GE VERNOVA

LOW SPEED SYNCHRONOUS MACHINES 8 POLES AND ABOVE

A flexible technology to adapt to multiple applications' requirements

GE Vernova offers a full range of horizontal and vertical synchronous machines, including direct-drive high torque density machines at speeds as low as 20 rpm.

We can easily adapt our standard product platforms to cater for many fixed speed applications with any purposed starting methods including direct on line, auto-transformer or electronic soft starting.

For all variable speed application, GE Vernova proposes a complete offering from design to commissioning for the motors, the frequency drives, the high voltage switchboards, transformers and automation.

21 MW synchronous propulsion machine

GE Vernova has extensive experience in oil & gas, marine, industry and other applications with large low speed machines offering lower weight and inertia advantages.

- Reciprocating compressors (incl. hyper compressors)
- Extruders
- Propulsion
- Rolling mills
- Crushers

FEATURES & BENEFITS

Compact design

- High power and torque density
- Footprint and weight reduced

Customizable configuration

- Modular cooling system: CACA, CACW, TEPV, WPII, ODP
- Ability to adapt to extreme environmental conditions: -40°C to +55°C ambient temperature, altitude > 1,000 m
- Safe and hazardous area
- Fixed speed 50/60 Hz
- Variable speed application – System approach for VSDS
- High load inertia starting
- Direct on line starting with limited voltage drop on the network (low inrush current)
- Limitation of current fluctuation/pulsating torque for reciprocating compressors
- Compliance to high level specifications
- Compliance to international standards (IEC, API, NEMA, CSA, DNV, ABS, ...)

Robust reliability

- Improved stator cooling with pin vent technology and efficient rotor cooling to avoid hot temperature spots for a longer operating lifetime
- Improved insulation system to reduce partial discharge
- VPI with low Volatile Organic Compounds resin is applied to the complete stator and attached cables
- Full length slot wedges
- Removal stator core for simple stator replacement

Exciter and control:

- AC excitation control system for VFD supply or VFD starting
- DC excitation control system for direct on line starting and fixed speed application
- Brushless excitation for minimum maintenance and maximum reliability in hazardous areas
- Excitation control cubicle according to customer requirements (redundancy, protection relays...)

Bearings

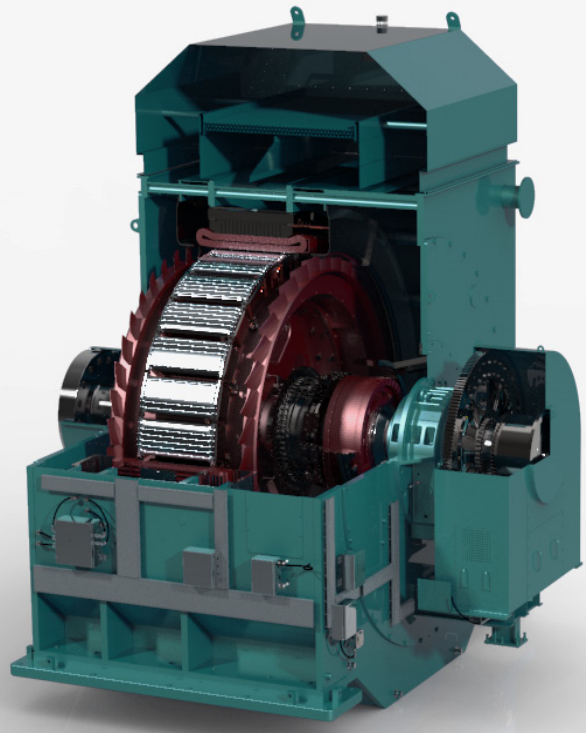
- Single bearing or dual bearings
- End-shield sleeve bearings or pedestal sleeve bearings
- Jacking oil units integrated or separated

