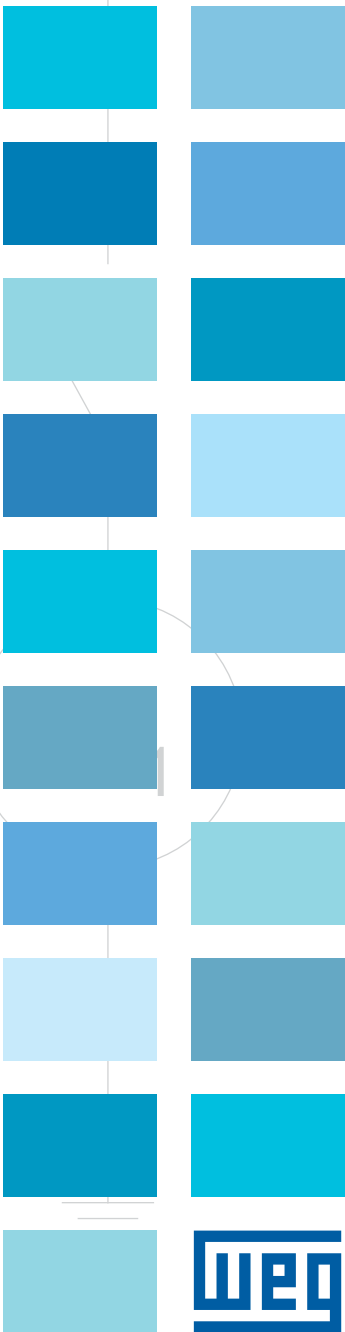
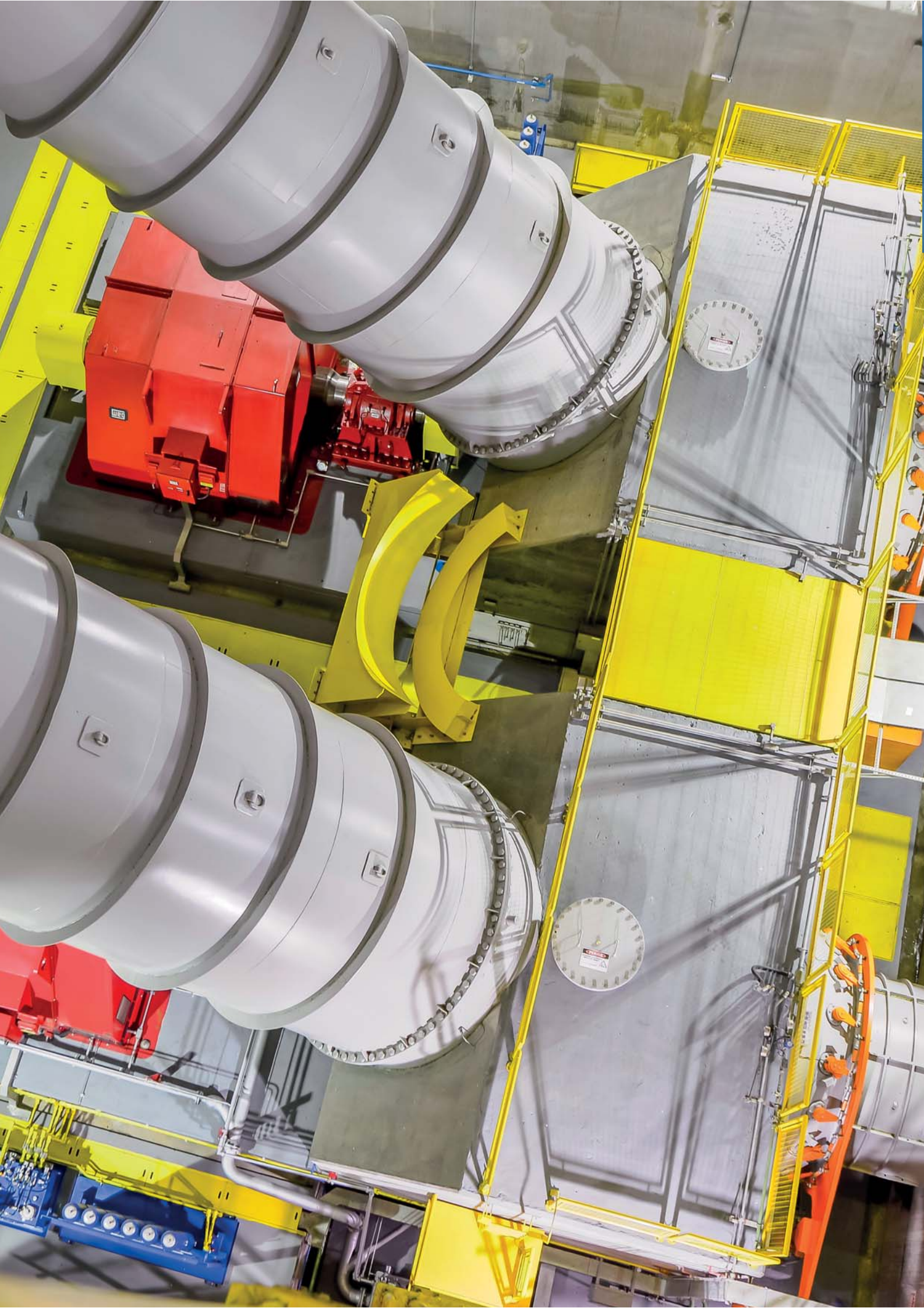


Energy

Applications Book







Application Book

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Products and Services

WEG Energy offers products developed within the global technological requirements. Products with a modern concept that provide high performance and results to ensure the effectiveness in various applications.

Large Motors

Output: up to 110,000 kW



Generators

Output: up to 150,000 kVA



Wind Turbines

Output: 95 kW and 2,100 kW





Hydraulic and Hydromechanical Turbines

Output: up to 120,000 kW
(rotor diameter up to 5 m)



Services

Repairs and refurbishments of motors, generators and hydraulic turbines





Sugar & Ethanol

WEG in State-of-the-Art Ethanol Plant

The Cosan Group invested in green technologies to build Jataí Plant with the best equipment and techniques available on the market.

