



RSS Cross Flow Series





Fiberglass Cooling Towers

What is a Cooling Tower?

A cooling tower is a heat rejection device that transfers waste heat from a process to the atmosphere through the cooling of the recirculated water flow. The type of heat rejection is commonly termed "evaporative cooling" in that, the process heat energy is absorbed by the evaporation of a small portion of the circulated flow thereby, reducing the temperature of remaining water for reuse. Cooling towers can commonly provide lower water temperatures than are attainable with "air cooled" or "dry" heat rejection devices.

Common Cooling Tower applications include; Water Cooled Air Conditioning systems, Water Source Heat Pumps, Injection Molding machines, Anodizing processes, Industrial/Hydraulic Oil Coolers, Die Casting and Water Cooled Air Compressors.

The generic term "cooling tower" is used to describe both direct (open circuit) and indirect (closed circuit) heat rejection equipment. While most think of a "cooling tower" as an open circuit contact heat rejection device, the indirect cooling tower, sometimes referred to as a "closed circuit cooling tower" is nonetheless also a cooling tower.

In a direct or open circuit cooling tower warm water is distributed over a labyrinth-like packing or "fill". The fill pack consists of multiple sheets of closely spaced vertical film. The water descends by gravity through the fill pack and is in direct contact with the inlet air. The fill provides an expanded surface area which optimizes the air-water interface allowing the maximum amount of evaporation to take place. The cooled water is then collected in a cold water basin, and returned to the cooling loop to repeat the process. The heated and moisture laden air leaving the fill pack is discharged to the atmosphere which completes the heat transfer cycle. It is important that the tower discharge is isolated from the fresh air inlets to prevent the saturated vapor from being drawn back into the fresh air inlet.

In an indirect, or closed circuit cooling tower there is no direct contact between the process cooling fluid (usually water or a glycol mixture) and the air. Unlike the open cooling tower, the indirect cooling tower has two separate fluid circuits. The closed or system loop houses the primary cooling fluid. This loop picks up heat from the process load and rejects it through the tube bundle or heat exchanger to the open loop of the system. The open loop water then passes over the tube bundle or over a traditional cooling tower fill pack. Contact with the inlet air will complete the evaporation phase of the heat exchange process.

Cooling Towers are also categorized by their air delivery system and the airflow pattern.

There are two basic air delivery systems. In a Natural Draft tower, air flow through the fill pack is created as heat from the hot inlet water rises off of the fill creating a draft effect which draws in cooler air through the tower inlets. In an Induced Draft tower, a fan is used to promote air flow. Induced draft tower can use either bottom or side mounted blower which forces air through the fill pack or a top mounted fan which draws air through the fill.

There are two basic airflow patterns. In a Cross Flow cooling tower, the hot water flows by gravity down through the fill pack and the air travels at near a right angle across the direction of water flow. In a counter flow cooling tower the water flows by gravity down through the fill pack, while the air flows vertically up through the fill pack in the opposite or counter direction to the water flow.

In most tower applications, fresh "Make-up Water" must be added into the system to replace the evaporation loss. Additional make-up will be needed as part of the water treatment process and to account of drift or splash from that may occur during operation.



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RSS Series Cooling Towers

RSS series cross flow cooling towers feature non-corrosive FRP(Fiberglass Reinforced Polyester) construction which will provide years of maintenance free operation. The modular design allows for easy installation. Tower cells can be mounted side by side with common piping to handle most any capacity requirement. With over 20 years in the Fiberglass Cooling Tower experience, RSD cooling towers are sure to provide you the performance and reliability you demand.

FRP(Fiberglass Reinforced Polyester) Construction: All RSS towers feature FRP Fan Stack, Casing and Water Basins. The FRP panels are both corrosion and chemical resistant. The gel-coat finish includes UV inhibitors to protect the tower from the damaging effects of the sun.

Motors: All motors are UL recognized TEFC construction, and specially designed for our application. The motors are VFD rated, with frequency drive control panels available as a factory option.

Fan Blades: All tower fans feature cast aluminum construction and provide a large volume of stable air at low noise levels. The fan pitch is adjustable in the field to optimize the performance and to account for variance in static pressure.

Tower Fill: Our tower fill is constructed thermoformed PVC to ensure uniform density across the entire deck. The PVC material is resistant to both chemical and biological attack. The sheets are UV protected and meet the CTI STD-136 for rigid PVC. Limited to 115f continuous duty. Premium fill with higher temperature ratings is also available upon request

Inlet Louvers: Our PVC inlet louvers are designed to allow maximum inlet air while limiting unwanted splash from the tower fill. The PVC material is UV protected and is resistant to both chemical and biological attack.

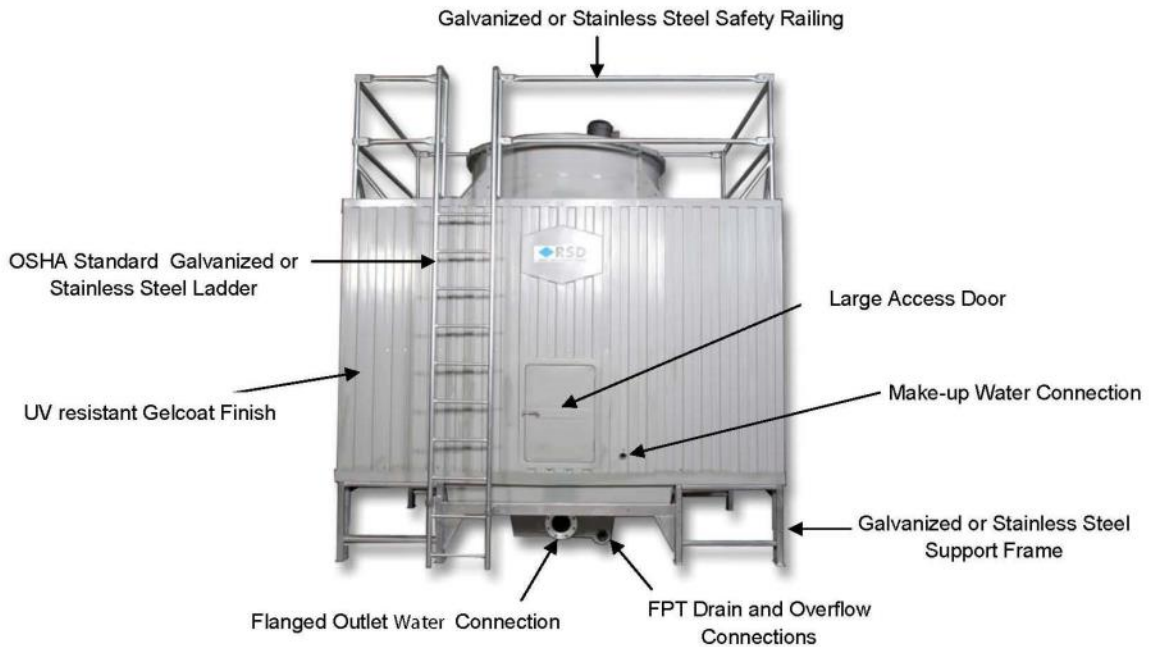
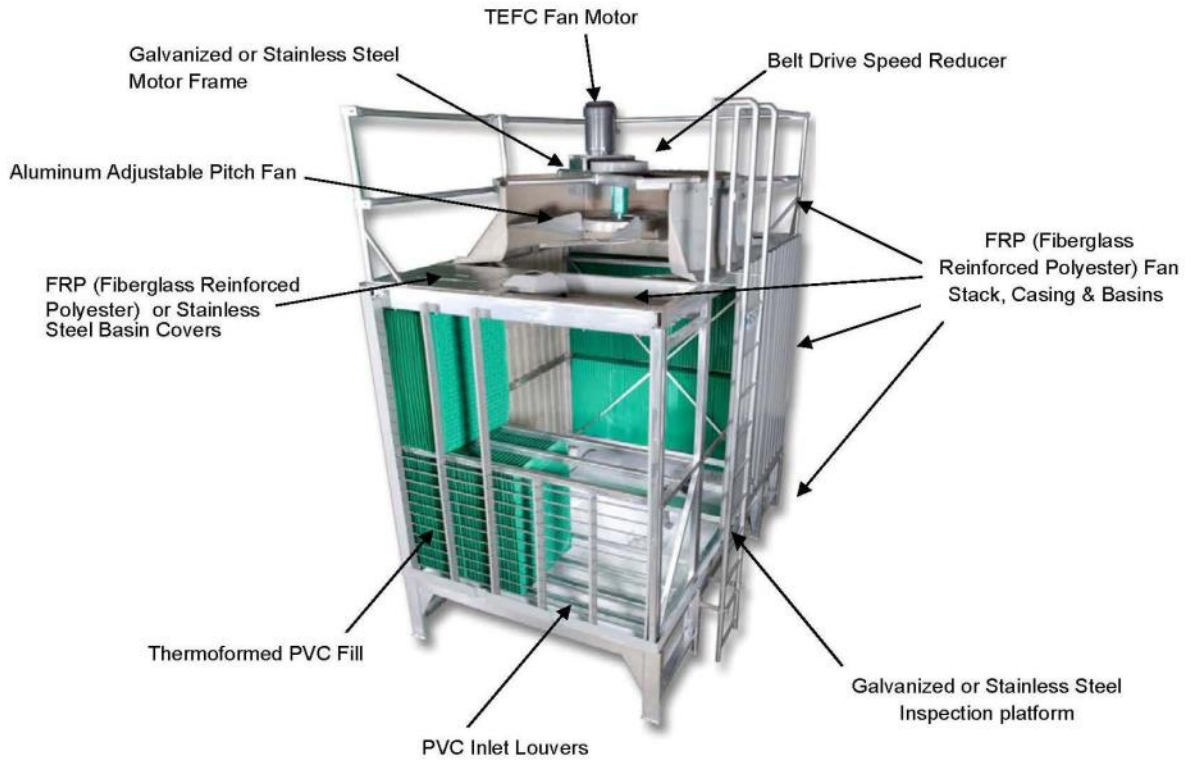
Support Structure: The tower support structure and motor frame are constructed of shot dipped galvanized steel. Optional Stainless Steel components are available upon request

