

Permanent Excited Synchronous Generator + Full Size Converter



wind generator-converter

Full size converter

Reactive power control

System

Synchronized system for maximum efficiency and highest reliability

Permanent excited synchronous generator

Powerful and service reduced

Controlling and optimizing energy

Woodward is one of the leading suppliers for wind converters for renewable energy supply and with more than 5,000 installed units it has a world-wide competence and experience in the wind industry for onshore and offshore applications.

The CONCYCLE® Wind converter damps any torque loads in the drive chain and thereby preserves the gearbox. The lifetime of your wind turbine extends and reliability increases. The intelligent control device in our CONCYCLE® Wind frequency converters establishes the precondition to fulfill all current, international grid code requirements. CONCYCLE® converters can be flexibly and modularly configured up to 6 MW. New and modern production facilities of Woodward in the US and in China guarantee the availability of our reliable products in the growing markets.

CONCYCLE® full size converter

Type	Concycle®
Rated power	2.5 MW
Voltage	690 VAC
cos φ	0.9
Efficiency	> 98.0 %
Cooling	water-air
Protection class	IP 54
Inverter Technology	IGBT
Grid Regulations	currently applicable

VETACON – permanent magnetic synchronous generator and full size converter

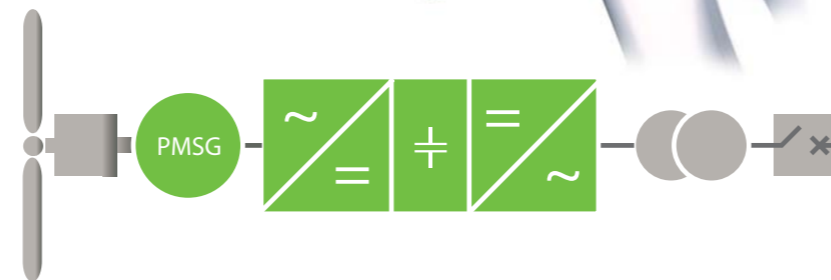
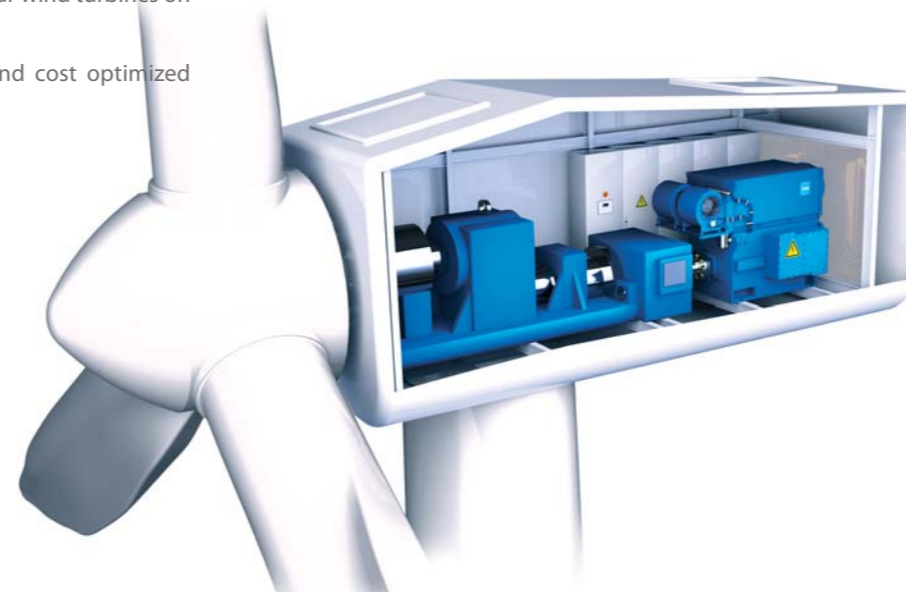
The world-wide increasing demand for electrical power also requires new solutions in the renewable energy sector. The common target of Woodward and VEM Sachsenwerk is to offer with VETACON an optimized system with increased efficiency and to meet the requirements of the turbine- and grid operators / utilities.

As one of the main components for the reliable operation of your wind turbine, VETACON combines both the advantages of the permanent excited synchronous machine and of the full size converter to a high efficient system. The permanent excited synchronous generator and the full size converter have been developed and approved harmonizing with each other. A world-wide service network from Woodward and VEM helps to keep the performance and efficiency of your wind turbines on an outstanding level.

With VETACON you have an optimal designed and cost optimized system from one source.

System advantages

- Decoupling of gearbox and generator from the grid
- Higher power efficiency at partial load
- Active drive train damping
- Modular design for redundant configurations within our power range
- Reactive Power Control
- Compatible with existing types and power ranges
- Minimum maintenance effort, optional hybrid bearing
- System design for onshore and offshore applications
- High consistency against environmental impacts (sea air, salt, etc.)



Producing energy of power-plant-quality

VEM Sachsenwerk as one of the leading manufacturer of generators for wind power addresses oneself to the task, to play a major role in helping to shape the growth trend in the wind energy industry. Our new concept for fast running permanent excited synchronous generators will complement our range of doubly-fed induction generators. VEM Sachsenwerk has 4,800 machines installed worldwide, also in areas as the Inner Mongolia.

The permanent excited synchronous generators are specially designed and constructed for wind applications. Therefore, the arrangement of the magnets is protected against corrosion and this ensures an optimal performance and reliability with stable machine parameter compliance. The vertical range of manufacture effectively ensures the high quality of these machines. Permanent excited generators meet the high requests for onshore and offshore installations due to the robust technique and the easy to maintain features.

Permanent excited synchronous generator

Type	DPSPZ 5626-8U
Rated power	2.64 MW
Voltage	690 V
Efficiency	≥ 98.0 % incl. external fan
Rotation speed	1,650 rpm
Cooling	IC 616 (air-air)
Protection class	IP 54
Moment of inertia	130 kgm ²
Magnets	NdFeB

VETACON – the result of a potential partnership.

VEM Sachsenwerk GmbH from Dresden and Woodward SEG GmbH & Co. KG from Kempen are establishing with their cooperation project the preconditions to considerably influence the growth trend in the wind energy industry and to meet the demands of leading wind turbine manufacturers.

The joint development project has been supported through the Federal Ministry of Economy and Technology due to a decision of the German Bundestag.



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