



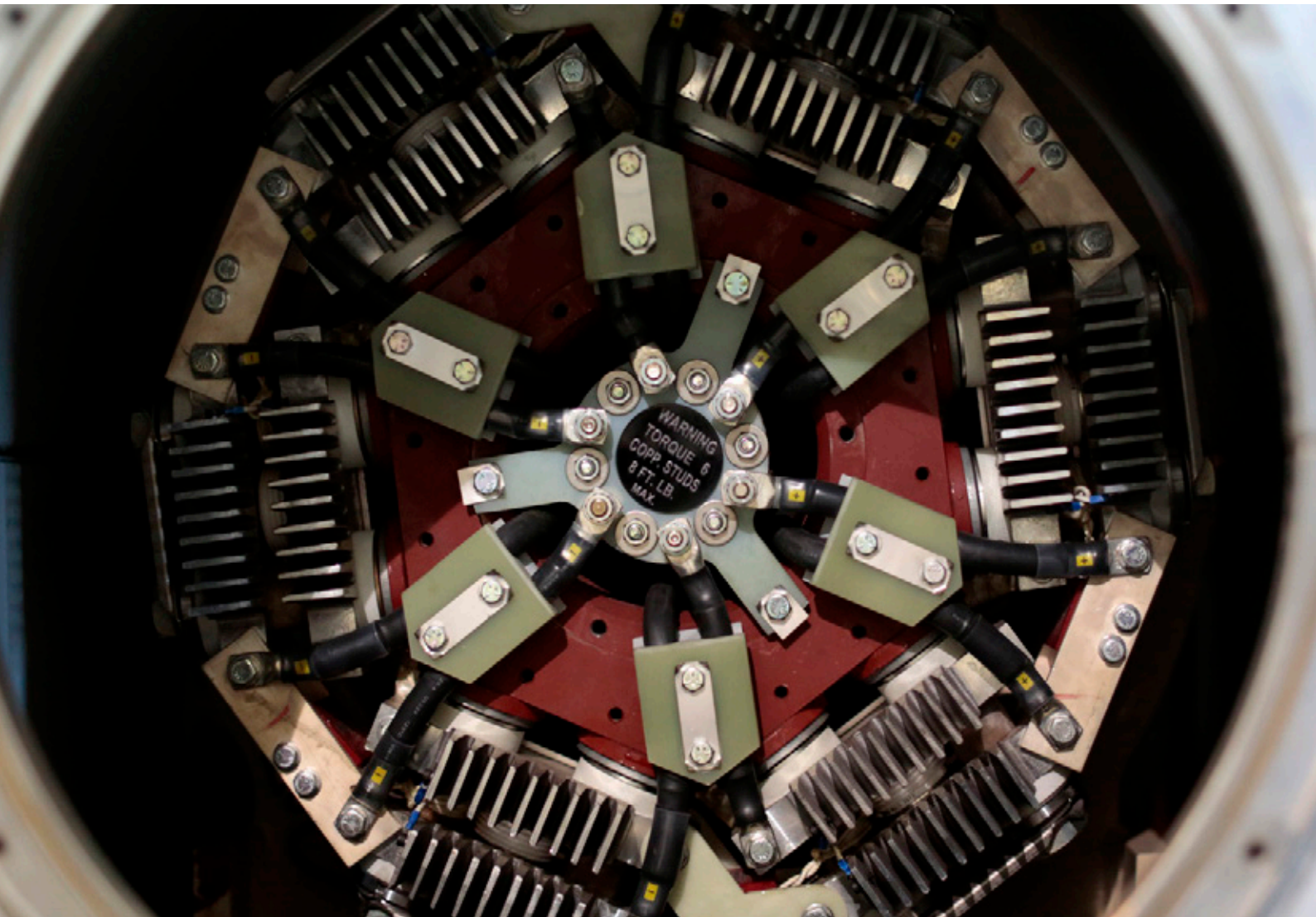
GE VERNOVA

governova.com/power-conversion

ROTATING MACHINES

MANUFACTURING CAPABILITY

Campinas, Brazil



WE ARE AT THE HEART OF ELECTRIFYING TOMORROW'S ENERGY

ABOUT POWER CONVERSION, A GE VERNOVA BUSINESS.