Ladders and Safety Railing: All RSS towers are equipped with an OSHA standard ladders and safety railing to allow safe and easy access during inspection and maintenance. These are available in standard hot dipped galvanized or optional Stainless Steel.

Water Distribution System: Water is distributed across the fill deck through a FRP distribution pan. The pan is easily accessible for inspection and service. There are no moving parts or spray nozzles which makes the system virtually maintenance free. FRP basin covers are provided to keep the tower clean.



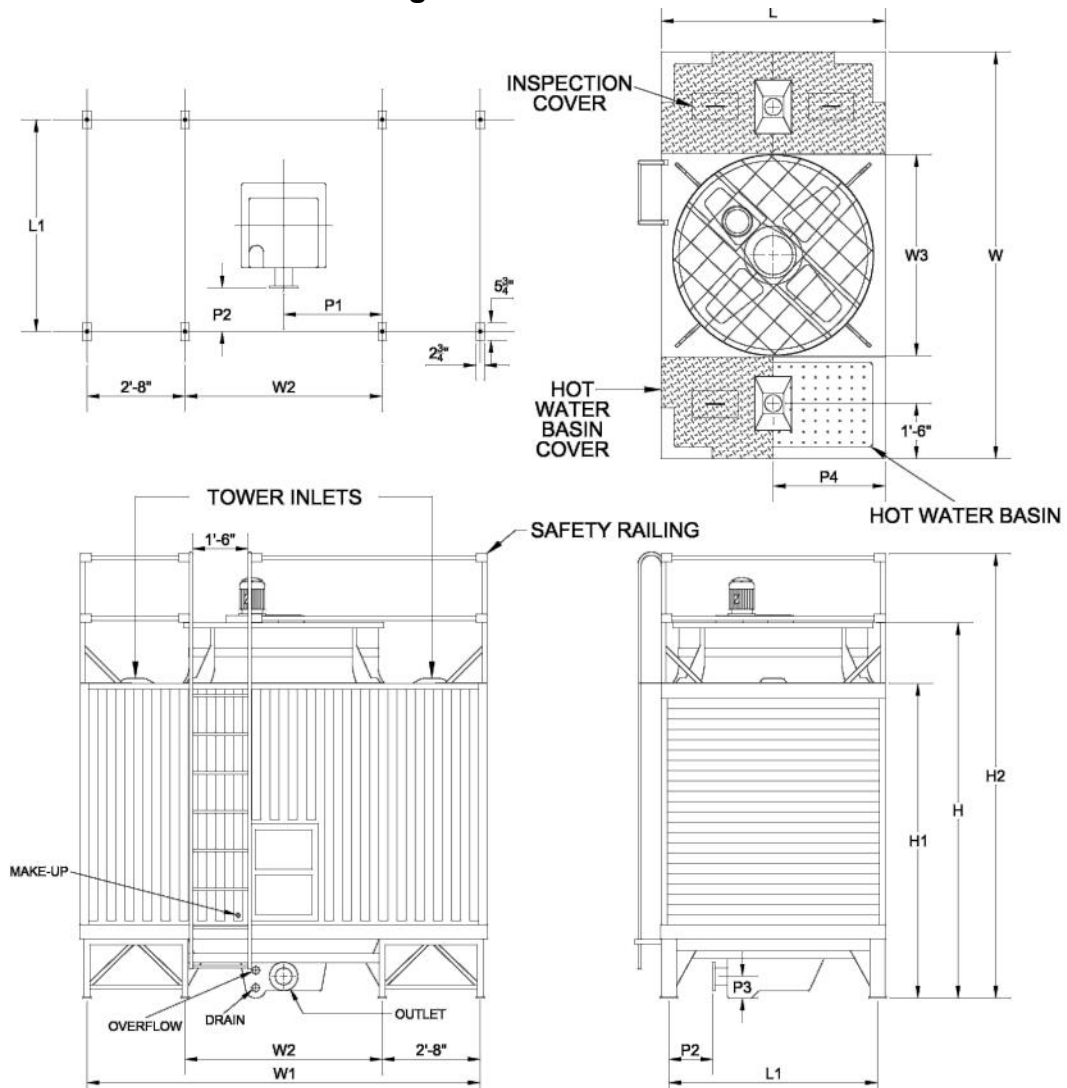
Fiberglass Cooling Towers





Fiberglass Cooling Towers

Single Cell Tower



Model	Motor & Fan Data					Fluid Connections						Weight lbs	
	Mtr HP	Amps 230/460	Fan Dia	Fan Pitch	CFM	GPM*	Pump Head	In Stub	Out Flange	Make Up MPT	Drain & Overflow FPT	Dry	Operating
RSS 132-73-A	3	8.6/4.3	59	15	22,200	205	10	4" x 2	5"	1"	1.5"	2,380	4,510
RSS 132-73-B	5	13.0/6.5	59	15	27,050	250	10	4" x 2	5"	1"	1.5"	2,380	4,510
RSS 144-78-B	5	13.0/6.5	67	17	31,900	295	11	4" x 2	6"	1.5"	2"	2,820	5,990
RSS 144-88-C	7½	20.8/10.4	70 3/4	18	37,850	350	11	4" x 2	6"	1.5"	2"	3,040	6,520
RSS 144-97-C	7½	20.8/10.4	70 3/4	18	42,750	395	11	5" x 2	6"	1.5"	2"	3,260	7,040
RSS 156-109-C	7½	20.8/10.4	82 3/4	21	48,700	450	11	5" x 2	6"	1.5"	2"	3,720	8,190
RSS 156-119-C	7½	20.8/10.4	82 3/4	21	53,570	495	11	5" x 2	8"	1.5"	2"	3,870	8,670

