

A COMPLETE LINE TO MEET ANY MARKET DEMAND



**TN535**  
Wind turbine  
10 kW



**Victory**  
Wind turbine  
20 kW



**Victory**  
Wind turbine  
60 kW

OVER  
**400**  
TURBINES  
INSTALLED

## WHY TOZZI GREEN TURBINES?

### TN535 and Victory

Thanks to their technical and aerodynamic characteristics - that maximize wind harvesting - Tozzi Green turbines adapt to the broadest range of wind conditions, achieving the highest energy production and thus ensuring a faster return on investment.

- Source of supplementary income and/or a boost for one's own activities
- Highly profitable investment for both individuals and businesses
- Rapid return on investment
- Simplified authorization procedures
- Safe and silent
- "Full Service" Maintenance
- Real-time monitoring system for clients
- Remote supervision system
- Power curve certified as per IEC 61400-12
- Fast, simple construction works
- Track record of over 400 installations
- Solid, lightweight, aerodynamic design
- Designed to last over 20 years



## TN535

The only wind turbine that can produce up to 37,300 kWh at an average annual wind speed of 5 m/s, ideal performance for an investment guaranteed in time. Silent, reliable, with the characteristics of a maxi wind turbine: the TN535 can be installed in suburban areas such as agritourism establishments, farms, shopping malls, campsites, small and medium enterprises.

TN535 offers high power generation, even in sites with low wind speeds, thanks to such aerodynamic, mechanical characteristics as active pitch and yaw control. An advanced remote control system guarantees maximum safety and availability in time.

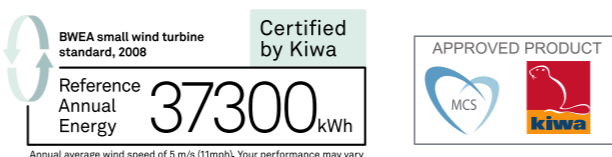
### CERTIFICATIONS TN535

Power curve certified by DNV-GL  
Garrad Hassan as per IEC 61400-12

Acoustic emissions certified by DNV-GL  
Garrad Hassan as per IEC 61400-11

Type Certification MCS 006  
for the United Kingdom (KIWA)

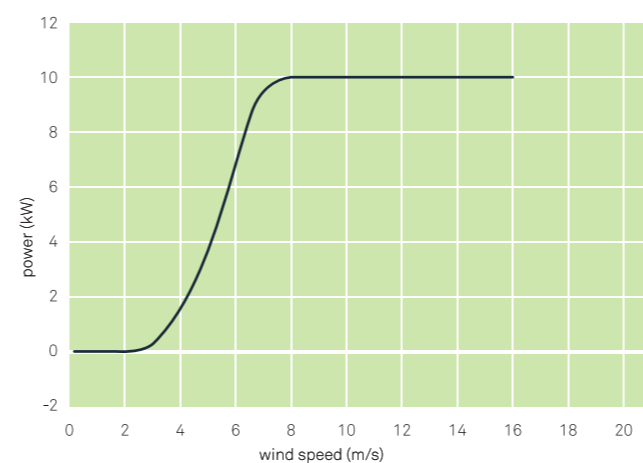
Type Certification ClassNK  
for Japan (Nippon Kaiji Kyokai)



### TECHNICAL CHARACTERISTICS

- Class IV, I15 = 0,18
- Up to 37,300 kWh/year at 5 m/s
- Rated power: 9.9 kW
- Rotor diameter: 13.2 m
- Swept Area: 136.7 m<sup>2</sup>
- Hub height: 15 m - 18 m - 24 m
- Cut in speed: 2.5 m/s
- Cut out speed: 16 m/s
- Rated speed\*: 6.8 m/s
- Active pitch
- Active Yaw
- Synchronous generator with permanent magnets
- Secondary centrifugal brake

### POWER CURVE



### EXPECTED OUTPUT

Weibull Factor k = 2.0		Technical availability: 100%			
Air density: 1.225 kg/m <sup>3</sup>		Average turbulence index: 18%			
Average annual speed	m/s	4	5	6	7
Average annual output	MWh	24,59	37,36	47,24	53,52



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Tozzi Nord Srl a company of  
**TOZZIgreen**

# Small Wind Turbines

Product Line



Tozzi Nord Srl a company of  
**TOZZIgreen**

More energy from the wind





### Mission

We develop industrial products that generate, distribute and control electricity both efficiently and sustainably. We work with passion, precision and integrity, entering partnerships with clients, investors and external concerns and consultants, based on concrete objectives. We are a solid international concern with the hallmarks of innovation, organisation, efficiency and certainty of the results.

