself requires more resistant coatings to extend the intervals between maintenances, reducing expenses with repairs.

When the equipment is painted with high performance coatings, such problems are prevented, ensuring greater productivity and consequent profit. Aware of that, WEG developed the following products:


Coating for tanks

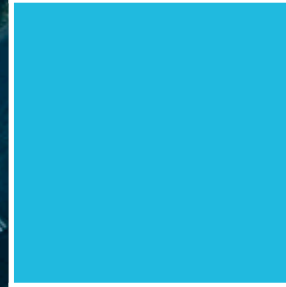


Tanks to store alcohol or vinasse are subject to the aggression of the content, because of the water produced by the condensation. In addition, the tank must prevent the evaporation of the stored product as much as possible. In order to meet such requirements, WEG Coatings offer high-performance products (**WEG FENOXI, WEGPOXI BLOCK N 2912, W-THANE ANTIFUNGAL 508**) that provide excellent durability and useful life of the equipment.

External area - general structure of the plant

Coating scheme to resist severe weathering conditions, composed of epoxy primer (**W-POXI ERP 322 or WEGPOXI WET SURFACE 89 PW**) and aliphatic acrylic polyurethane top coat (**WEGTHANE HPA 501**) with excellent color and gloss retention, providing greater durability of the coating and easy cleaning.





Concrete structures

WEG Coatings also offers full solutions to paint industrial floors. It is proved that proper care with the workplace floor directly contributes to increasing productivity, providing high chemical resistance, abrasion resistance and impermeability (**W-POXI HSS 301**, **W-POXI HBA 301** and **W-POXI DFA 301**).

For the sugar production, which follow strict sanitation standards and consequently demand greater protection and cleaning, WEG offers lines with antimicrobial properties, preventing proliferation of fungi and bacteria (**W-POXI HIDRO AVA 413 NOBAC** and **W-POXI 711 NOBAC**).



Areas with high temperature

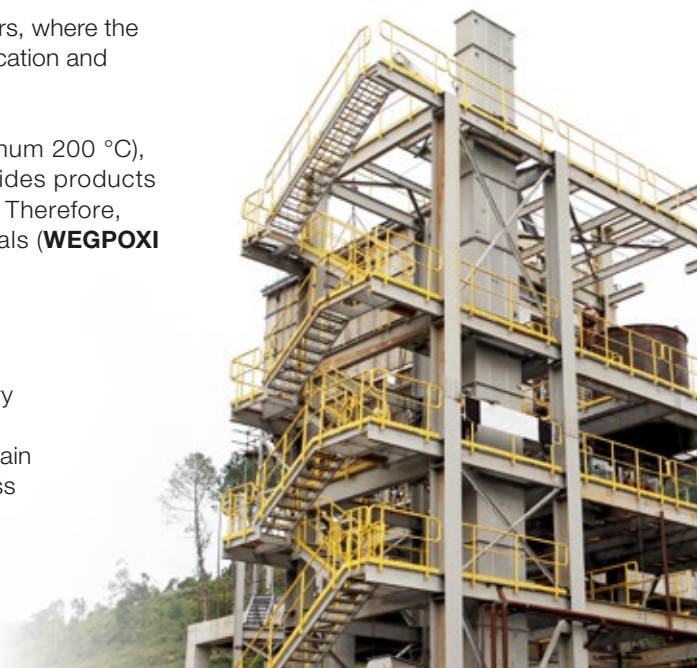
In addition to the conventional coating schemes, WEG provides solutions with great resistance in high temperatures areas.

For equipments such as chimneys, steam turbines, pipes and boilers, where the temperature may reach 600 °C, WEG has solutions with easy application and excellent durability (**ETIL SILICATO ZINC ALUMINUM N 2231**).

For equipments that, in addition to the high temperature (maximum 200 °C), are also subject to abrasion, for example scrubbers, WEG provides products that promote greater durability than the conventional schemes. Therefore, WEG Coatings helps extend the equipment maintenance intervals (**WEGPOXI BLOCK N 2912 TYPE III**).

High temperature coating

For highly aggressive environments with temperatures of 220 °C (dry heat and also dry/wet cycles), especially for internal and external painting of tanks and piping where the chemical resistance is the main requirement, WEG recommends W-FENOXI ATD 362, high thickness novolac epoxy primer.