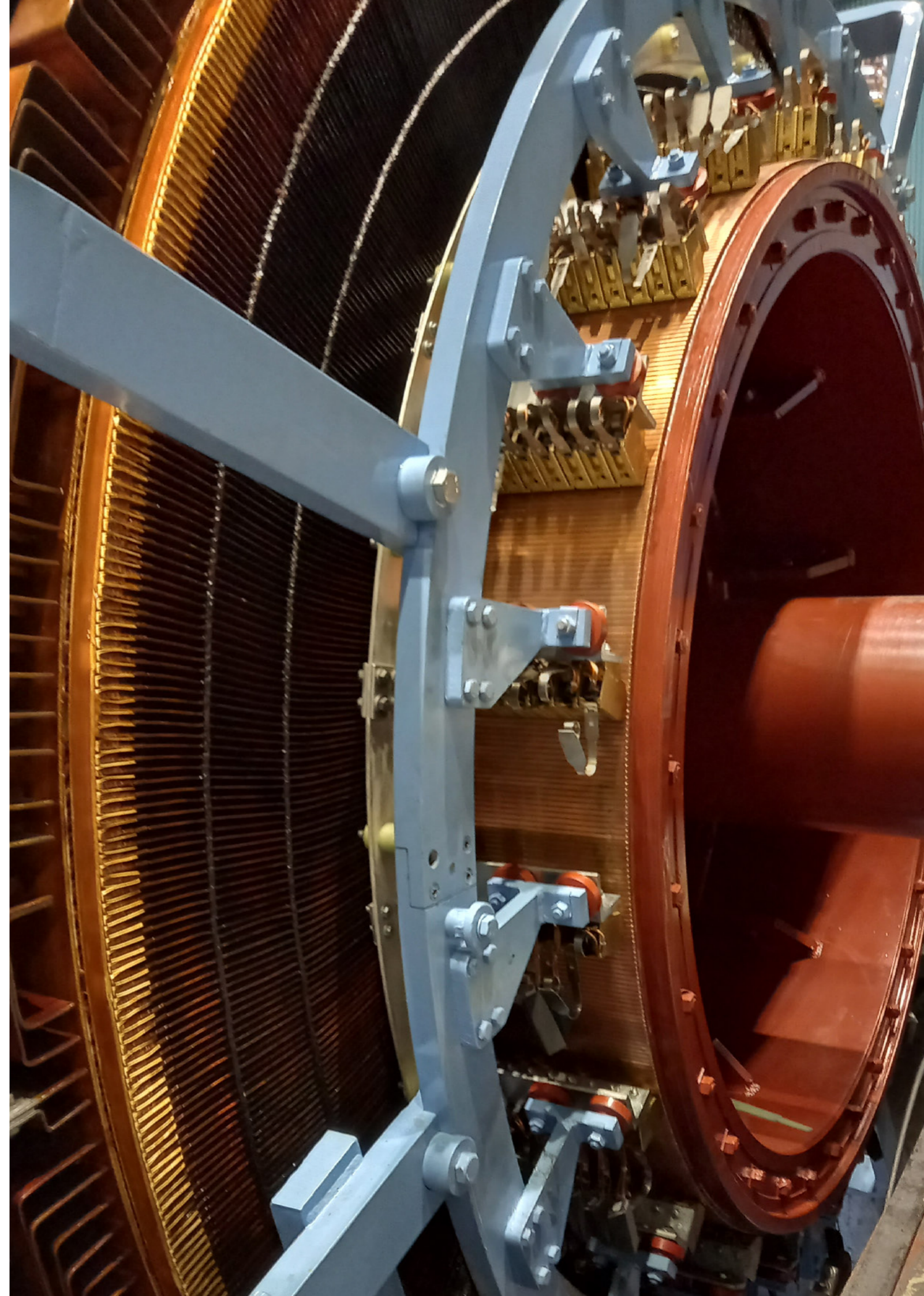
We apply the science and systems of power conversion to help drive the electric transformation of the world's energy infrastructure. Designing and delivering advanced motor, drive and control technologies that help improve the efficiency and decarbonization of energy-intensive processes and systems, helping to accelerate the energy transition across marine, energy and industrial applications. We are at the heart of electrifying tomorrow's energy