Cosan's ethanol plant, in Jataí/GO - Brazil, was inaugurated in May/2010 following the concept of excellence in environmental management. About R\$ 1 billion was invested to seek on the market technologies that would meet the requirements of the industrial process in a sustainable manner. Result: the Jataí plant is one of the most modern in the world in the technological and environmental perspective. Mechanized sugarcane cut in virtually 100% of the harvest, higher efficiency boilers with steam pressure of 100 bar (plants commonly use 15 or 21 bar) and operation by means of a closed water circuit ensuring its treatment and reuse in the process are some of the plant special features.

In order to search for these technologies, Cosan prioritized suppliers with great expertise. "WEG and other companies from the segment were part in the selection process that evaluated the competence and ability of suppliers to meet the technical demands required by our industry, in addition to lead time to deliver the equipment.

WEG was selected for fulfilling those and other attributes, meeting all the necessary requirements, and also for having already supplied for the Cosan Group before," said Walter Ventura Ferreira, Cosan's industrial manager of the Goiás plant.

The Cosan guidelines for this new unit was to combine high technology and better performance. The company was selected to power the mills, providing better control accuracy, a more compact process, reduced noise levels, easy operation and energy savings. With the supply of motors, mills, generators, control and distribution panels, transformers and a high voltage substation - which involved the Transmission & Distribution, Energy and Motors business units - WEG ensured agility and reliability to the production process.

Customized Project

Cosan demanded extra protection against vibration and noise, aiming at providing even more safety for its employees. WEG motors were equipped with attenuators, mufflers and vibration sensors, complying with the customer's requirements. "WEG met all the expectations of Cosan regarding the supply, start-up and after-sales service. In addition, the products supplied are operating properly. Therefore, we are greatly satisfied with WEG," assures Ferreira.

Scope

- Electric energy substation of 138 kV, with two transformers of 40/50 MVA
- 3 generators SPW1250, 43,750 kVA
- Generator control and distribution panel
- Electric project to interconnect the generators/panels
- Preparation motors 5,400 kW and 3,700 kW, 4 poles, 13.8 kV - direct on-line starting
- Dryer mill 1,900 kW, 6 poles, 690 V - VFD
- Dewatering mills 550 kW, 6 poles, 690 V - VFD
- Dry-type transformer 1,000 kVA, 3.8 kV $\pm 2.5\%$ 0.69 - 0.69 kV
- Dry-type transformer 3,000 kVA, 13.8 kV $\pm 2.5\%$ 0.69 - 0.69 kV



Customer: GranBio | Country: Brazil

Turbogenerator of 40,000 kVA, 13,800 V, 4 poles, frame 1250
Application: steam turbine



Customer: Rio Brilhante Plant | Country: Brazil

Turbogenerator of 50,000 kVA, 13,800 V, 4 poles, frame 1250
Application: steam turbine



Customer: Angélica Plant | Country: Brazil

Induction motor of 8,000 kW, 13,800 V, 8 poles, frame 900
Induction motor of 2,750 cv, 4,160 V, 6 poles, frame 560
Application: mill and preparation



Customer: Costa Bioenergia | Country: Brazil

Induction motor of 2,600 HP, 13,800 V, 4 poles, frame 560
Application: defibrator



Customer: São Francisco Plant - São João Group Country: Brazil

3 induction motors of 2,000 cv, 13,800 V, 6 poles, frame 630
Application: defibrators



Customer: Santa Isabel Plant | Country: Brazil

Induction motor of 3,000 cv, 13,800 V, 6 poles, frame 710
Induction motor of 2,000 cv, 13,800 V, 6 poles, frame 630
Induction motor of 1,200 cv, 13,800 V, 6 poles, frame 560
Application: chipper and defibrators



Pulp & Paper

Over 2 Thousand WEG Products at Eldorado Cellulose Plant

WEG offers products and services to the unit that will be the world's largest manufacturing plant in this segment in a single line, employing high technology.

WEG supplied an electric system with over two thousand products, in addition to services of commissioning, start-up and technical support, for the first cellulose factory of Eldorado, in the town of Três Lagoas (Mato Grosso do Sul State - Brazil). This plant is already known as the largest of the world in a single line. Eldorado Brasil Celulose SA will be able to produce 1.5 million ton of whitened cellulose a year, and it is expected to contribute with 20% of the total Brazilian exports of cellulose. The focus is to fulfill the demand of the North American, European and Asian paper manufacturers.

The factory was designed based on the "Best Available Technology" concept with the intent to exceed all the international market requirements, and the plant will be self-sufficient in terms of electric power produced from biomass, with an estimated investment of R\$ 6.2 billion.

The products supplied by WEG are: one substation, 800 motors of the W22, HGF and MGF lines 4,160 V; 66 dry-type transformers IP23 and 4 oil transformers (01x110 MVA and 1x55 MVA with commutation under load and 02x140 MVA with commutation under no load); 800 smart MCC columns 690 V CCM03i with smart relays; 54 MCC columns MT 4,160 V MTW03; 280 inverters 690 V - CFW11; 78 modular inverters 690 V CFW11M and 10 inverters 4,160 V - MVW01. WEG is supplying monitoring service for the receipt and storage, commissioning, start-up and assisted operation of the equipment.





