



Table 1

Thermal Performance Ratings of Series CF3 Cooling Towers

Model	Motor Rating (HP)	Rated Tower units
31441	7.5	109
31442	10	119
31443	15	135
3145S/7.5HP	7.5	138
31451	10	152
31452	15	171
31453	20	188
3155S/10HP	10	184
31551	15	211
31552	20	231
31553	25	248
3156S/10HP	10	198
3156S/15HP	15	227
31561	20	250
31562	25	273
31563	30	290
3166S/10HP	10	230
3166S/15HP	15	263
3166S/20HP	20	290
31661	25	312
31662	30	332
31663	40	366
3167S/10HP	10	252
3167S/15HP	15	288
3167S/20HP	20	317
31671	25	342
31672	30	362
31673	40	401
3177S/10HP	10	288
3177S/15HP	15	329
3177S/20HP	20	363
3177S/25HP	25	391
31771	30	415
31772	40	455
31773	50	493
3178S/10HP	10	310
3178S/15HP	15	355
3178S/20HP	20	390
3178S/25HP	25	421
31781	30	447
31782	40	493
31783	50	531
3188S/10HP	10	345
3188S/15HP	15	395
3188S/20HP	20	435
3188S/25HP	25	467
3188S/30HP	30	496
31881	40	546
31882	50	587
31883	60	626
3189S/10HP	10	370
3189S/15HP	15	423
3189S/20HP	20	466
3189S/25HP	25	502
3189S/30HP	30	533
31891	40	587
31892	50	630
31893	60	668
3199S/10HP	10	392
3199S/15HP	15	449
3199S/20HP	20	494
3199S/25HP	25	532
3199S/30HP	30	565
31991	40	622
31992	50	672
31993	60	715

Table 2

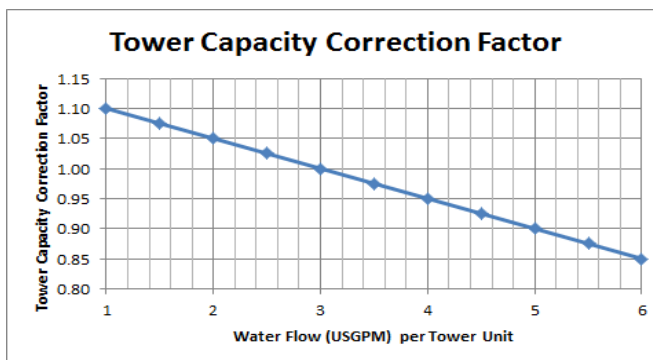


Table 3

Correction Factors for number of air inlet openings

Standard Air Inlet Opening	
Number of Air Inlet Openings / cell	Correction Factor
4	1.00
3	0.97
2	0.95

Notes:

1) A Tower Unit is defined as the capacity required to cool 3 USGPM of water from 95°F to 85°F at a design wet bulb temp. of 78°F.

2) The Required Tower Units for a particular duty can be calculated as follows:
 Tower Units = Water flow in USGPM x Rating Factor (RF) x Wet Bulb Correction Factor (WBCF). For RF & WBCF, refer tables on next sheet.

3) The Rated Tower Units in the table above must be multiplied by the Tower Capacity Correction Factor (TCCF) from the Table 2 to get the corrected available tower capacity.
 Water Flow (USGPM) per Tower Unit = Water flow in USGPM / Tower Units as calculated in (2) above.

4) Multi-cell models are also available. These models are designated by adding a prefix 'X', where X is the number of cells; e.g. 2-31561. Multi-cell tower capacities are obtained by using the correction factors given in table 3. For example, the available capacity of three cell model 3-31561 when handling 750 usgpm/cell, is 250 X (0.97+0.95+0.97) = 722.5 Tower Units. Multi-cell towers are also available with enlarged air opening to offset the derating when the number of air inlet openings is less than four. Towers with enlarged (double height) air openings are identified by a suffix D in the model number, for example, Model 31993D or 3199SD/25HP.