WHAT WE DO

Innovation is our DNA. More than 2,000 engineers and R&D associates advance fundamental energy conversion technologies. Pioneering developments in superconductivity, energy storage, submarine power systems, high-speed motors, permanent magnet generators and highvoltage direct current systems. Transforming energy to optimize customer processes is our mission. Electrical energy into mechanical energy by a motor, mechanical energy into electrical power by a generator or adjusting frequency and current through a converter or inverter.

Source: GE Vernova assets



THE SITE




- Located 100 km from São Paulo
- 160 km from Santos (largest port in Brazil)
- 30 km from Viracopos Best cargo airport in the world - Air Cargo Excellence Awards 2018
- Center of Excellence for medium and large induction machines and synchronous electric machines
- Established since 1962
- 12,000+ Induction Machines
- 500+ Synchronous Machine

Power Conversion Campinas - funded in 1962	
Site Area	367,000 m ²
Manufacturing Area	37,400 m ²
Office Area	57,300 m ²
Fulltime Power Conversion Employees 613, three shifts	
Scope	Center of Excellence for medium and large Induction Motors, Synchronous Motors and Generators (new equipment & services)
Machines produced	2016: 365 units 2017: 293 units 2018: 271 units 2019: 381 units 2018: 327 units
Exportation	Brazil successfully exporting to North America, Latin America, Europa, Asia & Oceania.

GE VERNOVA VALUES

- Extensive manufacturing flexibility
- Integrated engineering capabilities
- Comprehensive range of high efficiency and high power density machines for all general industries, oil & gas and special applications
- ISO 9001 certified since 1992

PRODUCT PORTFOLIO

INDUCTION MOTORS MEDIUM & HIGH POWER INDUCTION MOTORS

MEDIUM AC INDUCTION MOTORS



- C7 Horizontal and Vertical
- Custom 8000 Horizontal and Vertical
- Pegasus Horizontal and Vertical

SYNCHRONOUS MOTORS



- HS9000
- LS9000
- Quadramatic

LARGE DC MOTORS



- Special

SMALL HYDRO GENERATORS

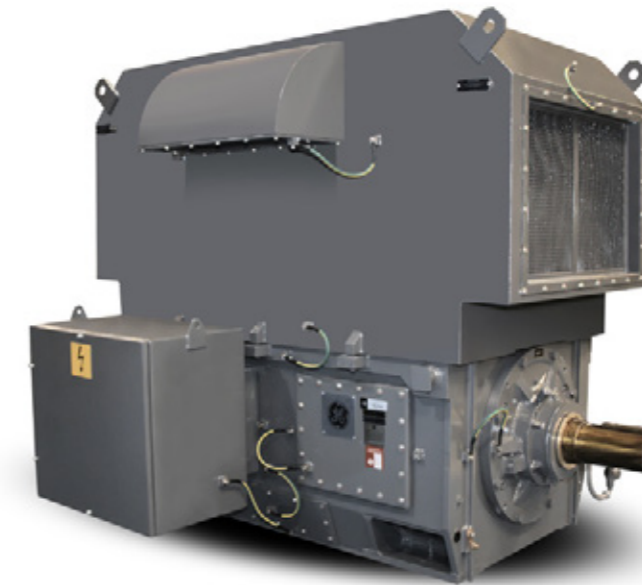


- Horizontal and Vertical

HIGH SPEED GENERATORS



- Laminated rotors
- Integral solid pole rotors



UP TO 35%
LESS WEIGHT

Maximizing Customer Outcomes

- Lighter machines that enable less foundations and associated costs
- Machines with high efficiency reducing energy consumption