Customer: Mondi Paper
Country: South Africa

Turbogenerator of 56,500 kVA, 11,000 V, 2 poles
Application: steam turbine



Customer: Orsa
Country: Brazil

Turbogenerator of 12,500 kVA, 13,800 V, 4 poles, frame 900
Application: steam turbine



Customer: Europac
Country: Portugal

4 induction motors of 1,800 kW, 11,000 V, 4 poles, frame 500
Application: cellulose refiners



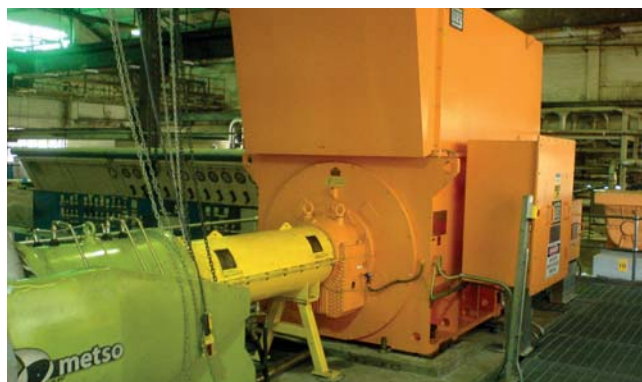
Customer: Votorantim Celulose e Papel - Jacareí
Country: Brazil

6 induction motors of 630 kW, 4,000 V, 6 poles, frame 400
Application: centrifugal pumps



Customer: Masisa do Brasil
Country: Brazil

Induction motor of 8,400 kW, 13,200 V, 4 poles, frame 710
Application: wood refiner



Customer: Atrian Paper
Country: Australia

Induction motor of 5,000 kW, 11,000 V, 4 poles, frame 800
Application: paper refiner



Cement

New Votorantim Plant in SC Counts with WEG Solutions

Equipment were designed to withstand the specific operating conditions in cement production units.

Votorantim's first complete cement factory in Santa Catarina - Brazil started its operation. Equipped with WEG technology for drive and motorization, the unit built in the town of Vidal Ramos, 180 kilometers away from the state capital, Florianópolis, cost approximately R\$ 400 million, and it will boost the cement production, supplying the markets of the states of Santa Catarina and Rio Grande do Sul, relieving the other plants in the region. The work is part of a series of investments of Votorantim, which includes the construction of other units in the country.

Business partners since 2005, this is the first time that WEG supplies all the high and low voltage distribution system and drives for a cement manufacturing plant of Votorantim. An integrated supply with the usual synergy between the business units of the WEG Group in the preparation of an integrated solution to meet the customer's needs. The products are transformers for the power substation, medium and high voltage drive panels, drives, and low and medium voltage motors to drive crushers, mills, exhaust fans and oven.

According to engineer Rafael Fabro de Almeida from WEG, the company worked in synergy with the customer from the specification of the equipment necessary for the operation of each application individually, to the delivery, installation and start-up. "In addition to contributing to the fulfillment of the schedules, we work for the customer's payback to occur as quickly as possible," he says.

The quality service and the performance of WEG products, continues the engineer, combined with the extensive technical assistance network in the country also ensure the customer the necessary tranquility.

Among the highlights of the supply for the Vidal Ramos plant are the wound-rotor motors with automatic brush lifting device (to drive the mills), motors of the Master line in frames 500 and 560 - more robust due to the improvement of WEG casting technology - motors W22 and HGF Wmining, and especially the interchangeability of the medium voltage motors with other WEG motors already installed at Votorantim units in Brazil, which greatly reduces the number of spare motors required for a reliable operation of the unit.

"The medium and low voltage motors are all closed and robust enough to withstand the severe operating conditions of cement plants with harsh environments," explains Rafael Almeida engineer.

The project coordinator of the Vidal Ramos Plant, engineer Clovis Antonio Santana, says that WEG is currently one of the largest partners of Votorantim Cimentos. "And it tends to remain so, given the good performance of products and services," he comments. He said the unit built in Santa Catarina is part of the second wave of investments of Votorantim Cimentos in Brazil, which already has new projects in the so-called third wave, and it prospects future investments aligned with the evolution of the Brazilian and international market.

Summary of the Scope of Supply

- 07 medium-voltage motors (different outputs, from 850 cv up to 3,500 cv)
- 31 low voltage squirrel cage induction motors models HGF WMining and W22 WMining (different outputs, ranging from 2 cv up to 350 cv)
- More than 300 low voltage motors driving subcontractors equipment, a prerequisite for the supply
- 01 complete substation, including transformers, panels, protection, cables (25 MVA)
- 14 dry-type transformers (different outputs, from 300 kVA up to 2,000 kVA)
- Low voltage distribution panels, low and medium voltage cubicles, soft-starters and low and medium voltage frequency inverters



Customer: Votorantim Cimentos | Country: Brazil

Induction motor of 5,800 kW, 6,600 V, 10 poles, frame 900
Application: ball mill



Customer: Mardin Cimento | Country: Turkey

Induction motor of 2,600 kW, 6,600 V, 6 poles, frame 630
Application: ball mill



Customer: Madras Cement | Country: India

Induction motor of 4,000 kW, 6,600 V, 6 poles, frame 710
Application: mill



Customer: Indocement - Citireup Plant Country: Indonesia

Induction motor of 5,000 kW, 6,600 V, 8 poles, frame 900
Application: mill



Customer: Votorantim | Country: Brazil

Induction motor of 1,200 kW, 6,600 V, 6 poles, frame 500
Application: ball mill



Customer: Cimpor | Country: Brazil

Induction motor of 3,600 kW, 6,600 V, 6 poles, frame 630
Application: ball mill

Wind Power Generation



Tractebel Project

WEG along with TRACTEBEL ENERGIA are conducting an R&D project that encompasses the development, design, manufacture, construction, assembly, commissioning, operation and certification of a WEG nationally manufactured wind turbine with rated output of 3.3 MW.

In order to reach the main objective, a first wind turbine manufactured by WEG with rated power of 2.1 MW was installed at site, Jorge Lacerda Thermoelectric Complex - SC, aiming to evaluate the applied technologies to be used also in the national wind turbine of 3.3 MW.

EOL Project - Malhadinha I

Customer: SERVTEC and Rio Bravo - Wind Generator Bons Ventos da Serra I

This project involves the supply, transportation, assembly, installation and commissioning of 11 wind turbines of 2.1 MW power, in a total of 23.1 MW of installed capacity, located in the town of Ibiapina in the state of Ceará.

