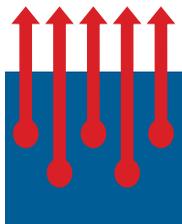




ACX Series Cross Flow Induced Draft Cooling Towers

Engineering Data



**AMERICAN
COOLING
TOWER, INC.**



Components & Features

Overview

The ACX series induced draft cross flow cooling tower, manufactured by American Cooling Tower Inc., is a factory assembled cooling tower designed of heavy gauge steel construction which offers a diverse range of construction materials and accessories to accommodate virtually any project requirement.

Capacity

The ACX series cooling tower line offers 69 unique single cell models ranging from 102 to 1,074 nominal tons which have all been certified under CTI Standard 201. Through multiple cell configurations, American Cooling Tower offers added flexibility in design considerations to effectively manage footprint requirements while minimizing power consumption.

Proven Performance

The ACX series cooling tower has been offered through local representatives across the United States for the past several years with numerous installations in operation. These installations in conjunction with extensive factory testing allowed us to develop a cross flow unit which has documented performance and superior service life.

Technology & Partnerships

The ACX series design incorporates not just American Cooling Tower in house design team and engineering expertise, but also engaged our major component suppliers and utilized their extensive knowledge and experience. This process provided a method of verification across multiple designers, engineers, and companies to ensure that every aspect of the tower design is looked at and that the components chosen offer the best performance available in today's marketplace.

Quality Control and Workmanship

American Cooling Tower has been providing custom designs for both packaged and field erect cooling towers for more than 30 years. Our team members are well experienced in the construction of cooling towers and have been thoroughly cross trained to maximize production efficiency and reliability. In conjunction with our highly experienced team members, American Cooling Tower also utilize a Total Quality Management (TQM) system when it comes to our purchasing, design, procurement, and quality control processes for all levels of operations. American Cooling Tower is able to closely monitor our entire system from start to finish to ensure the highest level of quality is always produced. Our TQM Process also include and encourage our customers, partners, and representatives to play an active role within our quality control processes so that all parties involved are able to actively participate within our management system.

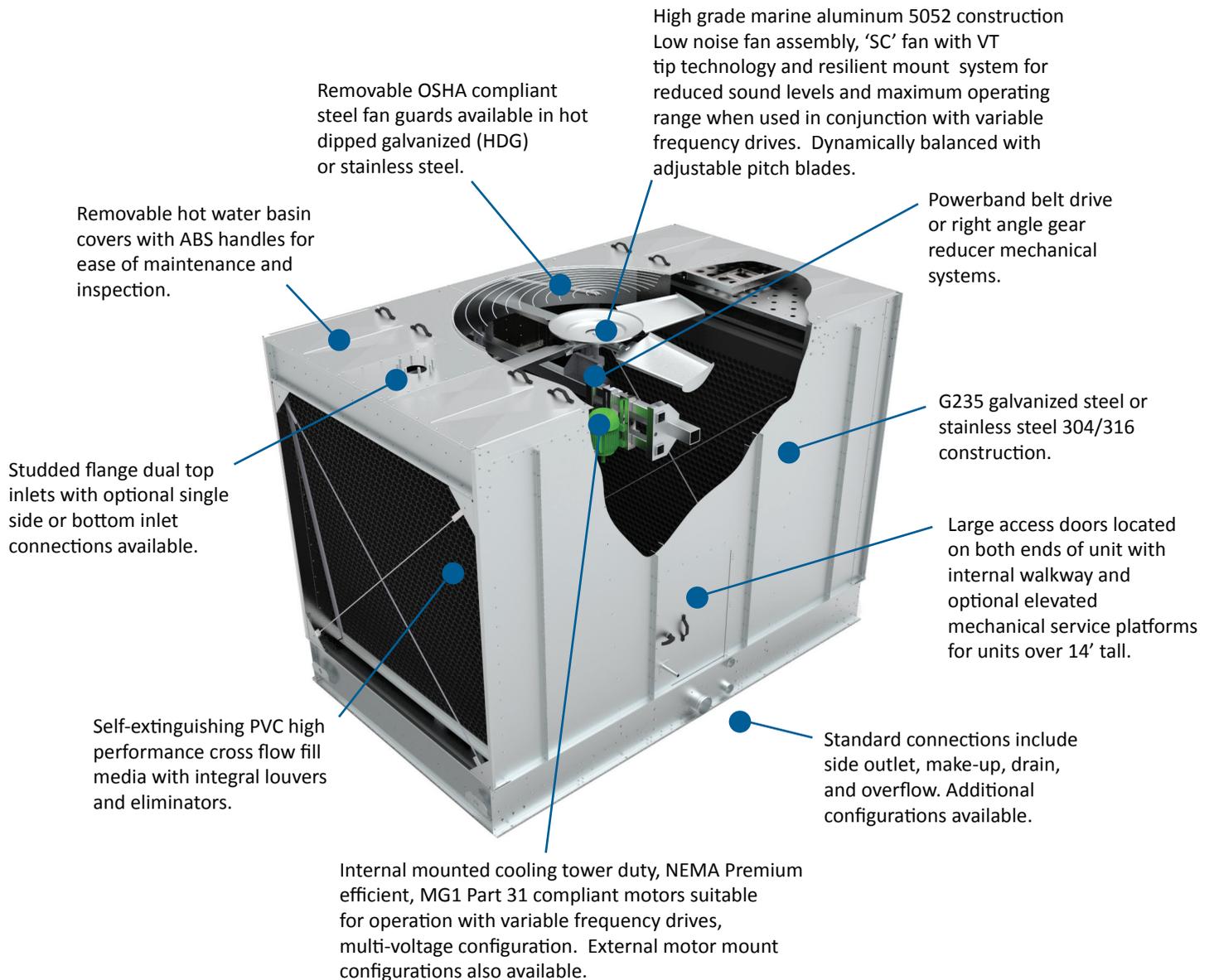
Sustainability

American Cooling Tower continues their effort in utilizing sustainable and recycled materials within our product lines whenever it is feasible without sacrificing quality or performance. Through our steel and PVC materials alone, the ACX line is comprised of more than 70% recycled materials. While more must be done on a global scale, American Cooling Tower is continuing our own efforts to increase the percentage of recycled content within our products while also ensuring that our facilities are outfitted with the most energy efficient equipment, lighting, and tooling available.



Components & Features

Giving you the **ACT**vantage you deserve!



*The **ACX Series** offers a wide range of options and accessories along with multiple configurations to meet job specific demands.*

Contact your representative today to learn more!

Models 1011-1025
102 to 267 Nominal Tons

Performance Data

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	90°	95°	90°	95°	97°	95°	95°	100°	95°
			CWT	80°	80°	80°	85°	82°	85°	85°	85°	85°
			AWB	68°	68°	70°	70°	72°	72°	75°	75°	76°
ACX-1011-1	102	2		373	288	334	476	273	438	376	294	353
ACX-1012-1	117	3		427	330	383	546	313	502	431	337	405
ACX-1013-1	139	5		508	392	456	650	372	598	512	400	482
ACX-1014-1	160	7.5		584	450	523	746	427	687	588	459	553
ACX-1015-1	176	10		644	497	577	824	471	758	650	507	611
ACX-1016-1	202	15		741	571	664	949	542	873	747	582	702
ACX-1021-1	166	5		606	469	544	772	445	711	611	478	575
ACX-1022-1	191	7.5		696	539	625	887	511	818	701	549	660
ACX-1023-1	210	10		768	594	690	981	564	903	775	606	729
ACX-1024-1	242	15		884	683	793	1129	648	1039	891	697	838
ACX-1025-1	267	20		977	754	877	1249	716	1149	985	770	927

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	100°	95°	98°	100°	95°	96°	100°	100°	100°
			CWT	85°	85°	88°	85°	85°	86°	85°	90°	90°
			AWB	76°	78°	78°	78°	80°	80°	80°	80°	82°
ACX-1011-1	102	2		278	306	403	243	253	287	205	422	372
ACX-1012-1	117	3		318	351	462	279	290	329	235	484	426
ACX-1013-1	139	5		378	417	549	331	345	391	280	576	507
ACX-1014-1	160	7.5		434	479	631	380	396	449	321	662	582
ACX-1015-1	176	10		479	528	697	419	437	496	354	731	643
ACX-1016-1	202	15		550	607	802	482	502	570	406	840	739
ACX-1021-1	166	5		452	498	655	397	413	468	335	686	604
ACX-1022-1	191	7.5		519	572	752	455	474	537	385	788	695
ACX-1023-1	210	10		573	631	831	502	523	593	424	870	767
ACX-1024-1	242	15		659	726	956	577	601	682	487	1001	882
ACX-1025-1	267	20		727	802	1057	637	664	753	538	1108	975



Thermal performance of the ACX series models listed above have been certified in accordance to Cooling Technology Institute (CTI) Standard STD-201. Certification includes single and multiple cell models shown. The model number shown above uses the following nomenclature, ACX-XXXX-N, where N indicates the number of cells. For design conditions not shown please contact your representative.

Validation C38C-18R00

General notes:

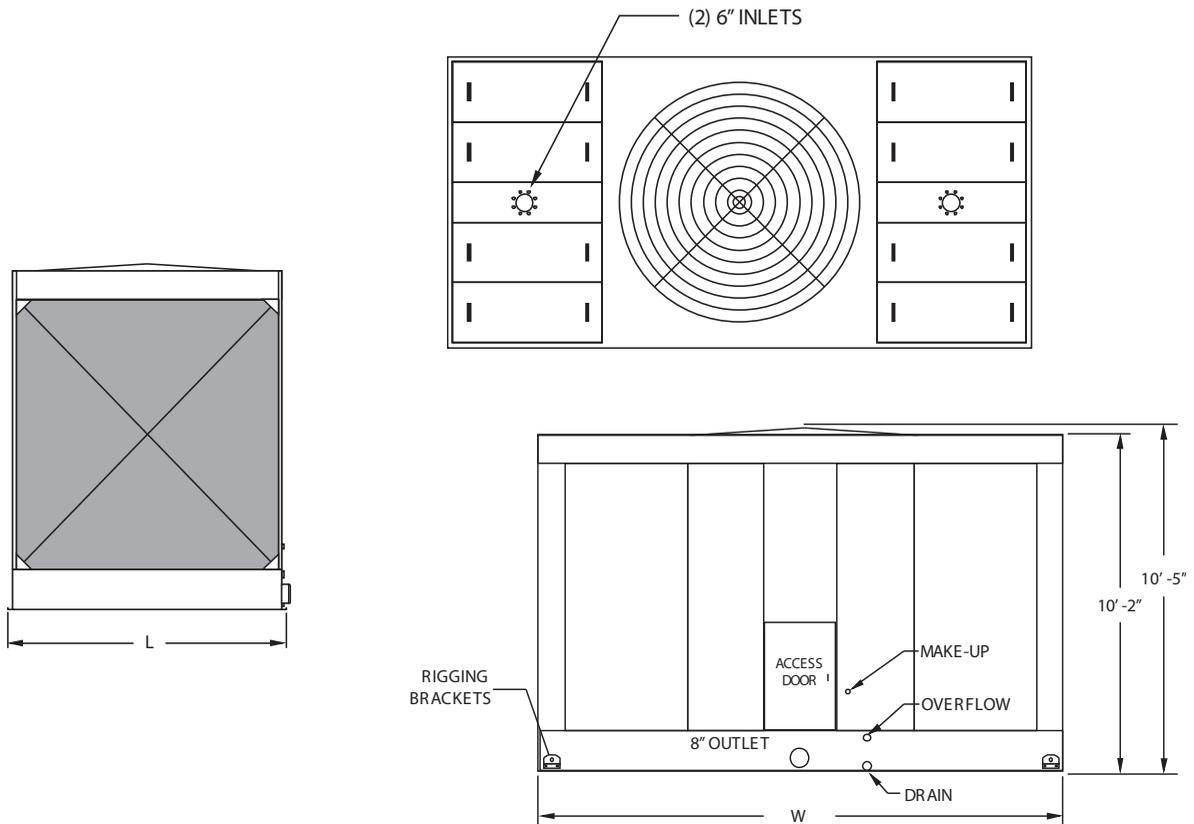
Nominal tons are based on 95°F HWT, 85 °F CWT, 78°F AWB, and 3 GPM/ton.