	NMP/NHP MACHINE DATA
Frame Size	IEC: 400 to 1120 / NEMA: 580 and above
Poles	2 to 24
Frequency	50 & 60 Hz (or VFD)
Cooling	IEC: IC411, IC01, IC611, IC81W NEMA: WP I – II, TEFC, TEAAC, TEWAC
Power	1MW to 20MW
Voltage	up to 13,8 kV

Key features & Benefits

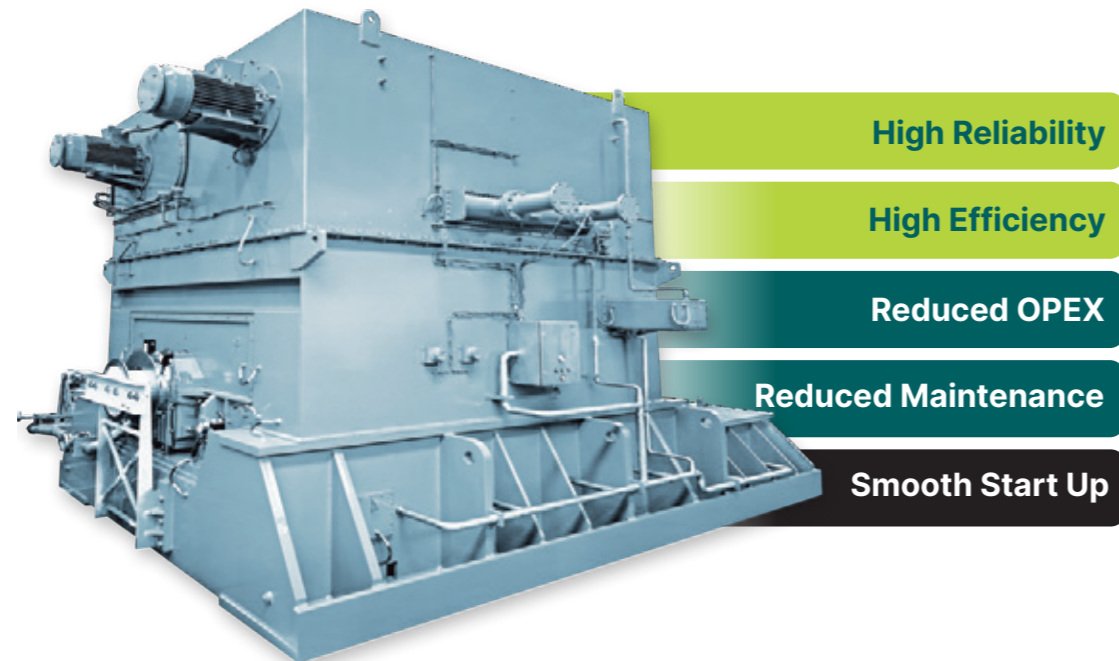
- Reduced noise levels
- Extended output on the same shaft height
- Robust design, optimized for reduced footprint and weight reduction

DRIVEN MACHINES:

Reciprocating Compressors, Centrifugal Compressors, Pumps, Blowers, Fans, Extruders, Crushers, Conveyors, Mills.

SYNCHRONOUS MOTORS

FOR HIGH EFFICIENCY AND RELIABILITY



Power Conversion offers a full range of horizontal and vertical synchronous machines, ranging from direct-drive high torque (at speeds as low as 20 rpm) to high-speed-type motors for compressor and turbine applications.

SYNCHRONOUS MACHINE ROTOR PLATFORMS

- Salient pole rotors (both laminated and integral solid pole versions available dependent upon starting requirements, speed or duty cycle)
- We can rapidly adapt our standard product platforms to cater for many applications or any proposed starting methods, including:
 - Fixed-speed started by asynchronous means, e.g. direct-on-line, series reactor, capacitor, reactor/capacitor, auto-transformer (single or multi-stage)
 - Fixed-speed started by pony motor, electronic soft starter or mechanical gear system (i.e. variable speed planetary gear)
- Variable speed drive suitable

	HIGH SPEED	LOW SPEED
Poles	4, 6	8 to 40
Power	1 MW to 100 MW	1 MW to 30 MW
Voltage	up to 16 kV	
Cooling	IEC: IC01, IC611, IC8IW, IC9IW, NEMA: TEAAC, TEWAC, ODP, WPI-II, DUCT-VENTILATED	

Applications

Fans, pumps, compressors, grinding mills, metal rolling, mine hoists, refiners, propulsion and many others.

