

You can be sure about one thing:  
when you're out there,  
so is WEG.



#### Good performance and safety – page 6

Learn more about the dry transformers which eliminate the risk of combustion.

#### Excellent cost x benefit – page 7

Learn more about the W22 motors with reduced energy consumption and easy maintenance.

## WGM – Compact and extremely powerful

The line of water jacket cooled motors is made up of high performance motors with reduced space usage.

*Learn more on page 2.*



WEG supplies the largest motors of the platform for the Guara pilot project

*Read more on page 3.*

First X BOW built in Brazil will have WEG products



*Read more on page 5.*



## New CFW-11 Modular Drive speed variator: water cooled version

WEG develops the water-cooled CFW-11 Modular Drive version especially designed for marine and offshore applications.

*See more on page 7.*

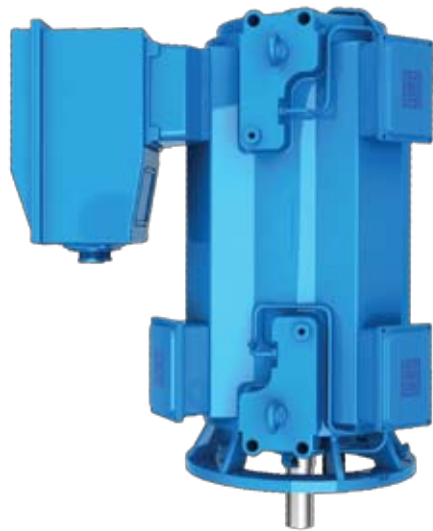
# WGM Motors: Water jacket Cooled

Developed to provide cooling through water flow on the end bells and around the frame allowing an increase on the horsepower / weight ratio and a decrease on the space usage.

The motor cooling is guaranteed by a "water jacket" circulating between the stator core and the outer frame, which allows a more effective heat exchange resulting in a higher power per weight ratio therefore reducing the size of the motor. This system is ideal for variable speed applications since the thermal efficiency is optimized even on reduced speeds and where space constrain is a concern.

WGM motors can be used in several segments of the industry, especially driving machines that require constant torque even in low rotations. Thus, they are the right choice for applications in high temperature environments, limited space availability for motor operation or motor submitted to dusty environments. This solution has a wide range of applications. Not only on the marine and offshore segments, but in all applications where water cooled motors are beneficial.

In the marine segment, for instance, when operating at DP (Dynamic Position), the vessel's thruster motors can



withstand prolonged periods of operation at very low speeds. Under this operation condition, standard cooling methods that rely on shaft mounted fans have the heat exchange capacity greatly reduced since the cooling is directly dependant on motor speed. The "water jacket" solution has its cooling efficiency guaranteed throughout the speed range as the heat removing capacity is independent of motor rotation.

The "water jacket" cooling system consists of heat dissipation through the circulation of water through the channels inside the frame which provide an even and continuous flow. The water is supplied by an external system and enters the motor through the connections on the motor end bell (drive end or non drive end). The passage of water from the end bell to the frame is made through mechanically shielded hoses which avoid the risk of internal leakages.

## In operation

In 2008, several water jacket cooled motors were sold in the domestic and international markets. Edison Chouest Offshore who currently acquires from WEG the complete electrical package for all the Brazilian built vessels, has already purchased several units of WGM motors that will be used on supply vessels being built in the USA.

- Output power: 315 to 2.800kW
- Frame sizes: 315 to 560 (IEC)
- Voltages: 690 V to 6600 V
- Number of poles: 2 to 8

## Integrated solution for ships and platforms

By continuously keeping up with market needs and trends, WEG offers an outstanding solution: The Integrated Bridge. These are operation consoles for platform support ships installed on the footwalks of the vessels and making all information necessary for sailing available to the user.

The solution is based on computers prepared for naval applications all interconnected in a redundant ETHERNET net. The solution is extremely reliable because in case of eventual fault in one of the computers the user can alternate any function on any one of the other computers just by browsing through the screens. This is because they are all available on all the console workstations.

Besides integrating the whole alarm and monitoring system of the ship, the managing system of energy and load control, each of the computers performs the function of nautical chart and radar and gives information about the speed of the wind, the inclination of the vessel, etc.



