
How about increasing the robustness, reliability and protection in your artificial lift system?
WEG shows you how.

Did you know that WEG variable speed drives (VSDs) optimize oil extraction, reduce equipment wear, and lower energy costs with precise control?

The global oil and gas sector plays a vital role in the world economy, demanding advanced technology and robust, safe, and reliable solutions to ensure operational continuity, even under the most severe conditions.

WEG possesses cutting-edge technology in VSDs (Variable Speed Drives) and advanced solutions for Artificial Lift applications, ensuring precise control during oil extraction and reducing premature equipment wear, maximizing well production with greater energy and operational efficiency.

Everything the Oil & Gas sector needs:

- **Minimize risks**
- **Control pressure/flow precisely**
- **Reduce maintenance downtime**
- **Maximize energy savings**

TURNKEY SOLUTIONS FOR

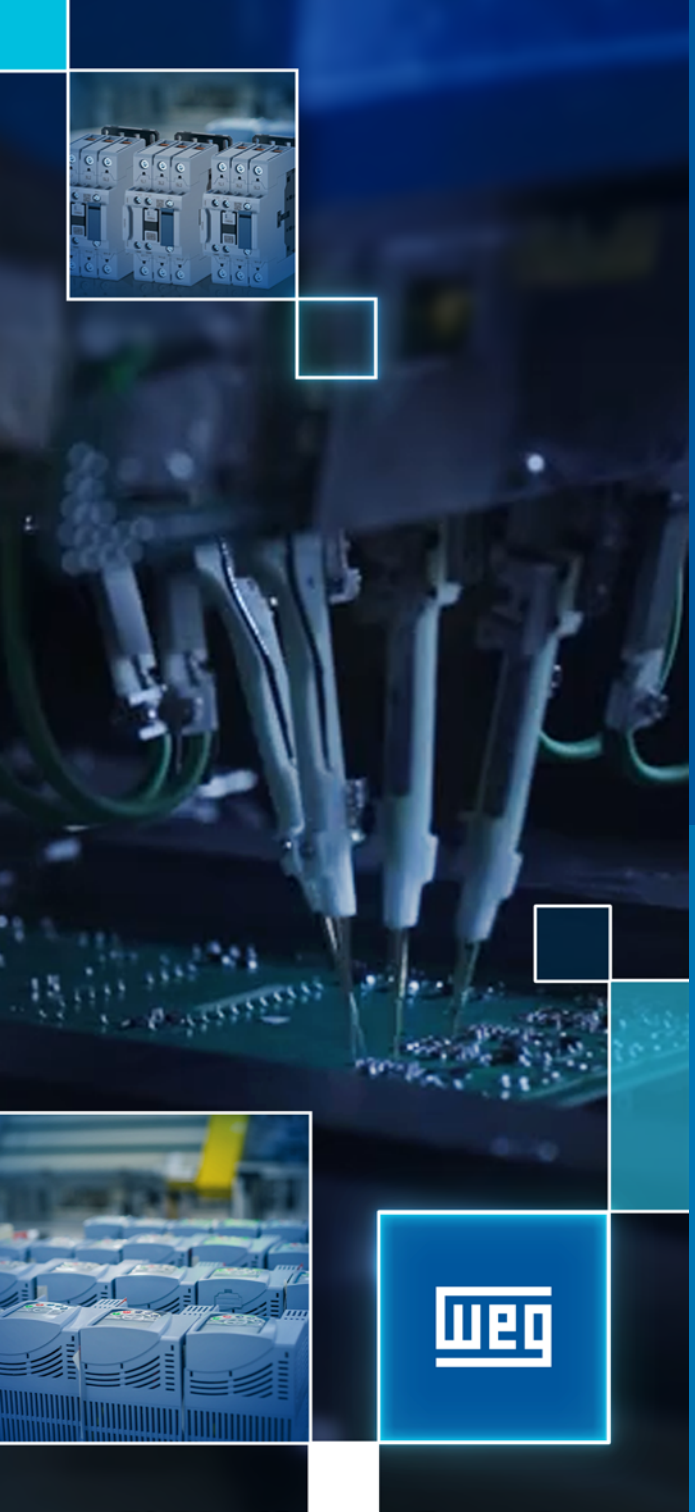
- **Automation and power distribution**
- **Sustainable energies**
- **Electric mobility**
- **Digital systems**
- **Industrial coatings and varnishes**

