



WWD-3

Wind Turbine

**RELIABLE
PRODUCTIVE
GRID COMPLIANT**

WWD-3 is a 3 MW utility class turbine that offers high energy production efficiency and is suitable for both onshore and near-shore installations. With the option of up to 109 m rotor diameter, it can provide high energy yields even at low wind speeds, while the smaller rotor diameter options are for higher wind speed sites.

The concept behind high performance

WINWIND'S INTEGRATED POWER UNIT COMBINES BENEFITS FROM CONVENTIONAL DRIVE TRAIN AND DIRECT DRIVE SYSTEMS. THE KEY CUSTOMER BENEFITS ARE RELIABILITY, PRODUCTIVITY AND GRID COMPATIBILITY.

RELIABLE!

WWD-3 is highly reliable throughout its entire lifecycle. The main bearing transfers the rotor loads directly to the main casing of the supporting structure, keeping the whole drive train free from deformation. The integrated power unit, comprising the main bearing, planetary gearbox and permanent magnet synchronous generator, eliminates the unreliability of high-speed components.

PRODUCTIVE!

Our turbines maximize energy capture especially in low and medium wind speed sites. High efficiency is gained by using an energy optimized rotor and a permanent magnet synchronous generator. WinWinD provides high productivity also in demanding conditions: we have the leading arctic solution with blade ice prevention system as well as experience in hot climates.

GRID COMPLIANT!

WinWinD turbines fulfill the most demanding grid code requirements. This is achieved with our own control system and full conversion inverters.

WWD-3 turbines are IEC type certified by GL.

WWD ADVANTAGES:

- 30 % less moving parts than conventional drive train system
- Loads bypass gearbox and generator
- Maximal grid compliance
- Low maintenance costs
- Ideal for low-wind-speed sites
- High reliability through redundancy

GENERAL

Rated power	3000 kW
Cut-in	4 m/s
Rated wind speed	12.5 m/s
Cut-out	20–25 m/s
Wind class	IEC IIA, IIIA (rotor dependent)
Design lifetime	20 years
Power control	Variable speed, variable pitch control
Turbine concept	Planetary gear with medium speed permanent magnet synchronous generator and full power conversion

ROTOR

Type	Three-bladed turbine
Diameter	90 m / 100 m / 103 m / 109 m
Swept area	6475 m ² / 7917 m ² / 8332 m ² / 9348 m ²
Rotational speed	5–18 rpm

POWER UNIT / DRIVE TRAIN

Main bearing	Two-row tapered roller bearing
Gear box	Planetary
Generator	Synchronous, permanent magnet
Converter	Full power IGBT conversion
Grid frequency	50 Hz

TOWER

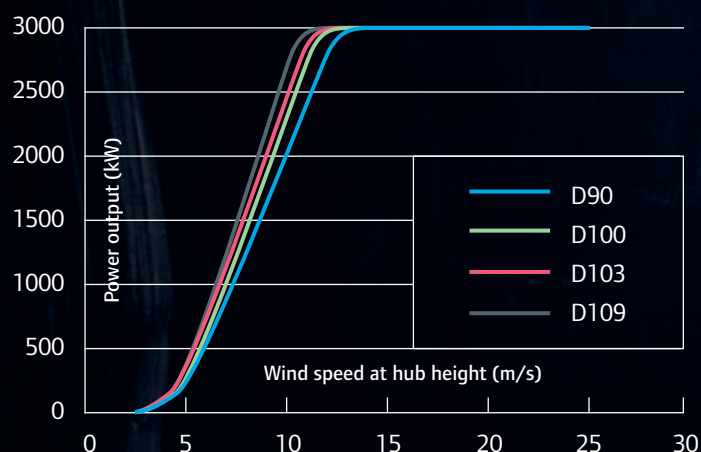
Type	Steel, tubular and concrete / steel hybrid
Hub height	80 m / 88 m / 100 m

BRAKE SYSTEM

Aerodynamic	Individual electric pitch with emergency power supply
Mechanical	Hydraulic disc brake

Several services and options are available for your wind park, including O&M and wind park control.

WWD-3 POWER CURVES



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