Solutions for the Pump Industry
WEG is a global manufacturer of energy efficient electric products for the pump industry. With more than 29,000 employees all over the world and a daily production of 60,000 motors, WEG is a leading electric motor producer globally and one of the largest suppliers of electric-electronic products and systems in the world. Operating in over 135 countries, with revenues of over US$ 3.1 billion, WEG global presence is supported through its branch network established in 32 countries, manufacturing plants and distributors in all five continents.

Meeting the pump industry challenge.
WEG Serves You Globally

Our global structure allows us to be closer to our customers. Over 32 subsidiaries established in key countries are prepared to provide you with technical and commercial support; our manufacturing plants strategically located in the main markets can serve you with short deliveries; and our network of over 1250 Authorized Service Agents located in the five continents are fully equipped to give you prompt sales and service support.

WEG at a Glance
- US$ 3.1 billion yearly turnover (2013)
- Manufacturing plants in 9 countries
- Over 29,000 employees

Global Product Certifications

Argentina
Australia
Colombia
Brazil
SONCAP
Nigeria
France
Germany
U.K
China
Italy
Korea
South Africa
Europe
Iran
Russia
Kazakhstan
Belarus
Spain
Mexico
India
Saudi Arabia
Russia
North America
UL

Global Presence
WEG products stand out for the flexibility of their electrical and mechanical design, adapting to the strictest customer requirements in different applications. With a complete range of products for the Pump Industry, WEG is always committed to providing industry with superior quality and excellence worldwide.

Master Line - Three Phase Induction Motors
The Master line (M line) motor is a product with high efficiency, meeting the requirements of international standards and in line with the world market trends.

S Line - Synchronous Motors
Synchronous motors are being used in a variety of applications because of their efficiency, the power factor correction, high torques and low starting currents, constant speed under load variations, low operating and maintenance costs and their ability to drive different types of loads.

General Purpose Motors, Non-sparking Motors
Increased Safety Motors, Pressurized Motors
- Output power: up to 50,000 kW
- Rated speed: from 3600 to 300 rpm
- Frame sizes: IEC 280 to 1800
- Frequency: 50 or 60 Hz
- Voltage: from 220 up to 13,800 V
- Cooling method: IC01, IC81W, IC611 and others (WP-II, TEWAC and TEAAC)
- Degree of protection: IP23 to IP56/IP65
- Horizontal and vertical mountings available

Note: NEMA or IEC designs.

General Purpose Motors
Pressurized Motors
- Output power: up to 110,000 kW
- Rated speed: from 3600 to 150 rpm
- Frame sizes: IEC 280 to 1800
- Frequency: 50 or 60 Hz
- Voltage: from 220 up to 13,800 V
- Cooling method: IC01, IC81W, IC611 and others (WP-II, TEWAC and TEAAC)
- Degree of protection: IP23 to IP56/IP65
- Horizontal and vertical mountings available

Note: NEMA or IEC designs.
Two years of general drought in Turkey increased deprivation amongst the country’s poorest population. Without water to drink or irrigate crops, the nearly 70 thousand inhabitants of the agricultural district of Suruç suffered the effects of the climate change. According to American Geophysical Union (AGU), the rain already scarce in the Middle East, occurs less and in order to overcome this critical scenario, the region received an impulse for economical development with the “Suruç Plain Irrigation”, project of the Southeastern Anatolia Program (GAP), which will irrigate over 94 thousand hectares. For this project, WEG supplied 08 x M Line Medium-Voltage Asynchronous Motors, which drive the pumps that will take water from the Atatürk dam, located in the Euphrates River, to the irrigation canal. WEG’s participation in this project is a result of 20-years relationship with a local partner from the electric industry.

W60 Line - Three Phase Induction Motors

The WEG W60 motor line is designed for industrial applications, focused on pumps, compressors and fans, ensuring high performance and reliability even under the most severe operating conditions.

General Purpose Motors

- Output power: from 800 up to 4250 kW
- Rated speed: from 3600 to 1500 rpm
- Frame sizes: IEC 450 to 560
- Frequency: 50 or 60 Hz
- Voltage: from 2300 up to 10,000 V
- Cooling method: IC01, IC81W, IC611 (WP-II, TEWAC and TEAAC)
- Degree of protection: IP24 to IP55

Note: NEMA or IEC designs.
Mining

From the coldest to the hottest temperatures, corrosive atmospheres or globally unstable conditions, WEG’s solutions reduce maintenance to a minimum, while lasting longer and helping to improve efficiency on Pumping Systems.

