COOLING TOWERS

- **Temperature Control Units**
  Water & Oil
  30° - 500°F
- **Portable Chillers**
  Air & Water-Cooled
  20° - 70°F
- **Central Chillers**
  Air & Water-Cooled
  Packages & Modules
  20° - 70°F
- **Pump Stations**
  Chilled or Tower Water
  200 - 3600 gallons
- **Cooling Tower Cells**
  45 - 540 tons
- **Filters**
- **Heat Exchangers**

WARRANTY

- **5 Year:**
  Covering fan and motor
- **10 Year:**
  Covering the fiberglass shell

POWER TOWER™ SERIES

- **Fiberglass Construction**
- **45 to 540 Tons**

405 ton Power Tower® cooling tower

135 ton Power Tower® cooling tower

YOUR PROCESS DEMANDS THE MOST DEPENDABLE TOWER CELL AVAILABLE.

Advantage Power Tower® Series cooling towers won't let you down. Every Advantage tower cell is supported by application expertise, engineering know how, and un-surpassed service support from experienced technicians.

Since 1977 Advantage has been applying, designing and servicing the best chillers available.

APPLICATIONS

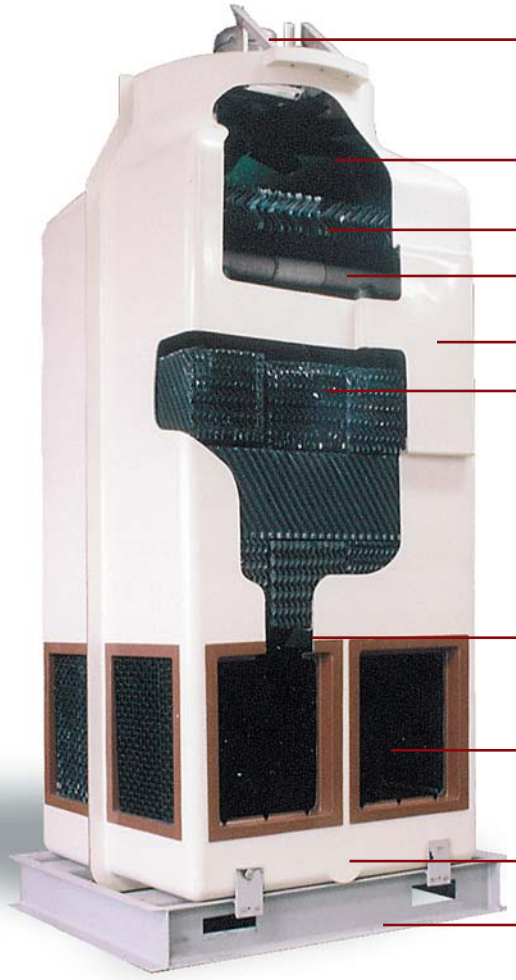
Power Tower® Series cooling towers can be used on a variety of process applications that require 75°F to 85°F cooling water.

Molds & Dies | Nozzles, Barrels & Tools | Heat Exchangers | Troughs & Tanks | Rolls | Radiators and Air Coils | Jacketed Vessels and Mixers | Lasers

Made in the U.S.A

BUILT FOR THE INDUSTRIAL ENVIRONMENT

Power Tower® cooling tower cells provide cooling water to industrial applications such as hydraulics, chiller condensers, temperature control units and other equipment requiring water for cooling. **Advantage Engineering** is the exclusive manufacturer of the ***Power Tower®***. Extensive testing and design has resulted in a compact, space efficient and highly versatile cooling tower. ***Power Tower®***cooling tower cells are available from 45-540 tons cooling capacity in single and expanded cell systems.



COUNTER AIR FLOW DESIGN... the ***Power Tower®*** maintains full capacity and temperature control stability over a wide range of wind, air temperature and humidity extremes. Nominal rating conditions are cooling 3 gallons per minute per ton of capacity from 95°F to 85°F at 78°F wet bulb.