Solutions in energy efficiency



Energy efficiency

The increasing demand for electrical energy to sustain global development requires consistent heavy investment in power supply generation. However, in addition to complex medium and long term planning, these investments rely on natural resources, which are becoming depleted due to constant pressures upon the environment. The best strategy, therefore, to maintain energy supply in the short term is to avoid wastage and increase energy efficiency. Electric motors play a major role in this strategy; since around 40% of global energy demand is estimated to be related to electric motor applications.

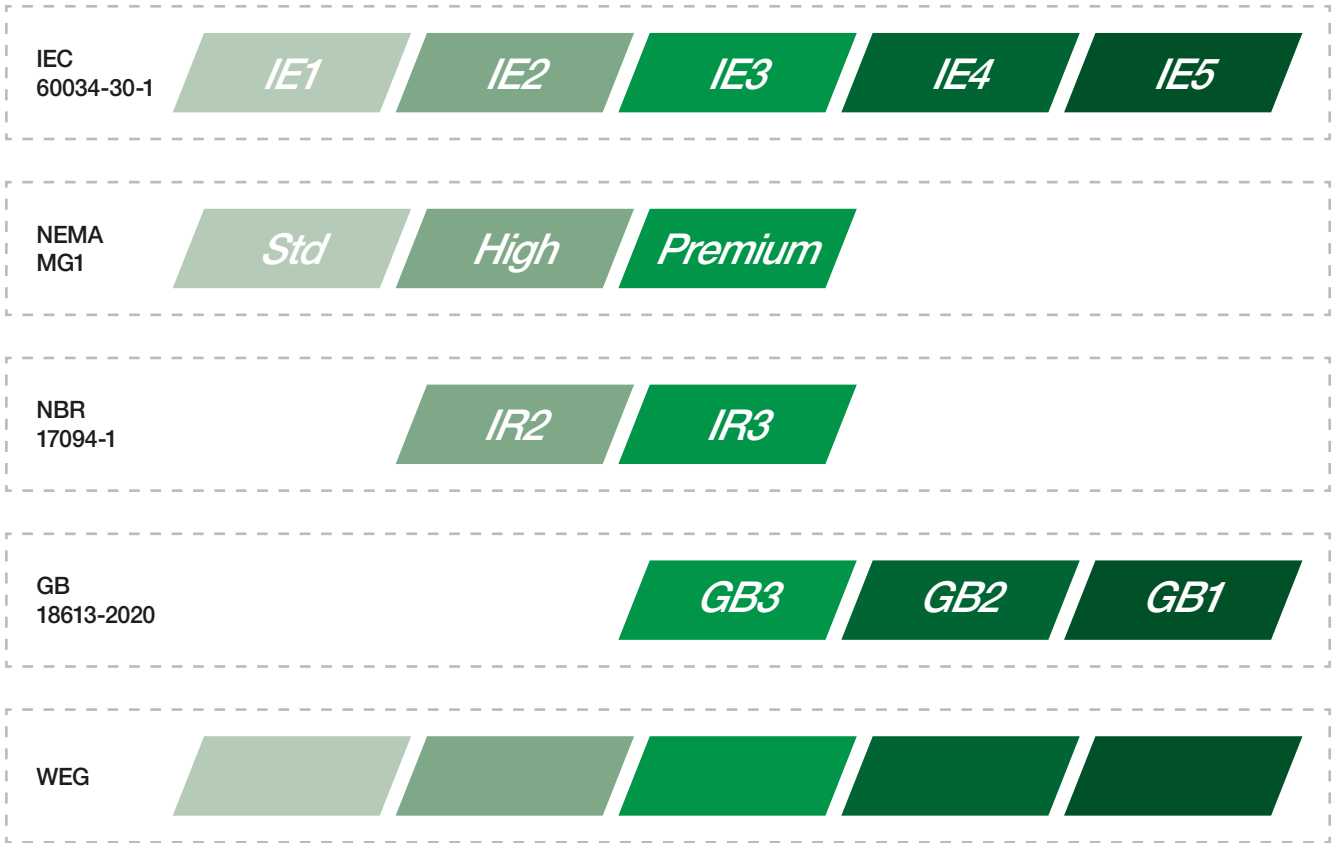
As a consequence of this need to reduce energy consumption and carbon dioxide emissions, many Governments worldwide have imposed local Regulations, also known as MEPS (Minimum Energy Performance Standards) to numerous types of equipment, including electric motors.

