

Marley Cooling Tower - 360 ton

Mfg: Marley

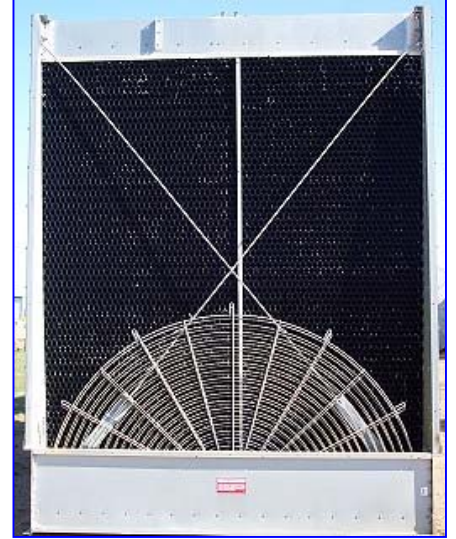
Model: NC4011GM

Stock No. 130.CJR1802.40

Serial No. 060597-001-94

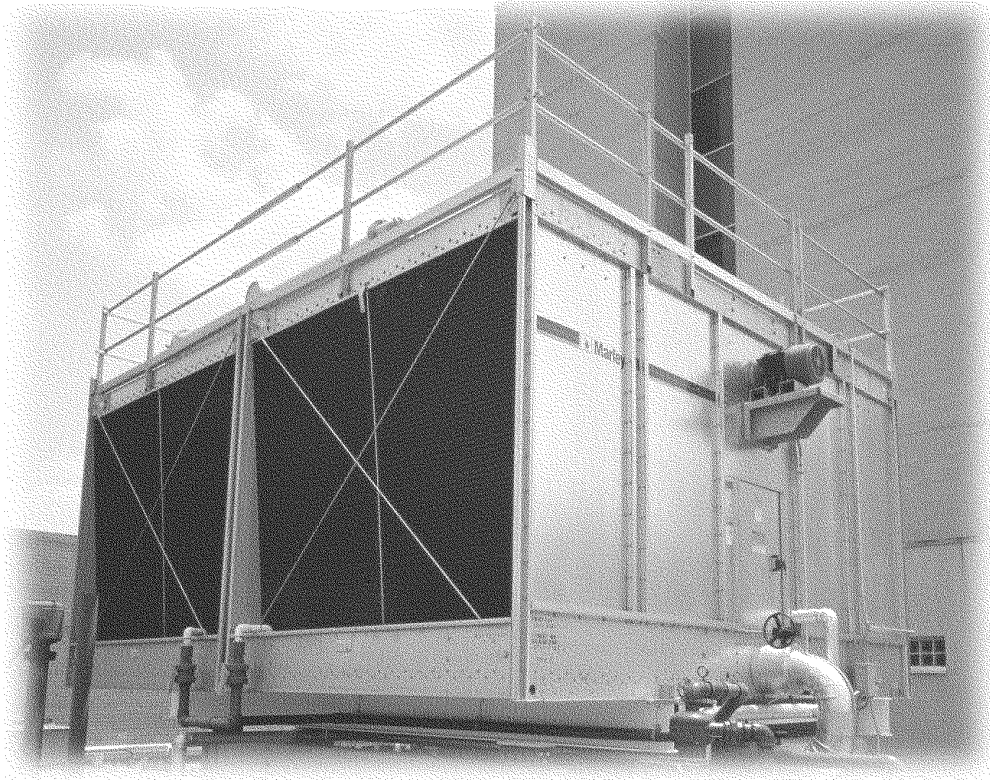
Marley Cooling Tower - 360 ton.

- Model NC4011GM
- S/N 060597-001-94
- Designed to cool 1080 gpm from 95.2-to 85.2 at a 78 °.
- Similar to current NC4211 Model.