Discover other reasons to choose WEG products for Oil & Gas pumping

In addition to being considered one of the largest manufacturers of electric motors on the planet, WEG is also one of the largest and most complete providers of end-to-end global solutions, with product lines focused on automation, energy generation and distribution, digital systems, electrification, and much more.

In-house Research and Development

With in-house research, development and testing laboratories, WEG provides customized solutions with efficiency and reliability, meeting the specific needs of each customer.



The numbers that support our solutions

+ 60 years of experience in Brazil and around the world

Products present on 5 continents

+ **47,000** employees spread across all continents

+ **4,700** engineers

+ 1.1 billion drives and electromechanical components ever manufactured

12,100 hectares of reforestation, 55% of which is made up of renewable resources and 45% of untouched native forest

70,000 motors produced a day

A trusted name all over the planet

66 manufacturing sites in 18 countries

Commercial operations and technical support in 42 countries

Distributors in more than 120 countries

Wherever you are we are with you

Efficient and responsive technical support, available in over 113 countries around the world

Maximize the lifespan of your equipment by close and personalized local support when you need it

A sustainable choice for your equipment

68.7% of revenue from sustainable products

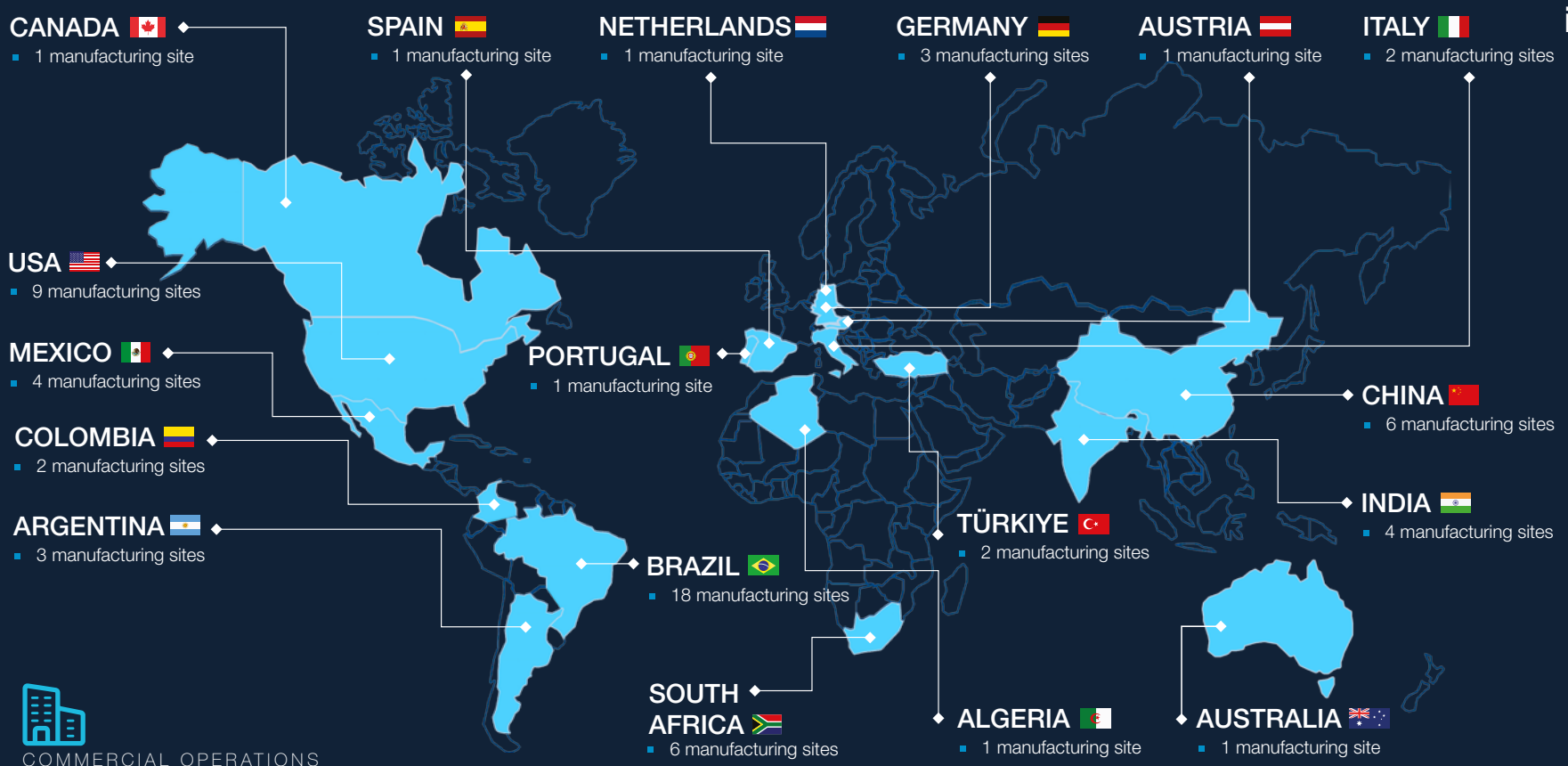
ecovadis — Leading global rating agency for corporate Sustainability Management