Whilst the specific requirements of these MEPS differ slightly between countries, the implementation of regional standards such as ABNT, IEC, MG-1, which define the efficiency levels and test methods to determine these efficiencies, allow a standardization of the definition, measurement and publication format for efficiency data amongst motor manufacturers, simplifying the correct motors selection.

WEG fully understands the requirements of these Global regulations, and today offers one of the most comprehensive ranges of electric motors complying with these minimum efficiency levels. Furthermore, as a forward thinking Company whose philosophy is to provide its Customers with products which offer optimum performance, energy savings, fast return on investment and sustainability, WEG continues to focus its efforts in the research and development of electric motors with efficiency levels exceeding those defined in currently published International standards.

What can we do for your industry to grow in a sustainable way?

Efficiency grade



See+ Energy efficiency simulator

- The new SEE+ will help the user to discover how much he wastes electrical energy through simulations that estimate the electrical energy savings and the reduction of CO2 emission quickly, simply and objectively within Motion Drive – Gearboxes, Motors and Variable Frequency Drives.
- The new version of the “calculator” has four options for calculation that allows the user to simulate the replacement of a motor or a gearbox in operation started or not by a frequency drive, evaluate what will be the return of investment comparing the purchase of a new motor versus repairing a failed one and identify the benefit when purchasing a motor more efficient than the market standard driven or not by a frequency inverter.
- Available in three languages: English, Portuguese and Spanish, the new SEE+ can be used anywhere in the world and at any time through a computer, tablet or smartphone through your WEB browser and in soon we will have the same benefits for the “projects” area.





IA

WEGnology

IoT

MES

WEGdigital SOLUTIONS

A new way to combine smart people,
companies and products.

Based on its engineering expertise, WEG made available a new way of combining people, companies, software and intelligent products, resulting in a global solution that transforms energy into more reliable, efficient and intelligent solutions.

No matter your company size,
we can help you:

Scalable and flexible solutions

- Easy to be implemented independently of the type of industry.
- Flexible solution designed for you.

WEG Expertise

- We have the ability to contribute to increasing the operational efficiency of our partners and reducing waste in different industry processes.

Co-working

- We support you to migrate from traditional industry into Industry 4.0.
- We share our technologies and experience to benefit your business.



Would you like to know more about
WDi products and solutions?

- Plataforma Wegnology
- WEG Smart Machine
- WEG Energy Management
- PC-Factory OEE
- PC-Factory MES
- PC-Factory IoT
- Intelligencesware Suite
- Advanced Pid Tuning
- Industrial Analytics
- B-Wise Historian
- B-Cloud
- Smart Public Lightning Management

To know more,
click here and
access



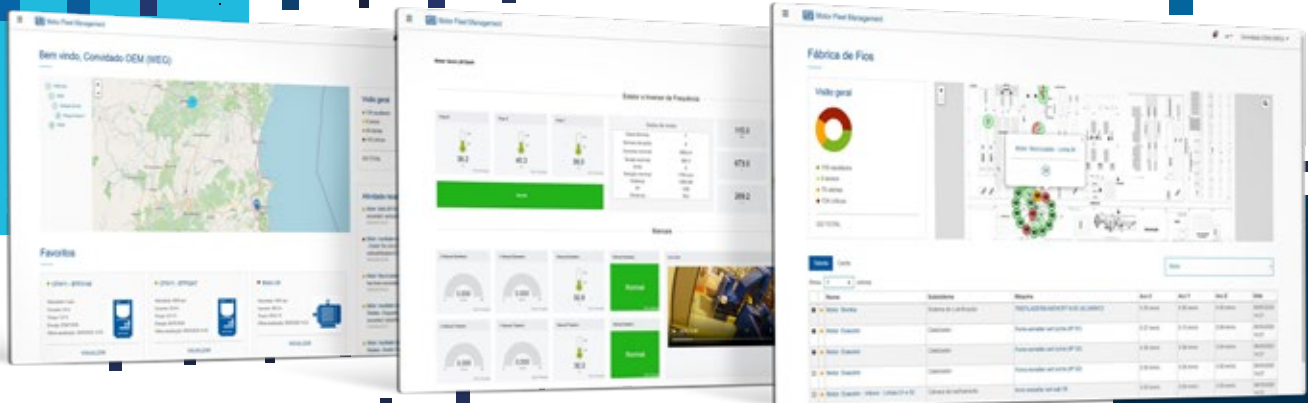
WEG Motion Fleet Management

Manage your driving fleet at real time

Designed to offer easy operation and agility for maintenance and management of industrial plants, WEG Motion Fleet Management is the ideal solution for monitoring your drive fleet. Based on “cloud computing”, asset monitoring can be achieved at any time and from anywhere in the world.