All units are provided with a manufacturer's thermal performance guarantee.

Data shown is for single cell models. For multiple cell selections, multiply the indicated flow rate by the number of cells required.

Models 1011-1025
102 to 267 Nominal Tons

Physical Data



Model	Nominal Tons	Fan Motor (HP)	Air Flow (CFM)	Weight			Dimensions		Connections		
				Shipping	Operating	Heaviest Section	Length (L)	Width (W)	Make-up	Overflow	Drain
ACX-1011-1	102	2	33230	4060	8480	4060	6' -10"	12' -10"	1"	2"	2"
ACX-1012-1	117	3	38110								
ACX-1013-1	139	5	45300								
ACX-1014-1	160	7.5	52010								
ACX-1015-1	176	10	57390								
ACX-1016-1	202	15	65960	4880	10830	4880	8' -5"	13' -10"	1"	2"	2"
ACX-1021-1	166	5	54130								
ACX-1022-1	191	7.5	62160								
ACX-1023-1	210	10	68600								
ACX-1024-1	242	15	78880								
ACX-1025-1	267	20	87140								

General notes:

Above drawings are for reference only. Data is subject to change without notice.

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

Weight shown do not include any options or accessories.

Standard pipe configuration and sizes are shown. Please consult the factory for alternate layouts.

Quantity of cells is indicated by the final numeral in the model number.

Models 1031-1046
202 to 520 Nominal Tons

Performance Data

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	90°	95°	90°	95°	97°	95°	95°	100°	95°
			CWT	80°	80°	80°	85°	82°	85°	85°	85°	85°
			AWB	68°	68°	70°	70°	72°	72°	75°	75°	76°
ACX-1031-1	202	5		727	571	657	918	544	849	735	583	693
ACX-1032-1	231	7.5		834	655	753	1053	624	974	843	669	796
ACX-1033-1	255	10		920	722	831	1162	689	1074	930	738	878
ACX-1034-1	293	15		1057	829	954	1336	791	1235	1069	847	1008
ACX-1035-1	324	20		1167	915	1053	1476	872	1364	1180	935	1113
ACX-1036-1	349	25		1261	988	1138	1595	942	1474	1275	1010	1203
ACX-1037-1	372	30		1344	1052	1212	1701	1003	1571	1358	1075	1281
ACX-1038-1	411	40		1486	1163	1340	1882	1108	1738	1502	1188	1416
ACX-1041-1	321	10		1148	911	1041	1437	871	1333	1161	932	1098
ACX-1042-1	369	15		1321	1047	1196	1653	1000	1533	1335	1071	1263
ACX-1043-1	408	20		1459	1157	1323	1828	1105	1695	1476	1183	1396
ACX-1044-1	441	25		1578	1250	1430	1978	1194	1833	1596	1278	1509
ACX-1045-1	470	30		1682	1332	1524	2110	1273	1955	1702	1363	1609
ACX-1046-1	520	40		1862	1474	1687	2338	1408	2166	1884	1507	1781

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	100°	95°	98°	100°	95°	96°	100°	100°	100°
			CWT	85°	85°	88°	85°	85°	86°	85°	90°	90°
			AWB	76°	78°	78°	78°	80°	80°	80°	80°	82°
ACX-1031-1	202	5		553	605	786	489	507	571	417	822	730
ACX-1032-1	231	7.5		635	694	902	561	582	655	478	943	837
ACX-1033-1	255	10		700	766	994	618	642	722	527	1040	924
ACX-1034-1	293	15		804	880	1143	710	737	829	605	1196	1061
ACX-1035-1	324	20		887	971	1262	783	813	915	667	1321	1172
ACX-1036-1	349	25		958	1049	1364	845	877	988	720	1427	1266
ACX-1037-1	372	30		1020	1117	1454	900	934	1053	766	1521	1349
ACX-1038-1	411	40		1127	1234	1608	994	1032	1163	846	1683	1492
ACX-1041-1	321	10		886	964	1239	786	814	912	674	1294	1154
ACX-1042-1	369	15		1018	1108	1425	903	935	1048	774	1489	1328
ACX-1043-1	408	20		1124	1225	1576	998	1033	1158	855	1646	1468
ACX-1044-1	441	25		1215	1324	1704	1078	1116	1251	923	1781	1587
ACX-1045-1	470	30		1295	1411	1817	1148	1189	1334	983	1899	1693
ACX-1046-1	520	40		1432	1561	2013	1270	1315	1475	1086	2104	1874



Thermal performance of the ACX series models listed above have been certified in accordance to Cooling Technology Institute (CTI) Standard STD-201. Certification includes single and multiple cell models shown. The model number shown above uses the following nomenclature, ACX-XXXX-N, where N indicates the number of cells. For design conditions not shown please contact your representative.

Validation C38C-18R00

General notes:

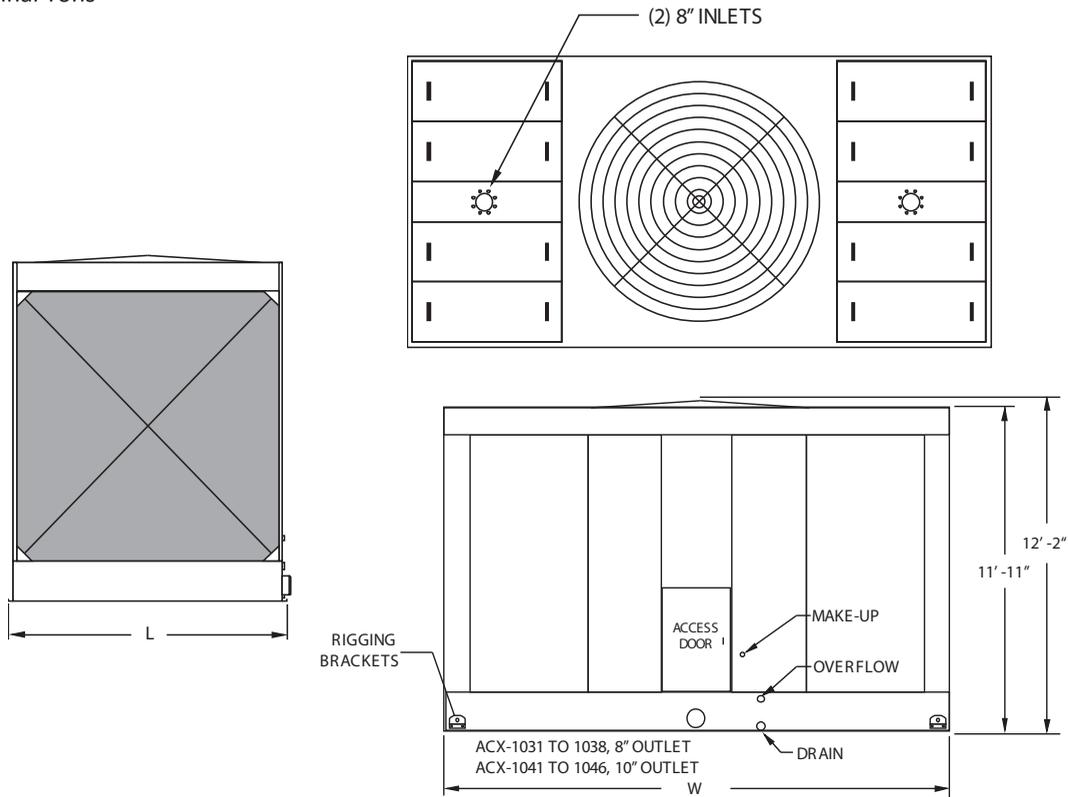
Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

All units are provided with a manufacturer's thermal performance guarantee.

Data shown is for single cell models. For multiple cell selections, multiply the indicated flow rate by the number of cells required.

Models 1031-1046
202 to 520 Nominal Tons

Physical Data



Model	Nominal Tons	Fan Motor (HP)	Air Flow (CFM)	Weight			Dimensions		Connections		
				Shipping	Operating	Heaviest Section	Length (L)	Width (W)	Make-up	Overflow	Drain
ACX-1031-1	202	5	55430	7430	16550	7430	8' -5"	17' -10"	1"	2"	2"
ACX-1032-1	231	7.5	63590								
ACX-1033-1	255	10	70120								
ACX-1034-1	293	15	80540								
ACX-1035-1	324	20	88900								
ACX-1036-1	349	25	96000								
ACX-1037-1	372	30	10260								
ACX-1038-1	411	40	113000	8655	19230	8655	9' -10"	19' -6"	2"	3"	3"
ACX-1041-1	321	10	83840								
ACX-1042-1	369	15	96370								
ACX-1043-1	408	20	106500								
ACX-1044-1	441	25	115110								
ACX-1045-1	470	30	122700								
ACX-1046-1	520	40	135750								

General notes:

Above drawings are for reference only. Data is subject to change without notice.

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

Weight shown do not include any options or accessories.

Standard pipe configuration and sizes are shown. Please consult the factory for alternate layouts.

Quantity of cells is indicated by the final numeral in the model number.

