

Basic Portable Tower

Description

The Basic Portable Tower is the foundation module from which all our large tower designs are based. Our towers are three-sided structures that rise to a height of 80 feet (24.38 meters) in 5 minutes or less. Each of the three sides consists of a "ladder-like" chain made up of a number of lattice sections hinged together and, in the stowed position, roll and stack in a square spiral-like pattern on one of three rotating bales.

As the tower rises, our patented design provides for each of the three mating sides to unroll and rotate into a vertical orientation. During this process, heavy stainless hooks located at each hinge automatically engage with hooks on the other two sides, section by section, to form a rigid triangular tower column. When retracting the tower, the process is reversed with each section unhooked from the others and the chain of sections rotationally stacked on the bales. The independent tower assembly weighs only 3,000 pounds (1,361 kilograms).

The tower's rigidity and stability are facilitated by the integrated robust trailer, which has heavy-duty leveling jacks and wide outriggers for stabilizing the deployed tower. These supports offer un-guyed stability for many applications.

With no hydraulics or pneumatic components, the tower mechanism is nearly maintenance free and can operate in all normally specified environmental conditions. A wide range of options and accessories provide the ability to configure and customize the tower to meet a wide range of end-user needs.

Specifications

The Tower

- Height:** Maximum tower height of the tower payload mounting bracket is 80 feet (24.38 meters) above the ground as deployed from a trailer mount, with stowed height of 11 ft (3.35 meters) plus payload. The tower can be stopped and utilized at any desired height between its stowed and maximum height.
- Payload:** Maximum tower payload capacity is application dependent. For most applications, however, the payload is established at 2,000 pounds (907 kg) for an 80 ft (24.38 meters) tower height.



Construction: The tower lattice chain sections are constructed of 6061-T6 aluminum extrusions assembled with robust bolts and rivets. During deployment, cast stainless steel hooks engage to rigidly attach and hold together individual tower sections in the triangular shape. Key tower technologies are protected by patents.

Heavy mounting brackets are provided as standard equipment at each of the three tower corners for attaching customers' equipment using ½ inch (1.27 cm) diameter bolts.

**Deployment &
Retraction
Speed:**

From the towers stowed height, an electric motor/gear drive system will self-erect the tower to a height of 80 feet (24.38 meters) in approximately 5 minutes "at the push of a button". By releasing the button, the tower can be stopped (and held by the brake) for payload utilization at any height between the stowed and maximum limits.

Drive:

Either an AC or DC electric motor/gear drive system is offered, both of which include a heavy duty brake that is rated for severe conditions. No active power is required once the tower sections have been raised to the desired height and automatically secured by the brake.

Power Source:

An appropriate AC or DC electrical power source is required for use only when raising or lowering the tower. This can be a customer supplied power source or one of Tower Solutions' available power options.

**Emergency
Crank Down:**

The tower is equipped with an emergency, manual crank down or up system. If conditions permit, a customer supplied battery-powered electric drill can be substituted for the crank.

Enclosures: All electrical controls are enclosed in drip proof enclosures.

During tower deployment or retraction, the slowly rotating bales of tower sections are contained within the tower frame, but not fully enclosed.

**Standard
Leveling
System:**

A level sensing system notifies the operator with an indicator light when the unit is level within +/- 1 degree. In addition, bubble level units are located at each corner of the trailer to further facilitate the leveling process.

Each unit is leveled with four heavy duty drop-leg leveling jacks attached to the trailer frame.

Tower Control: The basic tower is controlled by UP and DOWN buttons located on the tower's main electrical control box.

**Access
Catwalk
and Ladder:**

Standard access to customer equipment-payload on a retracted tower is provided by a non-skid catwalk. This catwalk offers access from the back side of the payload from a rear mounted ladder on the trailer.

**The
Outrigger
System**

Description: The outrigger system consists of four tubular assemblies that attach to the corners of the tower trailer frame and extend jacks out 14 feet (4.27 meters) diagonally from the tower vertical centerline, creating a 16'-8" x 22' (5.08 x 6.7 meters) support pattern. The outriggers are easily assembled on-site as part of the unit set-up. The outrigger system can accommodate a +/- 18 inch (46 cm) variance in ground surfaces. When not in use, the outriggers are stored in brackets on the exterior of the tower frame.

The Trailer

- Description:** The tower and outrigger assemblies are mounted on a heavy double axle steel trailer. The trailer is equipped with:
- electrically actuated braking system,
 - fenders to protect the tower mechanism from road debris,
 - 2-heavy duty, tandem, slip spring suspension axles,
 - heavy duty commercial tires, and
 - For the PTC-100, a 2-5/16 inch (.79 cm) diameter ball style trailer hitch with adjustable height location is provided.

General Features

Color: The standard unit is delivered with the trailer and mechanism tan in color and the tower in natural aluminum. Standard product identification, instructional, safety and operational information decals are strategically applied to the unit for operator convenience and safety.

Overall Size: The retracted footprint is approximately 102 inches (2.59 meters) wide x 212 inches (5.39 meters) long x 11.5 feet (3.5 meters) high, including (or not including) the customer payload or the trailer hitch. Total approximate weight less customer payload is 8,500 pounds (3,856 kg).

Options

Options are available to meet specific customer requirements.