With WEG Motion Fleet Management, it is possible to know the operating status of different types of drives for low voltage motors (frequency drives, soft-starters and intelligent relays) and medium voltage (frequency drives and soft-starters), gearboxes, geared motors and other assets in any type of industry or installation.

Through the periodic collection of data, valuable insights are generated to maximize the performance and availability of the equipment fleet at the factory floor. Therefore, it is possible to determine and schedule predictive maintenance plans, significantly reducing the number of unexpected production stops.





WEG Motion Fleet Management is a modular solution, with a flexible structure based on layers, which adapts to customer needs.

With active subscriptions to the Management layer of WEG Motion Fleet Management, users will be able to complement their experiences by subscribing to specific modules such as WEG Specialist and WEG Exchange.



Assets and scans

WEG Motion Fleet Management allows online monitoring of low and medium voltage motors and drives, as well as gearboxes, geared motors, compressors, pumps and fans/exhaust fans.

WEG Scans and Gateways are hardware responsible for data collection and asset connectivity to the WEG cloud server, which hosts the WEG Motion Fleet Management application. For motor monitoring, WEG Motor Scan and Gateway are used, data can be uploaded via gateway or via smartphone. For low or medium voltage drives, data is sent via WEG Drive Scan.

<p>Diagnosis and Integration</p>	<p>Specialist Advanced algorithms for failure and consumption data analysis</p>  <p>fleet</p>	<p>Exchange Integration with customer or third party systems or platforms</p>  <p>fleet</p>
<p>Application and management</p>	<p>Management Overview of the fleet, alarms, dashboards, online monitoring and fleet reports</p>  <p>fleet</p>	
<p>Scan and gateway</p>		
<p>Assets</p>		

Specialist modules

Specialist modules apply algorithms specially developed by WEG for advanced data analysis, through Machine Learning and Artificial Intelligence. These algorithms are applied to the data collected by WEG Motor Scans and thus generate useful information, something essential for efficient fleet management.

WEG Motor Specialist has a sub-module for diagnosing mechanical failures and another for evaluating the energy consumption of the motor. Both functionalities were developed by the team of WEG specialists and validated in the company's laboratories.

With WEG Drive Specialist, the user can analyze the cost of energy involved in the process and correlate the periods of operation with those of higher consumption. It is also possible to identify and solve problems related to the refrigeration system in advance, in addition to delivering insights on the power quality applied to the drives, then increasing the availability and reliability of the assets.

In reference to maintenance, the customer can do preventive checking on the drive. This preventive analysis algorithms observe and detect the patterns and deviations of operation of the monitored electric motor, generating indicators of failures due to imbalance, misalignment, bearing (advanced failure) and external vibration.

This type of information is very useful for the operation and maintenance team as it helps in decision-making, speeds up the repair process and minimizes unexpected downtime. To take advantage of the Specialist layer, it is necessary that the respective asset(s) have an active WEG Motion Fleet Management layer subscription. Both subscriptions are provided annually and per asset.



Computer vision with artificial intelligence

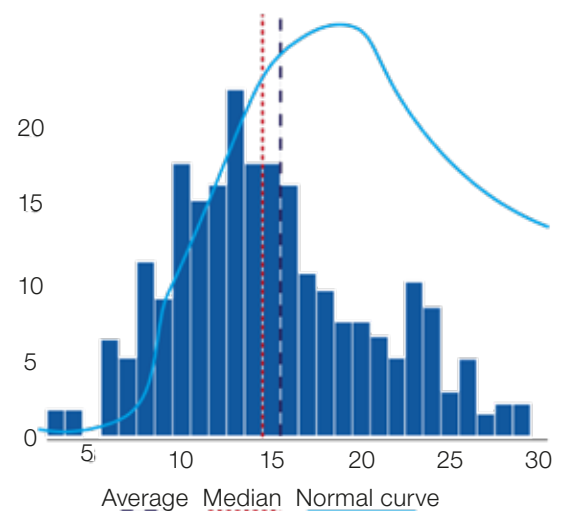
The ESOS intelligent vision system has the basic functionalities of an industrial PLC coupled to an industrial optical sensor, capable of processing Artificial Intelligence and Computer Vision algorithms in its high-performance processor.