### Experience and excellence

Tozzi Green was one of the first Italian operators to invest in large-scale wind farms with a total capacity that now exceeds 387 MW. Well-consolidated in-field experience, know-how that crosses several strategic areas (aerodynamics, aeroelastics, programming, control electronics), in-depth knowledge of wind resources, the ability to innovate: all these features set Tozzi Green at the forefront of the international market for small wind turbines, its presence strongly felt in England, Italy, Germany and constantly growing in emerging markets outside Europe. Boosted by integrated production chain management, with its small wind turbines, Tozzi Green achieves a new benchmark of "Made in Italy" excellence. Located in the industrial area of Foggia, the production facility (production area of over 38,290 m<sup>2</sup>) can handle the entire production cycle. Experience, continual training of human resources and constant updating of production processes, together with ongoing research are the key strengths of Tozzi Green, always able to satisfy the most demanding clients with full respect for the environment.

### A service with high added value

Tozzi Green provides a full range service that runs from transport to installation, all the way to "full service" maintenance, both scheduled and special. A qualified team with extensive in-field experience aids the client in installation, operation, monitoring and maintenance of the wind turbines throughout their entire operating lifespan estimated at over 20 years.



## Victory

Thanks to its characteristics and its two models - 20 kW and 60 kW - the Victory can adapt to widest range of wind conditions to achieve the highest energy production, unsurpassed by any other turbine in its category. With our Victory wind turbines, we offer diversified investment opportunities, tailored to the needs of investors, both large and small (funds, private equity, corporations, farms, etc.).

### Victory 60

Tozzi Green has designed two models of its own 60 kW wind turbine - with rotor diameters of 24 and 26 m. The blades of the Victory 24 and those of the Victory 26 differ essentially at the tip which, in both cases, is designed to optimize energy harvesting as a function of diameter. The entire blade extension - from root to tip - actively participates in harvesting the wind, maximizing energy production.



#### CERTIFICATION

##### Victory 24-60

Power curve certified by Windtest Grevenbroich GmbH as per IEC 61400-12 Acoustic emissions certified by Windtest Grevenbroich GmbH as per IEC 61400-11



##### Victory 26-60

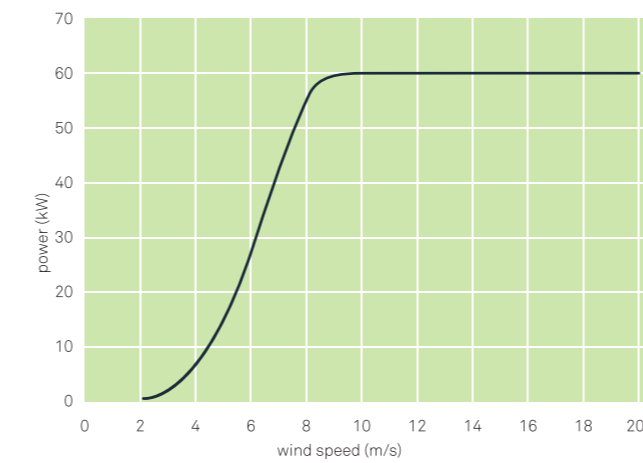
Power curve currently undergoing the certification process.

### Victory 24-60

#### TECHNICAL CHARACTERISTICS

- Class IIIA,  $I_{ref} = 0,16$
- Up to 239,000 kWh/year at 6 m/s
- Rated power: 59.9 kW
- Rotor diameter: 24 m
- Swept area: 452.5 m<sup>2</sup>
- Hub height: 30 m
- Cut in speed: 2.5 m/s
- Cut out speed: 20 m/s
- Rated speed\*: 8.1 m/s
- Active pitch
- Active Yaw
- Synchronous generator with permanent magnets
- Dual braking system: aerodynamic and mechanical

#### POWER CURVE



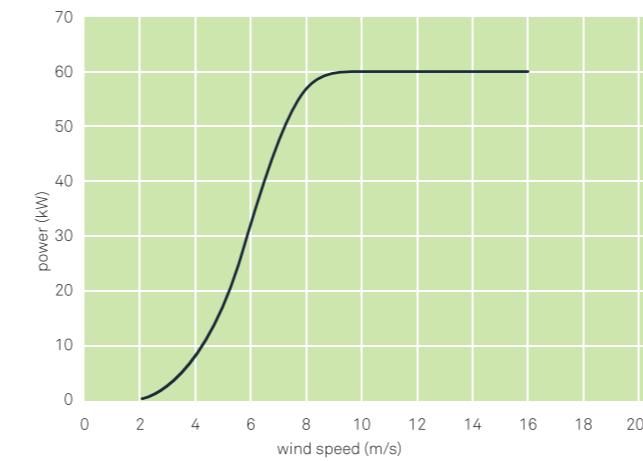
EXPECTED OUTPUT					
Weibull Factor k = 2.0	Technical availability: 100%				
Air density: 1.225 kg/m <sup>3</sup>	Average turbulence index: 12.5%				
Average annual speed	m/s	5	6	7	8
Average annual output	MWh	177	239	291	330

