

The FREEN-20 Wind Turbine: A New Standard in Renewable Energy

FREEN Introduces Its Flagship Wind Turbine Model, Merging Innovation, Eco-Friendliness, and High Efficiency.

KOHTLA-JÄRVE, IDA-VIRUMAA, ESTONIA, February 12, 2024 /EINPresswire.com/ -- [FREEN](#), Estonia's leading manufacturer of small wind turbines, announces the launch of its newest wind turbine — the [FREEN-20](#). This vertical-axis model sets new benchmarks in efficiency, affordability, and sustainability in wind energy utilization.

Key Advantages and Characteristics of FREEN-20:

Benefits of FREEN-20:

Energy Efficiency: With the highest energy conversion rate for vertical wind turbines, FREEN-20 ensures maximum energy production under any wind conditions.

Price: We offer one of the lowest costs per kilowatt, making clean energy accessible to a wide range of consumers.

Eco-Friendly Design: Minimizing environmental impact and wildlife, along with the ability for easy dismantling and relocation.

Technological Superiority: SCADA system for optimal control and monitoring, enabling high work efficiency.

Technical Specifications:

freen **Freen-20**
Wind Turbine

- Highest proven power generation for VAWT in class**
The maximum wind energy conversion coefficient of small-sized Darrieus turbines on the market and the best use of turbulent air flows throughout the entire range of operating winds
- Fair and transparent low price per 1kW among EU manufacturers**
Optimized production line in Estonia for turbines with patented soft blades design and surpassing generator parameters delivers prefabricated products in 6 months, ready for installation.
- Construction innovations for positive eco impact & smart operation**
Minimal amount of rubbing elements reduce maintenance and repair costs, balanced assemblies design produce low noise and don't threaten fauna representatives, absence of construction permits and cost-effective dismantling ensures flexibility in possible relocation.
- Proprietary control and management SCADA system**
FREEN SCADA software connects each turbine, offering advanced data analysis, critical effectiveness controls, and a user-friendly interface for optimal wind energy management and performance monitoring.

Small wind turbine generator with an installed capacity of 20 kW.
Designed for on- and off-grid power supply of small and medium energy consumers. Vertical ultra-light turbine is efficient in multiple regions under variable wind conditions.

↑ We provide different tower heights, depending on the installation location

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FREEN-20
Technical specification

Rated power, (kW)	20
Cut-in wind speed, (m/s)	3.5
Cut-out wind speed, (m/s)	17
Wind class	IEC III, IV
Swept area, (m ²)	52
Noise level 100m distance, (dB)	45
Height, (m)	24,7
Weight, (kg)	5000
Footprint area, (m ²)	35
Lifetime, (years)	20
Standard	IEC 61400-22013 - Small wind turbines
Operating temperatures, (°C)	-25 to +40
Survival wind speed, (m/s)	36
Remote monitoring	FREEN SCADA
Installation time	1-2 days

20 kW Wind Turbine
Power curve

Equipment set

- Wind Turbine with off-grid wiring*
- Inverter
- Controller
- FREEN SCADA
- Installation
- Tower
- Foundation**
- Shipping

*Basic wiring connection directly to premises. We also offer on-grid wiring to sell excess of energy to network

**We offer non-buried, prefabricated foundation, designed for installation on a flat, prepared surface (soil, asphalt, concrete, crushed stone). The density of the base for installation is at least 80 mPa per 1 m. Customer can setup own foundation with specified parameters

AEP

Wind speed (m/s)	AEP (kWh)	Wind speed (m/s)	AEP (kWh)
4	7,9	11	69,6
5	17,6	12	69,6
6	30,2	13	68,1
7	43,2	14	65,7
8	54,5	15	62,7
9	62,6	16	59,5
10	67,5	17	56,2

AEP is based on a Rayleigh wind speed distribution, K=2, T=15°C, P=1023 mbar, ρ=1,225 kg/m³

Power: 20 kW.

Wind Class: IEC III, IV for various meteorological conditions.

Noise Level: 45 dB at a distance of 100 meters.

Dimensions: Height 24.7 meters, weight 5000 kg.

Lifespan: Designed for 20 years of operation.

Innovative Installation and Operation:

The installation and operation of the FREEN-20 wind turbine are distinguished by simplicity and convenience. Our product comes with an innovative foundation that requires no earthworks. This significantly reduces installation time and avoids the need for construction permits, simplifying the process for our clients. The pre-manufactured foundation is specially designed for installation on any prepared surface, including soil, asphalt, or stone, making FREEN-20 an ideal choice for various locations. Moreover, this approach minimizes environmental impact and ensures ease of turbine relocation if necessary.

With the launch of FREEN-20, FREEN reaffirms its commitment to innovation and sustainable development, offering the market not just a product but a comprehensive solution for transitioning to clean energy.

Hleb Dens

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