Models 1051-1067
332 to 787 Nominal Tons

Performance Data

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	90°	95°	90°	95°	97°	95°	95°	100°	95°
			CWT	80°	80°	80°	85°	82°	85°	85°	85°	85°
			AWB	68°	68°	70°	70°	72°	72°	75°	75°	76°
ACX-1051-1	332	7.5		1187	943	1077	1484	901	1377	1200	964	1136
ACX-1052-1	367	10		1310	1040	1187	1637	994	1519	1324	1063	1253
ACX-1053-1	422	15		1506	1195	1365	1883	1142	1747	1523	1222	1441
ACX-1054-1	465	20		1663	1320	1508	2082	1262	1931	1682	1350	1592
ACX-1055-1	503	25		1798	1426	1630	2252	1363	2088	1819	1458	1720
ACX-1056-1	536	30		1917	1520	1737	2401	1452	2226	1939	1554	1834
ACX-1057-1	593	40		2121	1681	1922	2660	1605	2465	2146	1718	2029
ACX-1058-1	642	50		2297	1818	2080	2882	1736	2671	2324	1859	2197
ACX-1059-1	685	60		2452	1940	2220	3079	1852	2853	2481	1983	2345
ACX-1061-1	484	15		1724	1373	1565	2151	1313	1998	1743	1403	1651
ACX-1062-1	534	20		1905	1516	1729	2378	1450	2207	1926	1550	1824
ACX-1063-1	578	25		2059	1639	1869	2572	1566	2387	2083	1675	1972
ACX-1064-1	616	30		2196	1746	1993	2743	1669	2546	2221	1785	2102
ACX-1065-1	681	40		2431	1932	2205	3039	1846	2820	2459	1975	2327
ACX-1066-1	737	50		2633	2090	2388	3294	1998	3056	2664	2137	2520
ACX-1067-1	787	60		2812	2231	2549	3519	2131	3266	2844	2281	2691

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	100°	95°	98°	100°	95°	96°	100°	100°	100°
			CWT	85°	85°	88°	85°	85°	86°	85°	90°	90°
			AWB	76°	78°	78°	78°	80°	80°	80°	80°	82°
ACX-1051-1	332	7.5		917	998	1281	814	843	944	698	1338	1194
ACX-1052-1	367	10		1011	1100	1413	898	929	1041	770	1476	1317
ACX-1053-1	422	15		1162	1265	1625	1032	1068	1196	884	1697	1514
ACX-1054-1	465	20		1283	1397	1796	1139	1179	1321	976	1875	1673
ACX-1055-1	503	25		1386	1509	1942	1230	1273	1427	1054	2028	1809
ACX-1056-1	536	30		1477	1609	2070	1310	1356	1521	1122	2163	1928
ACX-1057-1	593	40		1633	1779	2292	1448	1500	1682	1240	2394	2135
ACX-1058-1	642	50		1766	1925	2481	1566	1622	1820	1340	2594	2310
ACX-1059-1	685	60		1884	2054	2651	1670	1730	1941	1429	2770	2467
ACX-1061-1	484	15		1335	1451	1859	1186	1227	1373	1019	1941	1734
ACX-1062-1	534	20		1474	1603	2055	1310	1355	1517	1125	2145	1916
ACX-1063-1	578	25		1593	1733	2222	1415	1464	1640	1215	2320	2072
ACX-1064-1	616	30		1697	1847	2369	1508	1561	1747	1294	2474	2209
ACX-1065-1	681	40		1877	2044	2624	1668	1726	1933	1430	2740	2445
ACX-1066-1	737	50		2032	2212	2843	1804	1867	2092	1546	2969	2649
ACX-1067-1	787	60		2168	2361	3037	1924	1992	2233	1649	3172	2829



Thermal performance of the ACX series models listed above have been certified in accordance to Cooling Technology Institute (CTI) Standard STD-201. Certification includes single and multiple cell models shown. The model number shown above uses the following nomenclature, ACX-XXXX-N, where N indicates the number of cells. For design conditions not shown please contact your representative.

Validation C38C-18R00

General notes:

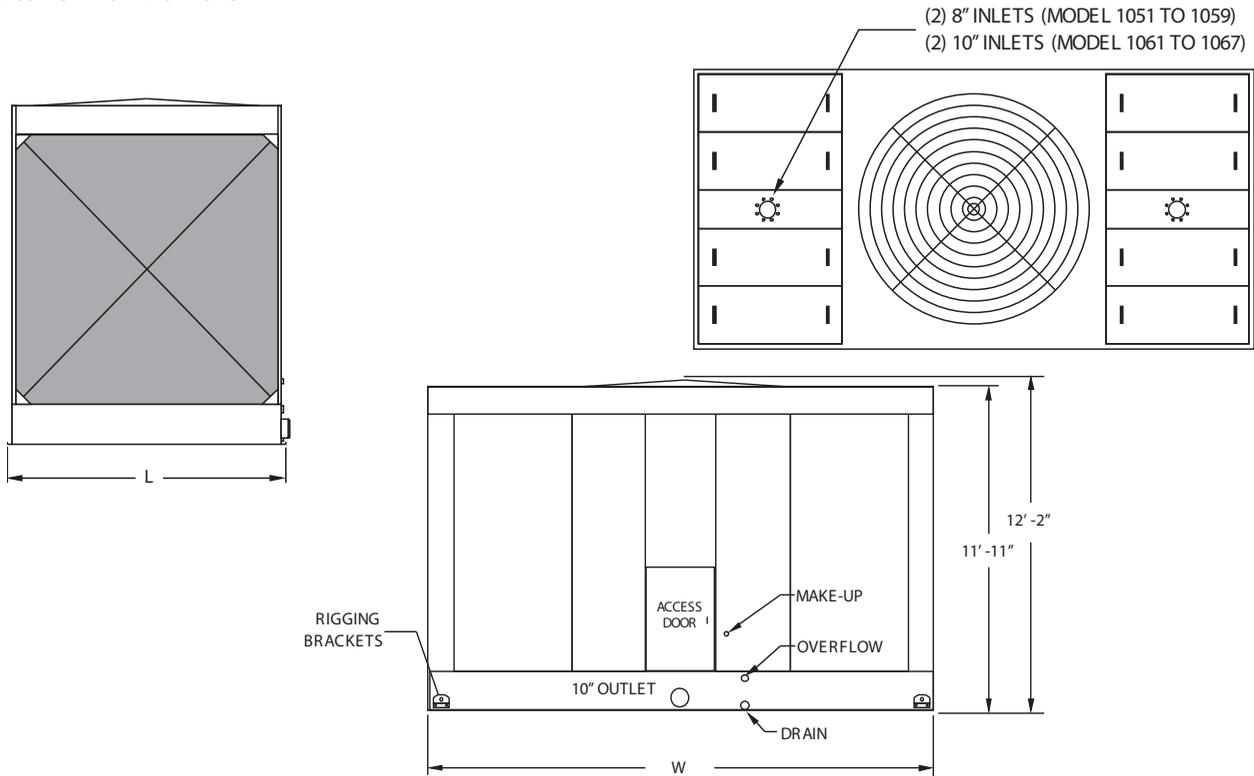
Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

All units are provided with a manufacturer's thermal performance guarantee.

Data shown is for single cell models. For multiple cell selections, multiply the indicated flow rate by the number of cells required.

Models 1051-1067
332 to 787 Nominal Tons

Physical Data



Model	Nominal Tons	Fan Motor (HP)	Air Flow (CFM)	Weight			Dimensions		Connections		
				Shipping	Operating	Heaviest Section	Length (L)	Width (W)	Make-up	Overflow	Drain
ACX-1051-1	332	7.5	86280	11650	25300	11650	11' -10"	20' -6"	2"	3"	3"
ACX-1052-1	367	10	95700								
ACX-1053-1	422	15	109990								
ACX-1054-1	465	20	121490								
ACX-1055-1	503	25	131280								
ACX-1056-1	536	30	139900								
ACX-1057-1	593	40	154730								
ACX-1058-1	642	50	167430								
ACX-1059-1	685	60	178640								
ACX-1061-1	484	15	126200	13530	30610	13530	13' -10"	22' -0"	2"	3"	3"
ACX-1062-1	534	20	139410								
ACX-1063-1	578	25	150680								
ACX-1064-1	616	30	160600								
ACX-1065-1	681	40	177720								
ACX-1066-1	737	50	192370								
ACX-1067-1	787	60	205320								

General notes:

Above drawings are for reference only. Data is subject to change without notice.

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

Weight shown do not include any options or accessories.

Standard pipe configuration and sizes are shown. Please consult the factory for alternate layouts.

Quantity of cells is indicated by the final numeral in the model number.

Models 2071-2087
583 to 1031 Nominal Tons

Performance Data

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	90°	95°	90°	95°	97°	95°	95°	100°	95°
			CWT	80°	80°	80°	85°	82°	85°	85°	85°	85°
			AWB	68°	68°	70°	70°	72°	72°	75°	75°	76°
ACX-2071-1	583	20		2067	1656	1882	2565	1586	2387	2091	1694	1983
ACX-2072-1	630	25		2231	1788	2032	2769	1712	2578	2258	1828	2141
ACX-2073-1	671	30		2377	1903	2164	2951	1823	2747	2405	1947	2281
ACX-2074-1	741	40		2627	2103	2390	3261	2013	3036	2658	2151	2520
ACX-2075-1	801	50		2840	2272	2585	3529	2176	3284	2874	2324	2725
ACX-2076-1	854	60		3028	2422	2756	3764	2319	3503	3064	2478	2906
ACX-2077-1	924	75		3279	2620	2982	4076	2508	3792	3318	2680	3144
ACX-2081-1	652	20		2310	1852	2103	2864	1773	2666	2336	1893	2216
ACX-2082-1	704	25		2493	1998	2270	3092	1914	2879	2522	2043	2392
ACX-2083-1	749	30		2654	2127	2417	3293	2038	3066	2686	2176	2547
ACX-2084-1	828	40		2933	2350	2670	3638	2250	3388	2968	2403	2814
ACX-2085-1	895	50		3170	2539	2886	3936	2432	3663	3208	2597	3042
ACX-2086-1	954	60		3380	2706	3076	4197	2591	3907	3421	2767	3243
ACX-2087-1	1031	75		3657	2926	3328	4543	2802	4228	3701	2993	3509

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	100°	95°	98°	100°	95°	96°	100°	100°	100°
			CWT	85°	85°	88°	85°	85°	86°	85°	90°	90°
			AWB	76°	78°	78°	78°	80°	80°	80°	80°	82°
ACX-2071-1	583	20		1613	1750	2228	1438	1487	1659	1241	2324	2083
ACX-2072-1	630	25		1741	1889	2405	1553	1605	1791	1339	2509	2250
ACX-2073-1	671	30		1854	2012	2562	1653	1709	1907	1425	2673	2396
ACX-2074-1	741	40		2048	2223	2831	1826	1888	2107	1574	2954	2648
ACX-2075-1	801	50		2213	2403	3062	1973	2040	2278	1700	3195	2864
ACX-2076-1	854	60		2359	2562	3267	2102	2174	2428	1811	3408	3053
ACX-2077-1	924	75		2551	2772	3535	2273	2351	2626	1958	3691	3305
ACX-2081-1	652	20		1804	1956	2488	1609	1663	1855	1388	2596	2326
ACX-2082-1	704	25		1947	2112	2686	1737	1795	2003	1498	2802	2513
ACX-2083-1	749	30		2072	2248	2861	1849	1911	2132	1595	2984	2676
ACX-2084-1	828	40		2289	2484	3161	2042	2110	2355	1760	3297	2957
ACX-2085-1	895	50		2473	2684	3417	2206	2280	2545	1901	3565	3196
ACX-2086-1	954	60		2635	2861	3645	2350	2429	2712	2025	3801	3408
ACX-2087-1	1031	75		2850	3094	3943	2540	2626	2933	2189	4116	3687



Thermal performance of the ACX series models listed above have been certified in accordance to Cooling Technology Institute (CTI) Standard STD-201. Certification includes single and multiple cell models shown. The model number shown above uses the following nomenclature, ACX-XXXX-N, where N indicates the number of cells. For design conditions not shown please contact your representative.