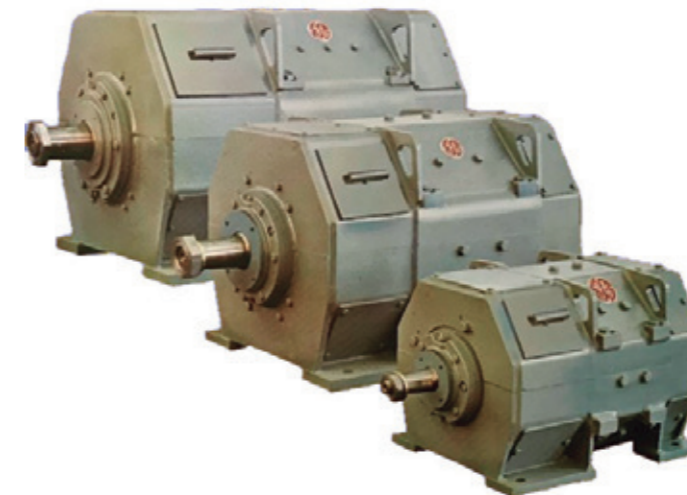
Industries

Oil & Gas, Mining & Metals, Power & Energy, Marine, Pulp & Paper, Water & Wastewater, Other Process Industries

LARGE DC MOTORS

DIRECT CURRENT MACHINES

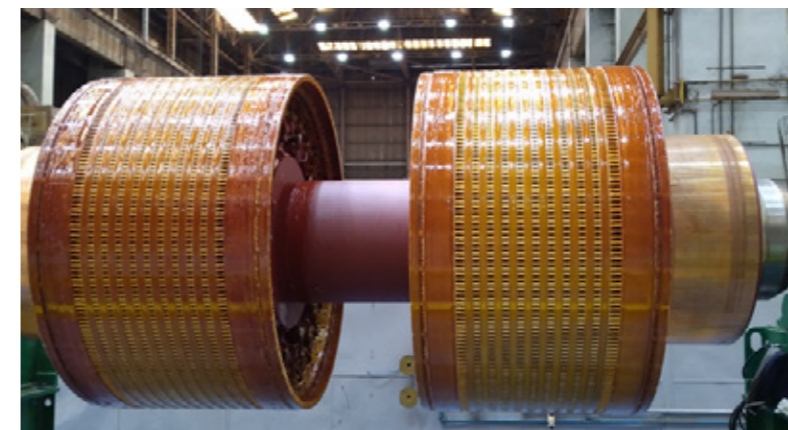
INDUSTRIAL APPLICATION - PRODUCT RANGE



100 HP to 3000 HP
300 RPM to 1500 RPM
250 V to 700 V

Paper, Ventilation, Rubber, Excavator, Hoist, etc.

METAL MILL APPLICATION - PRODUCT RANGE



100 HP to 8000 HP
30 RPM to 900 RPM
500 V to 1000 V

Rougher, Finishing, Edger, Rolls, etc.

SMALL HYDRO GENERATORS



PRODUCT RANGE

MV	POLES														
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
1															
2															
3															
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TECHNICAL DATA

Power: 2 to 25 MW

HIGH SPEED SYNCHRONOUS

GENERATORS AND CONDENSERS
4&6 POLES
HIGH EFFICIENCY MACHINES



HIGH PERFORMANCE

- Power Conversion synchronous generators are legendary for their efficiency and reliability.
- Modular construction concept, using the latest design and manufacturing techniques, including Vacuum Pressure Impregnation (VPI) insulation System and the Power Conversion Pin Vent stator technology.
- Large high speed generators are designed with a single forged shaft for maximum strength and stiffness to provide a long life.
- Laminated rotor construction available up to 10MW with star punching design (salient poles and magnetic ring punched out in one single piece).

