Through extensive development and testing, the Power Tower cooling tower cells are space efficient, highly versatile and have a lower first cost and operating cost when compared to other cooling methods.

Advantage’s Power Tower is simple to operate with easy to understand controls and utilizes energy-efficient evaporative cooling to provide cooled water for a variety of industrial applications and equipment.

Power Towers receive warm water returning from the process and evenly distributes it over the wet deck using its water distribution header and spray nozzles. The direct drive fan draws air from the inlet louvers, through the wet deck and out the top of the tower.

The falling water and counter airflow causes a portion of the warm process water to evaporate. The small amount of water evaporating cools the remaining water.

Under design conditions about 1% of the water flow rate evaporates to achieve the cooling affect desired.

- Maintains full capacity & temperature control stability over a wide range of wind, air temperature and humidity extremes
- Capacity range is from 45 to 540 tons
- The nominal rating condition is cooling 3 gallons per minute per ton of capacity from 95°F to 85°F at 78°F wet bulb
- All wetted surfaces are made of fiberglass, stainless steel, PVC or other non-rusting material
- Materials are designed for constant water contact under hot and cold air temperature extremes
- Fiberglass shells up to 1/2" thick in structural areas assure mechanical integrity and long service life
FEATURES

TOWER DESIGN
• Totally non-ferrous wetted surfaces
• Single or multiple fan cells
• Single inlet and drain connections (45 to 270 ton models)
  or two inlet and drain connections (315 to 540 ton models)
• Structural galvanized steel base (45 to 135 ton models) or painted steel base (170 to 540 ton models)
• Designed for outdoor installation

SHELL CONSTRUCTION
• High strength fiberglass, with additional 1/2” of structural thickness in reinforced areas, and finished with UV stabilized coating
• A two part methacrylate adhesive bonds the shell halves together

FAN
• Glass filled polypropylene blades are air foil shaped for optimum air flow
• Fan is direct drive and is the only moving part in the cooling tower

MOTOR
• Totally Enclosed Fan Cooled (TEFC) motors are rated for outdoor and moist air extremes
• The fan and motor assembly is supported by a stainless steel framework attached to the fiberglass shell at reinforced locations held in place by stainless steel fasteners

WATER DISTRIBUTION HEADER
• The computer designed non-ferrous water distribution header assures complete wet deck coverage under a wide range of flow rates
• The spray nozzles have no small orifices to plug
• The PVC header is stationary, with no rotating “spray trees” that create excessive pressure drop and waste system pump energy

WET DECK
• Constructed using PVC with tacked honeycomb pattern maximizing water and air flow promoting greater cooling efficiency

DRIFT ELIMINATORS
• Placed above the stationary water distribution header to prevent water drift from the top of the cell
• Drift eliminators and air inlet louvers combine to save water, prevent winter icing and maintain a dry area around the cell

INSPECTION COVERS
• Easy to remove and reinstall
• A gasket seals the cover to prevent water leakage
• Fasteners attach the cover to the shell
• The inspection openings are used for water distribution system maintenance and are large enough for wet deck replacement

WARRANTY
• 10 year shell warranty
• 5 year fan and motor warranty

Engineered and Constructed for Performance and Dependability

www.AdvantageEngineering.com
OPTIONS
FAN STARTER KIT
• Motor starter
• NEMA 1 enclosure
• Fan thermostat
SIDE OUTLET
(Required when no remote tank will be used)
• PVC flange
• Factory installed
BASIN FLOAT VALVE
(Required when no remote tank will be used)
• Mechanical float and water make-up valve
• Factory or field installed

TOWER STAND (pictured right)
• Elevates tower for use with above ground indoor or remote tanks
• Since all Power Tower Cells include a structural base, stands are simple and inexpensive compared to stands for competitive cooling towers that often require special and more complex structures

OPTIONAL CLOSED LOOP SYSTEM
(See detailed information below)

Reduce Maintenance with a Closed Loop System
Closed loop systems use high efficiency plate and frame heat exchangers to isolate the process water from the water circulated through the cooling tower. Process water is isolated from the contaminants contained in the tower water loop keeping the process water clean and decreasing maintenance needs for hydraulic heat exchangers, molds, rolls, chiller condensers and other equipment.