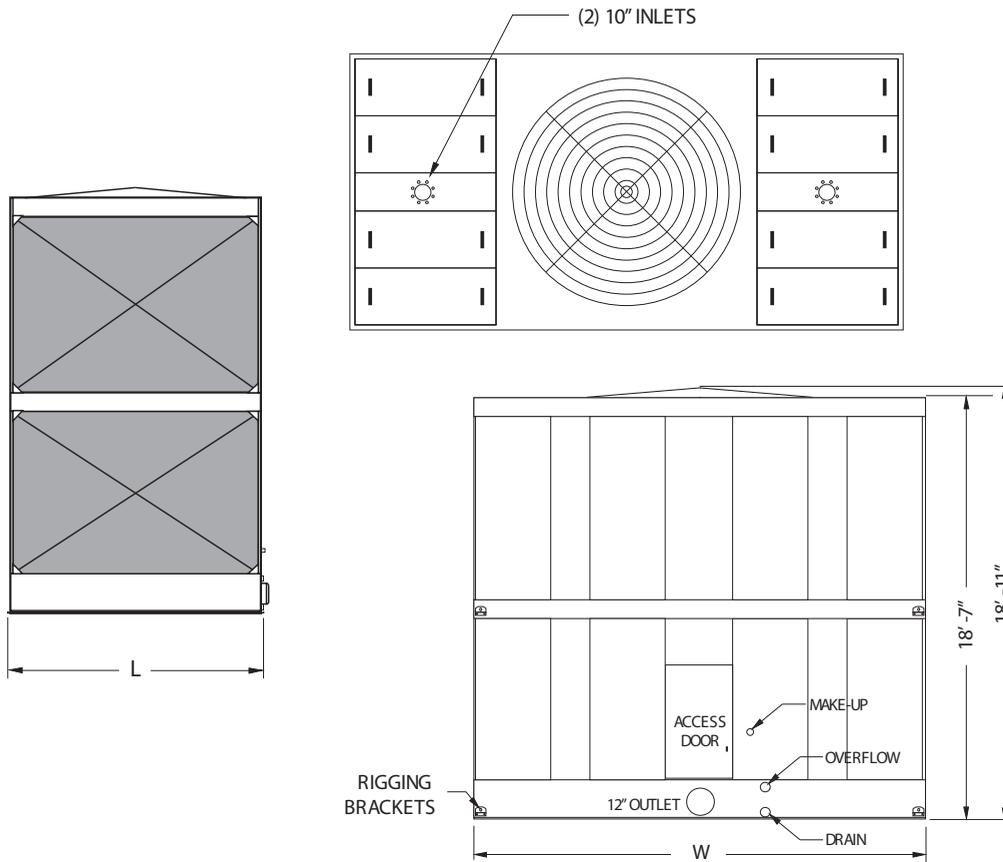
Validation C38C-18R00

General notes:

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

All units are provided with a manufacturer's thermal performance guarantee.

Data shown is for single cell models. For multiple cell selections, multiply the indicated flow rate by the number of cells required.



Model	Nominal Tons	Fan Motor (HP)	Air Flow (CFM)	Weight			Dimensions		Connections		
				Shipping	Operating	Heaviest Section	Length (L)	Width (W)	Make-up	Overflow	Drain
ACX-2071-1	583	20	146973	17750	37630	11450	11' -10"	22' -0"	2"	3"	3"
ACX-2072-1	630	25	158698								
ACX-2073-1	671	30	168998								
ACX-2074-1	741	40	186725								
ACX-2075-1	801	50	201841								
ACX-2076-1	854	60	212168								
ACX-2077-1	924	75	232789								
ACX-2081-1	652	20	164293	20105	43450	12870	13' -10"	22' -0"	2"	3"	3"
ACX-2082-1	704	25	177352								
ACX-2083-1	749	30	188835								
ACX-2084-1	828	40	208589								
ACX-2085-1	895	50	225453								
ACX-2086-1	954	60	240294								
ACX-2087-1	1031	75	259908								

General notes:

Above drawings are for reference only. Data is subject to change without notice.

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

Weight shown do not include any options or accessories.

Standard pipe configuration and sizes are shown. Please consult the factory for alternate layouts.

Quantity of cells is indicated by the final numeral in the model number.

Models 2091-2107
630 to 1074 Nominal Tons

Performance Data

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	90°	95°	90°	95°	97°	95°	95°	100°	95°
			CWT	80°	80°	80°	85°	82°	85°	85°	85°	85°
			AWB	68°	68°	70°	70°	72°	72°	75°	75°	76°
ACX-2091-1	630	20		2229	1788	2030	2764	1714	2573	2255	1829	2140
ACX-2092-1	679	25		2404	1929	2191	2981	1849	2775	2434	1973	2310
ACX-2093-1	723	30		2560	2053	2332	3173	1968	2954	2590	2100	2458
ACX-2094-1	798	40		2852	2266	2574	3504	2172	3262	2859	2318	2714
ACX-2095-1	862	50		3052	2446	2780	3786	2345	3524	3089	2503	2931
ACX-2096-1	918	60		3252	2606	2961	4034	2498	3755	3291	2666	3123
ACX-2097-1	993	75		3515	2816	3201	4362	2699	4060	3558	2881	3376
ACX-2101-1	680	20		2408	1932	2193	2985	1852	2779	2436	1976	2312
ACX-2102-1	734	25		2598	2085	2367	3221	1997	2998	2630	2132	2495
ACX-2103-1	782	30		2765	2219	2519	3429	2126	3192	2799	2269	2656
ACX-2104-1	863	40		3054	2449	2782	3786	2347	3525	3091	2505	2932
ACX-2105-1	932	50		3299	2645	3005	4093	2535	3809	3340	2706	3168
ACX-2106-1	993	60		3516	2818	3202	4363	2700	4060	3559	2883	3376
ACX-2107-1	1074	75		3803	3046	3462	4718	2918	4391	3849	3116	3650

Model	Nominal Tons	Fan Motor (HP)	Indicated flow rates are in USGPM. Temperatures shown in °F.									
			HWT	100°	95°	98°	100°	95°	96°	100°	100°	100°
			CWT	85°	85°	88°	85°	85°	86°	85°	90°	90°
			AWB	76°	78°	78°	78°	80°	80°	80°	80°	82°
ACX-2091-1	630	20		1743	1890	2403	1556	1608	1793	1344	2506	2247
ACX-2092-1	679	25		1881	2038	2593	1679	1735	1935	1449	2703	2425
ACX-2093-1	723	30		2001	2170	2760	1787	1846	2058	1543	2878	2581
ACX-2094-1	798	40		2208	2395	3047	1971	2037	2271	1701	3177	2849
ACX-2095-1	862	50		2385	2587	3292	2129	2200	2453	1837	3433	3078
ACX-2096-1	918	60		2540	2755	3507	2266	2342	2613	1956	3659	3280
ACX-2097-1	993	75		2745	2978	3792	2449	2531	2824	2113	3955	3546
ACX-2101-1	680	20		1883	2042	2595	1680	1736	1936	1451	2706	2426
ACX-2102-1	734	25		2032	2203	2800	1814	1874	2089	1566	2919	2619
ACX-2103-1	782	30		2163	2345	2981	1930	1994	2224	1666	3108	2788
ACX-2104-1	863	40		2387	2589	3291	2130	2202	2455	1839	3432	3078
ACX-2105-1	932	50		2579	2797	3557	2301	2378	2652	1985	3709	3327
ACX-2106-1	993	60		2747	2980	3791	2450	2532	2825	2114	3953	3546
ACX-2107-1	1074	75		2969	3220	4099	2648	2737	3054	2284	4278	3835



Thermal performance of the ACX series models listed above have been certified in accordance with Cooling Technology Institute (CTI) Standard STD-201. Certification includes single and multiple cell models shown. The model number shown above uses the following nomenclature, ACX-XXXX-N, where N indicates the number of cells. For design conditions not shown please contact your representative.

Validation C38C-18R00

General notes:

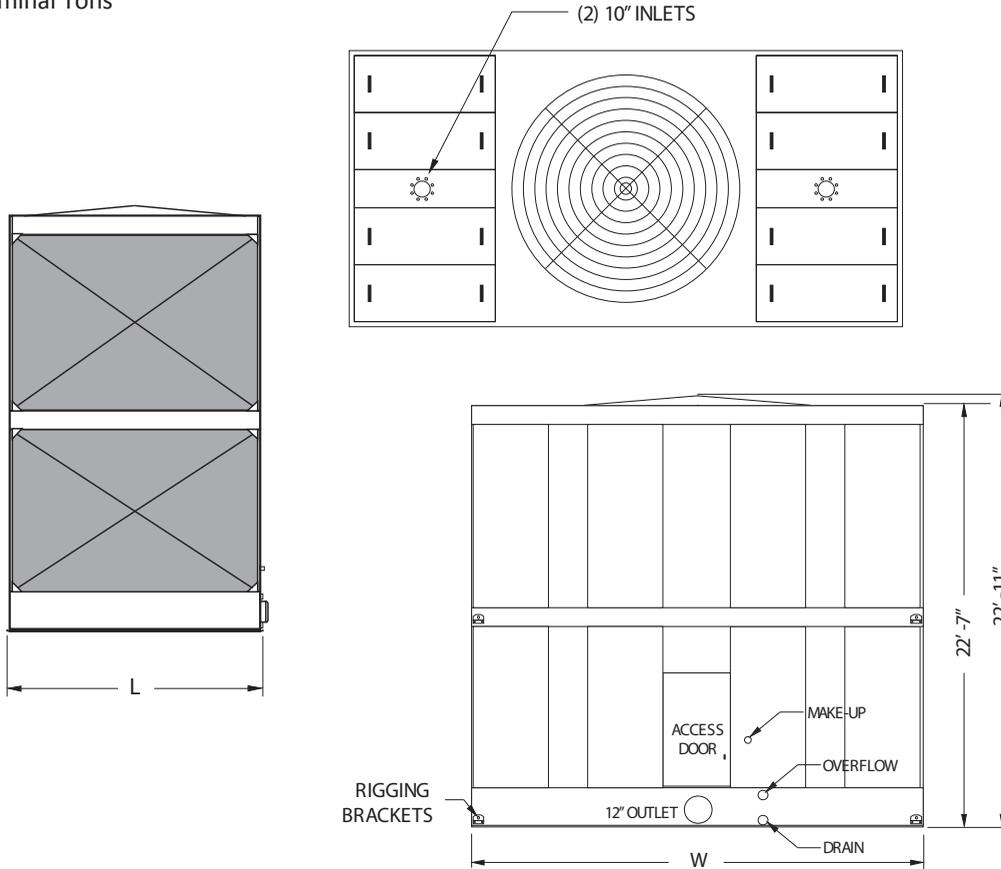
Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

All units are provided with a manufacturer's thermal performance guarantee.