HIGH SPEED GENERATOR MACHINE DATA	
Frame Size	630 and above
Poles	4&6
Frequency	50 or 60Hz
Cooling	IEC: IC01, IC611, IC8IW, IC9IW, NEMA: WPI - II, TEAAC, TEWAC
Power	2MW to 100 MW
Voltage	up to 16 kV

KEY FEATURES & BENEFITS

- Higher efficiency than induction
- Minimum rotating components to allow reduced failure modes
- Easy and reduced maintenance schedules

MECHANICAL MACHINES: Steam or Gas Turbines

CERTIFICATION & TESTING

- OFF SHORE (ABS, DNV, BV, LLOYD'S)
- HAZARDOUS LOCATIONS (NEMA / NEC & IEC STANDARDS)
- COUNTRY-SPECIFIC CERTIFICATIONS (INMETRO FOR BRAZIL, BASEEFA FOR EUROPE, GOST FOR RUSSIA, CSA FOR CANADA, RETIE FOR COLOMBIA, ETC.)

MAIN TEST FACILITY

Area: 19K+ sq ft
 Lifting Capacity: 150 ton
 Online Data
 Acquisition System
 Electronic Database & Reports



INDUCTION MOTORS

All power, voltage and polarity range
 Dual-frequency load test on all range
 Direct Load – 2000hp (2-pole) / 5,000hp (≥4-pole)

SYNCHRONOUS MACHINES

Temperature rise determination – IEEE 115 Method 4 or Method 3 limited to 10MVA @ 13kV
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SERVICES CAPABILITY



CARING FOR YOUR NEEDS

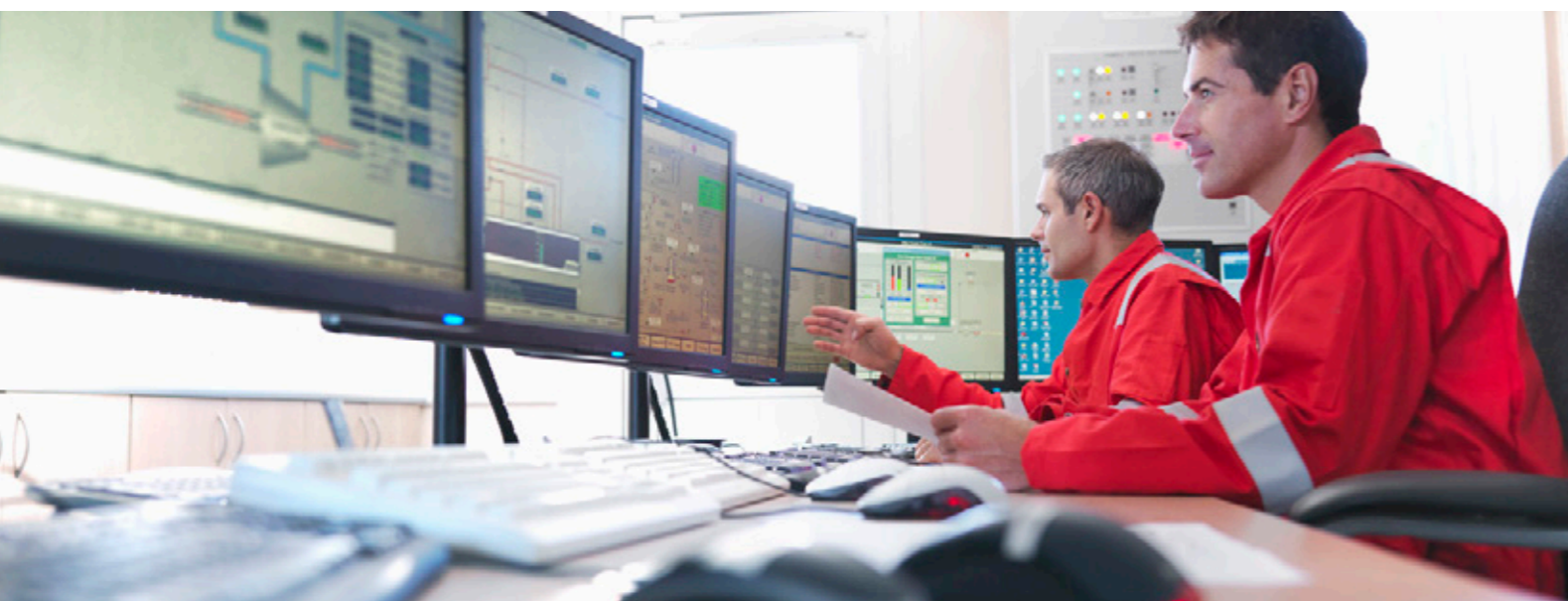
At GE Vernova, we understand that the goals of your organization are demanding, and evolving. To help you meet these goals here at Power Conversion we provide a service that goes beyond just waiting for your call. We offer a comprehensive range of aftermarket services including replacement units, field services, spares, in-shop repairs, service agreements, unit upgrades and technical support. Our mission is to satisfy our customers needs in the aftermarket of power generation.

