Installation
Micro Turbine on Tilt-Up Tower

- Using a Grip Hoist
Installation
Micro Turbine on Tilt-Up Tower

- Inventory Control
Installation
Micro Turbine on Tilt-Up Tower

• Laying Out Guy Anchors

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Installation
Micro Turbine on Tilt-Up Tower

• Driving Screw Anchors
Installation

Micro Turbine on Tilt-Up Tower

• Assembling Tower Sections

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Installation
Micro Turbine on Tilt-Up Tower

- Unspooling Guy Cable

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Installation

Micro Turbine on Tilt-Up Tower

• Assembling Gin Pole
Installation
Micro Turbine on Tilt-Up Tower

- Lifting Hooks must have Gates (Keepers)
- Clevis

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Installation

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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Installation
Micro Turbine on Tilt-Up Tower

• Raise Turbine & Tower Using Griphoist

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Installation
Micro Turbine on Tilt-Up Tower

• Spotter Outside Fall Zone
Installation
Household Size Turbine

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

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Installation
Household Size Turbine

• Preparing Crane Sling
• Position Critical

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Installation
Household Size Turbine

- Initial Lift
- Adding Last Blade
Installation

Household Size Turbine

• Adding Spinner
• Note Cribbing
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
Installation
Medium Size Turbine

- Road Design
- Width
- Turning Radius
- Crane Pad

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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

• Staging Nacelles
Installation Medium Size Turbine

- Burying Power Cable
- Placement Near Road Minimizes Impact
Installation
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
Installation
Medium Size Turbine

• Raising Nacelle

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Installation
Medium Size Turbine

• Assembling Rotor
• Raised as Complete Set

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Installation
Medium Size Turbine

- Raising Rotor
- Requires Two Cranes
Installation
Medium Size Turbine

- Almost There
- Note Tage Line

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Installation
Medium Size Turbine

• In Service!

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