### Victory 26-60

#### TECHNICAL CHARACTERISTICS

- Class IVs,  $I_{ref} = 0,16$
- Up to 192,000 kWh/year at 5 m/s
- Rated power: 59.9 kW
- Rotor diameter: 26 m
- Swept Area: 530.998 m<sup>2</sup>
- Hub height: 30 m
- Cut in speed: 2.5 m/s
- Cut out speed: 16 m/s
- Rated speed\*: 7.6 m/s
- Active pitch
- Active Yaw
- Synchronous generator with permanent magnets
- Dual braking system: aerodynamic and mechanical
- Extender-free blades, the entire blade actively participates in harnessing wind

#### POWER CURVE



EXPECTED OUTPUT					
Weibull Factor k = 2.0	Technical availability: 100%				
Air density: 1.225 kg/m <sup>3</sup>	Average turbulence index: 10%				
Average annual speed	m/s	4	5	6	7
Average annual output	MWh	121	192	253	297



## NEWS

### Victory 20

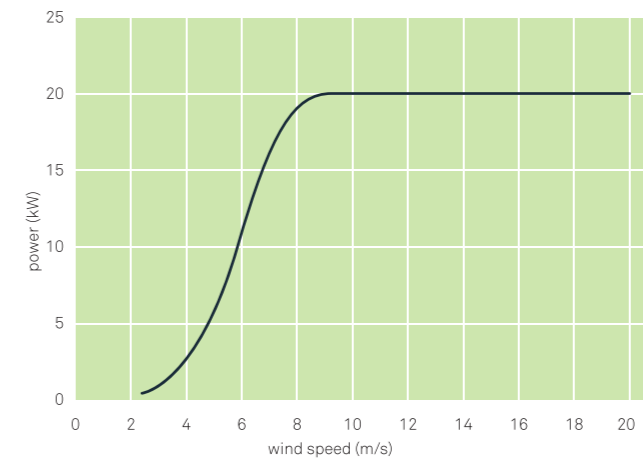
The latest addition to the Tozzi Green family is the Victory 20, a 20 kW wind turbine. Not a simple evolution of the 10 kW turbine, but a true and proper new concept Victory: the versatility and ease of installation of the TN535 merges with the sturdiness, technology and performance of the Victory 60.

### Victory 16-20

#### TECHNICAL CHARACTERISTICS

- Class II,  $I_{15} = 0,18$
- Up to 86,000 kWh/year at 6 m/s
- Rated power: 19.9 kW
- Rotor diameter: 16 m
- Swept area: 201.062 m<sup>2</sup>
- Hub height: 24 m
- Cut in speed: 2.5 m/s
- Cut out speed: 20 m/s
- Rated speed\*: 7.4 m/s
- Active pitch
- Active Yaw
- Synchronous generator with permanent magnets
- Dual braking system: aerodynamic and mechanical

#### POWER CURVE



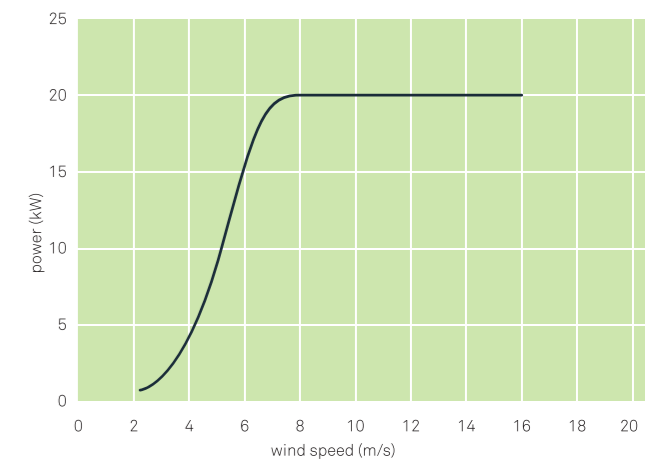
EXPECTED OUTPUT					
Weibull Factor k = 2.0	Technical availability: 100%				
Air density: 1.225 kg/m <sup>3</sup>	Average turbulence index: 10%				
Average annual speed	m/s	6	7	8	9
Average annual output	MWh	86	103	115	123

### Victory 19-20

#### TECHNICAL CHARACTERISTICS

- Class IV,  $I_{ref} = 0,16$
- Up to 80,000 kWh/year at 5 m/s
- Rated power: 19.9 kW
- Rotor diameter: 19 m
- Swept area: 283.529 m<sup>2</sup>
- Hub height: 24 m
- Cut in speed: 2.5 m/s
- Cut out speed: 16 m/s
- Rated speed\*: 6.6 m/s
- Active pitch
- Active Yaw
- Synchronous generator with permanent magnets
- Dual braking system: aerodynamic and mechanical
- Extender-free blades, the entire blade actively participates in harnessing wind

#### POWER CURVE



EXPECTED OUTPUT					
Weibull Factor k = 2.0	Technical availability: 100%				
Air density: 1.225 kg/m <sup>3</sup>	Average turbulence index: 10%				
Average annual speed	m/s	4	5	6	7
Average annual output	MWh	54	80	99	112



\* Parameter calculated with ECN BOT with turbulence index of 0%.