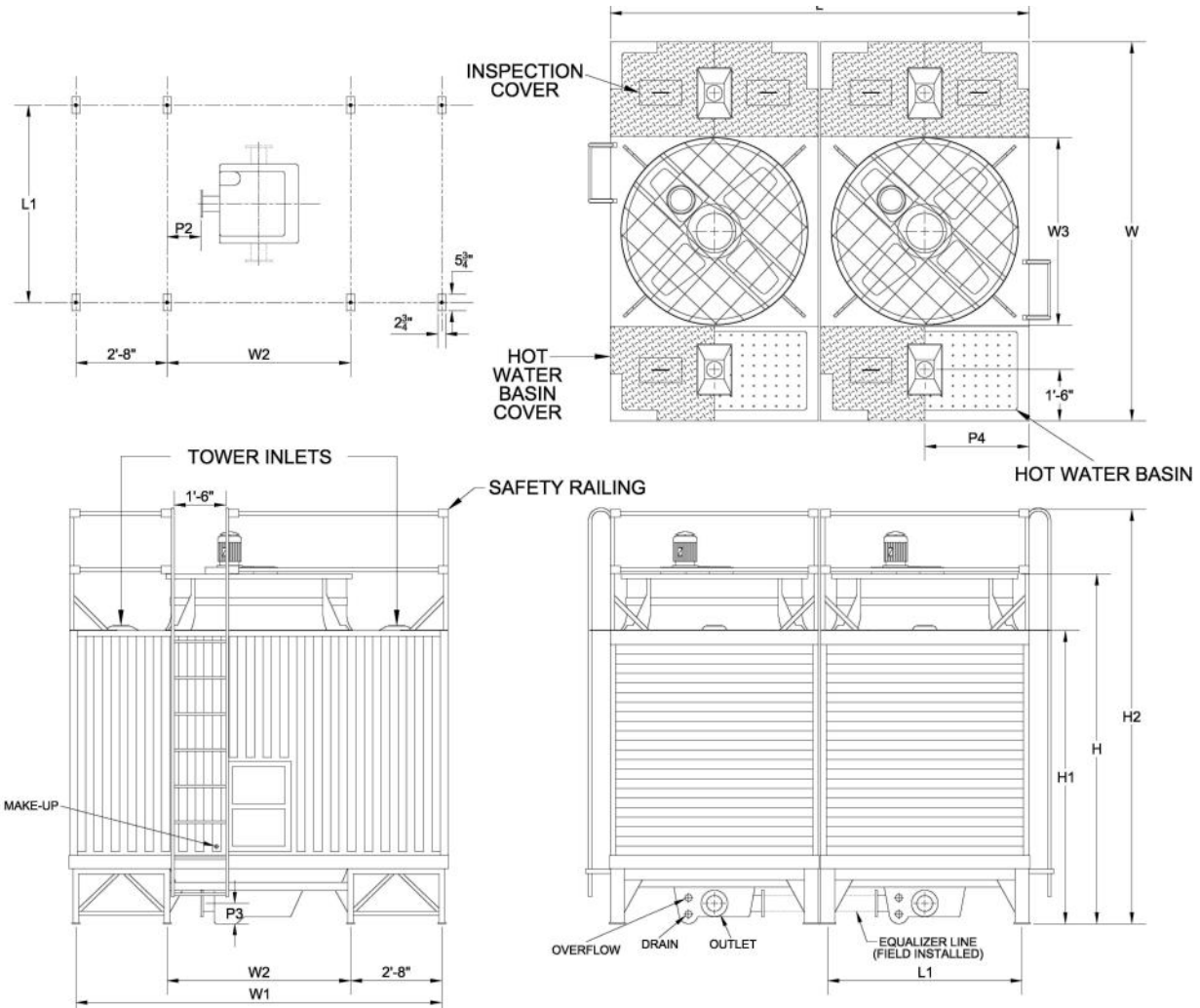
* GPM Based on 95f water in, 85f water out, 78f design wet bulb

Model	L	W	H	L1	W1	W2	W3	H1	H2	P1	P2	P3	P4
RSS 132-73-A	72 3/4	132 1/4	122 1/4	69	128	64 1/4	65 1/2	102 1/4	144 1/2	32	14 1/4	7	36 1/2
RSS 132-73-B	72 3/4	132 1/4	122 1/4	69	128	64 1/4	65 1/2	102 1/4	144 1/2	32	14 1/4	7	36 1/2
RSS 144-78-B	77 3/4	144	141 1/2	72 3/4	139 3/4	76	73	117 3/4	160	38	10 1/2	8 3/4	39
RSS 144-88-C	87 1/2	144	141 1/2	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 144-97-C	97 1/2	144	117 3/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 156-109-C	109 1/4	156	146	104 1/4	151 1/2	87 3/4	89 3/4	117 3/4	160	44	28 1/2	8 3/4	54 3/4
RSS 156-119-C	119	156	146	114 1/4	151 1/2	87 3/4	89 3/4	117 3/4	160	44	31	8 3/4	59 1/2



Fiberglass Cooling Towers

Double Cell Tower



Model	Motor & Fan Data					Fluid Connections						Weight lbs	
	Mtr HP & Qty	Amps Per/Mtr 230/460	Fan Dia	Fan Pitch	Total CFM	GPM*	Pump Head	In Stub	Out Flange	Make Up MPT	Drain & Overflow FPT	Dry	Operating
RSS 132-73-2-A	3 x 2	8.6/4.3	59	15	44,400	410	10	4" x 4	5" x 2	1"	1.5" x 2	4,780	9,020
RSS 132-73-2-B	5 x 2	13.0/6.5	59	15	54,100	500	10	4" x 4	5" x 2	1"	1.5" x 2	4,780	9,020
RSS 144-78-2-B	5 x 2	13.0/6.5	67	17	63,800	590	11	4" x 4	6" x 2	1.5"	2" x 2	5,640	11,980
RSS 144-88-2-C	7½ x 2	20.8/10.4	70 3/4	18	75,700	700	11	4" x 4	6" x 2	1.5"	2" x 2	6,080	13,040
RSS 144-97-2-C	7½ x 2	20.8/10.4	70 3/4	18	85,500	790	11	5" x 4	6" x 2	1.5"	2" x 2	6,520	14,080
RSS 156-109-2-C	7½ x 2	20.8/10.4	82 3/4	21	97,400	900	11	5" x 4	6" x 2	1.5"	2" x 2	7,440	16,380
RSS 156-119-2-C	7½ x 2	20.8/10.4	82 3/4	21	107,140	990	11	5" x 4	6" x 2	1.5"	2" x 2	7,740	17,340

* GPM Based on 95f water in, 85f water out, 78f design wet bulb

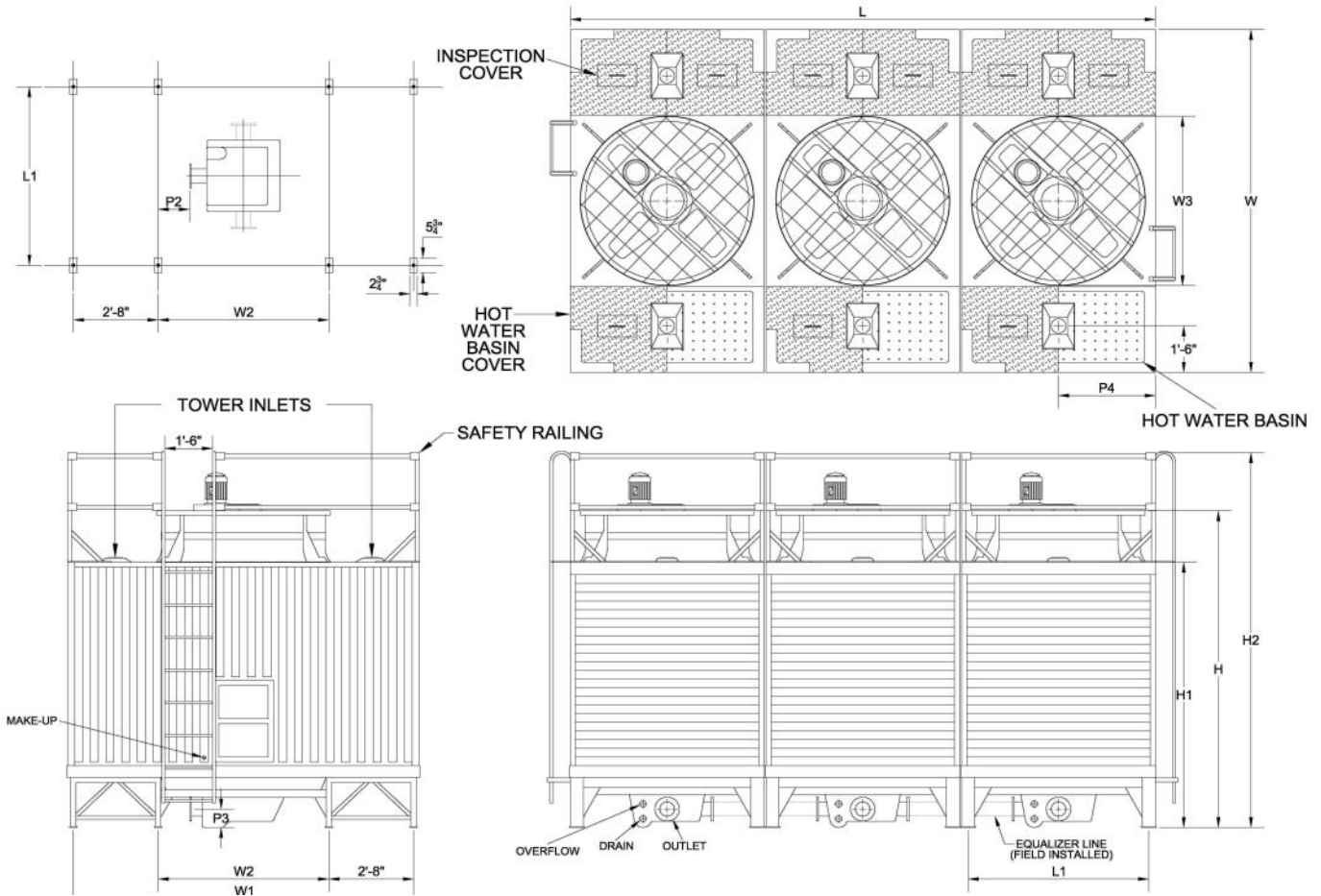
Model	L	W	H	L1	W1	W2	W3	H1	H2	P1	P2	P3	P4
RSS 132-73-2-A	145 3/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 132-73-2-B	145 3/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 144-78-2-B	155 2/4	144	139 3/4	72 3/4	139 3/4	76	73	117 3/4	160	38	10 2/4	8 3/4	39
RSS 144-88-2-C	175 1/4	144	139 3/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 144-97-2-C	195	144	139 3/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 156-109-2-C	218 2/4	156	143 3/4	104 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	28 2/4	8 3/4	54 3/4
RSS 156-119-2-C	238 1/4	156	143 3/4	114 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	31	8 3/4	59 2/4