WEG will also be responsible for the operation and maintenance services for a period of 10 years, caring for the performance and availability of the wind turbines.





Customer: Servtec | Country: Brazil

11 wind turbines of 2,100 kW, 690 V

Application: wind power generation

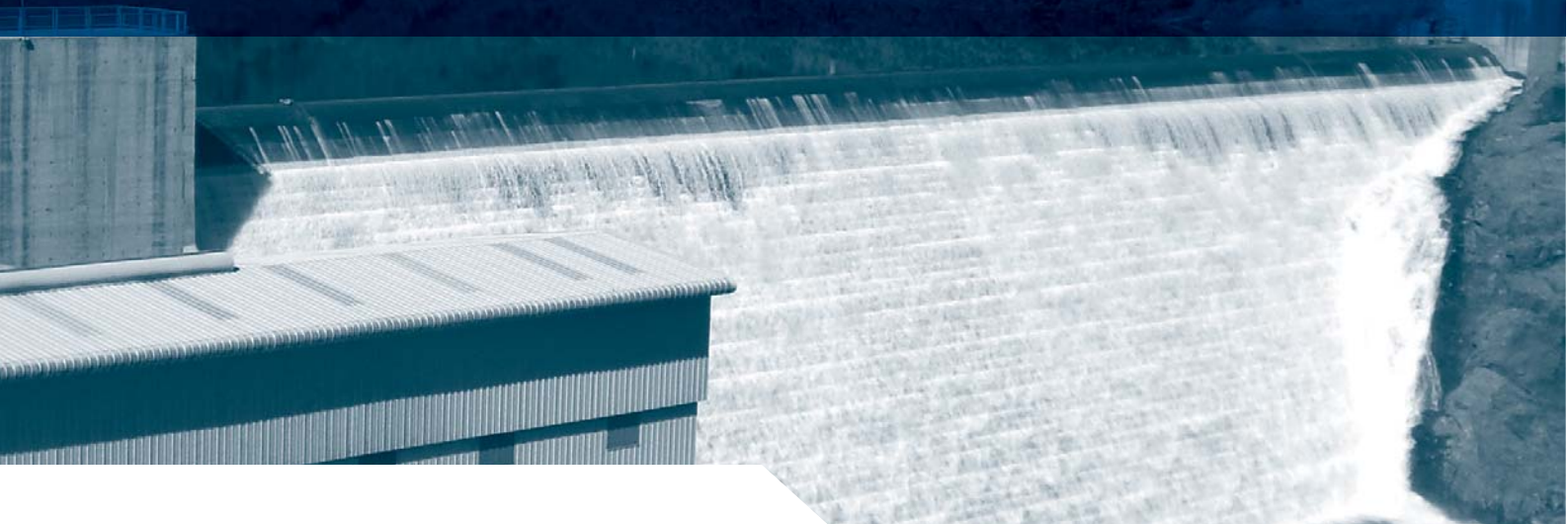


Customer: Tractebel Energia | Country: Brazil

Wind turbine of 2,100 kW, 690 V

Application: wind power generation

Hydro Power Generation



WEG Supplies Complete Equipment Packages for 3 SHPs of the Energisa Group

High technology in electric energy generation with less environmental impact and lower generation cost.

In times of fast economic growth, the generation of electric energy is vital to meet the basic needs of communities and production requirements of the companies. In order to increase the capacity of power generation, the Energisa Group, whose main business is electric energy distribution, invested in the simultaneous construction of three Small Hydroelectric Plants (SHP), which will be part of the Rio Grande Plants, in the town of Nova Friburgo, Rio de Janeiro State - Brazil. With distributors in the Northeast and Zona da Mata of Minas Gerais State, in addition to Nova Friburgo City, Energisa serves approximately 2.3 million consumers and a population of 6.5 million people in 352 towns. The Group chose WEG for the supply of complete equipment packages to build three SHPs: São Sebastião do Alto, in the town of São Sebastião do Alto; São Antônio, in the town of Bom Jardim; and Cajú, in the town of Santa Maria Madalena.

For Energisa, WEG's commitment along over 15 years of partnership, expertise in the supply of turbines, generators, transformers and automation systems, and streamlining in the project management make the company its main supplier of electrical equipment. The plants built in Rio Grande will have 31 MW of installed capacity, annual production of 157.4 GWh and will prevent the emission of 30 thousand tons/year of CO₂. SHPs represent the generation of clean energy at a small environmental cost. According to the Electricity Energy Agency (ANEEL), they represent one of the main priorities to increase the electric energy production in Brazil. Currently, there are 405 SHPs in the country, accounting for 3.1% of the energy produced, with generating capacity of 3,646,750 kW.

Power Generation with Lower Environmental Impact

The SHPs are characterized by the maximum power of 30 MW and a reservoir area equal to or smaller than 300 hectares (3 km²). Unlike a large hydroelectric power plant, the SHPs do not use reservoirs for storage of large volumes of water. They operate at run-of-the-river, i.e., they allow the continuous flow of the whole water with a more stable rated capacity. The SHPs take advantage of the river current strength and the river natural flow without storing water; they require a small flooded area, often equivalent to the river high levels.

