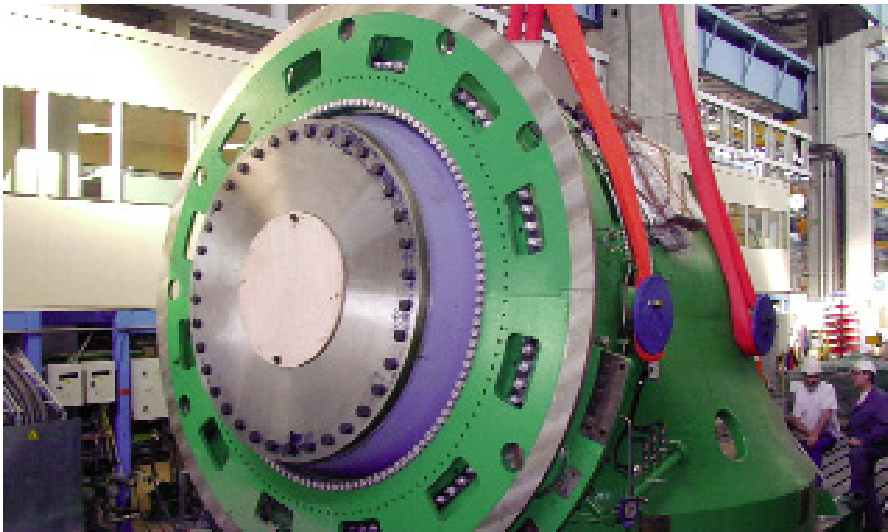


Converteam: a key partner for Wind Turbine manufacturers

With over 100 years of electrical machines experience, and over 15 years specifically in the wind industry, Converteam is well placed to understand the demanding requirements of the wind turbine market.



Converteam solutions utilize the latest design and manufacturing techniques, including exceptional insulation performance, high reliability and excellent efficiency.

Converteam's understanding of the whole power conversion chain, supported by a full range of power converters, enables us to optimize the complete electrical drive train, with a "full system" integrated approach.

Medium speed PMGs - A trade off between size and simplicity

With only one or two stages of gear box, associated with an intrinsically robust generator technology, a high part load efficiency, and an easy maintainability, Medium Speed PMGs are now gaining interest in the wind industry, in particular but not only, to meet the requirements of the offshore wind market. Wind farm developers recognize the benefits of this technology from a through-life value analysis point of view.

Converteam is a global market leader for wind converters with more than 22 GWs delivered to date. With our impressive pedigree in electrical machines, we are also a technology leader for wind generators: delivering our first Medium Speed Permanent Magnet Generator (PMG) for wind in 2004, and the industry's largest Direct Drive Wind PMG in 2008.

With Converteam's global footprint of electrical machines factories, based in Europe, Asia and America, we are able to

fully support our customer's global business with local manufacturing.

Converteam's Medium Speed PMG: the most compact and cost effective Medium Speed PMG

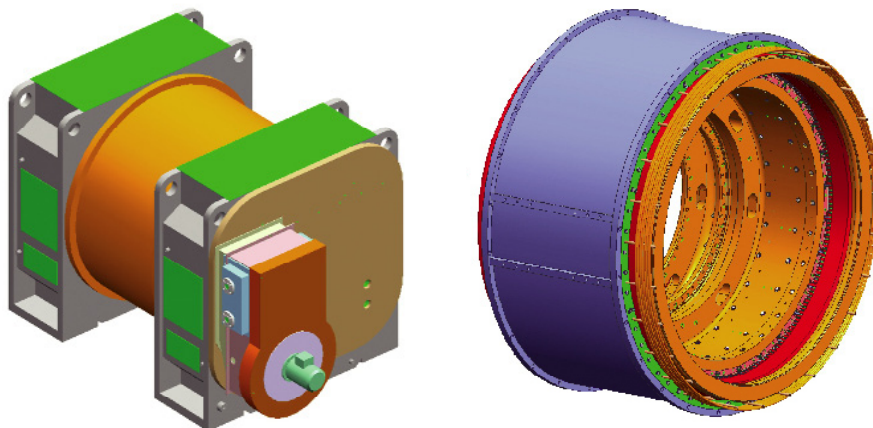
Converteam will be your partner for delivering the most compact, cost effective, and reliable Medium Speed Permanent Magnet Generator fulfilling your requirements for wind turbines.

Converteam's Medium Speed PMGs	Value for customer
Patented cooling arrangement	Very high power density
Electrical and electromagnetic design capabilities	Optimization between efficiency and power density
Patented ultra low cogging torque	Increased reliability, lower overall turbine
Exceptional insulation performance (highly reliable resin Insulation System)	Higher life expectancy, lower cost, increased reliability
Flexible and fit to purpose design	Can be used in existing wind turbine
Deep understanding of the properties of magnets, such as NdFeB (Neodymium-Iron-Boron) from extensive rotating machines experience	Reduced cost Increased Power Density



Converteam Customized Solutions

Converteam can customize its standard product platforms to design and build any rating of Medium Speed PMG from 1 to 10 MW. Converteam solutions can be rapidly tailored into many different mechanical arrangements, to adapt its solutions for customer turbine requirements.



Converteam Medium Speed PMG Range:		
Features (examples)	MS-5000	MS-7000
Power (MW)	5	7
Speed (rpm)	150	400
Voltage (V)	690 900 3300	690 900 3300
Diameter (m)	2 to 3	2 to 3
Full load efficiency (%)	97 to 98	97 to 98
Thermal class	F	F
Insulation class	F	F
Cooling	With Water to Air heat exchanger	With Water to Air heat exchanger

For more information please contact Converteam

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Machinery Minneapolis, USA
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Converteam - Rotating
Machines Nancy, France
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Converteam - Rotating
Machines Yantai, China
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South Korea: +65 6332 0940

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