# Platform for Guar pilot project will have WEG motors



Pictures of Petrobras P-54 Platform

Assigned to the pre-salt, the new MODEC platform chartered by Petrobras will use motors with low starting currents produced by WEG.

One of the first Petrobras platforms for the pre-salt, the FPSO - Floating Production Storage and Offloading platform which will operate on the Guar pilot project on block BM-S-9, will have its largest electric motors supplied by WEG. The limitation of the starting current of the motors on this project was a very important factor due to the high electric loads of the platform and WEG was given preference because it worked together with the company responsible for the project showing deep knowledge of the applications and also offering the best technical-economic solutions. The Guar field is located in the pre-salt region of the Santos Basin and the new platform will be chartered for a period of 20 years by PETROBRAS who has Repsol and the BG Group as partners on this project.

The new unit, which will be converted by the Schahin/Modtec consortium, will have the capacity to produce 120 thousand barrels of oil and 5 million cubic meters of gas per day. Among the main modules where WEG is supplying large size motors are the ones for export of natural gas, reinjection of natural gas, water injection and intake of seawater. All the orders are currently in production. Learn more about each of these supplies.

## Natural Gas Export Compressor

The natural gas produced on the platform is taken to the coast through the ducts which run for hundreds of kilometers at the bottom of the sea. For this, the gas needs to be pressurized by compressors on the platform. WEG supply: 4 motors of 10.100 kW which will drive compressors supplied by MAN Turbo (Germany)

## Natural Gas Reinjection Compressors

The reinjection of natural gas is a way to improve the recovery of petroleum. The gas is reinjected into the oil reservoir and, consequently, this increases the quantity of oil which can be recovered. WEG supply: 2 motors of 9920 kW which will drive compressors supplied by Dresser-Rand (USA).

## Water Injection Pumps

Used on petroleum platforms to reinject water into reservoirs. The purpose is to increase the pressure and thus, stimulate production. This method is also used to increase the recovery of petroleum of a specific reservoir. WEG supply: 2 motors of 5500 kW which will



drive pumps to be supplied by Clyde Union (Scotland).

## Seawater Intake Pumps

Seawater is widely used for cooling and also injecting water into reservoirs on platforms. WEG supply: 3 motors of 900 kW which will drive pumps to be supplied by DMW (Japan).



# The most complete Inverter for the offshore segment

The MVW01 line of medium voltage inverters from 500 to 6000 HP attends the needs and expectations of the naval industry, associating state-of-the-art technology and robustness with simplicity in the conception and ease in programming and handling which assures high performance and reliability. A wide range of solutions in speed variation for medium voltage motors of 2,300 V, 3,300 V and 4,160 V besides the line of low voltage inverters up to 1500 HP. In this way, the user feels comfortable to choose the most convenient solution considering the purchase, implantation and installation values, energetic consumption and physical space.

The MVW01 presents state-of-the-art technology for medium voltage inverters through a structure with IGBTs of 6,5 kV combining resistance and security with the minimum quantity of power components which assures great reliability and simplicity to the equipment in a compact solution with last generation technology. The multilevel NPC topology (neutral point clamped, 3/5 levels) allows a great balance between the output wave form to the motor and the number of power components without the need to connect them in series.

Due to the unique characteristics of the IGBTs already acclaimed in the low voltage inverters such as very low losses and simplicity on the peripherals, the frequency inverter presents high efficiency (97% and reaching 99% at rated conditions) and very low heat dissipation. The input rectifier configuration for 12 or 18 pulses reduces the harmonics currents to extremely low levels, provides high power factor on the power supply and fully attends the recommendations of IEEE519. At control stage, the MVW-01 has a multiprocessing design using 32 bit processors (64 bit busbars) with mathematics in floating point and high performance assuring high efficiency on the motor control.



In trying to demystify the application of medium voltage inverters, the MVW01 follows the same programming philosophy of the WEG line of low voltage inverters. By using the same standard of MMI of the line of low voltage inverters, the MVW01 makes its parameterization extremely simple with no need for special training or softwares sold aside. It is also possible to parameterize the MVW-01 through the Superdrive, a WEG drives parameterization software which attends the whole line of WEG drives.