* Each cell is free standing. Equalizer lines to be field installed



Fiberglass Cooling Towers

Triple Cell Tower



Model	Motor & Fan Data					Fluid Connections						Weight lbs	
	Mtr HP & Qty	Amps Per/Mtr 230/460	Fan Dia	Fan Pitch	Total CFM	GPM*	Pump Head	In Stub	Out Flange	Make Up MPT	Drain & Overflow FPT	Dry	Operating
RSS 132-73-3-A	3 x 3	8.6/4.3	59	15	68,800	615	10	4" x 6	5" x 3	1"	1.5" x 3	7,140	13,530
RSS 132-73-3-B	5 x 3	13.0/6.5	59	15	81,150	750	10	4" x 6	5" x 3	1"	1.5" x 3	7,140	13,530
RSS 144-78-3-B	5 x 3	13.0/6.5	67	17	95,700	885	11	4" x 6	6" x 3	1.5"	2" x 3	8,480	17,970
RSS 144-97-3-C	7½ x 3	20.8/10.4	70 3/4	18	113,550	1,050	11	4" x 6	6" x 3	1.5"	2" x 3	9,120	19,580
RSS 144-97-3-C	7½ x 3	20.8/10.4	70 3/4	18	128,250	1,185	11	5" x 6	6" x 3	1.5"	2" x 3	9,780	21,120
RSS 156-109-3-C	7½ x 3	20.8/10.4	82 3/4	21	146,100	1,350	11	5" x 6	6" x 3	1.5"	2" x 3	11,180	24,570
RSS 156-119-3-C	7½ x 3	20.8/10.4	82 3/4	21	160,710	1,485	11	5" x 6	8" x 3	1.5"	2" x 3	11,610	26,010

* GPM Based on 95f water in, 85f water out, 78f design wet bulb

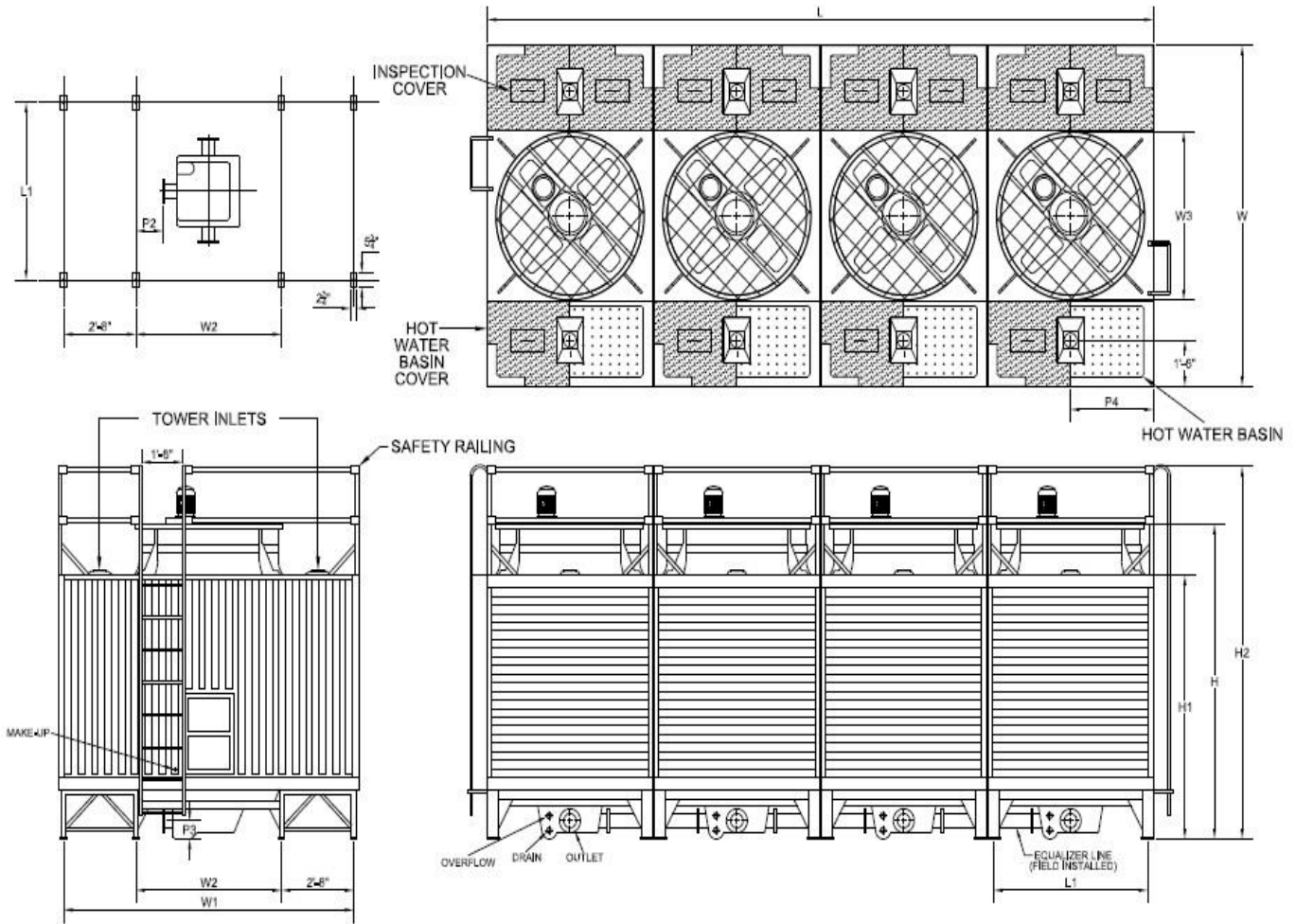
Model	L	W	H	L1	W1	W2	W3	H1	H2	P1	P2	P3	P4
RSS 132-73-3-A	218 2/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 132-73-3-B	218 2/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 144-78-3-B	233 1/4	144	141 2/4	72 3/4	139 3/4	76	73	117 3/4	160	38	10 2/4	8 3/4	39
RSS 144-97-3-C	262 3/4	144	141 2/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 144-97-3-C	292 1/4	144	117 3/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 156-109-3-C	327 3/4	156	146	104 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	28 2/4	8 3/4	54 3/4
RSS 156-119-3-C	357 1/4	156	146	114 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	31	8 3/4	59 2/4

Each Cell is free standing. Equalizer lines to be field installed



Fiberglass Cooling Towers

Quad Cell Tower



Model	Motor & Fan Data					Fluid Connections						Weight lbs	
	Mtr HP & Qty	Amps Per/ Mtr 230/460	Fan Dia	Fan Pitch	Total CFM	GPM*	Pump Head	In Stub	Out Flange	Make Up MPT	Drain & Overflow FPT	Dry	Operating
RSS 132-73-4-A	3 x 4	8.6/4.3	59	15	88,800	820	10	4" x 8	5" x 4	1"	1.5" x 4	9,520	18,040
RSS 132-73-4-B	5 x 4	13.0/6.5	59	15	108,200	1,000	10	4" x 8	5" x 4	1"	1.5" x 4	9,520	18,040
RSS 144-78-4-B	5 x 4	13.0/6.5	67	17	127,600	1,180	11	4" x 8	6" x 4	1.5"	2" x 4	11,280	23,980
RSS 144-88-4-C	7½ x 4	20.8/10.4	70 3/4	18	151,400	1,400	11	4" x 8	6" x 4	1.5"	2" x 4	12,160	26,080
RSS 144-97-4-C	7½ x 4	20.8/10.4	70 3/4	18	171,000	1,580	11	5" x 8	6" x 4	1.5"	2" x 4	13,040	28,160
RSS 156-109-4-C	7½ x 4	20.8/10.4	82 3/4	21	194,800	1,800	11	5" x 8	6" x 4	1.5"	2" x 4	14,880	32,760
RSS 156-119-4-C	7½ x 4	20.8/10.4	82 3/4	21	214,280	1,980	11	5" x 8	8" x 4	1.5"	2" x 4	15,480	34,680

