Wind converter
Application

Wind converters adapt the changing speed continually to the fluctuating wind velocity therefore achieving the optimum efficiency.

They decouple the power generation and therefore the complete mechanical system from the line frequency. As a consequence, in the case of a fault, the mechanical components are completely protected against the torque surges.
Customer requirements

- Can handle typical control modes related to wind turbine operation
- Complies with the requirements regarding electrical grid compatibility, which are becoming increasingly more stringent (grid codes)
- Maximum reliability
- Simple integration and installation
Overview of the converter portfolio for wind turbine systems

Wind converters

Two wind converter concepts available

Focus on onshore wind turbines, with power ratings up to 5…6 MW:
- Low-voltage platform based on DYNAVERT XL technology

Focus on offshore wind turbines, with power ratings above 5…6 MW:
- Medium-voltage platform based on SINAMICS technology
Converter technology – an overview

Wind converter types

Double-fed induction generator (DFIG)

Induction generator

Direct drive

Synchronous generator

Partial converter

Full converter
Low-voltage platform based on DYNAVERT XL technology

Existing product range

- 800 kW SM (special design)
- 1.5…2 MW partial converter
- 5.5 MW full converter

New!

- 1…8 MW full converter
Low-voltage platform based on DYNAVERT XL technology

Benefits
- Complete converter system with filter and circuit-breaker in one compact unit
- Air or water cooling
- State-of-the-art remote maintenance and remote diagnostics software
- Can be flexibly adapted to the wind turbine characteristics
- Control voltage can be supplied from the DC link
- With plenty of features like automatic encoder calibration etc.

Power range
Due to a modular design in Software and Hardware Dynavert XL is adaptable to nearly every request.

<table>
<thead>
<tr>
<th>Generator topology</th>
<th>Typical rated generator power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squirrel-cage induction generator</td>
<td>1–8 MW</td>
</tr>
<tr>
<td>Double-fed induction generator</td>
<td>1.5–10 MW</td>
</tr>
<tr>
<td>Synchronous generator</td>
<td>1–8 MW</td>
</tr>
</tbody>
</table>

This portfolio overview represents only the common product line / market level.
Low-voltage platform based on DYNAVERT XL technology

Key features

- modular design
- redundant Power Units
- easy to maintain – all spare parts are accessible
- with integrated Braking-chopper and resistor
- with all filter elements
- with all switching and safety equipment
- simply removable with quick fasteners and press-lock
- PU-module provides all relevant parts
- pollution level 3
- max. spare-part weight: 25kg

Up to seven power units in parallel for an adaptation to every turbine.
Medium-voltage platform based on SINAMICS technology

Power range (water-cooled): 3.0MW – 12.0MW
Voltage range: 3kV – 6.6kV

- New multi-level technology
- High-level output voltage characteristic
- Sine-wave filter not required
Customer advantages

**LOHER Dynavert XL wind converters can handle all of the control modes typical for wind turbines**
- Matching wind turbine systems with double-fed induction generators, induction generators, synchronous generators as well as permanent-magnet generators

**Tailored solutions to address individual wind turbines**
- Both for onshore as well as offshore applications

**Simple integration**
- All of the generally used interfaces are provided
- **Low space requirement**: as a result of an unbeatable power density
- **Complete**: converter system including filter and circuit breaker in one device

**Highest reliability**: 100% quality check before being shipped

**Fast “time to market” through simple engineering**
- **Highest flexibility** in the engineering, modular design for simple engineering according to specifications as well as easy scalability to 8 MW
- User-friendly **Inverter Management System (IMS)**: parameterizing, operating and monitoring
- **State-of-the-art remote maintenance and diagnostic software**

**Aligned to address future requirements**: All of the actual grid requirements are fully complied with
Thank you for your attention!