Built for the Industrial Environment
- Fan Motor With Stainless Steel Support Framework
- Air-Foil Shaped Glass Filled Polypropylene Fan Blades
- Drift Eliminator
- Stationary Water Distribution Header and Spray Nozzles
- Inspection Cover
- Stacked Honey Comb Wet Deck
- Wet Deck Shelf and Flow Diverter (not visible)
- Inlet Louvers
- Flooded Sump Outlet
- Structural Steel Base

www.AdvantageEngineering.com
1. Cooling water from 95˚F to 85˚F at 3 gpm/ton and 78˚F wet bulb temperature.  
2. When used with remote sump. Consult factory for connection size when the base of the tower will be used as the water reservoir.

The treatment of cooling tower water is critical. Chemicals and biocides or other treatment systems must be used in quantities and combinations sufficient to control the presence of Legionella, minimize biofilms and prevent scaling and corrosion. Always consult with a local water treatment expert.

Most Advantage cooling tower systems employ a two pump system with a pump dedicated to process flow and a second pump dedicated to providing the proper flow through the cooling tower. A two pump system is preferred because process flow often changes based on production demand changes while the second pump delivers a constant flow to the tower to maximize cooling efficiency.

With advanced planning, your system can be expanded to meet future cooling needs and to provide system back up and redundancy.

### TYPICAL FLOW SCHEMATIC – OPEN LOOP SYSTEM

Most Advantage cooling tower systems employ a two pump system with a pump dedicated to process flow and a second pump dedicated to providing the proper flow through the cooling tower. A two pump system is preferred because process flow often changes based on production demand changes while the second pump delivers a constant flow to the tower to maximize cooling efficiency.

With advanced planning, your system can be expanded to meet future cooling needs and to provide system back up and redundancy.

### TYPICAL SYSTEM

- **Cooling Tower(s)**
- **Indoor Tank & Pumps**

### EXPANDED or MULTI-CELL SYSTEM

- **Cooling Tower(s)**
- **Indoor Tank & Pumps**
- **Process**

### MODEL OPTIONS

<table>
<thead>
<tr>
<th>Model Designator for Power Tower Series Cooling Towers</th>
</tr>
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<tbody>
<tr>
<td>TC – 135 F</td>
</tr>
<tr>
<td>Cooling Tower</td>
</tr>
<tr>
<td>Tons of Capacity</td>
</tr>
<tr>
<td>Construction F: Fiberglass</td>
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### Water Capacity

<table>
<thead>
<tr>
<th>Model</th>
<th>TC-45F</th>
<th>TC-85F</th>
<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
<th>TC-210F</th>
<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
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</thead>
<tbody>
<tr>
<td>Tons</td>
<td>1</td>
<td>45</td>
<td>85</td>
<td>105</td>
<td>135</td>
<td>170</td>
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### Flow Rate

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<tr>
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<th>TC-45F</th>
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<th>TC-135F</th>
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<tbody>
<tr>
<td>GPM</td>
<td>135</td>
<td>255</td>
<td>315</td>
<td>405</td>
<td>510</td>
<td>630</td>
<td>810</td>
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### Fan (direct drive)

<table>
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<tr>
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<th>TC-85F</th>
<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
<th>TC-210F</th>
<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
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<tbody>
<tr>
<td>Quantity</td>
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<td>1</td>
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<td>2</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>RPM</td>
<td>1,170</td>
<td>1,170</td>
<td>1,170</td>
<td>870</td>
<td>1,170</td>
<td>1,170</td>
<td>1,170</td>
<td>870</td>
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<tr>
<td>CFM (total)</td>
<td>12,040</td>
<td>21,700</td>
<td>25,000</td>
<td>30,500</td>
<td>43,400</td>
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<td>61,000</td>
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### Fan Motor