* GPM Based on 95f water in, 85f water out, 78f design wet bulb

Model	L	W	H	L1	W1	W2	W3	H1	H2	P1	P2	P3	P4
RSS 132-73-4-A	291 1/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 132-73-4-B	291 1/4	132 1/4	122 1/4	69	128	64 1/4	65 2/4	102 1/4	144 2/4	32	14 1/4	7	36 2/4
RSS 144-78-4-B	311	144	141 2/4	72 3/4	139 3/4	76	73	117 3/4	160	38	10 2/4	8 3/4	39
RSS 144-88-4-C	350 2/4	144	141 2/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 144-97-4-C	389 3/4	144	117 3/4	82 3/4	139 3/4	76	77 1/4	117 3/4	160	38	17 3/4	8 3/4	43 3/4
RSS 156-109-4-C	437	156	146	104 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	28 2/4	8 3/4	54 3/4
RSS 156-119-4-C	476 2/4	156	146	114 1/4	151 2/4	87 3/4	89 3/4	117 3/4	160	44	31	8 3/4	59 2/4

* Each cell is free standing. Equalizer lines to be field installed



Fiberglass Cooling Towers

HOW TO SELECT A COOLING TOWER

1. OBTAIN THE FOLLOWING INFORMATION

- System flow in gallons per minute
Or
- System load in BTU's per hour
- Desired inlet water temperature (*water returning to the tower*)
Note: Maximum inlet temperature should not exceed 115f.
- Desired outlet water temperature (*water leaving the tower*)
- Design wet bulb temperature
- System temperature range (*inlet temp – outlet temp*)
- System approach temperature (*outlet temp – wet bulb*)

HOW TO CALCULATE THE SYSTEM GPM;

$$\frac{\text{System load in BTU/hr}}{(\text{Temperature Range} \times 500)}$$

HOW TO CALCULATE SYSTEM LOAD IN BTU/HR

$$\text{System flow in gpm} \times (\text{System range} \times 500)$$

2. TOWER SELECTION CAPACITY TABLES*

* *These tables only list the most common system conditions. If your requirements are not listed, use the tower capacity curves.*

- Locate the design Wet Bulb that most closely matches your system requirement
Always choose the next higher value if your system WB is not listed
- Find the System Range (*Water In-out*) that most closely matches your system requirement
- Move down the appropriate column until you find the design GPM for your system
Do not exceed the maximum gpm per tower cell as indicated

2. TOWER SELECTION USING CAPACITY CURVES

- Locate the Inlet Water Temperature for your system in the upper left-hand corner of the curve.
- Follow the inlet temp line horizontally to the right until you intersect the design Wet Bulb
- Move Vertically down the chart until you intersect the diagonal temperature range line.
- Move Horizontally to the right until you reach the System GPM
- Select the tower curve that is to the right of the intersect.**
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** *The tower curves list only single cell performance. If you system load/gpm exceeds the single cell capacity, you will need to divide your system gpm in equal parts and determine the appropriate 2-3 or 4 cell configuration that most closely matches your load requirements.*



Fiberglass Cooling Towers

Alabama	Deg f	Florida	Deg f	Kansas	Deg f	Montana	Deg f	Ohio	Deg f	Texas	Deg f
Birmingham	77	Daytona Beach	79	Dodge City	73	Billings	64	Akron	73	Amarillo	77
Huntsville	77	Ft Lauderdale	80	Topeka	78	Bozeman	62	Cincinnati	76	Brownsville	79
Mobile	79	Ft Myers	80	Wichita	76	Great Falls	63	Cleveland	74	Corpus Christi	80
Montgomery	78	Gainesville	79			Miles City	67	Dayton	76	Dallas	77
		Homestead	80	Kentucky				Youngstown	73	Ft Worth	78
Alaska		Jacksonville	79	Bowling Green	77	Nebraska				Houston	80
Anchorage	59	Miami	79	Ft Campbell	78	Grand Island	74			Laredo	78
Fairbanks	62	Orlando	79	Lexington	75	Lincoln	77	Oklahoma		Lubbock	72
Juneau	59	Panama City	82	Louisville	77	Omaha	77	Lawton	76	San Antonio	77
		Pensacola	80			Scottsbluff	68	Oklahoma City	77	Waco	78
Arizona		Sarasota	81					Tulsa	78		
Flagstaff	60	Tallahassee	79	Louisiana		Nevada				Utah	
Phoenix	76	Tampa	79	Baton Rouge	79	Elko	61			Cedar City	62
Tucson	71			Monroe	79	Las Vegas	71	Oregon		Ogden	64
Yuma	78			New Orleans	80	Reno	62	Astoria	63	Salt Lake City	65
		Georgia		Shreveport	79	Winnemucca	62	Eugene	67		
Arkansas		Atlanta	76					Klamath Falls	64		
Fayetteville	77	Albany	78	Maine		New Hampshire		Medford	67	Vermont	
Ft Smith	78	Brunswick	80	Bangor	71	Concord	73	Portland	67	Burlington	72
Littlerock	79	Savannah	78	Caribou	70	Lebanon	72	Redmond	62	Montpelier	70
				Portland	72	Mount Washington	56	Salem	67		
California											
Bakersfield	71	Hawaii				New Jersey				Virginia	Deg f
Burbank	72	Hilo	76	Maryland		Atlantic City	76	Pennsylvania		Lynchburg	76
Fresno	71	Honolulu	75	Baltimore	76	Newark	76	Allentown	74	Norfolk	77
Lancaster	69	Kahului	76	Lex Park	77	Teterboro	77	Bradford	70	Richmond	78
Long Beach	70	Kaneohe	77	Salisbury	78	Trenton	76	Erie	73	Roanoke	74
Los Angeles	69	Lihue	76					Philadelphia	76		
Ontario	73	Molokai	75	Massachusetts		New Mexico		Pittsburg	74		
Paso Robles	68			Boston	74	Albuquerque	64			Washington	
Riverside	71	Idaho		So Weymouth	75	Carlsbad	71			Bellingham	65
Sacramento	71	Boise	64	Worcester	72	Gallup	61	Rhode Island		Seattle/Tacom	65
Salinas	65	Lewiston	65			Roswell	69	Providence	74	Spokane	63
San Bernardino	73	Pocatello	62							Walla Walla	67
San Diego	71			Michigan		New York				Yakima	66
San Francisco	63	Illinois		Detroit	74	Albany	73	South Carolina			
San Jose	68	Chicago	76	Flint	74	Buffalo	72	Charleston	79		
Stockton	70	Decatur	78	Lansing	75	La Guardia AP	76	Columbia	77	West Virginia	
Victorville	68	Peoria	77	Muskegon	73	Rochester	74	Greenville	76	Bluefield	71
		Rockford	75	Saginaw	75	Syracuse	73	Myrtle Beach	80	Charleston	75
Colorado		Springfield	77	Traverse City	72	White Plains	75			Huntington	76
Colorado Spring	62									Morgantown	74
Denver	63	Indiana		Minnesota		North Carolina		South Dakota			
Grand Junction	64	Evansville	78	Alexandria	73	Charlotte	76	Pierre	72	Wisconsin	
Pueblo	66	Ft Wayne	75	Duluth	69	Fayetteville	78	Rapid City	68	Green Bay	74
		Indianapolis	77	Minneapolis	74	Greensboro	76	Souix Falls	75	LaCrosse	75
		Terra Haute	78	Redwood Falls	75	Jacksonville	79			Milwaukee	74
						Wilmington	79			Wausau	72
Connecticut								Tennessee			
Bridgeport	74							Bristol	74	Wyoming	
Hartford	74	Iowa		Missouri		North Dakota		Chattanooga	77	Casper	61
		Burlington	77	Kansas City	77	Bismarck	70	Jackson	78	Cheyenne	61
Delaware		Cedar Rapids	76	Poplar Bluff	78	Fargo	73	Knockville	76	Seridan	64
Dover	78	Des Moines	76	Springfield	76	Grand Fork	72	Memphis	79	Worland	66
Wilmington	76	Mason City	75	St Louis	78	Minot	69				