Other Advantages of SHPs

- Renewable source, with less environmental impact for the present and future generations
- Faster construction and less social impact
- Distributed and decentralized generation, with better reliability to the electrical system of the region where it is connected
- Lower generation costs
- Uses 100% national equipment, engineering and construction services



Customer: Va Tech Hydro Brasil - Rondon II
Country: Brazil

3 hydrogenerators of 27,220 kVA, 13,800 V, 24 poles, frame 2500
Application: hydraulic turbines

Scope of Supply

- Synchronous generator (voltage/speed regulator panel, hydraulic unit of bearing lubrication, frequency inverter panel, braking system)
- Medium voltage panels and cubicles
- Control and supervision digital system
- Step-up transformer
- Kaplan turbine, throttle valve and accessories



Customer: Capim Branco II | Country: Brazil

3 hydrogenerators of 74,200 kVA, 13,800 V, 44 poles, frame 4000
Application: hydraulic turbines



Customer: CPFL - SHP Salto Goes | Country: Brazil

2 hydrogenerators of 11,110 kVA, 13,800 V, 20 poles, frame 1600
Application: hydraulic turbines



Customer: Hidrotérmica - SHP Boa Fé | Country: Brazil

3 hydrogenerators of 10,570 kVA, 13,800 V, 20 poles, frame 1400
Application: hydraulic turbines



Customer: Esmeralda | Country: Brazil

2 hydrogenerators of 12,372 kVA, 13,800 V, 14 poles, frame 1250
Application: hydraulic turbines



Customer: Concessionária Mosquitão | Country: Brazil

3 hydrogenerators of 11,150 kVA, 13,800 V, 22 poles, frame 1800
Application: hydraulic turbines



Thermo Power Generation

ETH Plants are Equipped with WEG Generators

In addition to producing energy for the units operation, the machines provide extra energy that turns into an additional source of income.

ETH Bioenergy – a company of the Odebrecht Organization that operates in the ethanol, electric energy and sugar segments - bought a package of WEG generators and installation panels to equip its new plants in Brazil: Rio Claro in Goiás state, Santa Luzia in Mato Grosso do Sul state and Conquista do Pontal in Sao Paulo state.

The company, which intends to form industrial centers in the three states, also has WEG generators and panels in two other plants: Alcídia in Teodoro Sampaio, São Paulo state, and Eldorado, in Rio Brilhante, Mato Grosso do Sul State. In addition to producing enough energy to meet the demand of the units, WEG generators provide extra energy that can be sold by the company.

ETH, which invested R\$ 6 billion in establishing production centers in São Paulo, Goiás and Mato Grosso do Sul states, aims at being among the leaders of the sector in ten years.

Generator Package

Rio Claro Plant

- 01 Generator SPW1250, 62,500 kVA, 4 poles, 13,800 V
- 01 Generator SPW1120, 37,500 kVA, 4 poles, 13,800 V

Santa Luzia Plant

- 01 Generator SPW1250, 62,500 kVA, 4 poles, 13,800 V
- 01 Generator SPW1120, 37,500 kVA, 4 poles, 13,800 V

Conquista do Pontal Plant

- 01 Generator SPW1250, 50,000 kVA, 4 poles, 13,800 V
- 01 Generator SPW1120, 25,000 kVA, 4 poles, 13,800 V

Alcídia Plant

- 01 Generator SPW1120, 31,875 kVA, 4 poles, 13,800 V
- 01 Generator SPW900, 15,750 kVA, 4 poles, 13,800 V

Eldorado Plant

- 01 Generator SPW900, 15,000 kVA, 4 poles, 13,800 V



Customer: LDC Group

Country: Brazil

Turbogenerator of 50,000 kVA, 13,800 V, 4 poles, frame 1250

Application: steam turbine



Customer: Wintershall - BASF

Country: Libya

Turbogenerator of 10,200 kVA, 6,000 V, 4 poles

Application: gas turbine



Customer: Man Turbo

Country: Syria

2 turbogenerators of 11,650 kVA, 3,300 V, 4 poles, frame 900

Application: gas turbines



Customer: Weyerhaeuser

Country: Canada

Turbogenerator of 49,200 kVA, 13,800 V, 2 poles

Application: steam turbine



Customer: São Francisco Plant

Country: Brazil

Turbogenerator of 50,000 kVA, 13,800 V, 4 poles, frame 1250

Application: steam turbine



Customer: Petrobras

Country: Brazil

Turbogenerator of 31,250 kVA, 13,800 V, 4 poles, frame 1120

Application: gas turbine





Mining

Weg Supply Equipment to Gold Mine in South Africa

Burnstone Project starts operating with WEG full solution, further consolidating the participation of the company in the country and continent.

The installations for a 30,000-hectare gold mine are under construction in the Mpumalanga province, in South Africa. 80 km away from Johannesburg, the largest city of the country, the Burnstone Project is an enterprise of the Great Basin Gold (GBG) mining company. WEG participates in the project with a full solution involving the Automation, Energy and Transmission & Distribution business units. In order to ensure the best service and all the technical assistance necessary for the mining company, WEG counts on the help of Zest, WEG associated company that serves the South African countries

The supplied equipment are already in the commissioning phase, and it will start driving the ore processing to obtain the precious gold from the second half of 2010 on. From then, WEG will guarantee technical assistance to the mining company. "We have built a strong relationship with Great Basin Gold Company, and we are happy for being able to give them all the necessary local support. We know how important that is," explains Kirk Moss, Zest's project engineer.

Technical Specifications

- 03 motors of master line, MGF630, 3,000 kW, 1,000 rpm, 3,300 V, 50 Hz
- 02 frequency inverters MVW01, 880 A, 3,300 V, 50 Hz
- 02 phase-shifter transformers of 4 MVA
 - Primary: 11,000 Volts
 - Secondary: 03/1,200 Volts, 50 Hz





Customer: Everest South Platinum Mine
Country: South Africa

2 induction motors of 6,500 kW, 11,000 V, 6 poles, frame 900
Application: ball mills



Customer: Marula Platinum Mine
Country: South Africa

2 induction motors of 4,600 kW, 11,000 V, 6 poles, frame 800
Application: ball mills



Customer: Codelco
Country: Chile

Synchronous motor of 3,500 HP, 4,160 V, 32 poles, frame 1600
Application: ball mill



Customer: Itafós
Country: Brazil

Induction motor of 3,500 kW, 4,000 V, 6 poles, frame 630
Application: ball mill



Customer: Minera Escondida
Country: Chile

Induction motor of 800 kW, 4,000 V, 6 poles, frame 560
Application: conveyor belt



