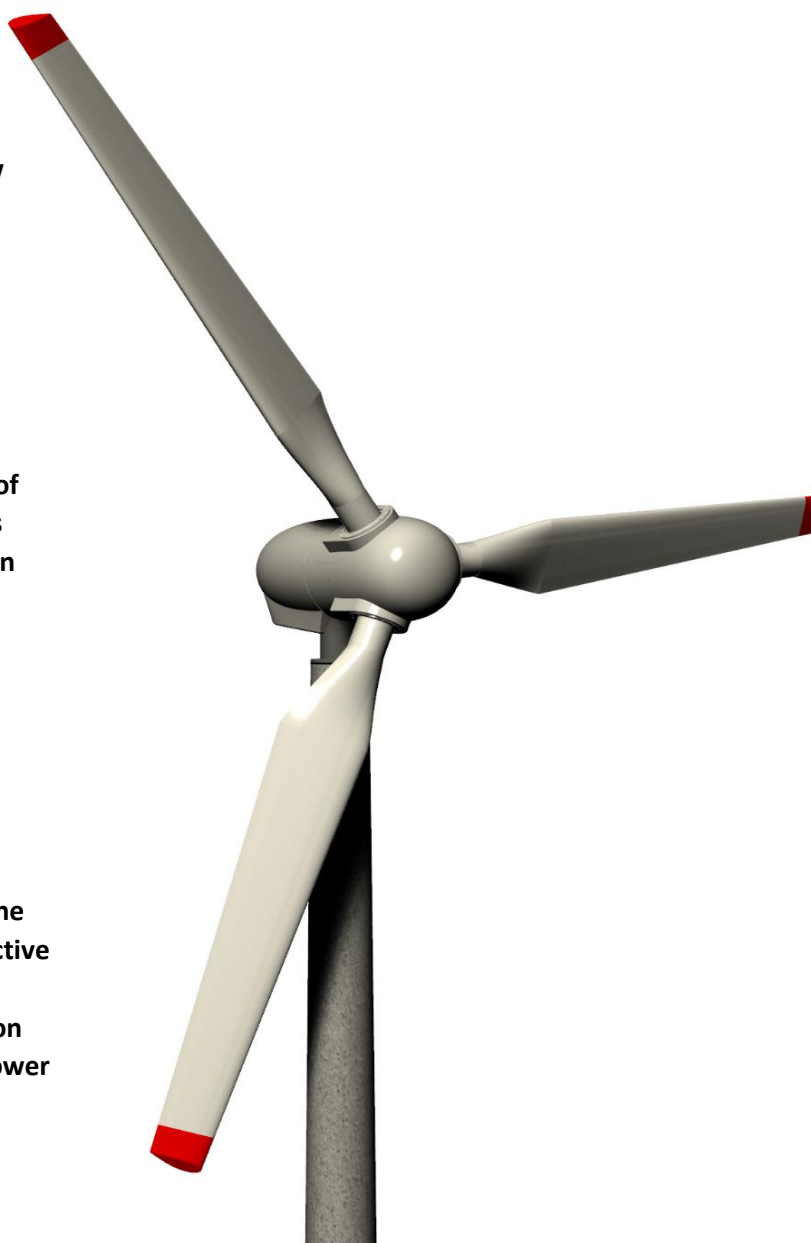




**The NGW WT 12.0-400
Wind Power Station is a new
look at home wind farms.**

**Modern construction made of
the highest quality materials
guarantees reliable operation
for many years with
minimalized maintenance.**

**Special spatial structure of the
blades combined with the active
blades angle control system
presented wind power station
provides high efficiency at lower
wind speeds.**



The use of a gearless generator allowed to:

- reduction of mechanical components requiring service (e.g. gears)
- increasing the efficiency of the windmill by eliminating losses in the transmission
- reduction of wearing out parts

The precise regulation of the generator load in combination with the regulation of the blades angle allows to achieve the highest efficiency and a high level of generated energy.

The NGW WT 12.0-400 Wind Power Station was entirely manufactured in Poland, mainly from European components, making it a modern and reliable device that meets the highest requirements of our customers.

NGW Chestermatic produce of small Wind Power Station since 2007.

Years of experience in designing, manufacturing and supervising the operation of wind farms by our clients allow us to create the highest quality devices.

Our advantages are:

- durable and reliable design based on years of experience
- usage of reliable and proven components
- designed and manufactured in Poland
- decent price

From the first start-up, the data of the wind power station is recorded on the server, thanks to which the user can view the current and historical trends regarding the amount of produced energy.

Remote access to the server for the maintenance purpose allows to provide the necessary data about the operation of the wind power station. The intelligent warning system provides information about possible abnormalities, which allows to react in time.