IGBT modules are separated into three inverter arms assembled on removable individual racks, one for each phase of the motor. The control and power components are interchangeable among the several sizes of inverters in such a way as to standardize and reduce the number of spare parts as well as to reduce the purchasing and storage costs of these components. The changing of these racks doesn't take more than three minutes due to their great mechanical practicality. The racks are available both with air and water cooling systems which increases even more the versatility of this product.

To assemble and replace power elements quickly, the

## Main features:

- Ride-Through/Flying-Start
- Alarms and Faults
- Superdrive
- Trace Function
- Operation with Ground Fault

## IES: Durability and practicality in a complete structure

The Integrated Electric Systems - IES were created to supply assembled and interconnected electric solutions ready to receive external connections. It is possible to install the whole electrical plan of a vessel such as the main switchgear, switchboard panels, transformers, speed variators and automation system inside the IES. When using the IES solution, the construction of a ship or platform can occur in parallel allowing for the panelboards to be installed when the electrical room is ready.

Another application of the IES is on revamps or reforms of platforms, on which, in some cases, the work is done on only one specific module. The IES is easily adaptable to each project because a team of trained engineers is at the customer's disposal to adjust the solution to meet the demands of the application.

The structure of the IES is made up of lateral columns and superior and inferior steel beams with inspection and quality certification. External and transversal welding of the floor using the MIG semiautomatic process. The sheets are sealed with silicon and the doors with naval standard rubbers. The lining of the internal walls and the ceiling is made

with a double carbon steel sheet ASTM 36, 100% galvanized and fixed with self-threading screws. Very resistant, the roof stands a load of 200Kg/m<sup>2</sup>. It also has an air cushion between the tiles and the ceiling and gutters on the sides to allow the outflow of water.

The access door opens out with a minimum angle of 90 degrees and has an anti-panic bar. The floor stands a load of 1,250Kg/m<sup>2</sup> due to the welded carbon steel transversal and longitudinal beams. A mechanical cleaning, sanding and removal of oil and grease is done before the coating is applied. Primer Epoxy coatings with polyurethane anti-lymphatic finishing are used to assure the durability of the IES.

WEG was also concerned with the transport and lifting of the IES when the structure was built. For this reason, the system was manufactured with reinforced edges and the lifting can be done with overhead cranes or by means of air cushions or on an appropriate transportation vehicle (flat car). Monitoring is permanent throughout the transport. The internal lighting is designed according to the luminous density requested. All the wiring goes through fire galvanized conduits and conduitlets. There is emergency lighting and special luminaries and sockets can be found in strategic places.



Besides all that, the structure has air conditioning which provides better working and operating conditions for the equipment.

# First electric diesel vessels built by CBO will be equipped with WEG products



The four Petrobras Platform Supply Vessels which are being built by CBO will have electric propulsion and energy management system supplied by WEG.

Companhia Brasileira de Offshore – CBO, who recently won the bidding for this supply to Petrobras, closed a deal with WEG to supply an electric package for the four platform supply vessels. The scope of the contract has generators of the diesel group, principal and lateral propulsion motors, all the electric panels – including regenerative water-cooled variable speed drives – distribution transformers and the energy management system.

“These will be the first vessels with a Ulstein “X BOW” design to be built in Brazil. Of the four ships, two will be of the PSV 3000 type and the other two, 4500”, explains Marcos Menezes, supervisor of the Marine and Electric Traction Department at WEG.

WEG was called to participate of the project because it offers the most complete line of Brazilian products for the Marine and Offshore industry. Besides supplying the equipment, the company is also responsible for the integration of the other systems of the ship and for the maintenance of the products.

“The demand of the project for electric diesel propulsion made us search for a partner who could provide high technology. And WEG is the company that not only meets our needs technically, it also give us support in the maintenance of the vessel after it starts operation”, points out Alfredo Naslauský, Director of CBO.

Another factor that made CBO choose WEG products was the fact the equipment is produced in Brazil. This has been a company policy since it began renewing its fleet.