WEG Efficiency Helps Save Money on Mining Plant

The industry is constantly re-defining methods of saving money, using natural resources responsibly, reducing costs and to increasing business revenues. Innovation is a big challenge for companies looking to employ energy efficient solutions which offer long term environmental benefits.

As a practical case, Antofagasta Minerals’ Minera Los Pelambres, one of the key copper mines in Chile, planned to increase their reclaim water pumping capacity without changing its pipelines. For this plant, they decided to install engineered high-head vertical turbine pumps operated by six WEG motors MGR7010 - 2000 HP - 4P - 3300 V - 50 HZ - V1, with rated efficiency exceeding 95.5%. This project allowed a 22% increase in pumping capacity and a 33% reduction in equipment running costs helping the mining company save more than US$ 1 Million in energy costs per year.
W50 High Voltage Motors

The WEG W50 motor line is a product designed for industrial applications ensuring high performance and reliability even under the most severe operating conditions. The W50 motor complies with the strictest criteria of efficiency and safety.

- New frame design ensuring maximum performance between mechanical rigidity and thermal dissipation, thereby reducing motor vibration and increasing lifetime
- Unique fin distribution design which ensures excellent thermal performance
- The mounting system of the grid and internal baffle ensures low noise levels, even lower than noise levels established by standards
- A high performance and robust product with a compact design
- Low vibration levels which increase lifetime
- WISE insulation on low voltage motors and VPI insulation for high voltage motors which increases stator electrical strength
- Motor can be provided with sleeve bearings, wide range of accessories, modular blower kit, oversized terminal box and others

Characteristics:
- Output power: 75 up to 1250 kW
- Rated speed: up to 5000 rpm
- Frame sizes: 315 H/G up to 450 J/H
- Frequency: 50 Hz and 60 Hz
- Voltage: 380 up to 6600 V
- Number of poles: 2 up to 12
Oil & Gas

Reliability is the major goal for everybody at WEG and this is why WEG systems are suitable for tough environments.

**Motors Drive the Pumping Heart of New Brazilian Refinery**

11 x three-phase induction motors, suitable for operation in explosive atmosphere, will be used to drive the centrifugal pumps feeding water into the cooling towers at Petrobras Abreu e Lima Refinery (RNEST) in one of the wealthiest regions of Brazil. These pumps will provide water for circulation and for cooling the plant and equipment which is critically important within the refining process. To enhance their reliability these motors were designed to be robust and use the best quality bearings and components. The windings are precision made and balanced, whilst advanced thermal management ensures cool running. There are several approval bodies that can certify motors for hazardous areas.

As a major international motor manufacturer, WEG meets all required safety standards worldwide. Petrobras, amongst the five biggest energy companies in the world, says that Abreu e Lima is one of the most advanced refineries ever built in Brazil. It will be the first with the capability to process 100% heavy crude oil with the minimum environmental impact and to produce fuel with a lower sulphur content than that required by the strictest of international standards (10 ppm of sulphur).
W22 Premium Efficiency Motors - IE3
A high efficiency product, enhancing productivity to generate the maximum benefit for the customer. This is the focus of the W22 Line, designed to provide not only significantly lower energy consumption, but lower noise and vibration levels, higher reliability, easier maintenance and lower cost of ownership. A motor designed for energy efficiency, performance and productivity.

Super Premium Efficiency

Characteristics:
- Output power: 3 up to 355 kW
- Frame sizes: 132s up to 355 A/B
- Frequency: 50 Hz
- Voltage: 400 up to 690 V
- Number of poles: 2, 4 and 6

Applications
Pumps, compressors, fans, crushers, conveyors, mills, centrifugal machines, presses, elevators, packaging machines, grinders, etc.

W22 Super Premium Efficiency

Aware of the impact high energy consumption is having on natural resources and the environment, some governments are implementing Minimum Energy Efficiency Performance Standards in order to drive the use of high efficient equipment. WEG’s W22 Super Premium Efficiency motor line, exceeds the IE4 Efficiency Levels defined in IEC Technical Specification IEC/TS 60034-31 and draft IEC Standard 60034-30 edition 2 offering high overall performance which is translated into a lower Total Cost of Ownership, due to its reliability, easy maintenance and energy savings.
Efficiency and Reliability on Automation Technologies

Advanced built-in technology for speed variation; compact solutions for short-circuit protection and overload conditions; high short-circuit breaking capacity; reliability and precision on monitoring, operation and protection of electric motors, WEG supplies solutions to control some of the most prestigious pumping projects in the world.

Employing on a team of senior engineers with extensive market and design experience, WEG is recognized and certified as a manufacturer and supplier of variable speed drives, soft-starters, motor control centers, motor starters, motor circuit breakers and an extensive series of motor control and protection products for pump applications. In addition to the general-purpose applications, we recommend the CFW700 and the Machinery Drive CFW500 as a great option for the most demanding applications.