THE ADVANTAGE OF GE VERNOVA'S SYNCHRONOUS MACHINE TECHNOLOGY

- **POWER FACTOR LEADING OF LAGGING**
- **HIGHER EFFICIENCY THAN INDUCTION**
- **HIGH POWER DENSITY**
- **DESIGNED FOR RAM**
  Reliability Availability Maintainability
- **FULLY CUSTOMIZABLE**

A proven techonology

The worldwide installed base for GE Vernova's synchronous machines accounts for over 600 units and 5,500 MW of power. Our technology is based on all our experience gained over the years in manufacturing electric machines and on 7 active patents related to low speed synchronous machines like the Pin Vent Technology which reduces hot spot compared to I-beam technology.

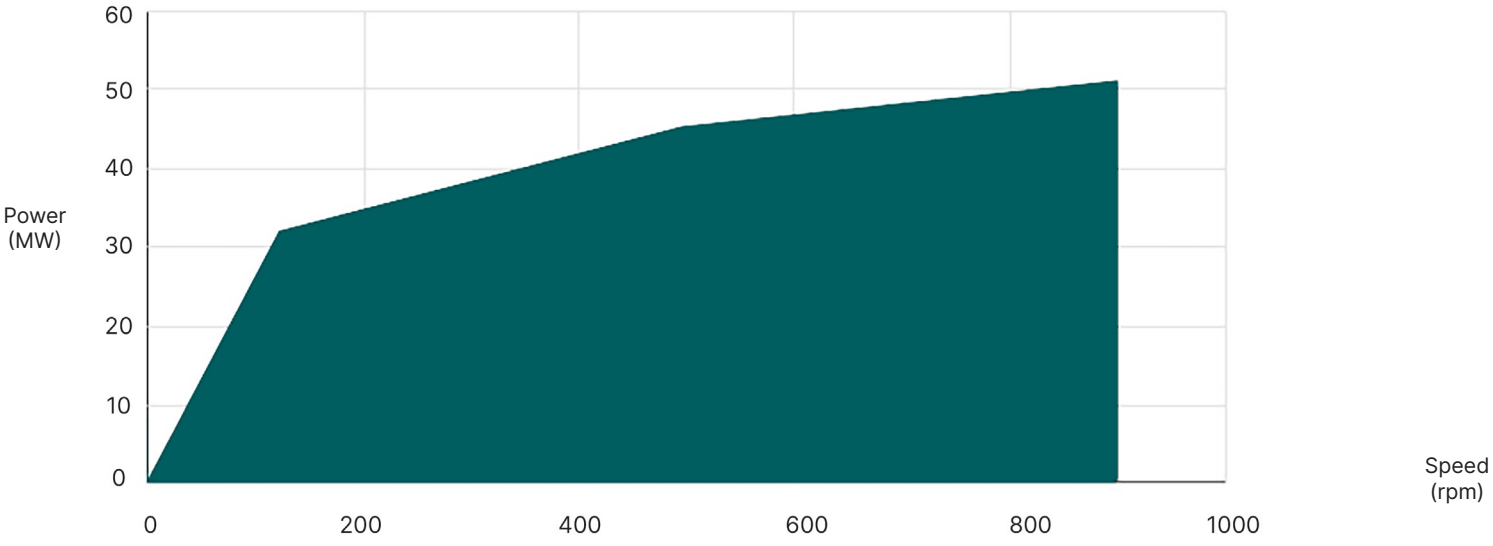


DECARBONIZATION

GE Vernova's high efficiency electrical machines help reduce global carbon intensity for power generation

Electrical technology also supersedes mechanical drivers in terms of lower carbon footprint.

CAPACITY CURVE



About GE Vernova's Power Conversion & Storage business

GE Vernova's Power Conversion & Storage business combines advanced energy conversion and storage systems to meet the electrification needs of utilities and industries. With a focus on power stability, energy storage, and industrial electrification solutions, Power Conversion & Storage empowers customers by addressing their most complex electrification challenges and accelerating their transition to a sustainable, decarbonized future.