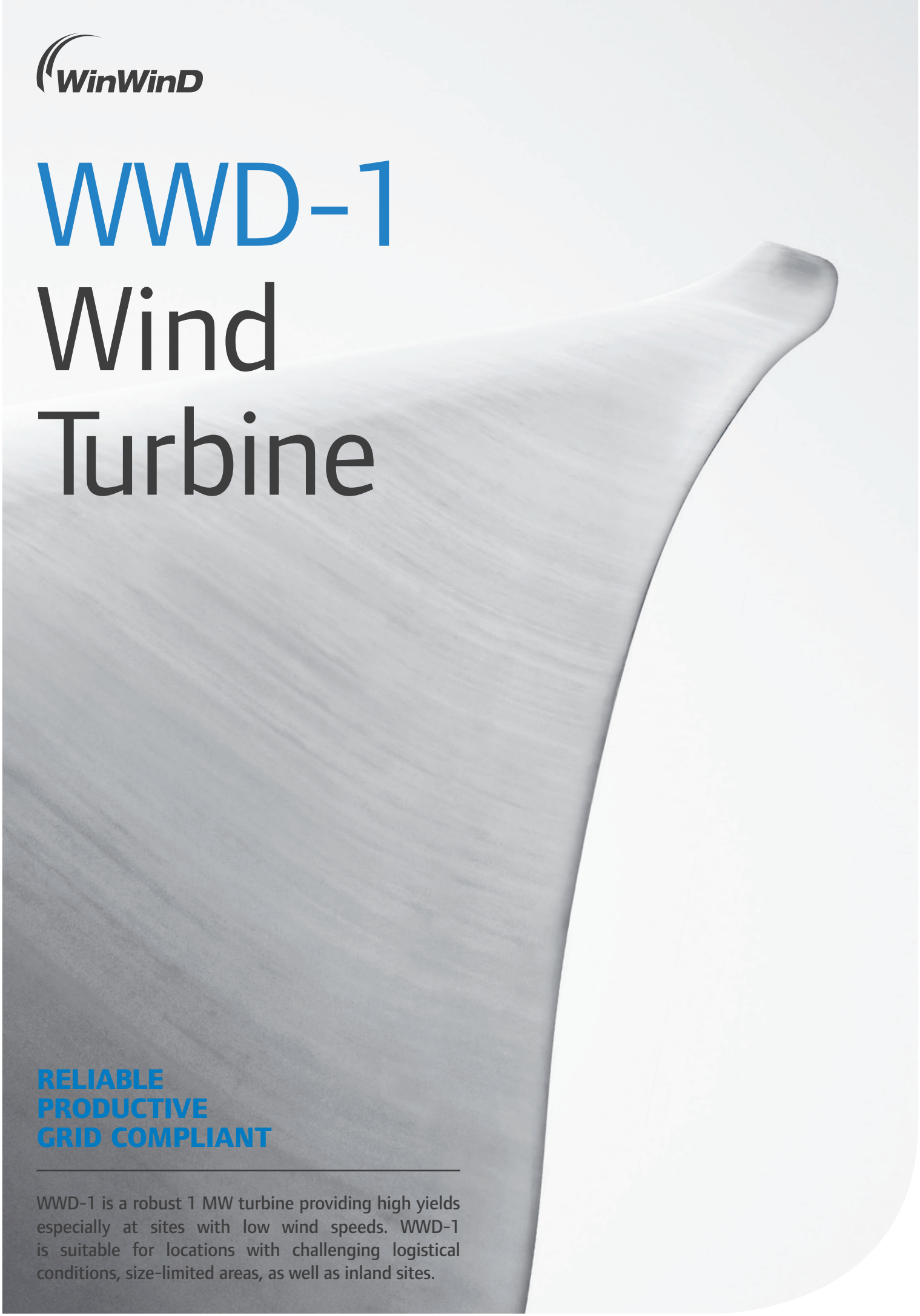
WinWinD

WWD-1 Wind Turbine



RELIABLE
PRODUCTIVE
GRID COMPLIANT

WWD-1 is a robust 1 MW turbine providing high yields especially at sites with low wind speeds. WWD-1 is suitable for locations with challenging logistical conditions, size-limited areas, as well as inland 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-1 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 wind speed sites. High efficiency is gained by using an energy optimized rotor and a permanent magnet generator. WinWinD provides high productivity also in extremely demanding conditions.

GRID COMPLIANT!

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

WWD ADVANTAGES:

- High efficiency
- 30 % less moving parts than conventional drive drain system
- Loads bypass gears and generators
- Grid compliance
- Low maintenance costs
- Ideal for low-wind-speed sites

GENERAL

Rated power	*1000 kW*
Cut-in	*3.6 m/s*
Rated wind speed	*12.5 m/s*
Cut-out	*20 m/s*
Wind class	*IEC IIIB*
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	*60 m*
Swept area	*2827 m²*
Rotational speed	*8 - 26 rpm*

POWER UNIT / DRIVE TRAIN

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

TOWER

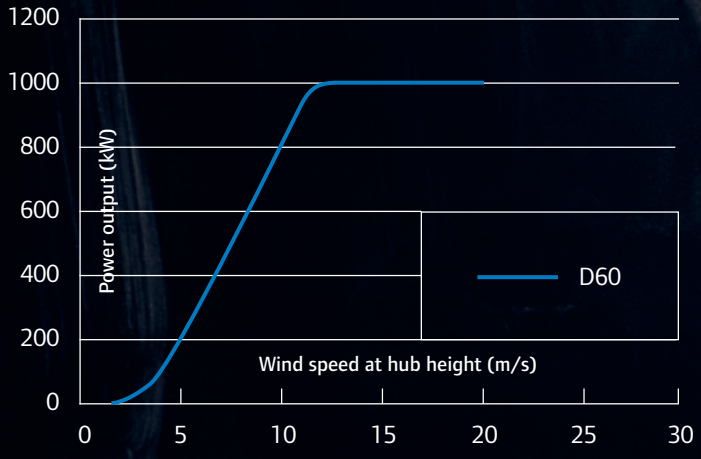
Type	*Steel, tubular*
Hub height	*70 m*

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-1 POWER CURVE



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