CONSTRUCTION... with the exception of the structural steel base, the ***Power Tower®*** is constructed entirely of non-ferrous materials. All wetted surfaces including the shell, wet deck, fan/motor frame work and header are either fiberglass, stainless steel or PVC. These materials are designed for constant water contact under hot/cold air temperature extremes. Fiberglass shells, up to 1/2" thick in structural areas assure mechanical integrity and long service life.

WARRANTY AND SERVICE... the ***Power Tower®*** comes with a 10 year warranty on the fiberglass shell and a 5 year warranty on the mechanical components. The **Advantage Service Department** is staffed with experienced technicians, and supported by a nationwide network of service personnel. With **Advantage**, service is only a phone call away.

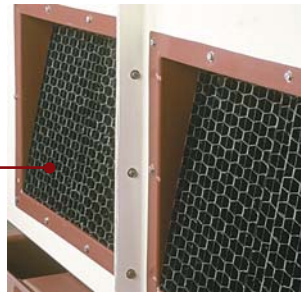
HOW IT WORKS... warm water returning from process is evenly distributed over the wet deck by the water distribution header and spray heads while the direct drive fan draws air from the inlet louvers, through the wet deck and out the top of the tower. The falling water and counter airflow causes a portion of the warm process water to evaporate. When the small portion of the warm process water evaporates the latent heat of evaporation cools the remaining water to the desired temperature. At design conditions about 1% of the water flow rate evaporates to achieve the cooling affect desired.

WATER TEMPERATURE... the minimum water temperature that can be achieved by an evaporative cooling tower is dependent on the wet bulb temperature, which is a reporting of the current ambient temperature and humidity. Generally cooler and dryer air can result in cooler water. Advantage cooling towers can produce water between 5° & 10°F above the current wet bulb temperature which is often cooler then the outside ambient air temperature. Contact Advantage to determine your expected performance. The maximum recommended entering water temperature is 115°F.

COMPONENTS

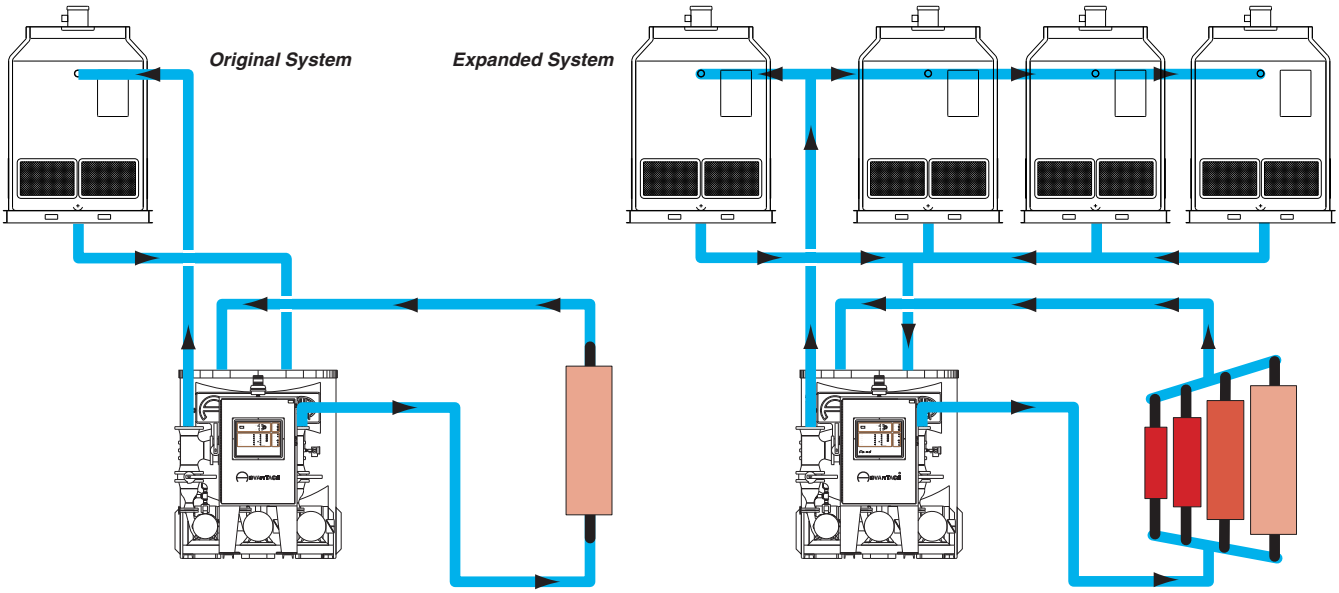
HIGH VOLUME FAN AND MOTOR ASSEMBLY... the only moving part and it's nearly maintenance free! A glass filled polypropylene is molded into air foil shaped fan blades. Fan blades are set at the factory to achieve optimum air flow. Totally Enclosed Fan Cooled (TEFC) motors are rated for outdoor and moist air extremes found in cooling tower applications. The fan/motor assembly is supported by a stainless steel framework which is attached to the fiberglass shell at reinforced locations with stainless steel fasteners.