CDP — Leading global classification agency for Decarbonization Management

SUSTAINALYTICS — Measures company ESG risks

Find out more details in our Sustainability Report

Global presence



66 MANUFACTURING SITES
in 18 countries

+47,000
Employees worldwide

Distributors/
Agents in
120
countries

Sales to over
135
countries

COMMERCIAL OPERATIONS
in 42 countries

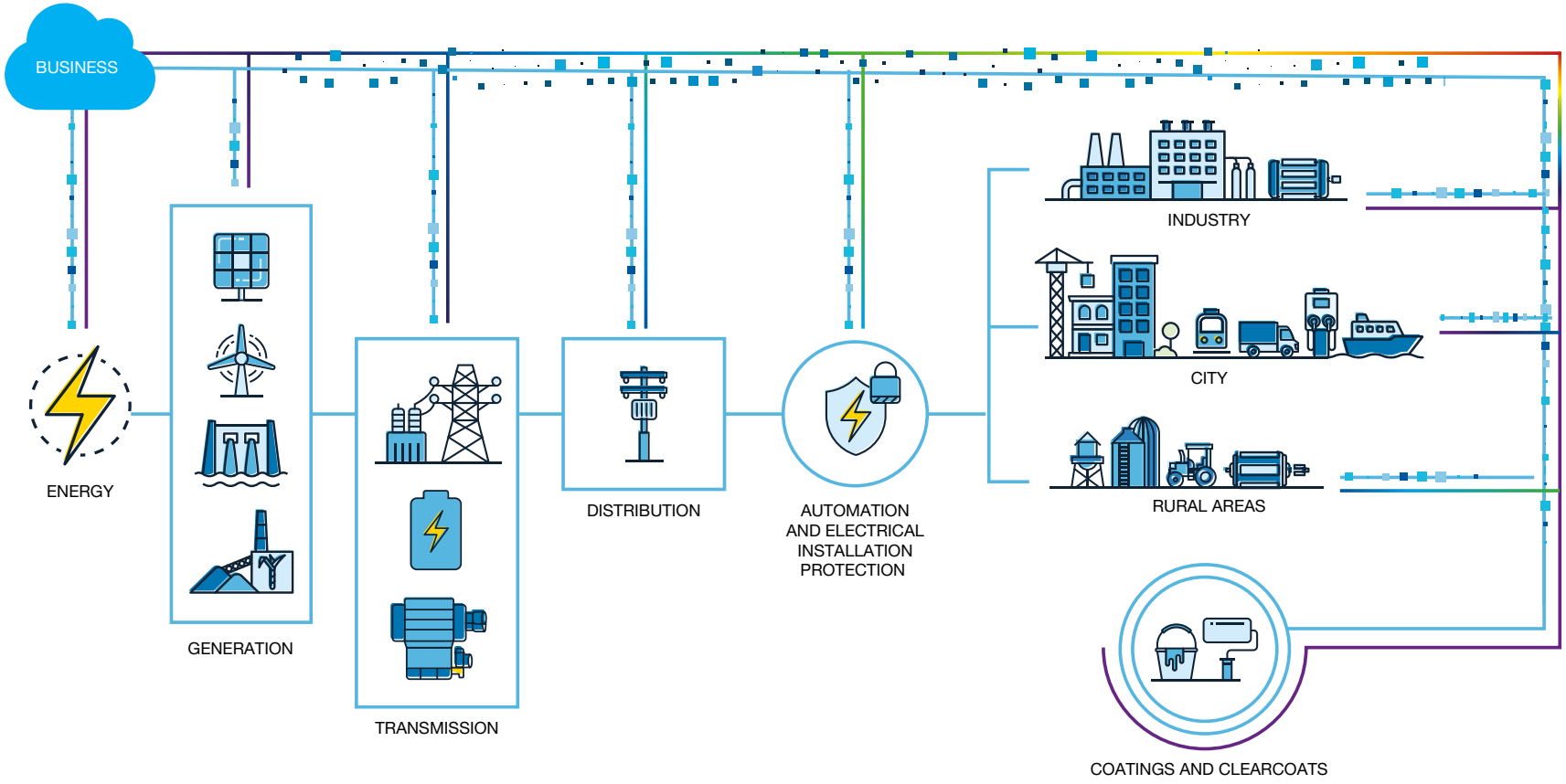
- Algeria
- Argentina
- Australia
- Austria
- Belgium
- Brazil
- Canada
- Chile
- China
- Colombia
- Denmark
- Ecuador
- Egypt
- Finland
- France
- Germany
- Ghana
- India
- Indonesia
- Italy
- Japan
- Kazakhstan
- Malaysia
- Mexico
- Netherlands
- New Zealand
- Norway
- Peru
- Poland
- Portugal
- Russia
- Saudi Arabia
- Singapore
- South Africa
- Spain
- Sweden
- Switzerland
- Thailand
- Türkiye
- United Arab Emirates
- UK
- USA

AFFILIATED COMPANIES
WEG Group

AUTRIAL · cemp · EM · AKH · CESTARI · Balteau · marathon · VOLTRAN · PPI-Multitask · rotor · Volt

End-to-end solutions

The global solution in electrical machines, automation and digitalization for industry, infrastructure, electric mobility and energy systems.



WEG is synonymous with reliability and high performance in Oil & Gas exploration

Developed to operate in harsh environments, our VSDs offer high reliability, advanced protection, and precise control.
These solutions are designed to meet the requirements of the main pumping methods: Sucker Rod Pump (SRP), Progressive Cavity Pump (PCP), and Electric Submersible Pump (ESP) - ensuring maximum availability, less equipment wear and continuous operations with safety and high performance.