Data shown is for single cell models. For multiple cell selections, multiply the indicated flow rate by the number of cells required.

Models 2091-2107
630 to 1074 Nominal Tons

Physical Data



Model	Nominal Tons	Fan Motor (HP)	Air Flow (CFM)	Weight			Dimensions		Connections		
				Shipping	Operating	Heaviest Section	Length (L)	Width (W)	Make-up	Overflow	Drain
ACX-2091-1	630	20	156277	20530	42395	13250	11' -10"	22' -0"	2"	3"	3"
ACX-2092-1	679	25	168617								
ACX-2093-1	723	30	179455								
ACX-2094-1	798	40	198075								
ACX-2095-1	862	50	213921								
ACX-2096-1	918	60	227866								
ACX-2097-1	993	75	246268								
ACX-2101-1	680	20	170041	22640	48330	14620	13' -10"	22' -0"	2"	3"	3"
ACX-2102-1	734	25	183493								
ACX-2103-1	782	30	195316								
ACX-2104-1	863	40	215636								
ACX-2105-1	932	50	232940								
ACX-2106-1	993	60	248176								
ACX-2107-1	1074	75	268298								

General notes:

Above drawings are for reference only. Data is subject to change without notice.

Nominal tons are based on 95°F HWT, 85°F CWT, 78°F AWB, and 3 GPM/ton.

Weight shown do not include any options or accessories.

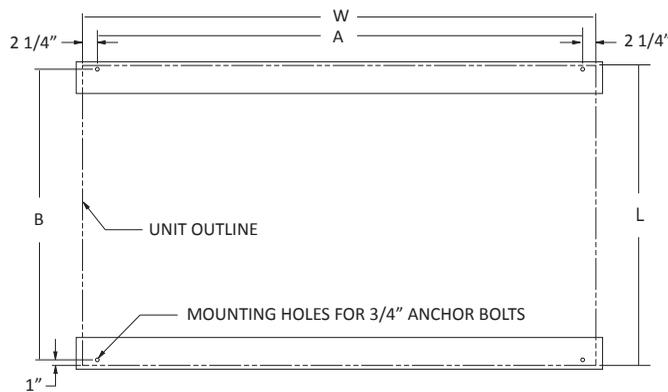
Standard pipe configuration and sizes are shown. Please consult the factory for alternate layouts.

Quantity of cells is indicated by the final numeral in the model number.

Models 101X - 210X

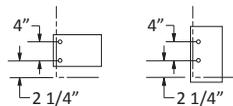
Physical Data

Single Cell Recommended Support Layout

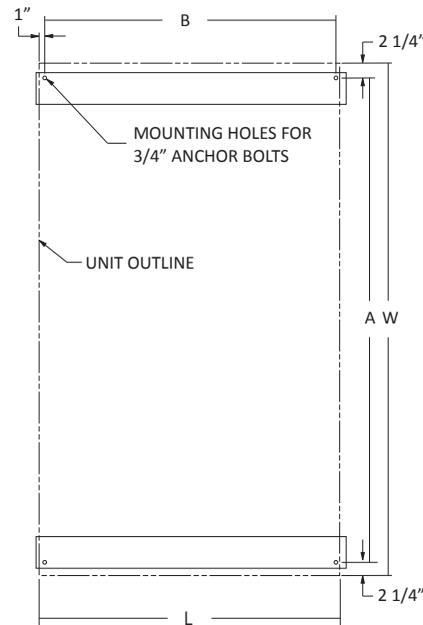


MODELS ACX-101X THRU ACX-104X USE FOUR (4) 3/4" DIAMETER ANCHOR BOLTS PER CELL
 MODELS ACX-105X THRU ACX-210X USE EIGHT (8) 3/4" DIAMETER ANCHOR BOLTS PER CELL

SINGLE CELL LAYOUT



MODELS ACX-105X THRU ACX-210X



Model	(L) LENGTH	(W) WIDTH	'A'	'B'	ANCHOR BOLT DIA	# ANCHORS	OPERATING WEIGHT	OPERATING LOAD PER ANCHOR
ACX-101X	6' -10"	12' -10"	12' -5 1/2"	6' -8"	3/4"	4	8480	2120
ACX-102X	8' -5"	13' -10"	13' -5 1/2"	8' -3"			10830	2708
ACX-103X	8' -5"	17' -10"	17' -5 1/2"	8' -3"			16550	4138
ACX-104X	9' -10"	19' -6"	19' -1 1/2"	9' -8"			19230	4808
ACX-105X	11' -10"	20' -6"	20' -1 1/2"	11' -8"		8	25300	3163
ACX-106X	13' -10"	22' -0"	21' -7 1/2"	13' -8"			30610	3826
ACX-207X	11' -10"			11' -8"			37630	4704
ACX-208X	13' -10"			13' -8"			43450	5431
ACX-209X	11' -10"			11' -8"	42395		5299	
ACX-210X	13' -10"			13' -8"	48330	6041		

General notes:

Above drawings are for reference only and preliminary layout. Data is subject to change without notice.

Weight shown does not include options or accessories

Alternative support material may be used. Please consult your representative.

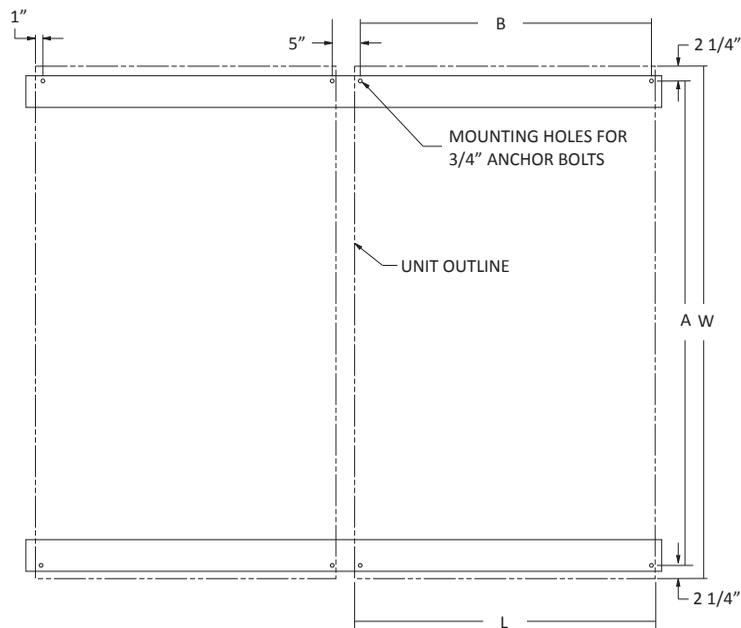
Support design and supply by others. Must comply with applicable building requirements.

See additional notes on following page.

Models 101X - 210X

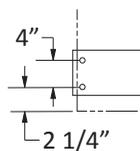
Multiple Cell Recommended Support Layout

Physical Data

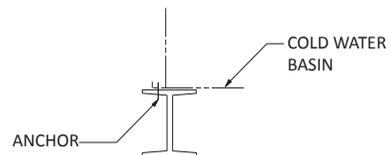


MODELS ACX-101X THRU ACX-104X USE FOUR (4) 3/4" ANCHOR BOLTS PER CELL
 MODELS ACX-105X THRU ACX-210X USE EIGHT (8) 3/4" ANCHOR BOLTS PER CELL

MULTIPLE CELL LAYOUT



MODELS ACX-105X THRU ACX-210X



General notes:

Recommend support drawings are for reference only.

Use of a licensed structural engineer for final design should be used.

All support structures should be level and plumb for proper operation.

Concrete slab or curbs may be used if in accordance with local regulations.

Some tower options may change minimum distance between multiple cell layouts. Above is shown for standard unit design.

Please refer to the certified support drawing supplied with your submittal for job specific design and dimensions.

Support fabrication, design, and installation by others.

Anchors should be full thread length bolts with nut, locking washer, and washers. Supplied by installer.

Use of other anchor types is not recommended.

Sample Specification

GENERAL

1.0 SELECTION

Furnish ____ American Cooling Tower model ACX- _____ cooling tower(s). The ACX series cooling tower is a factory assembled, induced draft, axial fan, cross flow cooling tower with vertical air discharge. The cooling tower's overall dimensions shall not exceed ____ in length X ____ in width X ____ in height. Each cooling tower shall consist of ____ cell(s).

1.1 PERFORMANCE

The cooling tower(s) shall be designed to provide _____ USGPM of total cooling capacity based on an entering hot water temperature of ____°F with a leaving cold water temperature of ____ °F and an entering ambient wet-bulb temperature of ____°F. The unit selected shall have had its published ratings and thermal performance tested and certified in accordance with CTI standard 201. In addition the CTI STD-201 certification the cooling tower shall be supplied with a manufacturer's thermal performance guarantee that is backed by the CTI ATC-105 field acceptance test code. Units shall also comply with CTI ATC-128 for cooling tower sound performance and meet or exceed ASHRAE 90.1 energy efficiency standards.

MATERIALS OF CONSTRUCTION

2.0 STRUCTURE

The cooling tower shall be constructed out of a heavy-gauge steel design and engineered for maximum strength, durability, and service life. All cooling tower seams shall be sealed to provide watertight joints. The unit's standard construction shall be designed for a maximum 60 PSF wind load or 1.0g seismic force. For locations which exceed these amounts, the unit will be supplied with Structural Enhancement 'SE' construction package which includes additional anchorage and internal bracing and permit the cooling tower to handle a maximum wind load of 145 PSF or 5.12g seismic rating. All serviceable platforms, ladders, and landings shall be designed for a maximum 60 PSF live load or 300 pound concentrated load. Units shall exceed NFPA 2.14 requirements for fire safety and not require the use of external sprinkler systems.