Customer: SA Ferrochrome
Country: South Africa

Induction motor of 3,500 kW, 6,600 V, 6 poles, frame 710
Application: ball mill

Marine

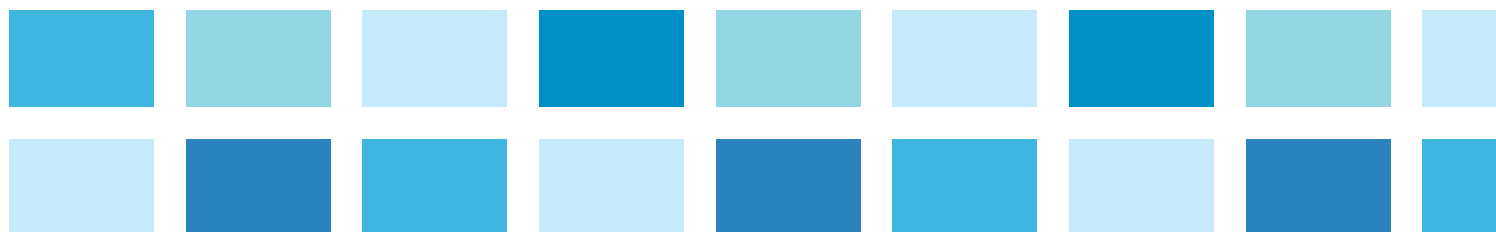


WEG Equipment in PSV Petrel

First ship of the joint venture between Wilson Sons and Magallane Navegação operates with WEG motors, generators, transformers, electrical panels and the entire automation system for energy management.

Wilson Sons Ultratug Offshore, a joint venture between Wilson Group, Sons and Magallanes Navegação Brasileira, named the PSV Petrel. The vessel, which will operate for Petrobras, was built in the Wilson Sons Shipyard, in Guarujá, São Paulo state - Brazil, in a partnership with WEG and Damen, from the Netherlands.

The vessel cost about US\$ 25 million, and it achieved a nationalization index of 60%, considered high for this type of ship. With diesel-electric propulsion, cleaner and more powerful, the PSV is able to carry up to 3,000 tons of load. The package supplied by WEG included the propulsion motors of 1,500 kW each, two motors of 600 kW for the bow thrusters, four generators of 1,100 kW coupled to the diesel sets that supply energy to the complete vessel, and two dry-type transformers. All of them connected to WEG electrical panels, where the energy and alarm management system ensures a safer and more optimized operation. The naming ceremony of the vessel was carried out in Rio de Janeiro City, in the Navy Cultural Space.



Customer: EISA/Astromarítima/Senior

6 x OSRV + 2 x PSV3000

Country: Brazil

4 induction motors of 750 kW, 690 V, 6 poles, frame 400

4 induction motors of 2,500 kW, 690 V, 6 poles, frame 560

2 induction motors of 470 kW, 690 V, 6 poles, frame 315

10 induction motors of 600 kW, 690 V, 6 poles, frame 355

12 induction motors of 750 kW, 690 V, 4 poles, frame 355

12 induction motors of 1,700 kW, 690 V, 6 poles, frame 500

6 alternators of 1,900 kVA, 690 V, 4 poles, frame 450

8 alternators of 2,250 kVA, 690 V, 4 poles, frame 500

Application: main propulsion, tunnel thrusters, firefighting pump and generator sets


Customer: Wilson Sons/WSUT/Fugro

6 x PSV + 1 x RSV

Country: Brazil

14 induction motors of 750 kW, 690 V, 6 poles, frame 400

2 induction motors of 1,500 kW, 690 V, 4 poles, frame 450

12 induction motors of 2,500 kW, 690 V, 6 poles, frame 560

5 alternators of 16,350 kVA, 690 V, 4 poles, frame 450

24 alternators of 2,000 kVA, 690 V, 4 poles, frame 500

Application: main propulsion, tunnel thrusters and generator sets


Customer: Aliança/CBO

4 x PSV4500 + 2 x PSV3000 + 2 x OSRV

Country: Brazil

8 induction motors of 2,500 kW, 690 V, 6 poles, frame 560

8 induction motors of 800 kW, 690 V, 6 poles, frame 400

4 induction motors of 2,200 kW, 690 V, 6 poles, frame 500

4 induction motors of 600 kW, 690 V, 6 poles, frame 355

4 induction motors of 1,500 kW, 480 V, 6 poles, frame 500

4 induction motors of 600 kW, 440 V, 6 poles, frame 355

22 alternators of 1,900 kVA, 690 V, 10 poles, frame 630

Application: main propulsion, tunnel thrusters and generator sets





Oil & Gas

WEG Supply Motors to Pre-Salt Platforms in Tupi and Guar Fields

Motors will drive the compressors on board of the eight oil platforms.

Producing oil at seven thousand meters of depth is a reality that put the country in a strategic position. Petrobras produces daily, in the pre-salt, over 200 thousand barrels of oil and the forecast for 2017 is to reach one million barrels a day. WEG is present in the exploration of the pre-salt with products such as the MGW 800 motors of the Master line, which will integrate the project of eight FPSO (Floating Production Storage and Offloading) platforms in the fields of Guar and Tupi, in the Basin of Santos.

The motors will drive the centrifugal compressors of the gas compression modules on board of the eight platforms, and they represent the main loads of these vessels. The function of these motors is to provide the driving force necessary for the operation of the eight gas compressors of each platform of the project.

This is the first project for large-scale commercial exploration of the oil fields in the pre-salt of Santos Basin. Moreover, it is the largest number of FPSOs contracted by Petrobras at once. WEG presence on the gas compressors market is marked by a long history of supplies of high voltage motors, driving compressors in explosive atmospheres in the Oil & Gas segment.

“This supply consolidates the position of WEG as one of the technology leaders of electrical rotating machines and solutions for the Oil & Gas segment. We are committed to providing competitiveness in this market segment by means of innovative products with a solid quality policy”, emphasizes Valdemir Antonio Gonalves, International Sales Manager of WEG.