INSTALLATION & COMMISSIONING

Installing with confidence. Our team of field service engineers are on hand to ensure your assets go into active service functioning efficiently.

INSPECTION & REPAIR

We offer a broad array of generator, excitation and protection relaying inspection and repairs services, supported through our international network of GE Vernova's specialists and service shops. Our team of project management experts are available to support and schedule your overhaul requirements, working with you to ensure that you are provided regular project updates and work is completed to your satisfaction on time.



REDUCING RISKS, OPTIMIZE PRODUCTIVITY



- We have been manufacturing Overhead Cranes and load lifting equipment for over 67 years. More than 10,000 pieces of equipment have been supplied, as well as full time maintenance for various customers and engineering studies.
- Power Conversion Campinas has the technical capacity to design and manufacture lifting and load handling equipment with excellent performance and robustness suited to its application.
- Power Conversion Campinas has developed specific solutions for the wind energy market to carry out field services (Uptower and Downtower), in-shop repairs, long-term contracts, spare generators, as well as spare parts (e.g. brushes, brush holders, bearings, slip rings).

FIELD SERVICES- UPTOWER (FOR GE VERNOVA OR NON-GE VERNOVA EQUIPMENT)

- Rotor Wye Ring retrofit*
- Electrical tests
- Partial winding repair
- Generator cleaning and overhaul
- Shaft machining
- Stator or rotor cables exchange
- Slip ring and bearings replacement

* Power Conversion patent

SHOP REPAIR (FOR GE VERNOVA OR NON-GE VERNOVA EQUIPMENT)

- Rotor rewinding
- Stator rewinding
- Rotor / Stator overhaul
- Motor / Generator power upgrade
- Parts replacement
- Electrical / Rotating tests
- Engineering Studies