**CFW500**

- Voltage range: 220 up to 480 V
- Output current: 1 to 31 A (0.25 to 15 kW)
- SoftPLC built-in
- Expansion modules recognized automatically
- Any expansion module comes with a RS485 port (Modbus-RTU)
- USB port (via expansion module)
- Memory card (allows copy of parameters)
- CANopen / DeviceNet / Profibus-DP as expansion Modules
- Versions with EMC filter
- Softwares WLP and SuperDrive G2 free of charge
- Eletronic boards conformally coated as standard, classified as 3C2 according to IEC 60721-3-3

**CFW700**

- Voltage range: 220 up to 600 V
- Output current: 3.6 to 211 A (1.1 to 110 kW)
- Control method: V / Hz, sensorless and with encoder
- Encoder interface built-in
- RS485 port standard in the product
- Safety Stop board STO (optional)
- EMC filter (optional)
- Flash Memory (accessory)
- CANopen / DeviceNet / Profibus-DP
- SoftPLC built-in
- DC choke incorporated to the standard product for harmonic mitigation
- Expansion modules recognized automatically
- Memory card (allows copy of parameters)
- Softwares WLP and SuperDrive G2 free of charge
- Eletronic boards conformally coated as standard, classified as 3C2 according to IEC 60721-3-3

**Certifications**

![Certifications](image)
Desalination Plant in Algeria

Estimates show that in 30 years the amount of water available per person in the north of Africa will be reduced to 80% of that currently available. As a result, the Algerian government is investing in a plan of seawater desalination.

This includes the construction of three large desalination plants with production capacity of 400 cubic meters of water per day which will greatly benefit a population of over 2 million.

The Tlemcen-Honaine plant, located near the city of Oran, close to the border with Morocco, has a production capacity of 150 thousand cubic meters and will supply 750 thousand inhabitants directly making it one of the largest in the world.

WEG supplied 17 x Soft-Starters and 10 x Frequency Drives for the pumps that will withdraw water from the Mediterranean Sea at Honaine.

US$ 400 million was invested in the three plants. In addition to the desalination plants, the resources will also be used in the construction of dams and for sanitation. According to Daho Ould Kablia, “with the new program, the Algerian government intends to find a balance between the different regions of the country and provide a fair supply and distribution of water and the services related to it”.
WEG Frequency Drives are equipped with dedicated and specialized software for pump applications. The Pump Genius software in conjunction with either a CFW500 or CFW11 inverter drive allows the configuration and monitoring of entire systems.

The Pump Genius Architecture within its Flexibility Covers Three Software Options as Given Below

**Key Features**

- There is no need for additional PLC, HMI or any external devices thus less space in the panel and investment deduction is required.
- The drive by itself can control, monitor and manager the entire system.
- Eliminates the complexity of previous design control panels.
- By using the PID control excellent results in terms of Energy Savings can be obtained.
- System reliability is maximized due to protections and on-line monitoring present in the software.
- Equal wear and tear of individual pumps is obtained as the logic monitors the runtime of the individual pumps and based on that the specific pump is brought in or out.
- Sleep and wake-up mode makes the last pump to shut on/off when demand is below or over the pressure/flow required keeping the pump in standby mode.
- Pipe charging function allows for initial filling and lubrication as it runs for a timeframe at a preconfigured slow speed. Also, water hammer is avoided.
- Maximum/minimum system pressure can be configured to trigger when broken or clogged pipe situations occurs.
- Master/slave mode allows for total management of the system. If one pump goes down or communication is interrupted or lost another one will be automatically nominated as master enabling the system to maintain continuous operation.
- Data is exchanged with communication protocols through a single cable allowing for easy installation.
- Forced rotation makes the last pump in the system shut off when rotation is at a defined low speed but it is not yet at sleep level. With previous technology, the last pump would run indefinitely. The forced rotation features the equal use of the pumps in the system.
References

HADERA Desalination Plant in Israel
High Pressure Pumps
- 10 x MGW710 - 6000 kW - B3 - 2 P - 11 kV
High Pressure Booster Pumps
- 8 x HGF500 - 1400 kW - B3 - 2 P - 3.3 kV
Water Intake Pumps
- 5 x HGF500 - 825 kW - V1 - 8 P - 690 V
Common Booster Pumps
- 8 x HGF500 - 1000 kW - B3 - 6 P - 690 V
2nd and 3rd Stages High Pressure Pumps
- 14 x HGF450 - 1000 kW - B3 - 4 P - 690 V
4th Stage High Pressure Pumps
- 4 x HGF400 - 710 kW - B3 - 4 P - 690 V
ERS Booster Pumps
- 16 x HGF315 - 275 kW - B3 - 4 P - 690 V
Auxiliary Pumps
- 25 LV motors 11 kW up to 400 kW