2.1 COLD WATER BASIN

The cold water basin section shall be constructed of G-235 galvanized steel in accordance with ASTM A653/A653M to provide maximum durability and excellent resistance to rust and corrosion. G-235 designation represents that an average coating thickness of 2.35 ounces of zinc per square foot shall be applied to the steel surfaces. Units which utilize a designation less than G-235 shall not be acceptable. The cold water basin shall be designed with a tiered configuration allowing for reduced water volume to be retained in the basin which shall lower operating weight, and allow for easier maintenance. The cold water basin section shall include standard piping points of connection for the overflow, make-up, drain, and outlet connections. Outlet connection shall be beveled for weld and grooved for mechanical coupling (*flanged to accept an ASME B16.5 Class 150 type flange*). On multiple cell units an internal equalization system (*external equalizer connections for field piping*) shall be provided and allows isolation of individual cells for maintenance, and servicing.

2.1a (OPTION) TYPE SERIES 304 (316) STAINLESS STEEL COLD WATER BASIN WITH TRITEK SEAM PROTECTION

*The cold water basin section shall be constructed of stainless steel 304 (316) steel to provide superior service life, durability and excellent resistance to rust and corrosion. The cold water basin shall be designed with a tiered configuration allowing for reduced water volume to be retained in the basin which shall lower operating weight, and allow for easier maintenance. Stainless steel grade less than 304 (316) shall not be acceptable. The stainless steel basin seams shall be provided with the TRITEK protection system which incorporates a multi-layered seam sealant system guaranteed to be leak free for a period of five (5) years. The TRITEK system utilizes sealer tape installed within the seam joint and two layers of factory applied protection along the interior surface of the seam. Welded basin seams that are guaranteed to be leak free for five (5) years are an acceptable substitute. The cold water basin section shall include standard piping points of connection for the overflow, make-up, drain, and outlet connections. Outlet connection shall be beveled for weld and grooved for mechanical coupling (*flanged to accept an ASME B16.5 Class 150 type flange*). On multiple cell units an internal equalization system (*external equalizer connections for field piping*) shall be provided and allows isolation of individual cells for maintenance, and servicing.*

2.1b (OPTION) TYPE 304 (316) STAINLESS STEEL COLD WATER BASIN - WELDED BASIN SEAMS

*The cold water basin section shall be constructed of stainless steel 304 (316) steel to provide superior service life, durability and superior resistance to rust and corrosion. The cold water basin shall be designed with a tiered configuration that is sloped to allow for reduced water volume to be retained in the basin which shall lower operating weight, and promote positive drainage of the unit. Stainless steel grade less than 304 (316) shall not be acceptable. The stainless steel basin seams shall be provided with continuous welded basin seams which shall be guaranteed to be leak free for a period of five (5) years. Bolted basins shall not be acceptable. The cold water basin section shall include standard piping points of connection for the overflow, make-up, drain, and outlet connections. Outlet connection shall be (beveled for weld and grooved for mechanical coupling (*an ASME B16.5 Class 150 Flange*)). On multiple cell units, an internal equalization system (*external field equalizer connections*) shall be provided and allow isolation of individual cells for maintenance, and servicing.*

Sample Specification

2.2 CASING PANELS

The casing panels shall be constructed of G-235 (ASTM A653/A653M) galvanized steel to maximize the life of the cooling tower and minimize rust and corrosion. The casing panels shall be designed with heavy-gauge steel that incorporates flanged edges with rounded corners for maximum strength and durability. The panels shall be fastened to the cooling tower structure with all seams sealed to provide watertight joints.

2.2 (OPTION) STAINLESS STEEL 304 (316) STAINLESS STEEL CASING PANELS

The casing shall be constructed of series 304 (316) stainless steel to maximize the life of the cooling tower and provide superior protection against rust and corrosion. The casing panels shall be designed with heavy-gauge steel that incorporates flanged edges with rounded corners for maximum strength and durability. The panels shall be fastened to the cooling tower structure utilizing stainless steel fasteners of the same grade as the panels. All seams shall be sealed to provide watertight joints. Self-tapping fasteners shall not be accepted.

2.3 INTERNAL SUPPORT MEMBERS

The cooling tower shall be constructed of heavy-gauge G-235 (ASTM A653/A653M) galvanized steel for maximum strength and durability. All weight bearing support pieces will be fabricated from heavy gauge steel to ensure structural integrity of the unit throughout its service life. All supports will be fastened with galvanized hardware and fasteners.

2.3a (OPTION) STAINLESS STEEL 304 (316) INTERNAL SUPPORT MEMBERS

The cooling tower shall be constructed of heavy-gauge stainless steel 304 (316) steel to provide superior service life, durability and excellent resistance to rust and corrosion. All weight bearing support pieces will be fabricated from heavy gauge steel to ensure structural integrity of the unit throughout its service life. All supports will be fastened with stainless steel hardware.

MECHANICAL COMPONENTS

3.0 MECHANICAL BELT DRIVE SYSTEM

The fan drive system shall be belt driven consisting of a multi-groove, solid back Banded V-belt with taper lock sheaves designed with a minimum service factor of 1.5 and designed to be utilized in conjunction with a variable frequency drive. Multiple single belt systems shall not be accepted. Large diameter driven sheaves shall be constructed of lightweight aluminum alloy for corrosion protection.

3.0a (OPTION) MECHANICAL GEAR DRIVE SYSTEM

The fan drive system shall be a right angle gear driven design consisting of a right angle gear drive assembly which meets AGMA and CTI standards. A high efficiency close coupler (on internally mounted motors) or composite drive shaft with stainless steel couplings (externally mounted motors) shall be designed for maximum transmission efficiency and performance. Gear driven mechanical systems shall be designed for a minimum 2.0 service factor and suitable for operation in conjunction with a variable frequency drive.

3.1 FAN MOTOR(S)

____ HP NEMA Premium Efficiency totally enclosed fan cooled (T.E.F.C.) ball bearing fan motor(s) with a minimum 1.25 service factor shall be furnished and suitable for cooling tower service on 208-230/460 volts, 60 hertz, 3 phase. The fan motor shall be designed in accordance with MGI, part 31 suitable for inverter duty operation or in conjunction with a variable frequency drive. Motors shall be tested in accordance with IEEE 112, method B and efficiency values shall be certified by UL. The motor shall be designed specifically for use in cooling tower environments. Motor construction shall be provided with an interior and exterior epoxy coating to provide maximum protection against corrosion. The motor(s) shall be installed on an adjustable base for servicing and maintenance. A protective hinged cover shall shield externally mounted motors to protect them from the weather and to restrict accessibility to the rotating shaft, sheave, and belts for safety. When a gear drive system is chosen, the fan motors shall be mounted horizontally on a fixed motor base and shall be either close coupled internally or when mounted externally shall be provided with a removable shaft and coupling guard.

3.2 LOW NOISE 'SC' FAN WITH VT TIP TECHNOLOGY

Fan(s) shall be low noise wide chord, axial propeller, adjustable pitch type, marine grade aluminum design, that are dynamically balanced. The fan(s) shall be supplied and installed by the manufacturer prior to shipping maintaining a strict tip clearance for maximum efficiency. Fans shall be constructed of 5052 high grade marine alloy aluminum for maximum protection against rust and corrosion. Fan blades shall be designed with a resilient mounting system to eliminate the need to lockout variable frequency drive ranges. The fan(s) shall incorporate velocity tips for reduced sound. Fans constructed of galvanized steel or fixed pitch type shall not be acceptable. The fan shall be located within a fan stack that shall be designed out of G-235 galvanized steel (*stainless steel type 304 (316)*) and shall include a hot dipped galvanized steel (*stainless steel*) OSHA compliant fan guard that is securely fastened to the fan stack by fasteners during operation and can be removed for inspection or servicing.

Sample Specification

3.2a (OPTION) SUPER LOW NOISE 'EC' FAN WITH VE TIP TECHNOLOGY

Fan(s) shall be extended chord super low noise, axial propeller, adjustable pitch type, marine grade aluminum design that are dynamically balanced. The fan(s) shall be supplied and installed by the manufacturer prior to shipping maintaining a strict tip clearance for maximum efficiency. Fans shall be constructed of 5052 high grade marine alloy aluminum for maximum protection against rust and corrosion. Fan blades shall be designed with a resilient mounting system to eliminate the need to lockout variable frequency drive ranges. The fan(s) shall incorporate velocity edge for reduced sound. Fans constructed of galvanized steel or fixed pitch type shall not be acceptable. The fan shall be located within a fan stack that shall be designed out of G-235 galvanized steel (stainless steel type 304 (316)) and shall include a hot dipped galvanized steel (stainless steel) OSHA compliant fan guard that is securely fastened to the fan stack by fasteners during operation and can be removed for inspection or servicing. The cooling tower's fan stack shall be increased to accommodate the extended chord fan design for maximum efficiency.

3.3 BEARINGS

Fan shaft bearings shall be heavy duty self-aligning ball type with self-locking collars and lube lines that extend to the outside of the unit near the access door for servicing. Bearings shall be designed for a minimum L_{10} life of 100,000 hours minimum and shall be guaranteed for a period of five (5) years under the mechanical warranty.

3.3a (OPTION) RIGHT ANGLE GEAR DRIVE

The cooling tower shall be designed with a right angle gear drive which exceeds AGMA and CTI standards. Right angle gear drives shall be constructed of a heavy duty rigid case which is epoxy coated for maximum protection against rust and corrosion and designed to absorb internal and external loads with minimum deflection. The spiral bevel gears are precision machined from high grade alloy steel, case hardened, and lapped in pairs for maximum durability and efficiency. The gear drives internal bearings shall be designed for a 100,000 hour L_{10} life. Lubrication of the gear drive occurs by way of an internal slinger which incorporates a low speed function to eliminate minimum speed requirements and is suitable for operation in conjunction with a variable frequency drive. The gear drive utilizes a permanently mounted oil sight level gauge and is provided with an oil fill line and a drain line for servicing. Oil fill line shall be ran to the exterior of the cooling tower near the access door for servicing. Units which do not provide low speed options or extended oil fill lines shall not be accepted.

3.4 MECHANICAL WARRANTY

Cooling tower fan drive components shall be covered by a one (1) year complete mechanical warranty. Drive components protected by this warranty shall include the fans, bearings, fan shafts, belts, sheaves, bushings, and fan motors.

WATER DISTRIBUTION SYSTEM

4.1 WATER DISTRIBUTION SYSTEM

The hot water distribution basins shall be constructed of heavy gauge G235 (ASTM A653/A653M) galvanized steel materials and shall be open gravity type for easy cleaning and maintenance. The basins must be accessible from outside the unit and serviceable during tower operation. The hot water distribution basins shall be designed with top inlet studed flange connections located above each fill region of the cooling tower. The studed connections will be supplied with flow control valves for water balancing and connection to field piping. Distribution covers shall be constructed out of identical materials and shall be removable during tower operation for inspection and servicing of the hot water basins. Plastic or FRP covers shall not be accepted.