Master Line – Model MGW 800

High voltage squirrel cage induction motors certified by Inmetro for operation in explosive atmospheres and certified by ABS for operation on board. They are self-ventilated, water cooled, pressurized, tropicalized, marinized, able to withstand aggressive offshore and petrochemical environment and to operate outdoor.

One of the advantages of this line is the manufacturing process, which allows different configurations of the cooling method and degree of protection, allowing adaptation to special operating conditions and to marine environment.



Customer: Petrobras

Country: Brazil

2 synchronous motors of 3,600 kW, 13,200 V, 6 poles, frame 900
Application: reciprocating compressors



Customer: Petrobras

Country: Brazil

Induction motor of 5,655 kW, 11,000 V, 2 poles, frame 710
Application: injection pump



Customer: Petrobras

Country: Brazil

2 induction motors of 10,500 kW, 11,000 V, 4 poles, frame 1000
Application: compressors



Customer: YPF

Country: Argentina

8 induction motors of 3,500 HP, 6,600 V, 4 poles, frame 560
Application: centrifugal pumps



Customer: Petrobras

Country: Brazil

6 synchronous motors of 13,500 kW, 6,600 V, 4 poles, frame 900
Application: centrifugal compressors



Customer: Tupras

Country: Turkey

2 synchronous motors of 4,460 kW, 6,000 V, 20 poles, frame 1250
Application: compressors



Water & Wastewater

WEG Integrates Water Supply Project in Northeast

The project provides water transportation via pipeline from the São Francisco River to the town of Irecê.

About 350 thousand people in 210 locations in the region of Irecê, in Bahia state - Brazil, suffer from drought. For almost two years, it has not rained in the region, and about 20 towns have declared emergency. The level of the dam of Mirós, main local water reservoir, was at 8%, the lowest level since it was inaugurated 28 years ago. In order to bring water to the region, the state company of water and wastewater (Embasa) started the works of the San Francisco pipeline.

WEG participates in the project by supplying low and medium voltage inverters and motors. The project objective is to transport water via pipeline from São Francisco River, in the town of Xique-Xique, to the town of Irecê, 132 km away from the source.

The inverters are designed to drive the pumps that will transport the water. Three 175-cv pumps will be driven by low voltage CFW11 inverters, and 33 600-cv pumps by medium voltage MVW01C frequency inverters. The 175-cv pumps will collect the water from the São Francisco River, and the 600-cv pumps will transport it to Irecê. In addition to the inverters, WEG also supplied the pump motors. They are 33 motors of 600 cv, 4 poles, frame 355C/D/E, HGF model, 4,160 V and three motors of 175 cv, 8 poles, 220/380/440 V, W22 model, frame 315S/M.

Works

The first stage of the project, which began in 2010, involves the construction of five pumping stations, one Water Treatment Plant (WTP), one reservoir with capacity to store 200 cubic meters of water, in addition to laying 61.7 km of the pipeline. The second stage consists of two pumping stations of treated water and 20 kilometers of the pipeline between Itaguaçu and Central. 14 kilometers of this pipeline have already been laid. The third stage comprises the distance from Central and Irecê, with 50.4 km of pipeline, five pumping stations, as well as the interconnection of the new pipeline to the Integrated Water Supply System of Irecê. The total funds of the project is R\$ 180 million.



Customer: San Diego County Water Authority
Country: USA

3 induction motors of 2,500 HP, 4,000 V, 8 poles, frame 800
 Application: pumps



Customer: King County
Country: USA

4 induction motors of 1,500 HP, 4,000 V, 14 poles, frame 900
 Application: pumps



Customer: Thames Water Projects
Country: Thailand

5 induction motors of 1,020 kW, 660 V, 6 poles, frame 450
 Application: pumps



Customer: Jebel Ali Power and Desalination Station
Country: Dubai

6 induction motors of 5,250 HP, 11,000 V, 2 poles, frame 710
 4 induction motors of 4,000 HP, 11,000 V, 2 poles, frame 630
 Application: pumps



Customer: Weir Pumps
Country: Scotland

15 induction motors of 7,500 kW, 6,600 V, 4 poles, frame 800
 Application: pumps



Customer: Copasa
Country: Brazil

Synchronous motor of 2,500 cv, 6,600 V, 6 poles, frame 800
 Application: pump

Steel



Driving the Largest Car Shredder of the World

WEG motor of 6,865 kW is used to drive the largest car shredder of the world, able to reduce 450 vehicles to very small pieces per hour.

The largest car shredder of the world is a LYNXS unit, able to process 450 old vehicles per hour, operated by the Sims Group Ltda. in the Associated British Ports' (ABP) of Newport, in the United Kingdom. In the middle of the LYNXS shredder is a WEG high voltage electric motor of 40 tons, 6,865 kW and 14 poles (420 rpm). Designed together with Sims Metal, the wound rotor induction motor of 11 kV drives the hammers that shred the old vehicles and other scrap. The WEG motor is directly connected to the national power grid and has a structure especially strengthened to withstand the heavy thrust loads, which can reach 116 tons in the motor DE bearing.

The new LYNXS shredder is part of an investment of €11 million in the Terminal of ABP in Newport by the Sims Group, the international company of metal recycling headquartered in Australia. Able to process 350 tons of metal per hour, it has a state-of-the-art design, allowing better yield for all metals. The LYNXS shredder also contributes to the current investment of the Sims Group in technology to recycle non-metallic materials, such as plastic and glass. Stuart Wilcox, engineering manager of the Group for Sims Metal in the United Kingdom, was responsible for assessing what motor would be the most suitable for the requirements of the mega shredder. "The traditional limiting factor for the big shredders is the driving motor, because the shredding process requires

high torque, with a motor current continuously variable up to 2.5 p.u. x In. In our project, however, we overcame this situation, because the WEG motor is able to produce more torque than necessary and with a higher thermal capacity. The reason for that is the WEG's concept, created after a visit to the design and manufacture installations of WEG in Brazil. We knew the extreme requirements of our sector: they knew the capacities of their motors. We started with a blank sheet of paper, combined these two capacities, and obtained a motor that meets and even exceeds all our project specifications," explains Stuart.