5) The fan power at motor shaft is obtained as follows:
 Design fan BHP = Motor HP X (Design tower units/Available tower units)³
 For example, if model 31991 (with available tower units = 622) is used for a design duty requiring 530 tower units, design fan power = 40 X (530/622)³ = 24.75 BHP.

6) Some applications may require special materials and coatings. This will not affect the tower capacity.





RATING FACTOR (RF) TABLE

RANGE ° F	APPROCH TO WET BULB ° F																		
	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30
5	0.273	0.235	0.206	0.183	0.165	0.149	0.136	0.125	0.115	0.107	0.100	0.093							
6	0.309	0.268	0.236	0.211	0.190	0.172	0.158	0.145	0.134	0.125	0.116	0.109	0.096						
7	0.342	0.298	0.264	0.236	0.213	0.194	0.178	0.164	0.152	0.141	0.132	0.123	0.109	0.097					
8	0.371	0.325	0.289	0.259	0.235	0.214	0.197	0.182	0.168	0.157	0.146	0.137	0.122	0.109	0.098				
9	0.398	0.350	0.312	0.281	0.255	0.233	0.214	0.198	0.184	0.172	0.160	0.151	0.133	0.119	0.108	0.098			
10	0.423	0.373	0.333	0.301	0.274	0.251	0.231	0.214	0.199	0.186	0.174	0.163	0.145	0.130	0.117	0.106	0.097		
11	0.446	0.394	0.353	0.320	0.291	0.267	0.247	0.229	0.213	0.199	0.186	0.175	0.156	0.140	0.126	0.115	0.105	0.096	
12	0.467	0.414	0.372	0.337	0.308	0.283	0.261	0.243	0.226	0.211	0.198	0.187	0.166	0.149	0.135	0.123	0.112	0.103	0.095
13	0.486	0.433	0.389	0.354	0.323	0.298	0.275	0.256	0.239	0.223	0.210	0.197	0.176	0.158	0.143	0.130	0.119	0.109	0.101
14	0.505	0.450	0.406	0.369	0.338	0.312	0.289	0.269	0.251	0.235	0.221	0.208	0.186	0.167	0.151	0.138	0.126	0.116	0.107
15	0.522	0.466	0.421	0.384	0.352	0.325	0.301	0.281	0.262	0.246	0.231	0.218	0.195	0.175	0.159	0.145	0.133	0.122	0.112
16	0.538	0.482	0.436	0.398	0.365	0.337	0.313	0.292	0.273	0.256	0.241	0.227	0.204	0.183	0.166	0.152	0.139	0.128	0.118
17	0.553	0.496	0.450	0.414	0.378	0.349	0.325	0.303	0.283	0.266	0.251	0.236	0.212	0.191	0.174	0.158	0.145	0.133	0.123
18	0.568	0.510	0.463	0.423	0.390	0.361	0.335	0.313	0.293	0.276	0.260	0.245	0.220	0.199	0.180	0.165	0.151	0.139	0.128
19	0.581	0.523	0.475	0.435	0.401	0.372	0.346	0.323	0.303	0.285	0.268	0.254	0.228	0.206	0.187	0.171	0.157	0.144	0.133
20	0.594	0.535	0.487	0.446	0.412	0.382	0.356	0.333	0.312	0.293	0.277	0.262	0.235	0.213	0.193	0.177	0.162	0.149	0.138
21	0.605	0.547	0.498	0.457	0.422	0.392	0.365	0.342	0.321	0.302	0.285	0.269	0.242	0.219	0.200	0.182	0.168	0.154	0.143
22	0.616	0.558	0.509	0.467	0.432	0.401	0.374	0.350	0.329	0.310	0.292	0.277	0.249	0.226	0.205	0.188	0.173	0.159	0.147