“When WEG decided to work with the marine sector we didn’t believe the company would dedicate such attention to it because this was just another segment of the whole universe it services. But we were taken by surprise and WEG is showing the market that this decision was planned and that it has come to stay”, says Alfredo Naslauský.

WEG electric panels are being manufactured according to the designer’s plans to meet the high levels of demand of CBO. With the use of fixed azimuth thrusters, the variable speed drives which were especially developed to meet marine needs mainly in terms of the levels of harmonic noise, will drive the ship’s main propulsion motors. After conclusion, the equipment will be sent to the Aliança shipyard where the ships are being built.

“This contract consolidates WEG’s presence on the marine market even more and shows the company is increasingly prepared to meet the needs of this segment which has very specific characteristics and requires qualified professionals who understand these applications”, adds Menezes.

CBO is a 100% national offshore shipping company which supplies oil platforms and has been in operation for over 30 years. Headquartered in Rio de Janeiro, the company is part of the Fischer Group, a Brazilian conglomerate which operates in several segments and countries. Currently, it has a fleet of 17 platform supply vessels which operate on the Brazilian coast and another eight vessels are under construction.



To meet the strategy of renewing its fleet and to assure the construction of new vessels within the necessary deadlines and the quality standards of the company, CBO acquired the EBIN shipyard, now called Aliança (photo at the left, in 2004). It is strategically located in an area covering 60,000 m<sup>2</sup> on the banks of the Baía de Guanabara on the BR-101 highway in Niterói.

# New WEG CFW-11: water cooled version

WEG has also introduced a water cooled CFW -11 specifically designed, produced and tested to support user's offshore needs to face the tough conditions of marine environments. Paulo Roberto Kruger, Automation Sales Manager explained: "The CFW-11M has a modular concept where one can use Power Modules in a book format to create a whole range of power ratings using standard parts. The Power Modules can be mounted side by side allowing a very compact construction for high power rating drives."

To match user's offshore requirements, WEG has developed a water cooled CFW-11 version, which goes through a special process to make it deep sea resistant. It is not only a small unit, this product has another great advantage: it can be installed very close to the motor in operation, at the powerhouse. It's the perfect fit to start azimuthal and tunnel motors as it can achieve a 3000kW power in low voltage. It allows an easy integration with the ship's main systems, such as the dynamic positioning and propeller control.

## Efficiently matching application needs

By applying this technology to 400kW basic power modules, WEG has enabled the CFW-11 to offer VFD control from 300kW to 3000kW. Up to 5 modules in parallel may be driven by one CFW-11 control module. The compact dimensions make it easy to locate in a new or existing plants and the CFW-11 Modular Drive control panel is available either built by WEG (AFW-11M) or as a kit for completion by the customer or WEG agent.

## Uniquely easy configuration options

Ease for customer use in configuration and operation is one of the important benefits of the CFW-11. The removable Human/Machine Interface (HMI) handheld control panel, with its cellphone inspired function and jog-selection keyboard, is one way the operator can communicate with the drive, and covers 100% of the drive functionality. Uniquely amongst drives, the CFW-11 also offers a USB port on its front panel, allowing additional functionality and updating of drive firmware through connection with a lap top. Alternatively, the CFW-11 is compatible with Profibus, DeviceNet, CANopen, Modbus and Ethernet communication protocols, for factory-wide DCS operation.

## Self-configuration with Plug-and-Play accessories

Easy and rapid upgrading and customising of the CFW-11 are facilitated by the Plug-and-Play modular click-in design of the accessory units which are inserted inside the control casing. The CFW-11 automatically recognises and configures the accessory and option units for accurate and safe installation while eliminating the time and possible errors of manual configuration. The customer insertable, modular units include I/O expansions, encoder interfaces, memory card and communication protocols. The CFW-11 also features Normal and Heavy Duty ratings for quick optimal load type adaptation.

## In-built value and cost savings

Further customer value offered by the CFW-11 includes the internal PLC function that eliminates most requirements for an additional external PLC device.