Fiberglass Cooling Towers

RSS Cooling Tower Capacity Tables

Wet Bulb Water In-Out	66f				68f				70f				72f			
	85-75	90-75	90-80	95-85	85-75	90-80	92-82	95-85	90-80	92-82	95-85	100-85	90-80	92-82	95-85	100-85
Model																
132-73-A	195	155	305	355*	155	280	315	355*	235	280	345	265	195	240	320	230
132-73-B	240	190	370	430*	190	340	385	430*	285	340	420	325	235	290	390	290
144-78-B	285	225	445	520*	225	405	460	520*	345	410	510	390	280	350	460	350
144-88-C	335	265	520	600*	265	470	540	600*	395	480	590	455	325	410	540	410
144-97-C	385	300	590	685*	305	530	615	685*	455	540	670	520	370	470	605	465
156-109-C	435	340	660	780*	345	605	690	780*	510	620	770	585	420	530	685	525
156-119-C	480	375	740	860*	380	670	760	860*	565	675	840	650	465	585	765	585

SINGLE-CELL

DUAL-CELL

132-73-2-A	390	310	610	710*	310	560	630	710*	470	560	690	530	390	480	640	460
132-73-2-B	480	380	740	860*	380	680	770	860*	570	680	840	650	470	580	780	580
144-78-2-B	570	450	890	1040*	450	810	920	1040*	690	820	1020	780	560	700	920	700
144-88-2-C	670	530	1040	1200*	530	940	1080	1200*	790	960	1180	910	650	820	1080	820
144-97-2-C	770	600	1180	1370*	610	1060	1230	1370*	910	1080	1340	1040	740	940	1210	930
156-109-2-C	870	680	1320	1560*	690	1210	1380	1560*	1020	1240	1540	1170	840	1060	1370	1050
156-119-2-C	960	750	1480	1720*	760	1340	1520	1720*	1130	1350	1680	1300	930	1170	1530	1170

TRIPLE-CELL

132-73-3-A	585	465	915	1065*	465	840	945	1065*	705	840	1035	795	585	720	960	690
132-73-3-B	720	570	1110	1290*	570	1020	1155	1290*	855	1020	1260	975	705	870	1170	870
144-78-3-B	855	675	1335	1560*	675	1215	1380	1560*	1035	1230	1530	1170	840	1050	1380	1050
144-88-3-C	1005	795	1560	1800*	795	1410	1620	1800*	1185	1440	1770	1365	975	1230	1620	1230
144-97-3-C	1155	900	1770	2055*	915	1590	1845	2055*	1365	1620	2010	1560	1110	1410	1815	1395
156-109-3-C	1305	1020	1980	2340*	1035	1815	2070	2340*	1530	1860	2310	1755	1260	1590	2055	1575
156-119-3-C	1440	1125	2220	2580*	1140	2010	2280	2580*	1695	2025	2520	1950	1395	1755	2295	1755

QUAD-CELL

132-73-4-A	780	620	1220	1420*	620	1120	1260	1420*	940	1120	1380	1060	780	960	1280	920
132-73-4-B	960	760	1480	1720*	760	1360	1540	1720*	1140	1360	1680	1300	940	1160	1560	1160
144-78-4-B	1140	900	1780	2080*	900	1620	1840	2080*	1380	1640	2040	1560	1120	1400	1840	1400
144-88-4-C	1340	1060	2080	2400*	1060	1880	2160	2400*	1580	1920	2360	1820	1300	1640	2160	1640
144-97-4-C	1540	1200	2360	2740*	1220	2120	2460	2740*	1820	2160	2680	2080	1480	1880	2420	1860
156-109-4-C	1740	1360	2640	3120*	1380	2420	2760	3120*	2040	2480	3080	2340	1680	2120	2740	2100
156-119-4-C	1920	1500	2960	3440*	1520	2680	3040	3440*	2260	2700	3360	2600	1860	2340	3060	2340

Tower capacity shown in GPM - certified in accordance with CTI standard STD-201

* Capacity Indicated is based on maximum allowable flow for the specified model



Fiberglass Cooling Towers

RSS Cooling Tower Capacity Tables

Wet Bulb Water In-Out	73f				74f				75f				76f			
	90-80	92-82	95-85	97-87	90-80	92-82	95-85	100-85	92-82	95-85	97-87	100-85	92-82	95-85	97-87	100-85
Model	SINGLE-CELL															
132-73-A	175	220	300	340	160	205	285	215	190	265	315	205	170	250	295	195
132-73-B	215	270	365	415	195	250	345	265	230	325	380	250	210	305	360	235
144-78-B	255	325	435	490	230	300	410	320	270	385	450	300	250	360	430	285
144-88-C	300	380	510	575	270	350	480	375	320	450	525	350	290	425	505	330
144-97-C	340	435	575	660	305	400	545	425	365	510	600	400	335	480	570	375
156-109-C	385	490	650	740	345	450	615	480	410	580	680	450	375	545	650	425
156-119-C	430	540	725	835	385	500	685	535	460	645	760	500	420	600	720	470

DUAL-CELL

132-73-2-A	350	440	600	680	320	410	570	430	380	530	630	410	340	500	590	390
132-73-2-B	430	540	730	830	390	500	690	530	460	650	760	500	420	610	720	470
144-78-2-B	510	650	870	980	460	600	820	640	540	770	900	600	500	720	860	570
144-88-2-C	600	760	1020	1150	540	700	960	750	640	900	1050	700	580	850	1010	660
144-97-2-C	680	870	1150	1320	610	800	1090	850	730	1020	1200	800	670	960	1140	750
156-109-2-C	770	980	1300	1480	690	900	1230	960	820	1160	1360	900	750	1090	1300	850
156-119-2-C	860	1080	1450	1670	770	1000	1370	1070	920	1290	1520	1000	840	1200	1440	940

TRIPLE-CELL

132-73-3-A	525	660	900	1020	480	615	855	645	570	795	945	615	510	750	885	585
132-73-3-B	645	810	1095	1245	585	750	1035	795	690	975	1140	750	630	915	1080	705
144-78-3-B	765	975	1305	1470	690	900	1230	960	810	1155	1350	900	750	1080	1290	855
144-88-3-C	900	1140	1530	1725	810	1050	1440	1125	960	1350	1575	1050	870	1275	1515	990
144-97-3-C	1020	1305	1725	1980	915	1200	1635	1275	1095	1530	1800	1200	1005	1440	1710	1125
156-109-3-C	1155	1470	1950	2220	1035	1350	1845	1440	1230	1740	2040	1350	1125	1635	1950	1275
156-119-3-C	1290	1620	2175	2505	1155	1500	2055	1605	1380	1935	2280	1500	1260	1800	2160	1410

QUAD-CELL

132-73-4-A	700	880	1200	1360	640	820	1140	860	760	1060	1260	820	680	1000	1180	780
132-73-4-B	860	1080	1460	1660	780	1000	1380	1060	920	1300	1520	1000	840	1220	1440	940
144-78-4-B	1020	1300	1740	1960	920	1200	1640	1280	1080	1540	1800	1200	1000	1440	1720	1140
144-88-4-C	1200	1520	2040	2300	1080	1400	1920	1500	1280	1800	2100	1400	1160	1700	2020	1320
144-97-4-C	1360	1740	2300	2640	1220	1600	2180	1700	1460	2040	2400	1600	1340	1920	2280	1500
156-109-4-C	1540	1960	2600	2960	1380	1800	2460	1920	1640	2320	2720	1800	1500	2180	2600	1700
156-119-4-C	1720	2160	2900	3340	1540	2000	2740	2140	1840	2580	3040	2000	1680	2400	2880	1860

Tower capacity shown in GPM - certified in accordance with CTI standard STD-201



Fiberglass Cooling Towers

RSS Cooling Tower Capacity Tables

Wet Bulb Water In-Out	77f				78f				79f				80f			
	92-82	95-85	97-87	100-85	95-85	97-87	100-90	100-85	95-85	97-87	100-90	100-85	97-87	100-90	100-85	105-90
Model	SINGLE-CELL															
132-73-A	155	230	285	185	205	260	325	165	190	240	315	150	210	300	130	235
132-73-B	185	275	345	225	250	315	395	200	230	290	380	180	255	365	160	285
144-78-B	220	325	410	270	295	380	470	235	270	350	450	215	305	425	190	345
144-88-C	255	385	480	315	350	445	545	275	320	405	525	250	360	495	220	400
144-97-C	290	435	545	355	395	510	625	315	360	475	600	285	410	560	255	460
156-109-C	330	495	615	400	450	570	705	360	410	520	670	325	470	635	290	520
156-119-C	365	545	680	445	495	635	785	395	450	580	740	360	515	705	320	570