And also:

- High performance, reliability and efficiency
- Robustness: available in IP42 and IP55 versions
- Controller integrated into the VSD
- Compliant with major international standards
- Various optional items available for project customization
- Highly corrosion-resistant coating
- Time optimization during configuration and commissioning
- Fast return on investment

WEG VSD for smart pumping

Medium voltage VSD

MVW3000

Low voltage VSDs

CFW900 and CFW11

Panel-mounted VSDs

AFW11 and AFW900

Integrate with WEG solutions such as:

- AFW (Panel-mounted Drives)
- AFW-M (Panel-mounted Drives
- Transformers
- Coatings
- Motors

Key differentiators

Complete solution for different pumping methods.
WEG offers a comprehensive, high-quality solution, adaptable to various installation environments, ensuring reliability and efficiency in applications.

Onshore and offshore applications
The WEG solution for artificial lift systems was designed to meet the needs of onshore and offshore applications, with a special paint coating developed to ensure superior quality and protection in environments with high humidity, aggressive atmospheres and coastal areas with high salinity.

Flexibility and customization
WEG understands that each client has specific needs. Therefore, it offers fully customizable solutions to meet different types of wells (onshore and offshore), environmental conditions and technical challenges.

AND ALSO:

- **Intuitive operation**
- **Support for multiple languages**
- **Network communication via major industrial protocols (Modbus, Profibus-DP, DeviceNet, Ethernet, and others)**
- **Leak monitoring**
- **Event data recorder**
- **Trace function for quick troubleshooting**

Learn more about each of the differentials in our catalog.

Sucker Rod Pump

Sucker Rod Pump (SRP) is the most common method of artificial lift used in onshore wells. It is based on a pumpjack driven by a motor, which transmits reciprocating motion through a rod string to a downhole pump, lifting reservoir fluids to the surface.


Dynamometer Chart

Key features of the VSD dedicated to SRP.

Downhole Card
Obtained from the surface card through an advanced algorithm, it allows monitoring of pump conditions and helps prevent issues that may affect well operation.

Control Strategies
Multiple speed control modes allow the pumping unit to operate under various conditions, including maintenance, automatic operation or constant speed.

Rod Float
Internal algorithms monitor and protect the pumping unit by adjusting speed and triggering alarms to minimize rod float.

Dual Speed
Enables speed adjustment during the upstroke, optimizing pumping time and reducing rod pounding.

Load Cells
Supports up to two load cells, one for each rod string, enabling operation with dual completion.

Surface Dynamometer Chart
With two load cells connected to the controller, the system ensures accurate monitoring of pumping load and provides data for the Dynamometer Chart.

Progressive Cavity Pump

Progressive Cavity Pump (PCP) is an artificial lift method in which energy is transferred to the fluid by a pump composed of a helical rotor and an elastomer-lined stator. The rotor's movement inside the stator creates moving cavities that push the fluid from the suction to the discharge of the pump, enabling the pumping action.

Key features of the VSD dedicated to PCP.

Intelligent Speed Monitoring
The controller adjusts the pumping unit's speed based on downhole pressure, maintaining stable pressure despite reservoir variations.

RS485 Communication with Downhole Sensor
Monitors downhole pressure and temperature limits.

Safe Stop Control
Dissipates the accumulated energy (rod + fluid) by reversing the PCP's rotation, ensuring a safe shutdown.

Rod Torque Monitoring and Control
Accurate monitoring of rod torque, calculated based on total pump reduction and VSD data.

Pump Unlocking (Rocking Start)
Automatically releases the system by reversing the motor's rotation, ensuring safe pump operation.

Hydraulic Brake Test
Ensures proper system operation by activating the motor to verify fluid pressure and confirm that the brake is in ideal working condition.

Operation Time Lock
Prevents automatic restart after faults, providing greater safety and control over well operation.

Electrical Submersible Pump

Electrical Submersible Pump (ESP) system is an artificial lift method in which a submersible pump and motor are installed at the lower end of the production tubing, using pressure to lift oil to the surface.

Key features of the VSD dedicated to ESP.

Continuous Production in Adverse Conditions
Allows operation in the event of a ground fault on one of the motor phases, ensuring production continuity under such conditions.