The zone for the NGW WT 12.0-400 turbine is depending on the height of the tower on which it is installed, and it is a circle with a radius equal to the height of the tower

Turbine

Wind Turbine	work in the horizontal axis, 3 blades
Nominal power	9,8 kW
Maximal power	12 kW
Nominal wind speed	11 m/s
Start wind speed	2,0 m/s
Stop wind speed	25 m/s
Wind alignment system	Automatic, electronic
On-grid system	3-phase AC Inverter 10kW (on-grid)

Rotor

Rotor diameter	6,8 m
Active area of blades	3,6 m ²
Nominal speed	173 rpm
Maximum speed	200 rpm
Rotor blades	epoxy resin reinforced with fiberglass
Power control	changing the angle of the blades thanks to the active power control system and rotation speed
Transmission	rotor located directly on the generator shaft

Generator

Type	Low-speed synchronous generator with permanent magnets
Nominal voltage	3x400 V

Nominal power	12,0 kW
Transmission	gearless

Safety systems

- Limitation of rotor speed by active regulation of the generator load to maintain optimal rotation speed
- Active system for changing the angle of the rudder, thanks to which the rotor is led out from the wind to reduce power
- System for putting the rotor away from the wind in an emergency
- Autonomous, independent blades positioning system in an emergency case
- Protection against too high revolutions of the turbine
- Autonomous active voltage limiting system with additional resistive load and smooth PWM regulation
- Safe stopping of the turbine in case of a power failure by folding the rudder and activating the braking resistor
- Generator frequency measurement
- Monitoring of mechanical vibrations of structures
- Battery power supply of the controller in case of a power failure
- Anemometer with speed measurement
- Sensor for icing / damage of the anemometer
- Generator temperature measurement by two independent sensors
- Generator bearing temperature control
- Temperature protection of the braking resistor
- Temperature protection of the PWM controller
- Safety features meeting the requirements of 2016/631-NC RfG
- Emergency button

Wind Power Station controller

- Wind turbine controller placed in the nacelle collects the necessary information during the operation of the power plant and sends it to the inverter and the visualization system.
- Communication with the controller via RS485 standard
- Preview of parameters directly in the menu of the inverter and the application
- Possibility to expand the system with an energy storage

On-grid inverter

- Inverter with nominal power of 3.3kW
- Grid inverter installed in technical rooms
- Safety features meeting the requirements of 2016/631-NC RfG
- Communication with the server via the RJ45 Ethernet port
- An application that allows to view the system operation and analyze historical data
- Possibility to expand the system with an energy storage

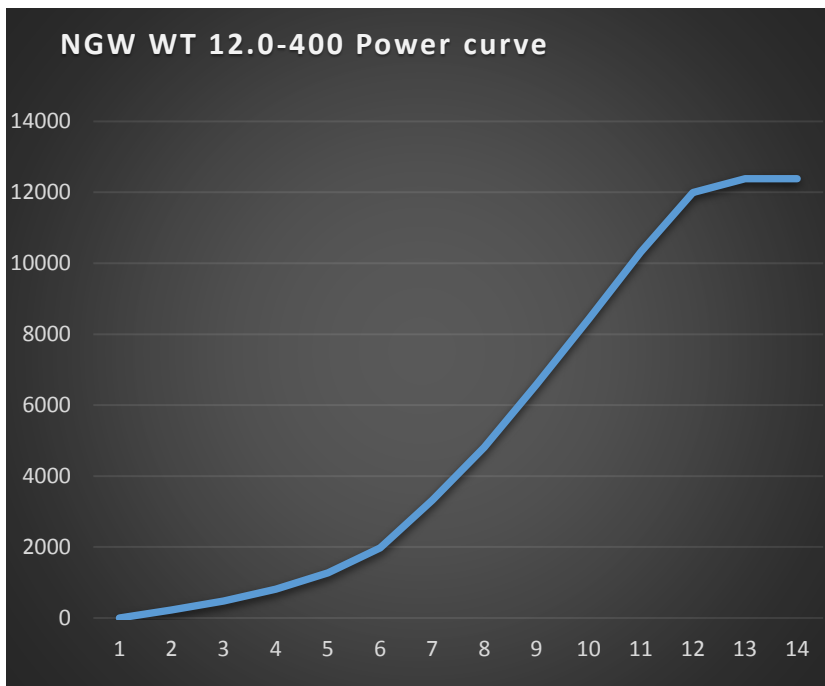
- Viewing the operating parameters directly in the inverter menu and application

Tower

Stand-alone, segment tower

18, 24, 30 m (from the foundation to the turbine blade hub)

Power curve



NGW WT 12.0-400		
Wind speed (m/s)	Power (W)	Annual production (kWh)
1	0	0
2	230	2014,8
3	480	4204,8
4	812,7	7119,252
5	1270	11125,2
6	1980	17344,8
7	3320	29083,2
8	4815	42179,4
9	6580	57640,8
10	8420	73759,2
11	10320	90403,2
12	11997	105093,7
13	12384	108483,8
14	12384	108483,8

The given values apply to the device installed at a height of 18-24 m in an open area.

Warranty

Turbine – controller 2 years

Inverter 2 years