The success of the Sims Newport shredder resulted in a second order of the company for a similar WEG high voltage motor to drive another LYNXS shredder in Australia. "This is only one of ten orders of high voltage motors for shredders that we have received since the Newport shredder started operating," said Richard Emery, manager of high voltage products of WEG UK. "The Sims Newport application is an additional recognition of the performance and reliability of our high voltage motors in one of the most demanding applications," he completes. Richard Emery, gerente de produto de alta voltagem da WEG UK. "The Sims Newport application is an additional recognition of the performance and reliability of our high voltage motors in one of the most demanding applications," he completes.



Customer: Thyssen Krupp CSA
Country: Brazil

Induction motor of 9,000 kW, 6,600 V, 8 poles, frame 900
Application: compressor



Customer: Sims Metal
Country: Australia

Induction motor of 5,888 kW, 11,000 V, 14 poles, frame 1120
Application: car shredder



Customer: Hitchin - LYNX
Country: England

Induction motor of 4,476 kW, 11,000 V, 12 poles, frame 1000
Application: metal shredder



Customer: Cia. Siderúrgica de Tubarão - CST
Country: Brazil

Induction motor of 2,760 kW, 4,000 V, 4 poles, frame 560
Application: centrifugal compressor



Customer: Arcelor Mittal
Country: Brazil

7 synchronous motors of 3,000 kW, 3,100 V, frame 800
Application: rolling mills



Customer: Villares Metals
Country: Brazil

Direct current motor, frame 1,800, 2,400 KW
Application: hot stripe rolling mill

Other Applications



WEG in the Largest Irrigation Project of the World

The supply is part of the largest irrigation project in India that will benefit more than 80 million people.

In order to solve the situation of the water shortage in India, the government invests in infrastructure and projects of irrigation in a partnership with the World Bank. The objective is to take the water from Krishna and Godavari rivers to irrigate arid lands, mainly in the Andhra Pradesh State.

WEG is present in these projects supplying large vertical synchronous motors for application in high capacity pumps for Kirloskar Brothers Limited (KBL), the largest manufacturer of hydraulic pumps in India. Only for the HNSS project, the company provided 108 high voltage motors together with excitation panels and braking systems.

The HNSS Project, considered one of the largest of the world, will enable the irrigation of 2.5 thousand km² of land (the equivalent to 170 thousand soccer fields). More than 80 million people will be directly benefited.





Customer: Samsun Makina Sanayi

Country: Turkey

8 induction motors of 5,000 kW, 10,000 V, 12 poles, frame 900

Application: pumps (irrigation)



Customer: Man Turbo

Country: Germany

Induction motor of 14,000 kW, 10,000 V, 4 poles, frame 1000

Application: test laboratory



Customer: Technip

Country: Brazil

Induction motor of 4,500 kW, 13,200 V, 2 poles, frame 800

Application: centrifugal compressor



Customer: Eletrosul

Country: Brazil

2 synchronous condensers of 100 MVar, 15,000 V, 12 poles, frame 2250

Application: electrical systems of energy generation and transmission (synchronous condenser)



Customer: AEP Mountaineer

Country: USA

4 induction motors of 9,900 HP, 13,200 V, 8 poles, frame 900

Application: fans



Customer: Atlas Copco

Country: Scotland

Induction motor of 6,630 kW, 11,000 V, 4 poles, frame 800

Application: centrifugal compressor

Services



Motor Repair Ensures Water Supply

Project developed by WEG for Sabesp ensured the uninterrupted water supply for over nine million inhabitants.

One of the four motors of Sabesp responsible for pumping water in the Cantareira system went through a full repair process executed by WEG. The work was to repair the rotor and stator of the motor with 20,000 HP, 10 poles and 13,2 kV. The challenges of this service were the reduced lead time to finish the installation and the huge size of the equipment. The contract was 80 days long and produced demands from WEG São Bernardo do Campo unit with assembly and start-up in the field.

Despite the drought period São Paulo has been facing, Cantareira system receives water from the other dams; therefore, the repaired motor collects the water and pump it to the population. "The project reestablished the normal operating conditions of the Cantareira production system and ensured the uninterrupted water supply for all the metropolitan region of São Paulo City, keeping the supply for nearly nine million inhabitants," points out the North Metropolitan Hydro Resources manager, Carlos Roberto Dardis.

Sabesp is responsible for the supply of 14 million people in São Paulo City and 62 other cities in the state. In addition to the water supply, the company also operates in the collection and treatment of sewage in 364 cities in São Paulo State - Brazil.

About the Product

Restoration of the motor of 20,000 HP, 10 poles, 13,2 kV.



**Customer: Cemig**

Manufacturing of a new stator core and rewinding of the stator, reinsulation of the rotor poles, manufacturing of two spare poles for the rotor of a vertical hydrogenerator, frame 3150, 28,421 kVA, 13,800 V

**Customer: Minera Escondida**

Rewinding of the stator of synchronous motor, 5,500 HP, 4,000 V, 200 rpm
Application: ball mill

**Customer: White Martins/CSN**

Rewinding of stator and reinsulation of rotor poles of synchronous motor of 26,000 cv, 13,200 V, 6 poles
Application: gas compressor for blast furnace of CSN

**Customer: Renuka Plant**

Rewinding of stator and reinsulation of rotor poles of synchronous generator of 42,500 kVA
Application: steam turbine

**Customer: CSN**

Rewinding of direct current motor, 5,000 cv, 700 V, 150/375 rpm
Application: rolling mill

**Customer: White Martins/CSN**

Rewinding of stator and reinsulation of rotor poles of synchronous motor of 24,500 cv, 13,200 V, 6 poles (disassembly, assembly and commissioning in the field)
Application: gas compressor for blast furnace of the CSN

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