Applications

- Visual monitoring of the flotation process
- Online control of material granulometry
- Identification of non-crushable materials

Main features

- Built-in digital inputs and outputs, plus RJ45 interface for industrial communication (Modbus-TCP/IP, Profinet, etc.)
- Possibility of integration with the main MES shop floor management software, feeding data into different types of industrial ERPs
- “All in One” concept for quick installations and setups
- System is programmable in the open language Python, having the main tools and libraries of computer vision and Artificial Intelligence already implemented
- Industrial equipment with Degree of Protection IP66



Services



Services and support with the quality of WEG products

Protecting your investment means more than ensuring the plant. It also means to keep your attempt in excellent conditions to maximize its useful life. That is why you can count on WEG, which is attempt to the customer's needs, offering comprehensive equipment, services and support.

When it comes to maintenance, WEG offers the most efficient solutions. Besides bringing equipment to be repaired in house, services can also be performed in the field.

WEG achieved a quality reputation by giving support with products and specialized technical services and the capacity to respond promptly to the customers' demands.

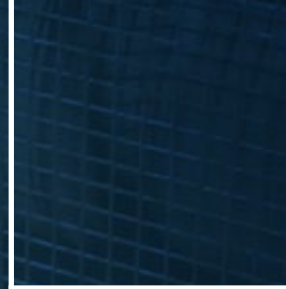
An excellent service is assured by people who understand your equipment and process needs. Our experienced team of service engineers can detect possible performance problems and recommend corrective actions. Keep taking advantage of the benefits of first-hand product knowledge and of the capacity to solve problems with our training for your team at your place.

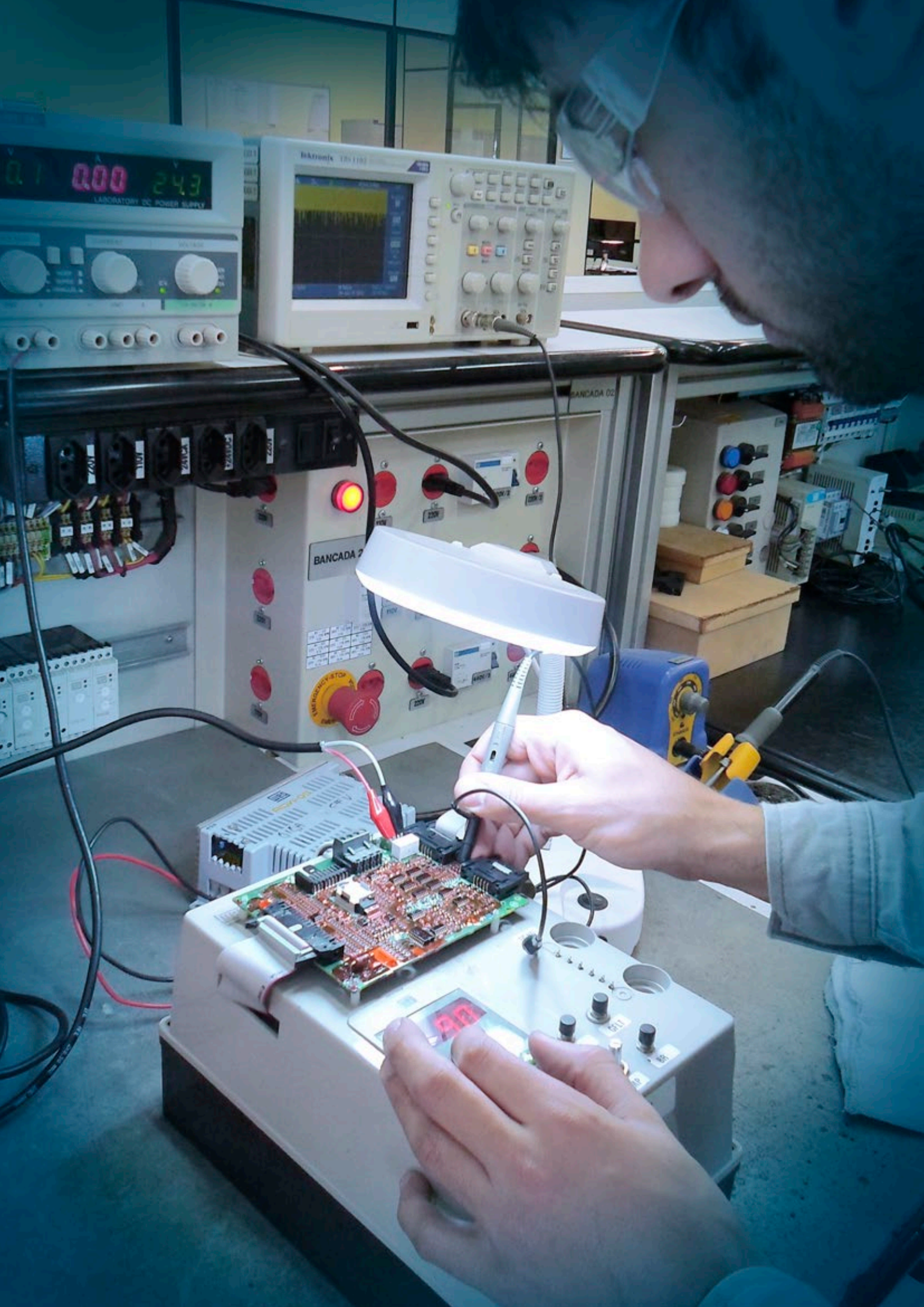
In this context of maintenance, WEG performs services in steam turbines, reducers, turbogenerators, generators and motors of medium and large size in a single structure.