MOTORS & GENERATORS REPAIRS

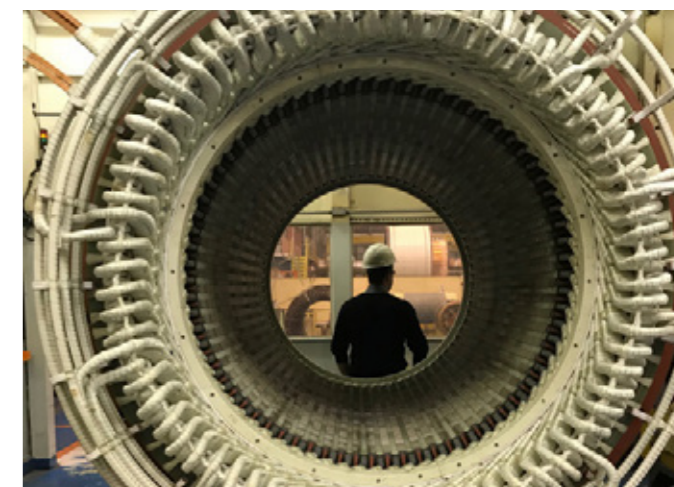
ON SITE AND DIGITAL SERVICES

PREVENTIVE & CORRECTIVE SERVICES

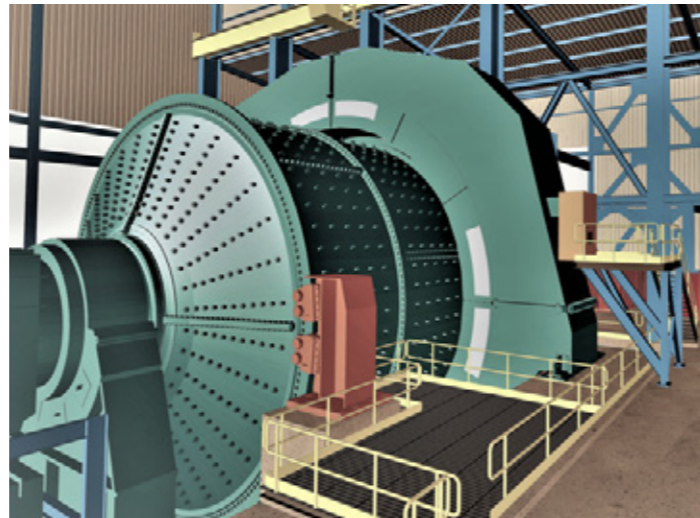
Power Conversion Campinas as Motors and Generators manufacturing center has a complete structure and services offering to repair Induction, Synchronous, Wound Rotors, Direct Current motors, Turbogenerators & Synchronous generators applicable in all Industry Segments such as Oil & Gas, Hydro, Biomass, Metals, Mining &, Wind. Our services portfolio is applicable for third party equipment.

Power Conversion counts on specialized and experienced engineering and field team to perform field and shop repair.

All technology applied in the repairs follows most recent process and innovation used for new equipment.



PRODUCT CERTIFICATIONS

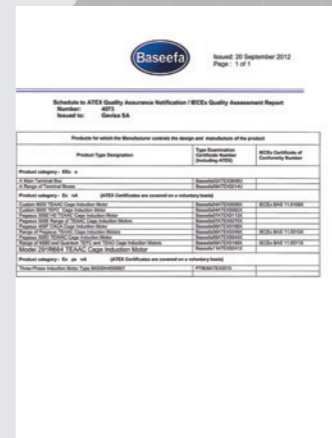


SHOP REPAIR OFFERING (FOR GE VERNOVA OR NON-GE VERNOVA EQUIPMENT)

- Rotor rewinding
- Stator rewinding
- Rotor / Stator overhaul
- Parts replacement
- Electrical tests
- Engineering studies and evaluation of installed base for uprate opportunities
- Improvement in efficiency through rewinds or replacement components
- Retrofits, uprates and replacement stators, rotors and Renewal Parts
- Providing coil design for direct rewinds in the service shops
- Mechanical components for repairs and refurbishments

FIELD SERVICES OFFERING (FOR GE VERNOVA OR NON-GE VERNOVA EQUIPMENT)

- Assembly, Installation & Commissioning
- Electrical tests
- Complete rewind – resin rich coils
- Partial winding repair
- Cleaning and overhaul
- Bearing, Conduit box and/or Accessories replacement
- Vibration measurement and analysis
- On site machining



GLOBAL SERVICE CENTER 24 X 7



Contact US

Register your case by phone or mail. Use the contact information listed / fill out the form and return it via email.



Case Details

Provide accurate details about the issue, including company name, site, location, and best contact information.



Communication

Our agents will confirm a unique case reference number and explain next steps to resolve the issue.



On-site Intervention

If our remote support and related instructions are not sufficient, our team will schedule time for our field engineers to come on-site.

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CONTACT US: contactus.powerconversion@ge.com

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