TOROMOCHO Project Chinalco - Peru
- 550 x motors ranging from 0.5 HP - 3500 HP
- Centrifugal pumps

Chinese Petroleum Co. Refinery in Taiwan
- 04 x HGF315

Centrifugal Pumps - ONEE - Marrocos
- 05 x BF6400 4P 5500 V 50 Hz

Al Jubail Phase II Desalination Project - Saudi Arabia
- 04 x MGW630A 2100 kW 10P B3R 4160 V 60 Hz
- 06 x MGW500D 2265 kW 2P B3R 4160 V 60 Hz
- 04 x HGF450 1060 kW 4P 4160 V 60 Hz
Whenever you need technical or commercial support, **Count on us!**

- 32 subsidiaries strategically located in key markets
- Distributors and agents in about 85 countries
- Over 1250 Authorized Service Centers covering all five continents
- Genuine replacement parts available for immediate delivery

**Services Available**
- Factory repairs and redesign
- Site repairs and troubleshooting
- Installation and start-up service
- Inspection and maintenance
- Warranty support
- Technical and commercial training (at the factory or on-site)
- Field support linked to engineering
Environmental protection and sustainability has been a major concern for the company from its inception ensuring the correct use of natural resources and the application of energy efficient solutions.

Effective use of electric power significantly reduces the impact on the environment with further cost savings and improvement in standards of living.

WEG is continually investing in technological innovations to increase the efficiency and performance of its product range to give high productivity, low power consumption, reduced operating costs and high performance in order to benefit customers and the environment. Throughout its successful history, the company has focussed on producing reliable and highly efficient products which support globally sustainable development.

WEG currently holds ISO 14001 and ISO 50001 accreditation.

Think Green.
WEG Worldwide Operations

ARGENTINA
WEG EQUIPAMIENTOS ELECTRICOS
San Francisco - Cordoba
Phone: +54 3564 421 484
info-ar@weg.net
www.weg.net/ar

WEG PINTURAS - Pulverlux
Buenos Aires
Phone: +54 11 4299 8000
tintas@weg.net
www.weg.net

AUSTRALIA
WEG AUSTRALIA
Victoria
Phone: +61 3 9765 4600
info-au@weg.net
www.weg.net/au

AUSTRIA
WATT DRIVE - WEG Group
Markt Piesting - Vienna
Phone: +43 2633 404 0
watt@wattdrive.com
www.wattdrive.com

BELGIUM
WEG BENELUX
Nivelles - Belgium
Phone: +32 67 88 84 20
info-be@weg.net
www.weg.net/be

BRAZIL
WEG EQUIPAMENTOS ELÉTRICOS
Jaraguá do Sul - Santa Catarina
Phone: +55 47 3276 4002
info-br@weg.net
www.weg.net/br

ECUADOR
WEG ECUADOR
Quito
Phone: 5144 339/342/317
wegecuador@weg.net
www.weg.net/ec

FRANCE
WEG FRANCE
Saint Quentin Fallavier - Lyon
Phone: +33 4 74 99 11 35
info-fr@weg.net
www.weg.net/fr

GERMANY
WEG GERMANY
Kerpen - North Rhine Westphalia
Phone: +49 2237 9291 0
info-de@weg.net
www.weg.net/de

GHANA
ZEST ELECTRIC GHANA
Army
Phone: +233 30 27 664 90
info@zestghana.com.gh
www.weg.net

INDIA
WEG ELECTRIC INDIA
Bangalore - Karnataka
Phone: +91 80 4128 2007
info-in@weg.net
www.weg.net/in

NETHERLANDS
WEG NETHERLANDS
Oldenzaal - Overijssel
Phone: +31 541 571 080
info-nl@weg.net
www.weg.net/nl

PERU
WEG PERU
Lima
Phone: +51 1 209 7600
info-pe@weg.net
www.weg.net.pe

PORTUGAL
WEG EURO
Maia - Porto
Phone: +351 22 9477705
info-pt@weg.net
www.weg.net/pt

RUSSIA and CIS
WEG ELECTRIC CIS
Saint Petersburg
Phone: +7 812 363 2172
info-ru@weg.net
www.weg.net/ru

SOUTH AFRICA
ZEST ELECTRIC MOTORS WEG Group
Johannesburg
Phone: +27 11 723 6000
info@zest.co.za
www.zest.co.za

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