HIGH PERFORMANCE INLET LOUVERS... are positioned to minimize "splash out" and direct incoming air at the proper angle for even distribution into the wet deck. Louvers prevent large air borne debris (such as leaves) from entering the system. Louvers are removable for cleaning.



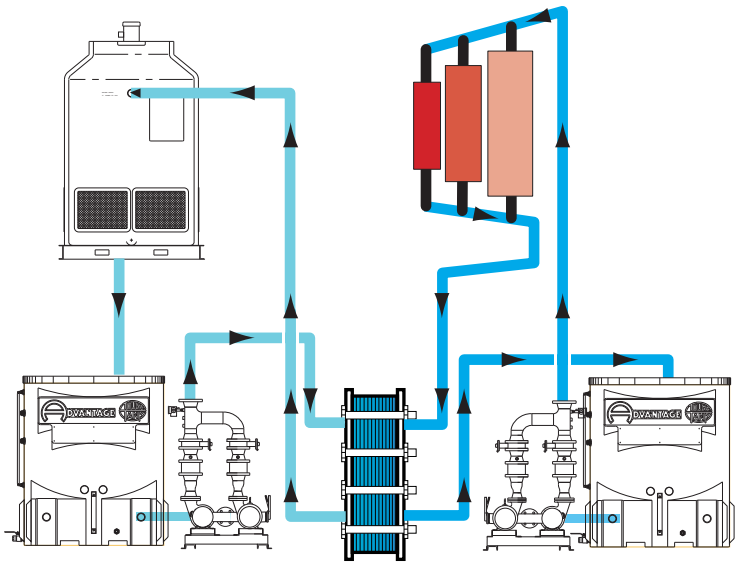
PLAN FOR FUTURE GROWTH

Additional pumping capacity and electrical interfaces can be anticipated in the basic pump tank/tower cell design. By adding additional ***Power Tower®*** cells, the system grows as your process cooling requirements grow. The future additions of tower cells also add flexibility of operation and back up redundancy for maintenance periods. Operating cost is reduced during off-peak low load periods since the tower cell fan motors are staged and consume only the electrical energy required for the present cooling requirement.



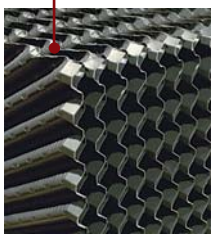
CLOSED LOOP SYSTEMS

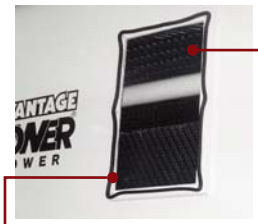
HEAT EXCHANGERS...
Advantage uses plate and frame heat exchangers for long service life and high efficiency.



REDUCE MAINTENANCE WITH CLOSED LOOP TOWER SYSTEMS. Closed circuit systems utilize a heat exchanger to separate process water from tower water. Process water is isolated from the contaminants contained in the tower water loop keeping the process water clean and easily maintained. Closed circuit systems can minimize contamination and maintenance of hydraulic heat exchangers, molds, rolls, chiller condensers and other equipment.

