

freen

# Freen-20

## Wind Turbine



### Highest proven power generation for VAWT in a 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.



### A fair and transparent low price per kW stands out among other EU manufacturers

Our optimized production line in Estonia for manufacturing turbines with a patented soft blade design and outstanding generator parameters delivers ready-to-install prefab solutions in 6 months.



### Construction innovations for positive eco impact & smart operation

The small number of rubbing elements brings the O&M costs down, while the balanced assembly designs help to reduce noise emissions and threat to wildlife; moreover, the absence of construction permits and cost-effective dismantling process provide for flexibility in relocation options.



### Our proprietary control and management SCADA system

FREEN SCADA software links up the turbines, offering advanced data analysis, critical effectiveness controls, and a user-friendly interface for optimal wind energy management and performance monitoring.



Freen OÜ

Arenduse tn 6, Kohtla-Järve,  
30328, Ida-Viru maakond, Estonia



[www.freen.com](http://www.freen.com)

[contact@freen.com](mailto:contact@freen.com)



### Small wind turbine generator with an installed capacity of 20 kW.

Designed for on-grid power supply of small and medium energy consumers. Vertical ultra-light turbine is efficient in diverse regions under variable wind conditions.

freen - your wind, your power, your way

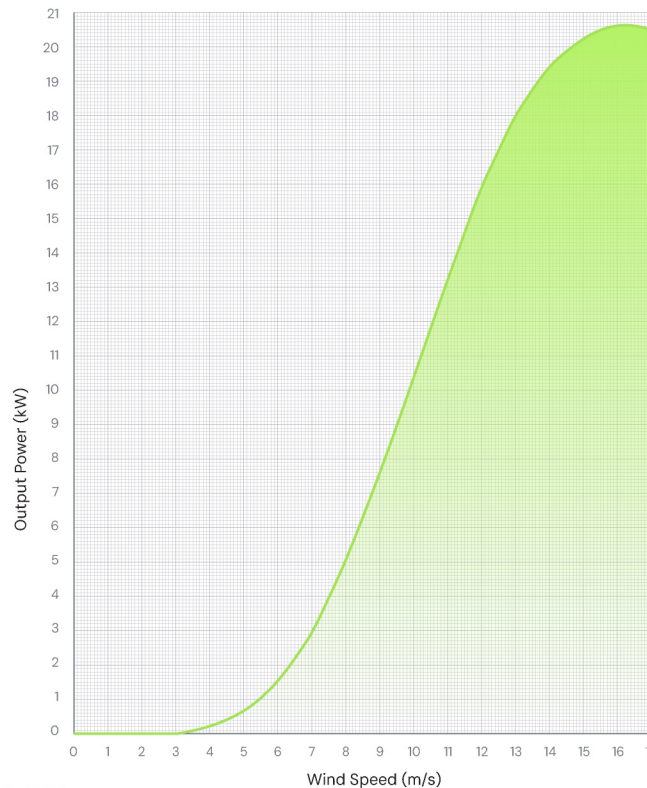
# FREEN-20

## Technical specifications

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 <sup>2</sup> )	52
Noise level at 100 m distance, (dB)	45
Height, (m)	24.7
Weight, (kg)	5000
Footprint area, (m <sup>2</sup> )	35
Lifetime, (years)	20
Standard	IEC 61400-2:2013 - 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

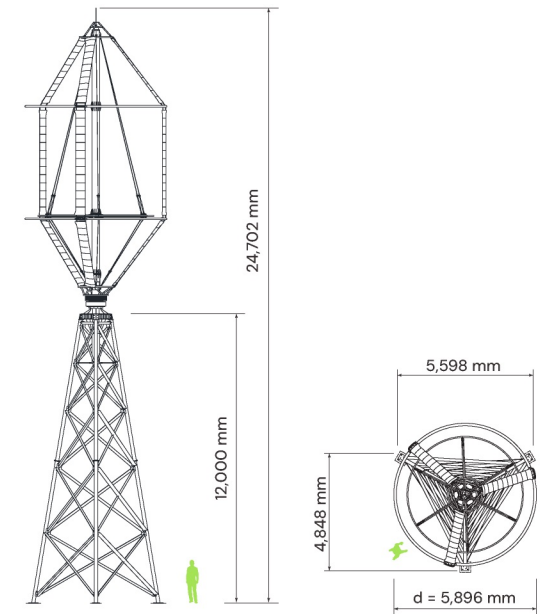
### Power output



### AEP

Wind speed (m/s)	AEP (MWh)	Wind speed (m/s)	AEP (MWh)
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=1013 mbar, ρ=1.225 kg/m<sup>3</sup>



### Equipment set

- Wind Turbine
- Inverter ON-GRID\*
- Controller
- FREEN SCADA
- Tower
- Foundation\*\*

\*We can offer customized off-grid solution per request

\*\*We offer non-buried prefabricated foundations designed for installation on a flat prepared surface (soil, asphalt, concrete, crushed stone). Customers may setup their own foundation according to technical requirements.

! The product specifications are provisional and subject to change at any time due to improvements or other reasons.

# FREEN-20

## Installation locations



Kiku tee, Pariisi, 45227 Lääne-Viru maakond, Estonia

59°16'31.1"N 26°07'21.2"E



80 kW of installed capacity

Freen-20 - 4 pcs



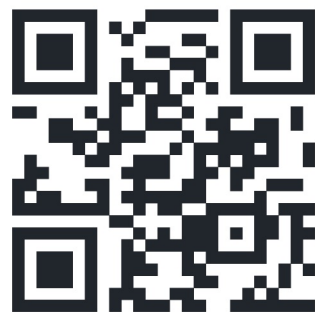
Arenduse tn 6, Kohtla-Järve, 30328 Ida-Viru maakond, Estonia

59°24'32.2"N 27°15'35.7"E



20 kW of installed capacity

Freen-20 - 1 pcs



Contact us

## 20 kW Wind Turbine

## Media

