GE Energy

1.5 MW
Series Wind Turbine

ecomagination™
a GE commitment

imagination at work
When it comes to "megawatt-plus" technology, our proven 1.5 MW wind turbine continues to raise the bar. From ongoing technology investments in reliability and dependability, to more cost effective and versatile configurations, it need not rest on its past successes. Today, with over 3,300 units in operation worldwide, the 1.5 MW continues to be one of the world's most widely used wind turbines in its class.

Active yaw and pitch regulated with power/torque control capability and an asynchronous generator, the 1.5 MW machine utilizes a bed-plate drive train design where all nacelle components are joined on a common structure, providing exceptional durability. The generator and gearbox are supported by elastomeric elements to minimize noise emissions.
The 1.5 MW wind turbine also employs a variety of features inherent in GE’s full line of wind turbines which range from 1.5 to 3.6 MW, for both on and offshore use.

**GE’s Fleet-Wide Features and Benefits**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>Variable Hub heights &amp; rotor diameters</td>
<td>Provides versatility/adaptability to a wide variety of project sites</td>
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<td>Variable Speed Control and Advanced Blade Pitch</td>
<td>Enables aerodynamic efficiency and reduces loads to the drive train, thereby reducing maintenance cost and providing longer turbine life</td>
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<td>WindVAR (optional) (Wind-Volt-Amp-Reactive “WindVAR”)</td>
<td>GE’s unique electronics provide transmission efficiencies and enable harmonious function within the local grid</td>
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<td>Low Voltage Ride-Thru (optional)</td>
<td>Allows wind turbines to stay on line generating power, even during grid disturbances.</td>
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As one of the world’s leading wind turbine suppliers, GE Energy’s current product portfolio includes wind turbines with rated capacities ranging from 1,500 to 3,600 kilowatts and support services extending from development assistance to operation and maintenance. We currently design and produce wind turbines in Germany, Spain and the U.S.

Our facilities are registered to ISO 9001:2000. Our Quality Management System, which incorporates our rigorous Six Sigma methodologies, provides our customers with quality assurance backed by the strength of GE. We know that wind power will be an integral part of the world energy mix in this century and we are committed to helping our customers design and implement energy solutions for their unique energy needs. Every relationship we pursue bears our uncompromising commitment to quality and innovation.
Technical Data

**1.5s**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 6 m/s
- **Cut-out wind speed (10 min. avg.):** 13 m/s
- **Rated wind speed:** 25 m/s
- **Wind Class - IEC:** IIa, III
- **Wind Class - DIBt:***
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 3904 m²
- **Rotor speed (variable):** 12.0 – 22.2 rpm
- **Hub heights - IEC:** 64.7 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

**1.5se**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 4 m/s
- **Cut-out wind speed (10 min. avg.):** 13 m/s
- **Rated wind speed:** 25 m/s
- **Wind Class - IEC:** IIb
- **Wind Class - DIBt:**
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 3904 m²
- **Rotor speed (variable):** 12.0 – 22.2 rpm
- **Hub heights - IEC:** 64.7 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

**1.5sl**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 3.5 m/s
- **Cut-out wind speed (10 min. avg.):** 14 m/s
- **Rated wind speed:** 25 m/s
- **Wind Class - IEC:** III
- **Wind Class - DIBt:**
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 4657 m²
- **Rotor speed (variable):** 11.0 – 20.4 rpm
- **Hub heights - IEC:** 64.7 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

**1.5sle**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 3.5 m/s
- **Cut-out wind speed (10 min. avg.):** 14 m/s
- **Rated wind speed:** 25 m/s
- **Wind Class - IEC:** III
- **Wind Class - DIBt:**
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 4657 m²
- **Rotor speed (variable):** 11.0 – 20.4 rpm
- **Hub heights - IEC:** 64.7 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

**1.5xle**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 3.5 m/s
- **Cut-out wind speed (10 min. avg.):** 12.5 m/s
- **Rated wind speed:** 20 m/s
- **Wind Class - IEC:** IIIb
- **Wind Class - DIBt:**
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 5346 m²
- **Rotor speed (variable):** 10.1 – 18.7 rpm
- **Hub heights - IEC:** 82.5 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

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**Operational data**

- **Rated capacity:** 1,500 kW
- **Cut-in wind speed:** 6 m/s
- **Cut-out wind speed (10 min. avg.):** 25 m/s
- **Rated wind speed:** 13 m/s
- **Wind Class - IEC:**
- **Wind Class - DIBt:**
- **Number of rotor blades:** 3
- **Rotor diameter:** 70.5 m
- **Swept area:** 3904 m²
- **Rotor speed (variable):** 12.0 – 22.2 rpm
- **Hub heights - IEC:** 64.7 m
- **Active blade pitch control**
- **Tower design:**
  - Multi-coated, conical tubular steel tower with safety ladder to the nacelle
  - Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

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Noise reduction

- Impact noise insulation of the gearbox and generator
- Noise reduced nacelle
- Rotor blades with minimized noise level

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Lightning protection system

- Lightning receptors installed along blades
- Surge protection in electrical components

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Tower design

- Multi-coated, conical tubular steel tower with safety ladder to the nacelle
- Load lifting system, load-bearing capacity over 200 kg
- **Operating limits (outside temperature):**
  - Cold weather extreme: -30°C to +40°C / -40°C to +50°C survival without operation
  - Standard: -15°C to +40°C / -20°C to +50°C survival

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**Only for WZII**