The SOFT-PLC function enables the creation of many possible applications like winding, multipump, cascaded control, crane or elevator. Many of WEG's already developed applications will be free of charge for the customer. The customer can also develop his own applications using high level ladder block language (according to IEC 61131-3) and he can protect his knowledge by using his own password to access the application software. This software can be saved in the memory card. Another possible option is the PLC11 accessory which is a high performance processor card for advanced functionality. This card is also programmed using the same high level language as before.

## Designed for long life, greater reliability, a longer Mean

Time Between Failure are assured due to a conservative design using the latest generation IGBTs and advanced passive components. The user can access information about every aspect of each Power Module while the VFD is in operation, for example current, temperature and overload. Increased reliability is ensured by the use of intelligent thermal management to enable full protection of IGBTs, monitoring of heatsink and the internal air temperature. The heatsink fan is automatically controlled and easily disassembled from the product for cleaning and maintenance.



# Complete solutions with transformers

It doesn't matter if you choose dry or oil. WEG has the exact solution for onshore and offshore applications.



One of WEG's main concerns is to match safety and outstanding performance of machines it supplies. Thinking about the integrity of companies properties, WEG engineers developed dry transformers as an alternative to the oil-filled equipment. For offshore application, this is the perfect choice, since Dry Transformers are environmentally friendly since they are toxic-free machines and the risk of combustion ignition is completely eliminated. This is assured with the application of fire-proof CW229 resin, which is the only product item available on the market with UL certification. They are manufactured in accordance with

NBR 10295 and IEC60076-11 Standards. Dry Transformers are available from 300 to 15,000 kVA, voltages 0.6; 1.2; 7.2; 15; 24.2; 36.2 kV and with Degree of Protection from IP 00 to IP 55.

## Oil

When the application is onshore, WEG has the best solution as well. Oil-filled transformers for power, distribution and industrial purposes. These products are available in classes up to 550kV and outputs up to 350MVA.

# WQuattro – More economy with less CO<sup>2</sup> emission

The WQuattro line of motors was developed for applications which consider energy saving a priority.



This is an eco-friendly motor which due to its Super Premium Efficiency demands less energy from the power supply. Its levels of efficiency are the highest of the market and that translates into a prompt ROI with reduction

on electricity bills and of the levels of CO<sup>2</sup> emission on the environment.

Among some of the benefits of the WQuattro are the interchangeability with motors of normal induction (same power x frame ratio), increase of useful life and reduction of maintenance hours, wide range of speed variation with constant torque and easy speed synchronization with multiple motors driven by the same inverter. Besides all that, the line does not require the use of sensors/encoder in applications with frequency inverters nor the use of protection with special overload relays.

With the same frame size of a conventional induction motor, the user has more efficiency in his application. The WQuattro line of motors contemplates powers from 1 to 15HP on 80 to 132 M/L frames. It is a hybrid motor with a conventional squirrel cage equipped with high energy permanent magnets (NdFeB) which enable direct starting from the power supply. Scalar control frequency inverters can be used for applications which require speed variation. The WQuattro is already contemplated on the new WEG W22 motor platform.

# High Efficiency Extra Long Life motor generation

Developed especially for maximizing the equipment reliability and productivity, ensuring both lower noise and vibration levels, higher mechanical accuracy, longer lifetime, more energy saving, better performance and requiring less maintenance.

The electromechanical design meets the needs of the demanding applications in the continuous processing industry, where reduced maintenance interventions are essential. Available in the new W22 platform, Plus and Premium Efficiency, the WELL line meets the Brazilian Efficiency Legislation - Decree 553. The WELL line - WEG Extra Long Life - is fitted with the most advanced technologies developed by WEG for manufacturing electric motors, such as the W3 sealing system that provides efficient sealing against the ingress of water and dust into the motor. The WISE insulation system (WEG Insulation System Evolution) uses WEG GIII 200 °C enameled wires, allowing the motor to be operated by frequency inverters. With proven high efficiency and low losses, the WELL motor line is guaranteed by the PROCEL mark that ensures its high performance and efficiency.

The WELL motors can also be used in hazardous areas such as Ex-n (non sparking), with controlled starting current (Ip/In). As an option, the line also allows the lubrication system through the oil mist, an automatic lubrication system that aims to minimize machine interventions, ensuring a lower temperature in the bearing, extending its life. Due to an exclusive certification in the Brazilian market, the WELL line for hazardous areas can start D.O.L (Direct On Line) or by VFD (frequency inverter).