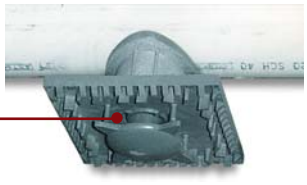
WET DECK... PVC wet deck permits greater capacity in a small physical space. Computer designed "stacked honeycomb" channels allow for greater water flow and increased air volume.





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 to reinstall. A seamless gasket seals the cover to prevent water leakage. Fasteners attach the cover to the shell. The inspection openings are used for spray head maintenance and are large enough for wet deck replacement.



SPRAY HEADS... the computer designed water distribution header assures complete wet deck coverage under a wide range of flow rates. The spray heads 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 capacity.

EXPANDED CELL UNITS

Expanded cell units offer exceptional flexibility and larger capacity in a small physical space. Expanded cell units have a single self-supporting structural base and are shipped complete with no field assembly required. Single water inlet and drain connections eliminate the need for on-site manifolding for TC-170F through TC-270F models. TC-315F through TC-540F models have 2 inlets and 2 drains. The fans on the expanded cell units can be staged based on tower water temperature to match cooling capacity to the process cooling load.

540 ton Power Tower® cooling tower

Model	Capacity Stages
TC-170F	0% - 50% - 100%
TC-210F	0% - 50% - 100%
TC-270F	0% - 50% - 100%
TC-315F	0% - 66% - 100%
TC-405F	0% - 66% - 100%
TC-540F	0% - 50% - 100%

TOWER STANDS

Tower stands are used to elevate the tower when a remote above ground tank is used in the system. Competitive fiberglass and galvanized towers require special structures.
Power Towers® require only four steel posts, one at each corner. Build your own stand using drawings supplied by Advantage or purchase the stand from Advantage as a part of a complete system. Optional tower stand catwalks with railings and ladders are available.

STANDARD FEATURES

TOWER DESIGN:
- Designed, developed and manufactured by **ADVANTAGE**
- Single or expanded cell designs
- Total non-ferrous wetted surfaces
- Single inlet and drain connections on models up to 270 tons
- Two inlet and drain connections on models from 315 to 540 tons
- Counter-flow air movement
- Structural galvanized steel base on 45 to 135 ton models
- Structural painted steel base on 170 to 540 ton models

SHELL CONSTRUCTION:
- High strength fiberglass molding
- 1/2" of structural thickness in reinforced areas
- UV stabilized coating
- Acrylic adhesive bonding between shell halves
- Polyurethane sealant

FAN:
- Air foil shaped blades for increased air flow
- Glass filled polypropylene blades
- Direct drive
- Factory set for maximum air movement

MOTOR:
- TEFC construction
- Mounted on a stainless steel frame
- Supported on reinforced fiberglass shell area
- Mounted to shell with stainless steel fasteners

DISTRIBUTION HEADER:
- Non-ferrous PVC construction
- Stationary
- Computer designed spray pattern
- Large orifice spray heads
- ABS spray heads
- Drift eliminator prevents over spray and water loss

INLET LOUVERS:
- PVC construction
- Easily removed for cleaning
- Vertical orientation to eliminate 'splash out'
- Directs air flow at proper angle for even distribution into wet deck
- Helps prevent air-borne debris from entering cell

WET DECK:
- Stacked honeycomb pattern maximizes water and air flow for greater cooling efficiency
- PVC construction

INSPECTION COVERS:
- Easily removed
- Seamless gasket sealing
- Allows for inspection of cell interior and replacement of wet deck

WARRANTIES:
- 10 year shell warranty
- 5 year motor/fan warranty

OPTIONS

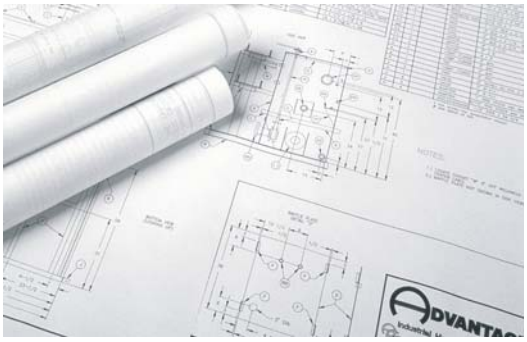
FAN STARTER KIT:
- Motor starter
- Nema 1 enclosure
- Fan thermostat