DUAL-CELL

132-73-2-A	310	460	570	370	410	520	650	330	380	480	630	300	420	600	260	470
132-73-2-B	370	550	690	450	500	630	790	400	460	580	760	360	510	730	320	570
144-78-2-B	440	650	820	540	590	760	940	470	540	700	900	430	610	850	380	690
144-88-2-C	510	770	960	630	700	890	1090	550	640	810	1050	500	720	990	440	800
144-97-2-C	580	870	1090	710	790	1020	1250	630	720	950	1200	570	820	1120	510	920
156-109-2-C	660	990	1230	800	900	1140	1410	720	820	1040	1340	650	940	1270	580	1040
156-119-2-C	730	1090	1360	890	990	1270	1570	790	900	1160	1480	720	1030	1410	640	1140

TRIPLE-CELL

132-73-3-A	465	690	855	555	615	780	975	495	570	720	945	450	630	900	390	705
132-73-3-B	555	825	1035	675	750	945	1185	600	690	870	1140	540	765	1095	480	855
144-78-3-B	660	975	1230	810	885	1140	1410	705	810	1050	1350	645	915	1275	570	1035
144-88-3-C	765	1155	1440	945	1050	1335	1635	825	960	1215	1575	750	1080	1485	660	1200
144-97-3-C	870	1305	1635	1065	1185	1530	1875	945	1080	1425	1800	855	1230	1680	765	1380
156-109-3-C	990	1485	1845	1200	1350	1710	2115	1080	1230	1560	2010	975	1410	1905	870	1560
156-119-3-C	1095	1635	2040	1335	1485	1905	2355	1185	1350	1740	2220	1080	1545	2115	960	1710

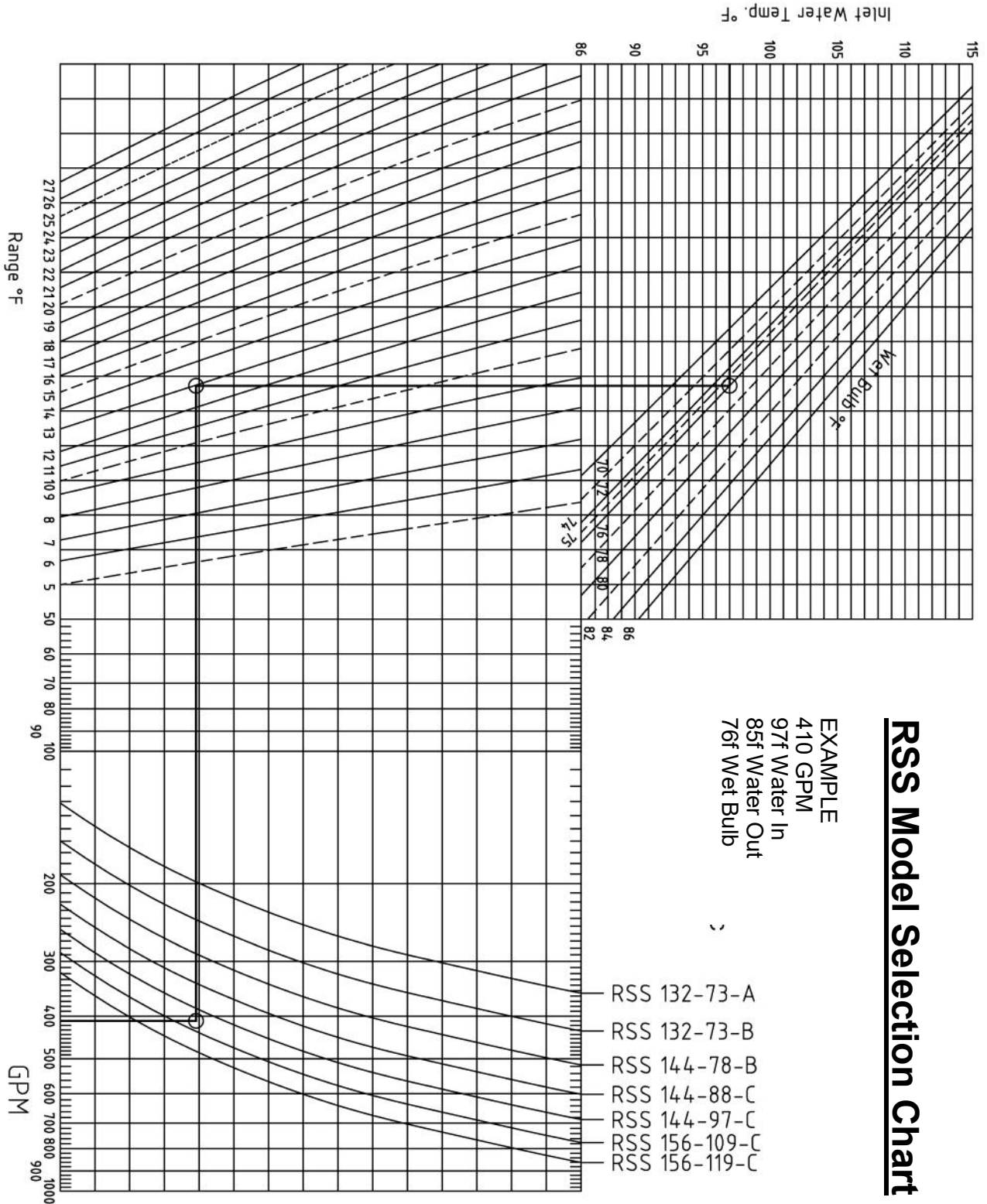
QUAD-CELL

132-73-4-A	620	920	1140	740	820	1040	1300	660	760	960	1260	600	840	1200	520	940
132-73-4-B	740	1100	1380	900	1000	1260	1580	800	920	1160	1520	720	1020	1460	640	855
144-78-4-B	880	1300	1640	1080	1180	1520	1880	940	1080	1400	1800	860	1220	1700	760	1035
144-88-4-C	1020	1540	1920	1260	1400	1780	2180	1100	1280	1620	2100	1000	1440	1980	880	1200
144-97-4-C	1160	1740	2180	1420	1580	2040	2500	1260	1440	1900	2400	1140	1640	2240	1020	1380
156-109-4-C	1320	1980	2460	1600	1800	2280	2820	1440	1640	2080	2680	1300	1880	2540	1160	1560
156-119-4-C	1460	2180	2720	1780	1980	2540	3140	1580	1800	2320	2960	1440	2060	2820	1280	1710

Tower capacity shown in GPM - certified in accordance with CTI standard STD-201



Fiberglass Cooling Towers





Fiberglass Cooling Towers

What is The Design Wet Bulb?

The wet bulb temperature is a function of relative humidity and ambient air temperature. The Wet bulb temperature measures how much water vapor the atmosphere can hold at current weather conditions. A lower wet bulb temperature means the air is drier and can hold more water vapor than it can at a higher wet bulb temperature.

For example:

Dry Bulb Temperature	Relative Humidity	Resultant Wet Bulb Temperature
85°f	55%	73°f
90°f	60%	78°f

When selecting a cooling tower, use the highest or the design wet bulb temperature for your geographical area. Most published data lists multiple values. 5%, 2%, or 1% values are common. This represents the % value during a given period. For example 1% indicates the wet bulb temperature for the most severe 1% of the year.

The highest wet bulb a temperature generally occurs in the summer when higher ambient and relative humidity conditions exist. Initial system design and proper system maintenance is critical to ensure your cooling will provide proper performance.

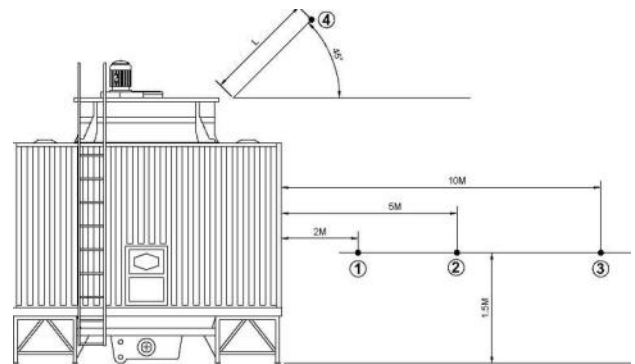
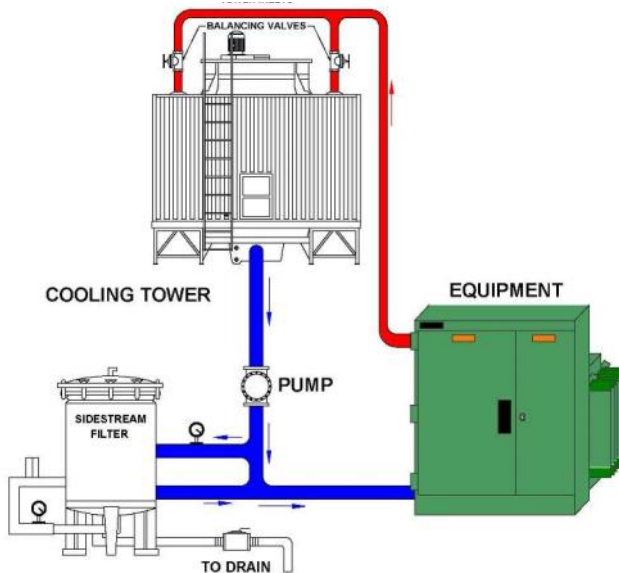
Other Factors That Can Impact Performance