The special electromechanical design of this line meets the demanding IEEE 841 Standard, relating to the Petrochemical Industry. The reduced temperature rise provides a L10 lifetime (50,000 operation hours, considering direct coupling; for other conditions contact WEG) and extends the lubrication intervals. The WELL line is supplied with coatings that meet the demanding market standards. For protecting the internal motor surfaces, the motors are painted with WEG exclusive tropicalized painting system, thus increasing the resistance in aggressive environments. WELL line motors, a unique WEG feature that provides reliability and economy for any application for this demanding market.

## Features

- Special rotor balancing
- High precision machined shaft
- Lower bearing temperature
- Improved foot flatness
- W3 Seal System
- Internal anticorrosive painting
- Plus and Premium Efficiency
- WISE insulation system
- Painting plan for aggressive environments
- Customization



## Benefits

- Lower vibration levels, meeting international standards.
- Increased bearing lifetime and extended lubrication intervals.
- Special sealing against the entry of water and dirt, (IPW66).
- Lower energy consumption (meets the Brazilian Efficiency Legislation – Decree 553).
- Motors can be operated by frequency inverters without causing damages by voltage peaks.
- More resistance to corrosive environments.
- Product suitable to meet the requirements of the most demanding application in the industry.

# New WEG W22 three phase motors

To offer these improvements at lower running and lifetime cost of ownership, WEG has undertaken extensive redesign of key components motor.

## Improved efficiency and reliability: the result of improved cooling system

A highly critical redesign is the fan cover shape and the ventilation fan itself. The innovative WEG designs provide better airflow over the motor frame, thus maintaining temperatures within the optimum operating range and improving reliability and lifetime; the design is subject to international patent applications.

Additional aerodynamic improvements to the outside area of the frame have enhanced the airflow effectiveness and minimized any hotspots, further benefiting reliability. For example the terminal box and the central eyebolt seating have been moved to avoid the air flow reduction (frames 225-355 IEC). The lower temperature further enhances the benefits of WEG's unique WISE – WEG Insulation System Evolution – (with international patents pending), which offers extended resistance to temperature degradation of the insulation.

## Built-in inverter compatibility

The W22 industrial motor range has been designed from the start for operation with advanced frequency inverters, to offer flexibility and increased energy efficiency, while resisting voltage spikes and voltage rise times. It is available as a package with WEG's CFW11 Optimal Flux Frequency inverter drives.

## Substantial noise reductions

Noise levels due to the ventilating system have been substantially reduced, by 3dB (A) to 8dB (A). This brings the W22 noise levels from 72dB to 80dB, substantially lower than IEC recommendations and equal to or lower than competitors.

## Improved durability and environmental resistance

The W22 industrial motors are manufactured with WEG's own high quality cast iron to ensure maximum durability and life under aggressive conditions. Redesign of the fan cover (cowling) has also ensured greater strength to resist everyday impacts and eventual accidents. In addition, the fan cover has been redesigned for improved heat dissipation from the bearings, while being strengthened for increased resistance to deformation and better bolt protection.

The feet are now cast integrally with the motor frame, giving greater stiffness, better damping in high vibration installations, and ensuring flatness for easy mounting on the motor plinth. Additionally, the strengthened feet have been designed with integral lifting holes; this has enabled the eyebolt seating to be removed from the frame. For more even cooling. Standard degree of protection is IP 55. This is easily upgraded to IP65 with a WEG adaptation kit, comprising a replacement housing with new bearing seals, for improved dust and water ingress protection, enabling high pressure water cleaning to be employed. This can be supplied for customer fitting, or by WEG maintenance service.



W22 Premium

Higher efficiency electric motors exceeding EFF1 levels, yet with lower lifetime costs, have been developed by WEG in its new W22 platform three phase induction range.

The new W22 industrial motors are being introduced in three different stages covering different frame sizes and outputs, with the 225 – 355 (up to 400 kW) frame size exhibited by WEG first time at Hannover 2008, the 132 – 200 size in early 2009 and the 63 – 112 size in mid - 2009. Other innovative improvements, supported by patent and registered design applications, offer lower noise and vibration, even higher reliability with an extended lifetime, and easier maintenance.