Maintenance services at the plant

WEG also has the same structure and manufacturing standards available to execute services such as: checkup, restoration, repowering, rewinding, testing and replacement of components, increasing the reliability and the life time of WEG large equipment and from other brands.

- Generators and DC motors
- Three-phase induction motors
- Synchronous motors
- Turbogenerators
- Synchronous compensators
- Steam and hydro turbines
- Gearboxes
- Wind generators
- Oil transformers





Commissioning and start-up

Considering the magnitude of the projects and the complexity of the equipment installed, WEG offers specialized technical support for the installation, from the beginning to the end, including supervision services. The inspection of details of the equipment and the concept integration with the whole system are also included.

Field services

WEG has a qualified and trained team at the factory to carry out a series of activities in the field, minimizing the lead times and the impacts of equipment handling and costs.

- Assembly and installation
- Start-up
- Alignment, balancing, adjustment of bearings and machining
- Electromechanical expert report
- Boroscopy
- Partial checkup
- Complete checkup
- Partial repairs
- Rewinding
- Modernization of generators and compensators
- Vibration analysis

Limit of restoration capacity

Definition by means of technical and economic criteria of the feasibility to repair or replace the electric motors. The work is performed with the help of a specific software application, analyzing the data of each plant, allowing the cost analysis of the life cycle of the motors.

Supply of genuine WEG parts

After years in operation, the motors and generators need restoration to continue working properly. For this restoration, we recommend that you use genuine spare parts supplied by the manufacturer. WEG team is willing to promptly assist you in the correct identification of the parts.

Preventive maintenance/ maintenance engineering

Inspection and preparation of preventive plans according to maintenance concepts focused on reliability and adjustments according to the operating conditions of each plant.

Energy efficiency

Identification of potential reduction in power consumption of electric motors, drives and deviations in the power factor, proposing solutions and defining the necessary retrofit. Results presented with individual return deadlines, making the decision flexible.



WEG-CESTARI service - because your processes cannot stop

Specialized in the manufacture of gearboxes and geared motors, WEG-CESTARI stands out for its experience and knowledge proven in services and repowering of multibrand gears.

With modern machinery and equipment and a factory structure dedicated to providing services, WEG-CESTARI values the quality and excellence in all segments.

Field analysis and monitoring

Aiming at increasing the durability and reliability of the equipment, reducing the costs of unscheduled stops, WEG-CESTARI offers its customers a technical analysis service in the field.

With the technical reports obtained through the analyses, it is possible to prevent defects and guarantee the useful life of the equipment. Our field services available are: vibration analysis, oil analysis, industrial borescopy, thermography and laser alignment.

The scope of WEG Group solutions is not limited to products and solutions presented in this catalogue.

To see our portfolio, contact us.

For WEG's worldwide operations visit our website




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The values shown are subject to change without prior notice.
The information contained is reference values.