4.1a (OPTION) STAINLESS STEEL 304 (316) WATER DISTRIBUTION SYSTEM

The hot water distribution basins shall be constructed of heavy gauge stainless steel 304(316) materials and shall be open gravity type for easy cleaning and maintenance. The basins must be accessible from outside the unit and serviceable during tower operation. The hot water distribution basins shall be designed with top inlet studed flange connections located above each fill region of the cooling tower. The studed connections will be supplied with flow control valves for water balancing and connection to field piping. Distribution covers shall be constructed out of identical materials and shall be removable during tower operation for inspection and servicing of the hot water basins. Plastic or FRP covers shall not be accepted.

4.2 (OPTION) SINGLE POINT INLET CONNECTION – SIDE INLET CONNECTION

The cooling tower inlet piping shall be a single point connection type that is designed with factory installed piping to deliver balanced water flow to the hot water basins and simplify field piping of the cooling tower. The single inlet connection shall be side oriented with a beveled for weld and grooved connection type for mechanical coupling (*flanged to accept an ASME B16.5 Class 150 type flange*).

Sample Specification

4.2 (OPTION) SINGLE POINT INLET CONNECTION – SIDE INLET CONNECTION

The cooling tower inlet piping shall be a single point connection type that is designed with factory installed piping to deliver balanced water flow to the hot water basins and simplify field piping of the cooling tower. The single inlet connection shall be side oriented with a beveled for weld and grooved connection type for mechanical coupling (*flanged to accept an ASME B16.5 Class 150 type flange*).

4.2a(OPTION) SINGLE POINT INLET CONNECTION – BOTTOM INLET CONNECTION

The cooling tower inlet piping shall be a single point connection type that is designed with factory installed piping to deliver balanced water flow to the hot water basins and simplify field piping of the cooling tower. The single inlet connection shall be bottom oriented type flat face flange designed to accept an ASME B16.5 Class 150 type flange.

THERMAL COMPONENTS

5.1 FILL MEDIA

The cooling tower fill shall be PVC (Polyvinyl Chloride) of herring bone design for maximum heat transfer. The PVC fill shall be self-extinguishing for fire resistance with a flame spread rating of 5 per ASTM E84-81a. It shall also be resistant to rot, decay and biological attack. The fill shall be able to withstand continuous hot water temperatures up to 140°F. Fill media shall be supported by fiberglass reinforced polyester FRP bottom support system designed to elevate the fill media off of the floor of the basin and permit water circulation while preventing debris accumulation under the fill media.

5.2 DRIFT ELIMINATORS

Drift eliminators shall be designed for cross flow applications and shall be designed as an integral part of the fill media. Separate Drift Eliminators shall not be accepted. Maximum drift loss shall not exceed 0.0003% of total flow.

5.3 AIR INLET LOUVERS

Air Inlet louvers shall be required and shall be an integral member of the fill media. Integral louvers shall have the same material properties as the fill media and shall be designed to prevent splash out from occurring while maximizing air flow through the unit. When separate air inlet louvers are utilized, the air inlet louvers shall be constructed of noncorrosive fiberglass reinforced polyester material and can be removed and replaced for maintenance or cleaning. Air inlet louver supports shall be constructed out of the same material as the structural members of the cooling tower.

5.4 (OPTION) AIR INLET DEBRIS SCREENS

The cooling tower's air inlets shall be supplied with a factory installed debris screen designed to prevent entry of large debris or other unwanted foreign objects which may damage the fill media or enter the circulating water system. The air inlet debris screen shall be constructed of heavy gauge mesh with a maximum opening of 1" square and fastened to the cooling tower structure. The screens shall be easily removed for servicing and accessibility. Air inlet debris screen shall be constructed of hot dipped galvanized steel (HDG) (*stainless steel*) construction.

PLENUM ACCESS

6.1 ACCESS DOORS

Two hinged access doors shall be provided for access into the plenum section on the sides of the cooling tower supplied with a latching system to secure the doors during operation.

6.2 INTERNAL WALKWAY

The cooling tower plenum region shall include a mechanical walkway running between each access door to permit access to the plenum region of the cooling tower. The walkway shall be constructed of heavy gauge G235 galvanized steel supports (*Stainless Steel*) with fiberglass reinforced polyester FRP walkway with is provided with an anti-skid surface and is slotted to prevent water accumulation.

6.3 (OPTION) INTERNAL ELEVATED MECHANICAL SERVICE PLATFORM [*applicable to ACX-20XX models only*]

The cooling tower's plenum region shall be supplied with an elevated service platform designed to provide safe access to the mechanical components of the cooling tower. The elevated service platform shall be accessible from the internal walkway within the cooling tower by way of a factory mounted ladder. The elevated service platform will include an anti-skid walking surface and supplied with a handrail system. The entire assembly shall be in compliance with OSHA requirements. The elevated platform shall be constructed from hot dipped galvanized (HDG) (*Stainless Steel*) and the ladder shall be constructed of aluminum.

Sample Specification

SOUND

7.1 SOUND LEVEL

The cooling tower's sound levels shall not exceed ____ dB at a distance of 5 (50) feet from the cooling tower in any cardinal direction or above the equipment. Where sound criteria is determined by job specific requirements, those levels shall not exceed the sound levels as indicated on the chart below. Sound data shall be in accordance with CTI ATC-128 test procedures.

SOUND PRESSURE LEVEL MEASURED AT 5 (50) FEET									
	63	125	250	500	1000	2000	4000	8000	dB(A)
AIR INLET SIDES									
CASED SIDES									
VERTICAL									
Lp SOUND PRESSURE LEVELS ARE EXPRESSED IN (Db) REFERENCE 0.0002 MICROBAR									

In the event the cooling tower cannot meet the required sound levels for the project, the manufacturer shall be required to incorporate a fan design that can meet the requirement or utilize sound attenuation as necessary. Units which do not meet the sound requirements are not acceptable.

ACCESSORIES & OPTIONS

8.0 ACCESS LADDER & PERIMETER HAND RAIL SYSTEMS

Ladders shall be installed to facilitate access to the mechanical drive system and access door of the cooling tower. In the event that an external service platform is incorporated into the overall design, the ladder shall be designed with a walk through to the access platform. The ladder shall be constructed to current OSHA standards and shall be designed of non-corrosive aluminum material with safety cage constructed of galvanized steel that adheres strictly to OSHA standards. The cooling tower shall be designed with a galvanized tube handrail system along the perimeter of the fan deck for fall protection. The handrail shall be designed from a minimum 1 ¼” galvanized steel tubing with galvanized fasteners. The handrail shall comply with OSHA requirements and we extend 42” from the fan deck. The system will include handrail, knee rail, and toe guard.

8.1 EXTERNAL COLD WATER BASIN SERVICE PLATFORM & LADDER

For elevated cooling tower installations the cooling tower shall be supplied with a cold water basin service platform that provides access to the access door of the cooling tower’s plenum region. The cold water basin service platform shall be self-supporting design constructed of hot dipped galvanized steel (HDG) (*Stainless Steel 304*) with anti-skid walking surface and supplied with a complete handrail system which includes hand rail, knee rail, and toe guard. The platform shall be OSHA compliant and capable of a maximum 60 PSF live load or 300 pound concentrated load. The service platform will be supplied with a vertical access ladder which extends to the base of the cooling tower and is securely fastened to the cooling tower structure. Mounting hardware and brackets that attach to the cooling tower shall be made of identical materials of construction at the point of connection. When required a safety cages will be provided. (*A self-closing gate shall be provided at the step through ladder location.*)

8.2 VIBRATION SWITCH

The cooling tower shall be designed with an electro-mechanical vibration switch with local reset, designed to monitor, detect, and de-energize the fan motor in the event of excessive vibration. The vibration switch shall be factory mounted to the mechanical support and designed for operation within the cooling tower plenum and housed within a NEMA 4/4X IP66 (CSA types 4 and 12) enclosure. The unit is supplied with a local reset button and adjustable sensitivity dial which offers a range of 0-7G. The mechanical switch shall be designed with dual SPDT capability and capable of being integrated to the building’s BMS system. (*The switch shall be furnished a remote reset option in either 115 VAC or 24 VDC.*)

8.3 BASIN HEATERS

The cooling tower shall be provided with ____kW basin heater(s) for cold climates that are prone to freezing conditions. The heater selection shall be made by the factory and will be designed to maintain a minimum cold water temperature of no less than 40°F at 0°F (-20°F/-40°F) ambient . The electric basin heater shall incorporate a low water cutout switch and an adjustable thermostat housed within a NEMA 4x enclosure.

8.4 FILL BYPASS CONNECTION

The cooling tower cold water basin will be supplied with a fill bypass connection for use in cold weather climates or when conditions are such that the inlet water is to be diverted directly to the cold water basin without coming into contact with the fill media. The fill bypass connection shall be a side (*bottom*) oriented connection that is beveled for weld and grooved for mechanical coupling (*flanged to accept an ASME B16.5 Class 150 type flange*).

Sample Specification

8.5 MECHANICAL DAVIT

The cooling tower shall be supplied with a removable and portable light-weight aluminum davit that is designed to assist removal of the fan motor or fan assembly when servicing or maintenance is required. The davit shall be designed with a factory mounted fixed base, one per cell, constructed of identical materials as that of the upper section of the cooling tower and designed for a maximum weight load of 200% of the motor weight.

8.6 INTERNAL SWEEPER PIPING

The cooling tower shall include an integrated internal sweeper piping system for connection to an external water filtration system. The internal sweeper piping shall be designed with separate supply and return lines which are constructed of schedule 40 PVC piping no less than 2" in diameter. The return piping shall be located in the depressed region of the cold water basin and shall incorporate a series of collection holes which are no less than 1/2" in diameter. The collection holes shall be located facing downwards, slightly elevated off the basin floor to allow debris to be pulled into the circulating water and directed back to the filter system. Points of connection shall be by PVC bulkhead fittings for galvanized cold water basins. Stainless steel cold water basins shall utilize stainless steel welded couplings which are of identical material to the basin.

8.6a EDUCTOR NOZZLES

The supply piping shall incorporate ABS sweeper jets designed to create a negative pressure region at the nozzle outlet to induce ambient basin water into the elliptical discharge of the nozzle and direct the water discharge to a return pipe located in the depressed area of the cold water basin. The nozzles shall be spaced evenly from the point of connection to the end of the supply pipe. Nozzles shall be swivel mounted so that they can be adjusted as needed. Nozzles which are fixed body type shall not be accepted.

8.7 ELECTRONIC WATER LEVEL CONTROL HIGH/LOW ALARM

The cooling tower shall include an electric water level control device which is designed to operate by monitoring water levels within the cold water basin by way of stainless steel probes housed within an externally mounted stilling chamber. The probes shall be designed to monitor high and low water levels which will open and close the brass solenoid valve to regulate water levels within the cold water basin. The five probe system includes additional probes which are designed as high and low water level alarms for additional monitoring and protection. The control panel utilizes dry contact locations for remote monitoring and is provided with a 110 dB alarm at the control panel in the event that the low or high alarm is triggered. The electric water level controls shall be housed within a NEMA 4x enclosure designed for outdoor operation.