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<tr>
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<th>TC-45F</th>
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<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
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<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
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<tbody>
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<td>Quantity</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td>2</td>
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<td>3</td>
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<tr>
<td>Fan HP (each)</td>
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<td>5</td>
<td>10</td>
<td>7.5</td>
<td>5</td>
<td>10</td>
<td>7.5</td>
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<tr>
<td>Total Nameplate HP</td>
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<td>5</td>
<td>10</td>
<td>7.5</td>
<td>10</td>
<td>20</td>
<td>15</td>
<td>30</td>
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<td>30</td>
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<tr>
<td>Amps @ 230/3/60</td>
<td>9.2</td>
<td>14.6</td>
<td>28.2</td>
<td>24.2</td>
<td>29.2</td>
<td>56.4</td>
<td>48.4</td>
<td>84.6</td>
<td>72.6</td>
<td>96.8</td>
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<tr>
<td>Amps @ 460/3/60</td>
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<td>7.3</td>
<td>14.1</td>
<td>12.1</td>
<td>14.6</td>
<td>28.2</td>
<td>24.2</td>
<td>42.3</td>
<td>36.3</td>
<td>48.4</td>
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<tr>
<td>Amps @ 575/3/60</td>
<td>3.7</td>
<td>5.8</td>
<td>11.5</td>
<td>9</td>
<td>11.6</td>
<td>23.0</td>
<td>18.0</td>
<td>34.5</td>
<td>27.0</td>
<td>36.0</td>
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### Tower Connections (inches)

<table>
<thead>
<tr>
<th>Model</th>
<th>TC-45F</th>
<th>TC-85F</th>
<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
<th>TC-210F</th>
<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
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<tbody>
<tr>
<td>To Tower</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>From Tower (drain)</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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</table>

### Dimensions (inches)

<table>
<thead>
<tr>
<th>Model</th>
<th>TC-45F</th>
<th>TC-85F</th>
<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
<th>TC-210F</th>
<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
<th>TC-540F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>138</td>
<td>138</td>
<td>138</td>
<td>140</td>
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<td>140</td>
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<tr>
<td>Length</td>
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<td>84</td>
<td>96</td>
<td>145</td>
<td>145</td>
<td>169</td>
<td>217</td>
<td>254</td>
<td>338</td>
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<tr>
<td>Depth</td>
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<td>73</td>
<td>73</td>
<td>85</td>
<td>84</td>
<td>84</td>
<td>96</td>
<td>96</td>
<td>96</td>
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</table>

### Weight (pounds)

<table>
<thead>
<tr>
<th>Model</th>
<th>TC-45F</th>
<th>TC-85F</th>
<th>TC-105F</th>
<th>TC-135F</th>
<th>TC-170F</th>
<th>TC-210F</th>
<th>TC-270F</th>
<th>TC-315F</th>
<th>TC-405F</th>
<th>TC-540F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry</td>
<td>725</td>
<td>1,290</td>
<td>1,390</td>
<td>1,950</td>
<td>2,210</td>
<td>2,250</td>
<td>3,135</td>
<td>4,000</td>
<td>5,350</td>
<td>6,800</td>
</tr>
<tr>
<td>Wet</td>
<td>1,470</td>
<td>3,100</td>
<td>3,200</td>
<td>4,200</td>
<td>5,400</td>
<td>5,640</td>
<td>7,000</td>
<td>10,700</td>
<td>11,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Shipping</td>
<td>1,100</td>
<td>1,580</td>
<td>1,680</td>
<td>1,950</td>
<td>2,210</td>
<td>2,250</td>
<td>3,135</td>
<td>4,000</td>
<td>5,350</td>
<td>6,800</td>
</tr>
</tbody>
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