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 valve
- 1/2" supply connection
- Factory or field installed

TOWER STAND:
- 10' corner post design with cross bracing
- Ladder and railing attachments

ENGINEERING DESIGN SERVICE



Advantage staffs a complete CAD based **Engineering Department** with experienced water system designers. Working from customer supplied facility and process information, **Advantage** designers analyze the entire system and select the correct component combinations to provide the most efficient output. If one of our standard systems does not fit your application requirements, then **Advantage** will design a custom system from a long list of available options. With the purchase of an **Advantage** tower water system, water distribution drawings are provided for contractor bidding and installation work.

SPECIFICATIONS

POWER TOWER SPECIFICATIONS		TC-45F	TC-85F	TC-105F	TC-135F	TC-170F	TC-210F	TC-270F	TC-315F	TC-405F	TC-540F
WATER CAPACITY	Capacity (tons)[1]	45	85	105	135	170	210	270	315	405	540
	Flow rate (gpm)	135	255	315	405	510	630	810	945	1,215	1,620
FAN (direct drive)	Quantity	1	1	1	1	2	2	2	3	3	4
	RPM	1,170	1,170	1,170	870	1,170	1,170	870	1,170	870	870
	CFM (total)	12,040	21,700	25,000	30,500	43,400	50,000	61,000	76,388	91,500	122,000
MOTOR	Quantity	1	1	1	1	2	2	2	3	3	4
	Total nameplate HP	3	5	10	7.5	10	20	15	30	22.5	30
	Amps @ 230/3/60	9.6	15.2	28.8	28.0	30.4	57.6	56.0	86.4	84.0	112.0
	Amps @ 460/3/60	4.8	7.6	14.4	14.0	15.2	28.8	28.0	43.2	42.0	56.0
	Amps @ 575/3/60	3.9	6.1	12.0	12.0	12.1	24.0	24.0	36.0	36.0	48.0
TOWER CONNECTIONS (inches)	To Tower	3	4	4	4	6	6	6	2@6	2@6	2@6
	From Tower (drain)[2]	4	6	6	6	10	10	10	2@10	2@10	2@10
DIMENSIONS (inches)	Height	138	138	138	140	138	138	140	140	140	140
	Length	60	84	84	96	145	145	169	217	254	338
	Depth	49	73	73	85	84	84	96	84	96	96
WEIGHTS (lbs)	Dry	725	1,290	1,390	1,612	2,210	2,250	3,125	4,000	4,350	5,800
	Wet	1,470	3,100	3,200	4,200	5,600	5,640	7,800	10,700	11,000	15,000
	Shipping	1,100	1,580	1,680	1,950	2,210	2,250	3,125	4,000	5,350	6,800

Notes:
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.

SHIPPING & RIGGING

Power Tower® cooling towers are shipped via standard trucking services. 45 - 135 ton cells are shipped with motor and fan assembly attached. The structural base is attached in the field. This allows the cell to be shipped in standard enclosed tractor-trailers. 170 - 540 ton cells are shipped completely assembled on low bed trailers. Other than rigging the tower cell into place the only required on-site task is the installation of the precut inlet louvers.

OTHER PRODUCTS

Model Designator for Power Tower® Cooling Towers

TC - 135F

- TC: Cooling Tower
- 135: Tons of Capacity
- F: Construction — F: Fiberglass

Southgate Process Equipment, Inc.

ADVANTAGE® MAKING WATER WORK.

TEMPERATURE CONTROLLERS • PORTABLE CHILLERS • CENTRAL CHILLERS • PUMP TANK STATIONS • TOWER SYSTEMS • FILTERS