Installation
Micro Turbine on Tilt-Up Tower

- Using a GripHoist

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Installation

Micro Turbine on Tilt-Up Tower

• Inventory Control

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• Assembling Base

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- Laying Out Guy Anchors

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• Driving Screw Anchors

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• Assembling Tower Sections

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• Unspooling
  Guy Cable

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• Unspooling Guy Cable
Installation
Micro Turbine on Tilt-Up Tower

• Assembling Gin Pole

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Micro Turbine on Tilt-Up Tower

• Lifting Hooks Must Have Gates (Keepers
• Clevis

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Micro Turbine on Tilt-Up Tower

- Dry Run w/o
Installation
Micro Turbine on Tilt-Up Tower
• Pendant Cable Support

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Installation
Micro Turbine on Tilt-Up Tower
• Mount Turbine

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• Wire Turbine to Pendant Cable

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Installation
Micro Turbine on Tilt-Up Tower

- Raise Turbine & Tower Using Griphoist

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- Spotter Outside Fall Zone

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Micro Turbine on Tilt-Up Tower

- Junction Box
- Disconnect Switch

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Installation
Household Size Turbine

- BWC Excel
- 7 m, 7 kW
- 80 ft Tower
- Finishing Assembly
- Tail and Two Blades Already Assembled
Installation
Household Size Turbine

- Preparing Crane Sling
- Position Critical
Installation
Household Size Turbine

- Initial Lift
- Adding Last Blade

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Installation
Household Size Turbine

- Adding Spinner
- Note Cribbing

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Installation
Household Size Turbine

• Raising Tower

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Installation
Household Size Turbine

• Setting Tower on Base
• Note Disconnect Switch

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Installation
Household Size Turbine

• Attaching Guy Cables
Installation

Household Size Turbine

- All Guy Anchor Cables Securely Attached!!!
- Releasing Sling from Crane

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Installation
Household Size Turbine

- Disconnect Switch
- Junction Box
- Grounding

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Installation
Medium Size Turbine

- Road Design
- Width
- Turning Radius
- Crane Pad

Example for crane area for erection

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Installation
Medium Size Turbine

- Road Composition
- Geotextiles

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Installation
Medium Size Turbine
Installation
Medium Size Turbine

• Turning Radius

Slopes
At normal surface conditions (gravel or better), the gradient should not exceed 10%. Steeper slopes may require an extra traction engine, the additional length must be considered.

Bends
When driving on curves the road widths shown below must be observed and the area marked (---) must be free of all obstacles.

<table>
<thead>
<tr>
<th>Hub height</th>
<th>80 m</th>
<th>100 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 Inside radius bend</td>
<td>35 m</td>
<td></td>
</tr>
<tr>
<td>R2 Inside radius of obstacle-free area</td>
<td>50 m</td>
<td></td>
</tr>
</tbody>
</table>

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Installation
Medium Size Turbine

- Blade Tips Delicate
- Special Carriers

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Installation

Medium Size Turbine

• Blade Staging
• Be Gentle
Installation
Medium Size Turbine

• Adding Blade Extenders

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- Staging Nacelles

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- Burying Power Cable
- Placement Near Road Minimizes Impact

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Medium Size Turbine

- Three-Phase Bundles
- Marking Tape

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Installation
Medium Size Turbine

- Foundation Bolts
- Critical Alignment
Installation
Medium Size Turbine

- Lowering Bottom Section on Foundation
Installation
Medium Size Turbine

- Lowering Second Section

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Installation
Medium Size Turbine

- Adding Tower Sections
- Radio Contact

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Installation
Medium Size Turbine

• Raising Nacelle
Installation
Medium Size Turbine

- Assembling Rotor
- Raised as Complete Set

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Installation
Medium Size Turbine

- Raising Rotor
- Requires Two Cranes

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• Almost There
• Note Tage Line

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- In Service!

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