Compatibility with Downhole Monitoring Systems
Integration with intelligent downhole monitoring systems.

Long Cable Compensation
Programmable compensation according to cable length and characteristics.

Backspin Relay
Detects if the pump is rotating in reverse, ensuring it returns to the correct operating direction and preventing damage to the pumping system.

Adjustable V/f Curve
Enables precise adjustment of the V/f curve for optimal pump performance.

Built-in Sine Wave Output Filter
Eliminates possible wave reflections and electrical stress on the power cable insulation and pump motor windings.

Pump Unlocking (Rocking Start)
Automatically releases the system by reversing motor rotation, ensuring safe pump operation.

Smooth Start and Stop Control
Acceleration and deceleration ramps with three programmable slopes, ensuring efficient starts and stops without operational damage.

Advanced technology designed to withstand harsh conditions and maximize production

The electronic boards of WEG's drives are coated with a special varnish that extends the product's lifespan. With this proprietary technology, WEG provides a reliable and versatile solution for various installation environments.

IDEAL FOR

- **Oil exploration and production**
- **Oilfield operators**
- **Artificial lift system integrators**

Segments

Oil & Gas

Chemical industry

Why choose WEG?

For WEG, providing solutions that convey reliability to the customer also means caring for the environment and addressing sustainability in an integrated way. With that in mind, we offer a broad portfolio of products that deliver energy efficiency and advanced process technology to our customers. The good relationship with our partners, combined with our global production capacity (footprint), demonstrates our flexibility and ability to customize solutions for each type of application. We have global presence and local operations to uniquely meet your needs. In addition, we offer robust after-sales support through our global technical assistance network, ensuring service coverage worldwide.

WEG is your partner! Together, we develop solutions for drive systems dedicated to artificial lift methods in oil production. Our commitment is to ensure operational safety, energy efficiency, and a user-friendly human–machine interaction.

Carlos Stenio Pereira Morais
Production Specialist

CASE

A robust solution to maximize oil extraction in harsh environments

WEG boosts oil extraction operations with customized solutions in Kuwait

The challenging climate of Kuwait, with temperatures exceeding 54°C and a rising trend in the coming years, poses a major obstacle to the operation of oil extraction equipment. In this scenario, ensuring reliability and high performance is essential to guarantee productivity and maintain stable operations.

One of the leading service providers in Kuwait's oil sector sought robust solutions to drive their pumps with greater energy efficiency under these severe conditions. The answer came from WEG, with an integrated and customized solution for harsh environments.

VSD with integrated controller: a complete solution for efficient and reliable oil extraction

WEG supplied 25 panel-mounted variable speed drives (AFW11 series), designed to operate in environments with temperatures up to 55°C and specially developed to drive progressive cavity pumps (PCPs).

The panels feature an integrated controller — an intelligent device that monitors essential system parameters in real-time, such as speed, pressure, temperature, shaft torque, among others. Additionally, it enables predictive diagnostics and automatic adjustments, reducing failures and maximizing equipment performance.

With an IP55 protection degree suitable for outdoor environments, the panels were designed according to the customer's specifications. The compact design and integration of the VSD and controller ensure better operational performance and longer equipment lifespan, even under the most adverse conditions.

"The project was tailor-made, taking into account local challenges and the technical requirements of the application. Testing in real conditions ensured total confidence in the operation," comments the WEG technical team involved in the delivery.

Zero failures, maximum productivity

Since the implementation of the solution, the system has been operating with exceptional performance and zero recorded failures. The continuous operation of the PCP pumps has provided high reliability and ongoing efficiency, ensuring maximum productivity and minimal downtime for the end user.

The success of this first installation strengthened the customer's confidence in WEG technology — so much so that the contractor expanded the project with the acquisition of new VSD panels for the next phase of expansion, consolidating the partnership and proving the robustness of WEG solutions in one of the most challenging environments on the planet.

To learn more about WEG's complete range of VSDs, visit the product page.

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