## Cutting losses

Siegfried Kreutzfeld, managing director of WEG Motores, commented: "With losses reduced by 10% to 40 % across the range, W22 industrial motors provide efficiency improvements equal to or better than EU EFF1. These improvements will enable the W22 motors to meet the latest requirements for high energy efficiency.



W22 Plus

## WEG technology in pioneering Petrobras installations

WEG Tintas is supplying products for the largest Petrobras installations currently under construction in the country: the Refinaria do Nordeste, also known as Refinaria Abreu e Lima - RNEST.



The installations are being built in the town of Ipojuca, 45 km from Recife, in the state of Pernambuco, in the Industrial and Port Complex of Suape. Refinaria do Nordeste will process more than 200 thousand barrels of petroleum per day which is the equivalent to 33 million liters. The annual predicted production also includes 682 thousand m<sup>3</sup> of naphtha, 1,236 thousand tons of LPG, 9.5 million tons of diesel and 2.2 million tons of petroleum coke. This refinery will also produce "H-Bio", a biodiesel developed and patented by Petrobras.

RNEST will be the first oil refinery totally built with Brazilian technology and, according to Petrobras, the most modern ever built on national territory. It'll also be the first adapted to process 100% heavy oil which represents around 80% of all the petroleum produced in Brazil with the least possible environmental impact and production of fuels with sulphur content lower than that required by the strictest international standards of 10 ppm sulphur.

Besides that, heavy oil costs around fifteen dollars less than Brent oil, a standard light oil traded on the electronic Intercontinental Exchange, and will bring considerable economic advantages to Brazil because the refinery will sell diesel, the petroleum derivate of highest profitability in the country. Due to the certification issued by the Centro de Pesquisa Petrobras - CENPES, WEG coatings will be used on the internal and external lining of the storage tanks of petroleum and derivates of the refinery. Petrobras will use products of the LACKPOXI N 2630, N 2629 and N 2288 and LACKTHANE N 2677 lines. A total of 72 tanks, which is almost 1 million m<sup>2</sup> of painted area, will use up an amount of more than half a million liters of coating.

These products were supplied through the TAG and Techint/Confab/Usiminas consortium responsible for building the tanks. Inside the refinery it is the tanks that use up the largest amount of coatings. A total of US\$ 4.05 billion will be invested in the construction of the Refinaria Abreu e Lima and at the peak of work more than 18,000 workers will be on the construction site. The official deadline for the refinery to start operation is July of 2011 with 800 employees and around 700 workers from outsourcing.

Despite standardization, WEG offers a differential in services, logistics and monitoring of the construction. Besides that, the long history of supplies to the Oil & Gas segment, with platforms P-52, P-54, P-56, P-59, P-60 and Mexilhão, and also the REFAP, REPLAN, REDUC and REVAP refineries grant WEG Tintas the necessary expertise to once again consolidate its position as one of the most important suppliers of coatings to Petrobras.



## WEGPOXI BLOCK receives CENPES certification

Primer offers excellent protection with low content of solvent.

WEGPOXI BLOCK GFD 401 was approved by CENPES (Petrobras Research Center) as a type III protection according to standard N-1201. From now, this product will integrate the range of WEG Tintas solutions for several applications and segments and it also demonstrates the concern of the company in creating efficient solutions which offer economy and protection as well as environmental awareness. The product has a low content of solvents and high physical and chemical resistance.

It is a high density Novolac epoxy primer made up of flake glass which results in an excellent lining protection and also offers resistance to abrasion and impact. Especially developed for use in petroleum and water formation tanks, the WEGPOXI BLOCK GFD 401 is also indicated for environments where resistance to abrasion and corrosion are indispensable requirements, such as: crude oil and fuel oil tanks, tanks for fuels and solvents, ballast tanks, ships in general and marine structures. Besides that, it offers extra protection to applications such as in chemical and cellulose industries, bridges, metal, aerial or immersed structures and machinery.



*"For us efficiency also means customizing our products to meet the needs of our customers."*