23	0.629	0.569	0.519	0.477	0.441	0.410	0.383	0.358	0.337	0.317	0.300	0.284	0.256	0.232	0.211	0.193	0.178	0.164	0.152
24	0.640	0.579	0.529	0.487	0.450	0.419	0.391	0.366	0.345	0.325	0.307	0.291	0.262	0.238	0.217	0.198	0.182	0.168	0.156
25	0.650	0.589	0.538	0.495	0.459	0.427	0.399	0.374	0.352	0.332	0.314	0.297	0.268	0.243	0.222	0.203	0.187	0.173	0.160
26	0.660	0.598	0.547	0.504	0.467	0.435	0.407	0.381	0.359	0.339	0.320	0.303	0.274	0.249	0.227	0.208	0.192	0.177	0.164
27	0.669	0.607	0.556	0.512	0.475	0.442	0.414	0.388	0.366	0.345	0.327	0.310	0.280	0.254	0.232	0.213	0.196	0.181	0.168
28	0.678	0.616	0.564	0.520	0.483	0.450	0.421	0.395	0.372	0.351	0.333	0.315	0.285	0.259	0.237	0.217	0.200	0.185	0.172
29	0.686	0.624	0.572	0.528	0.490	0.457	0.428	0.402	0.379	0.358	0.338	0.321	0.290	0.264	0.242	0.222	0.204	0.189	0.175
30	0.694	0.632	0.579	0.535	0.497	0.463	0.434	0.408	0.385	0.363	0.344	0.327	0.296	0.269	0.246	0.226	0.208	0.193	0.179
31	0.702	0.639	0.587	0.542	0.504	0.470	0.440	0.414	0.390	0.369	0.350	0.332	0.300	0.274	0.250	0.230	0.212	0.196	0.182
32	0.709	0.646	0.594	0.549	0.510	0.476	0.446	0.420	0.396	0.374	0.355	0.337	0.305	0.278	0.255	0.234	0.216	0.200	0.186
34	0.723	0.660	0.607	0.561	0.522	0.488	0.458	0.431	0.407	0.385	0.365	0.347	0.314	0.287	0.263	0.242	0.223	0.207	0.192
36	0.736	0.672	0.619	0.573	0.534	0.499	0.468	0.441	0.417	0.394	0.374	0.356	0.323	0.295	0.270	0.249	0.230	0.213	0.198
38	0.748	0.684	0.630	0.584	0.544	0.509	0.478	0.451	0.426	0.403	0.383	0.364	0.331	0.302	0.277	0.255	0.236	0.219	0.204
40	0.759	0.695	0.640	0.594	0.554	0.519	0.487	0.460	0.435	0.412	0.391	0.372	0.338	0.309	0.284	0.262	0.242	0.225	0.209
42	0.769	0.704	0.650	0.603	0.563	0.526	0.496	0.468	0.443	0.420	0.399	0.379	0.345	0.316	0.290	0.268	0.248	0.230	0.215
45	0.783	0.718	0.663	0.616	0.575	0.540	0.508	0.480	0.454	0.431	0.409	0.390	0.355	0.325	0.299	0.276	0.256	0.238	0.222
50	0.802	0.737	0.682	0.635	0.594	0.557	0.525	0.496	0.470	0.447	0.425	0.405	0.370	0.340	0.313	0.290	0.269	0.250	0.234

WET BULB CORRECTION FACTOR (WBCF) TABLE

WBT °F	WBCF	WBT °F	WBCF
85	0.848	67	1.288
84	0.869	66	1.318
83	0.890	65	1.347
82	0.912	64	1.377
81	0.933	63	1.408
80	0.956	62	1.440
79	0.978	61	1.472
78	1.000	60	1.504
77	1.024	55	1.679
76	1.049	50	1.867
75	1.073	45	2.076
74	1.098	40	2.303
73	1.124	35	2.543
72	1.149	30	2.802
71	1.177	25	3.076
70	1.203	20	3.374
69	1.231	15	3.694
68	1.259	10	4.025

TOWER UNITS = FLOW (IN USGPM) X RF X WBCF



Member