8.8 QUICK FILL LINE

The cooling tower shall be provided with an external point of connection which can permit full flow filling capability of the cooling tower basin in addition to the make-up connection. The quick fill line shall be located adjacent to the make-up connection for ease of tie-in to make-up water line and is designed to help accelerate the filling of the cooling tower following shutdowns that require the system to be drained. The connection type shall be NPT and diameter shall match the make-up connection size of the specified model.

8.9 VARIABLE FREQUENCY DRIVE

The cooling tower shall be furnished with a high quality, easy to use, variable frequency drive designed to monitor cold water basin temperatures and efficiently monitor fan power operation to minimize energy costs based on designated set points. The drive selection will be based on the electrical service and cooling tower horsepower as indicated on the mechanical schedule. The VFD Drive conforms to NEMA ICS 3.1 and shall be capable of operating without fault or failure when the voltage varies plus 10% or minus 15% from rating, and frequency variations of plus or minus 5%. The variable frequency drive shall be furnished in a NEMA 1 (NEMA 3R) (NEMA 12) enclosure and shall include a two contactor manual bypass when required. The VFD and bypass package shall be NEMA rated, fully pre-wired and read for installation as a single UL listed device. The VFD drive shall be furnished with a 2 year warranty and startup shall be conducted by an authorized local startup company.

8.10 SINGLE POINT CONTROL PANEL

The cooling tower shall be furnished with a single point electrical supply control panel for the cooling tower cell(s) with features and functions in accordance to the plans and specifications. The minimum requirements of the control panel shall be to provide a single point of electrical power supply capable of operating the cooling tower fan motors and electrical accessories or components being supplied. The single point electrical panel shall provide branch circuit protection to each motor, controls transformer, and electric basin heaters when present. Panel shall provide visual indicator lights and alarm for signal an event associated with temperature, vibration, or power loss. Unit shall be supplied within a fused enclosure with lockable door and an HOA switch for motors. The enclosure shall be NEMA 1 (NEMA 3R) (NEMA 12) (NEMA 4X) type and provide scalable contact points for the accessories and options and permit signal wiring to be integrated to the panel for BMS monitoring. When a VFD is used in conjunction with the single point electrical panel, the VFD from section 9.10 shall be housed within the enclosure which is sized according to requirements. All panels shall be UL listed.

Thermal Guarantee

AMERICAN COOLING TOWER ACX SERIES COOLING TOWER
THERMAL GUARANTEE

The ACX Series cooling tower models listed at <http://www.cti.org/certification.shtml> have had their published capacities certified under CTI Standard 201 Test Code and are listed under validation number 13-38-02

The ACX series packaged cooling tower design manufactured by AMERICAN COOLING TOWER INC., is provided with a THERMAL GUARANTEE stating that based on design conditions presented in bid documents or requirements provided by the client, tower performance shall meet or exceed a minimum of 95% capacity as is acceptable under CTI Standards & Testing and verified by a Thermal Acceptance Test performed under CTI ATC-105 testing standards certifying that the unit's thermal performance has been tested and meets CTI standards for thermal capacity ratings.

Upon the owner's request an ATC-105 thermal acceptance test can be provided at the owner's expense if they suspect that the cooling tower is not meeting thermal performance as required by the technical specifications supplied. A thermal acceptance test shall be provided by a third party testing agency to conduct the ATC-105 thermal acceptance per CTI requirements. Upon completion of the thermal test a report shall be provided to the customer confirming the results. This report will be furnished to both American Cooling Tower and the owner and is considered a legal document and will be recognized as such by all parties involved.

In the event that the suspected unit(s) do not pass the CTI ATC-105 thermal acceptance test, American Cooling Tower, will be held responsible for making any and all changes to the existing cooling tower(s) or replacing the existing cooling tower(s) to bring the unit into an acceptable performance range as defined by ATC-105 testing standards. In addition American Cooling Tower will be responsible for additional testing. If the unit(s) pass the ATC-105 test, the owner is responsible for all costs and fees associated with the conducting the test procedure.

Thermal Guarantees will be void should any design conditions be altered without the acknowledgement of American Cooling Tower. Any obstructions that limit air flow or cause air recirculation may also void thermal guarantees. American Cooling Tower provides a thermal guarantee under the assumption that the customer will maintain preventative maintenance as instructed by AMERICAN COOLING TOWER and uses only Factory Authorized Parts supplied by American Cooling Tower. Any parts, accessories, or optional components not supplied by American Cooling Tower, which may affect cooling performance will void thermal guarantee. The owner should consult with the factory prior to the installation of any components, platforms, ladders, or other accessories that may affect cooling tower performance.



ACX SERIES SINGLE & MULTIPLE CELL MODELS; STD-201 VALIDATION NUMBER C38C-18R00
SOME OPTIONS AND ACCESSORIES MAY VOID 201 CERTIFICATION

Warranty

AMERICAN COOLING TOWER STANDARD ACX SERIES COOLING TOWER WARRANTY
STATEMENT

One Year Mechanical Warranty - One Year Total Product

AMERICAN COOLING TOWER warrants the mechanical equipment of their ACX series packaged system which includes the bearings, fan(s), fan motor(s), pulley(s), shaft(s), and mechanical support(s) for a period of one (1) year from the date of shipment by AMERICAN COOLING TOWER. Warranty coverage ensures that the mechanical components of the ACX series cooling tower will be free of defects in materials and workmanship. Any component not mentioned previously will be guaranteed to be free of defects associated with materials or workmanship for a period of one (1) year from the date of installation or for a period of eighteen (18) months from the date of shipping, whichever time expires first, by AMERICAN COOLING TOWER. The components that are included in the one (1) year or eighteen (18) month coverage period include; fill media, structural components, drift eliminators, inlet louvers, fan belts, make-up valve(s), vibration switches, or any other component not included in the standard one (1) year mechanical warranty.

In addition to the equipment warranty, AMERICAN COOLING TOWER offers a performance guarantee which states that the cooling tower specified in the CERTIFIED UNIT DRAWING will meet the designed specifications as indicated for the project for a period of one (1) year from date of installation or eighteen (18) months from the date of shipping by AMERICAN COOLING TOWER, whichever time expires first. If after installation and startup, the tower is not operating as specified, at the customer's request, AMERICAN COOLING TOWER technicians will perform a thorough inspection and performance test of the installed unit. The customer, consulting engineer, and manufacturer representative will be permitted access to observe the performance test and inspection. If the results of the performance test or the inspection show the equipment to be deficient, AMERICAN COOLING TOWER will make any necessary repairs or alterations to correct the problem at no additional cost to the owner. If following the inspection the unit is found to be in accordance with the certified drawings and stated performance, the owner will reimburse AMERICAN COOLING TOWER for all direct expenses associated with the performance test and inspection.

No other warranties written or verbal will supersede the above warranty statement. The sole remedy for breach of the warranty as stated above will be the repair or replacement of the equipment by AMERICAN COOLING TOWER at its option. Any third party labor or components that are installed onto the unit after unit is shipped by AMERICAN COOLING TOWER will void any warranty unless the components or accessories are approved in writing by AMERICAN COOLING TOWER. In addition, warranty coverage will be void if the owner does not perform preventative maintenance as recommended and operate the cooling tower in accordance to AMERICAN COOLING TOWERS' operation and maintenance manual. AMERICAN COOLING TOWER standard warranty as stated above is void in the event of natural disasters, riots, wars, or acts of God which result in the loss of the cooling tower. Under no circumstances will AMERICAN COOLING TOWER be liable for lost profits, lost savings, personal injuries, incidental damages, economic loss, property damage, or any other consequential, incidental, special or contingent damages. In addition, AMERICAN COOLING TOWER shall not be responsible for any injuries or damages of any kind whatsoever under any theory of tort to the extent caused by misuse of the product by the buyer or any third party. Warranty EXCLUDES labor to perform the repairs and shall be at the OWNER'S expense unless otherwise agreed upon in writing by AMERICAN COOLING TOWER.

Owner agrees to all terms outlined above in the stated warranty and this agreement is acknowledged upon owner's issuance of a purchase order and AMERICAN COOLING TOWER agrees to the above warranty at the time of purchase order acceptance.

ACT OFFERS FLEXIBLE WARRANTY PLANS WHICH INCLUDE:

5 Year mechanical / 1 Year total product (Parts Only)

5 Year mechanical / 1 Year total product (Parts & Labor)

5 Year Total Product (Parts Only)

5 Year Total Product (Parts & Labor)

Extended warranties beyond 5 years are also available

For more information please contact your representative or you can call [1-800-371-5959](tel:1-800-371-5959).

Low Noise Options

American Cooling Tower provides the ACX Series cooling tower with several fan design options to help meet the growing need to provide units which operate at reduced sound levels. In the past and even today, many manufacturers have capitalized on sound requirements by charging top dollar for these options.

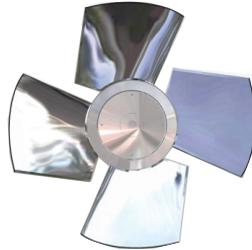
At American Cooling Tower, we do not believe that sound should come at a premium to our clients.

All of our fans are constructed from light-weight, high grade 5052 marine aluminum which offers maximum resistance to corrosion and reduced weights for longer mechanical life. In addition, all of the fan designs offered on our ACX series units incorporate a resilient mount system which allows the fan blades to automatically adjust based on speed variations associated with inverter duty operation. This feature reduces the need to lockout VFD ranges and permit clients with the ability to operate their towers across a wider range to maximize energy efficiency.

Whether you are looking at our Low Noise 'SC' Fans, Super Low Noise 'EC' Fans, or have a need for our Xtreme Low Noise 'XC' fan design, rest assured that American Cooling Tower will help you choose the right fan for your application.



Low Noise 'SC' fans with VT Technology fans come standard on all units and provide superior sound levels when compared to most competitor's standard fan designs.

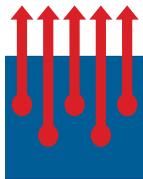


Xtreme Low Noise 'XC' Fans offer superior construction and sound levels without the use of expensive FRP sweeping blade fans which are prone to cracking and failure over time and are provided at a fraction of the cost.

ACX Series Cross Flow Induced Draft Cooling Towers

Engineering Data

YOUR REPRESENTATIVE IS:



**AMERICAN
COOLING
TOWER, INC.**

CORPORATE OFFICE:
American Cooling Tower, Inc.
3130 W. Harvard Street
Santa Ana, CA 92704
800-371-5959
www.americancoolingtower.com



*Some options and accessories are excluded from CTI STD-201 certification. This is subject to change without notice.

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