- Scale build up in the tower or heat exchangers
- Loss of air flow through the tower
- Improper water flow through the tower



Fiberglass Cooling Towers

BASIC SYSTEM LAYOUT

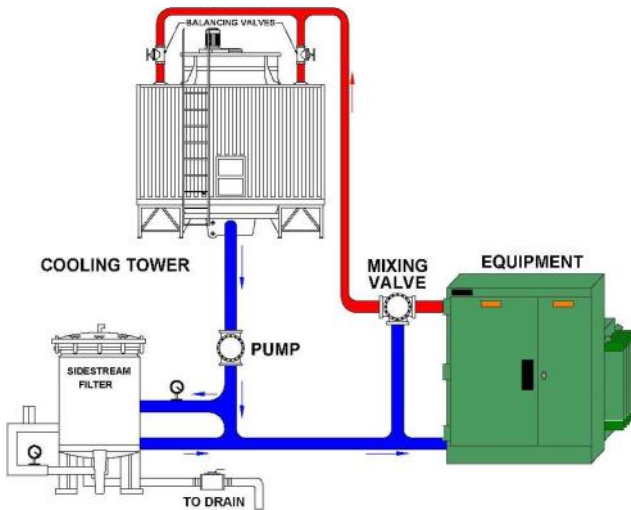


L = 1.5M OR FAN DIAMETER (WHICH EVER IS GREATER).

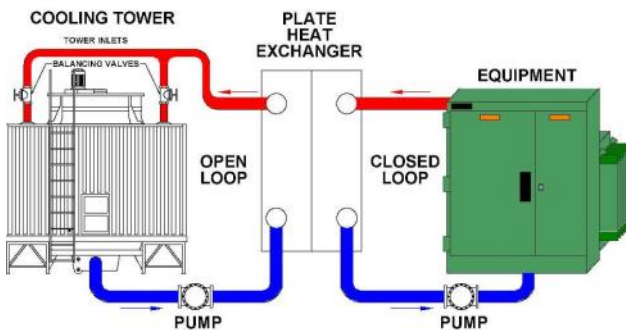
Noise Level Data (dB)_A

Tower Model	Position			
	1	2	3	4
132-73-A	70.5	67.0	62.5	77.0
144-78-B	70.5	68.0	63.0	78.0
144-88-B	71.0	68.0	63.0	78.0
144-97-C	71.5	69.0	63.5	79.0
156-109-C	71.5	69.0	63.5	79.0
156-119-C	71.5	69.0	63.5	79.0

BYPASS SYSTEM LAYOUT



FLUID COOLING LAYOUT



RSD COOLING TOWER WARRANTY

RSD warrants our Cooling Towers to be free of defects in material and/or workmanship to the extent, but only the extent, set forth below:

(A) F.R.P. components for ten (10) years* from date of installation. To be replaced or repaired as needed.

(B) P.V.C. fill material for two (2) years from date of installation. To be replaced as needed.

(C) All electrical, mechanical and non-F.R.P. structural components for one (1) year from date of installation. To be replaced or repaired as needed.

THE FOREGOING **EXPRESSED WARRANTY** IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY (INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.) **R.S.D. SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES AND/OR EXPENSES.**



Fiberglass Cooling Towers

TYPICAL TOWER APPLICATIONS

TYPE OF EQUIPMENT	BTU	GPM	COOLING RANGE (F)
Air Conditioning or Refrigeration	Per ton	Per ton	
Hermetic/ Semi-hermetic compressor	15,000/hr	1.5-3	10-20
Open drive compressor (external motor)	12,000/hr	3-3.6	10-12
Steam turbine driven compressor	30,000/hr	2-3	20-30
Absorption chillier	30,000/hr	3-4	15-20
Diesel Engine; jacket water & lube oil			
Four-cycle supercharged	2,600/hr	0.26	20
Four-cycle non supercharged	3,000/hr	0.30	20
Natural Gas Engine Jacket Water & Lube Oil	per/bhp	per/bhp	
Four-cycle engine	4,500/hr	0.45	20
Two-cycle engine	4,500/hr	0.40	20
Electric Motor Driven Air Compressors	per/bhp	per/bhp	
Single stage	380/hr	0.076	10
Single stage, with aftercooler	2,545/hr	0.51	10
Two stage, with intercooler	1,530/hr	0.31	10
Plastic Injection Machines	Refer to the Hydraulic load demand		
Hydraulic Oil Coolers	2,545/hr/bhp	.51/bhp	10
Welding Tip Coolers	84/min(avg)	1	10
Dry Cleaning Machines	5,000 btu/lb cap.	3 gpm/ton	10

bhp = Brakehorse power

1 ton = 15,000 btu/hr,

500 = 8.33 lb/gal x 60 min

ACCESSORIES

Control Panels

RSD can provide control panels for any application. Whether your requirement is for a simple fan cycling control or full DDC integration, our UL panel division is uniquely equipped to engineer design and build a control panel to meet your specific systems demands. All control panels are UL 508 certified, guaranteeing that your control system will meet all code requirements and provide years of trouble free operation



Heat Exchangers

For applications where water temperatures or water quality requirements are outside the normal range of an open cooling tower, RSD offers a variety of close loop cooling systems. Using and RSD cooling tower in conjunction with a properly sized heat exchanger provides an extremely cost effective and service friendly alternative to a self contained fluid cooler. Simply provide us the

systems flow and water temperature requirement leave the design to



Circulating Pumps

RSD can design your water circulation system. Proper water flow is essential to ensure effect system performance. Since not all systems are created equally, efficient system design can save time and money. Our trained professionals can assist you in not only

selecting the correct circulating pump for you flow requirements, but also help design the most efficient piping layout for your system

Valves

Most water cooled systems require valves to control the circulated flow or isolate the system during maintenance and repair. RSD has a full array of valves available from the manual ball and gate valves to actuated butterfly and globe control valves. Give us your system requirements and we will choose the best value solution.

Water Filtration



RSD can select the proper filtration option for you. One of the biggest challenges in an open cooling system is the control of foreign materials in the water. This can cause everything from valve and control damage to the slow erosion of heat exchanges and system piping. Whether the debris come from the outside atmosphere or is a by-product of the system itself, we can select a filtration option that is best suited for your specific needs.

Water Treatment

RSD can choose the correct what treatment for your needs. In all open cooling system it is essential that the water be treated for dissolved solids and potential bacterial growth. Regardless of system design, over time, minerals in the water will form scale throughout the system performance. In some systems, the formation of algae can also cause system problems. Let our water treatment specialists choose the proper chemical and feed system for your specific needs



COMPANY PROFILE

Refrigeration Supplies Distributor - Total Control has been a wholesale distributor of refrigeration, air conditioning and control products since 1933. Family owned and operated, RSD-TC was founded on the basis of quality products, knowledgeable staff and the highest in customer service, both before and after the sale.

In the early 1980's RSD-TC saw a need in the marketplace for a durable and economic alternative to the traditional metal and wood cooling towers. RSD Fiberglass Cooling Towers have been designed with the customer in mind. Fiberglass construction provides the double benefits of being lightweight and virtually non-corrosive. All the mechanical components have been engineered to meet the exacting standards of today's high tech marketplace.



RSD-TC takes pride in being more than a “me too” supplier. Though it is true that our Cooling Tower is the leader in its class, the benefits of choosing RSD-TC go far beyond the tower itself. Whether your requirements are for a simple HVAC application or a complex water-cooled system, RSD-TC has the technical support, products and services you need. With the largest inventory of Equipment, Controls and Accessories in the industry, RSD-TC is the clear choice when looking for a one-stop solution.

Our friendly technical support staff is trained to take your requirements and turn them into the most effective and cost efficient solution possible. To turn your problems into solutions, simply contact us via E-mail, Phone or Fax. We look forward to serving you.

Corporate Office 26021 Atlantic Ocean Drive * Lake Forest, CA 92630

For The Location Nearest You Call 800 - 245 - 8007 or Visit us at www.rsd.net