NC[®]SERIES



Technical Reference



Marley

TOWER MODEL SELECTION



Tower Model	Motor bhp	temp	GPM Cooling capability at indicated Hot Water, Cold Water and Wet-Bulb temperatures											
		HW ° F	95	96	100	102	95	97	100	102	95	97	100	102
		CW ° F	85	86	85	87	85	87	85	87	85	87	85	87
		WB ° F	80	80	80	80	78	78	78	78	76	76	76	76
NC1201	5		334	379	268	336	405	490	320	384	469	551	367	428
NC1211	7.5		379	430	305	381	459	555	364	436	531	623	416	485
NC1221	10		414	469	333	416	501	605	397	476	580	680	454	530
NC2201	7.5		450	511	362	453	546	660	432	518	632	741	495	578
NC2211	10		503	570	405	506	609	736	482	578	705	826	552	644
NC2221	15		565	641	455	568	684	826	542	649	791	928	620	723
NC3201	10		563	637	457	567	678	815	541	645	781	912	616	716
NC3211	15		646	730	524	650	777	933	621	739	895	1043	707	820
NC3221	20		701	792	569	705	843	1012	673	802	971	1132	767	890
NC4201	15		779	877	636	784	933	1115	750	889	1070	1242	851	984
NC4211	20		849	956	692	854	1017	1215	817	969	1167	1354	928	1072
NC4221	25		909	1024	741	915	1089	1301	875	1037	1249	1448	993	1148
NC5201	20		1002	1134	815	1010	1209	1463	963	1150	1399	1646	1098	1280
NC5211	25		1074	1215	873	1082	1296	1568	1033	1233	1499	1764	1177	1372
NC5221	30		1118	1266	909	1127	1350	1634	1075	1284	1562	1838	1226	1430
NC5231	40		1246	1410	1014	1256	1503	1817	1198	1430	1737	2042	1366	1591
NC6201	25		1185	1338	967	1194	1425	1717	1140	1357	1643	1924	1297	1507
NC6211	30		1255	1417	1024	1265	1509	1817	1208	1437	1739	2036	1374	1596
NC6221	40		1368	1544	1117	1379	1644	1977	1317	1566	1893	2214	1497	1738
NC7201	25		1256	1415	1028	1266	1503	1799	1209	1434	1724	2005	1372	1587
NC7211	30		1327	1494	1085	1337	1587	1899	1277	1515	1820	2116	1448	1676
NC7221	40		1440	1621	1178	1451	1722	2058	1386	1644	1973	2292	1572	1818
NC7231	50		1557	1750	1277	1569	1857	2213	1500	1774	2123	2458	1698	1958
NC7241	55		1587	1786	1299	1600	1896	2262	1529	1810	2169	2515	1732	2000
NCA2A1	25		1323	1493	1081	1333	1590	1917	1273	1514	1834	2153	1448	1682
NCA2B1	30		1419	1601	1160	1429	1704	2052	1366	1623	1964	2302	1552	1802
NCA2C1	40		1549	1747	1265	1560	1860	2240	1490	1772	2144	2510	1694	1967
NCA201	25		1389	1567	1136	1399	1668	2008	1337	1589	1922	2252	1519	1764
NCA211	30		1477	1666	1207	1488	1773	2134	1421	1689	2043	2391	1615	1874
NCA221	40		1628	1836	1331	1640	1953	2347	1567	1861	2247	2626	1780	2064
NCB2A1	25		1404	1580	1150	1415	1677	2003	1352	1601	1920	2230	1532	1770
NCB2B1	30		1501	1687	1229	1512	1791	2136	1445	1710	2049	2376	1637	1889
NCB2C1	40		1623	1826	1328	1636	1938	2312	1563	1851	2217	2570	1771	2044
NCB2D1	50		1702	1914	1394	1715	2031	2420	1639	1940	2321	2688	1857	2142
NCB201	25		1468	1654	1201	1480	1758	2106	1413	1677	2017	2349	1604	1857
NCB211	30		1555	1751	1272	1567	1860	2225	1497	1775	2133	2479	1698	1964
NCB221	40		1697	1910	1388	1710	2028	2423	1633	1936	2323	2695	1852	2140
NCB231	50		1778	2004	1452	1792	2130	2551	1711	2032	2444	2843	1943	2250
NCB241	60		1880	2118	1536	1894	2250	2691	1809	2147	2579	2995	2053	2376



Tower Model	Motor bhp	temp	GPM cooling capability at indicated Hot Water, Cold Water and Wet-Bulb temperatures											
		HW ° F	95	96	100	102	95	97	100	102	95	97	100	102
		CW ° F	85	86	85	87	85	87	85	87	85	87	85	87
		WB ° F	80	80	80	80	78	78	78	78	76	76	76	76
NC8201	25		1542	1730	1267	1554	1833	2173	1486	1753	2088	2404	1679	1931
NC8211	30		1636	1835	1345	1648	1944	2303	1577	1859	2213	2547	1781	2047
NC8221	40		1784	2000	1467	1797	2118	2506	1720	2026	2409	2768	1942	2230
NC8231	50		1973	2206	1627	1988	2334	2748	1903	2235	2645	3025	2144	2454
NC8241	60		2065	2309	1703	2080	2442	2875	1992	2339	2767	3164	2243	2567
NC9201	25		1704	1907	1404	1717	2019	2385	1643	1932	2293	2632	1852	2124
NC9211	30		1787	2001	1472	1800	2118	2502	1723	2027	2406	2762	1943	2229
NC9221	40		1984	2218	1637	1998	2346	2763	1913	2247	2659	3043	2155	2467
NC9231	50		2111	2360	1741	2126	2496	2939	2036	2390	2828	3235	2293	2624
NC9241	60		2258	2519	1869	2275	2661	3119	2180	2551	3005	3424	2449	2794
NC9251	75		2403	2676	1993	2420	2823	3295	2321	2709	3178	3498*	2603	2961
NC9261	75		2562	2847	2130	2580	3000	3486	2476	2881	3367	3498*	2771	3142
NCC201	25		1902	2132	1569	1917	2259	2682	1834	2160	2575	2974	2070	2380
NCC211	30		2007	2248	1655	2022	2382	2826	1935	2278	2714	3131	2183	2509
NCC221	40		2209	2473	1822	2225	2619	3101	2130	2506	2979	3430	2402	2757
NCC231	50		2407	2693	1987	2425	2850	3367	2321	2728	3237	3591*	2615	2999
NCC241	60		2437	2730	2007	2455	2892	3427	2349	2766	3292	3792	2651	3045
NCC251	75		2619	2933	2160	2639	3105	3672	2526	2971	3529	4057	2848	3268
NCC261	75		2819	3135	2344	2839	3306	3857	2723	3173	3721	4100*	3050	3466

- Thermal performance of the NC Series has been certified by CTI (Cooling Tower Institute) in accordance with CTI Standard STD-201(96), and has been assigned CTI certification validation number 92-14-01.
 - CTI Certification under STD-201(96) applies ONLY to selections with entering water temperature of 125°F or less, temperature ranges of 4°F or more, temperature approaches of 5°F or more, and wet bulb temperatures between 60°F and 85°F.
- * Indicates maximum hydraulic limit.

TOWER MODEL SELECTION



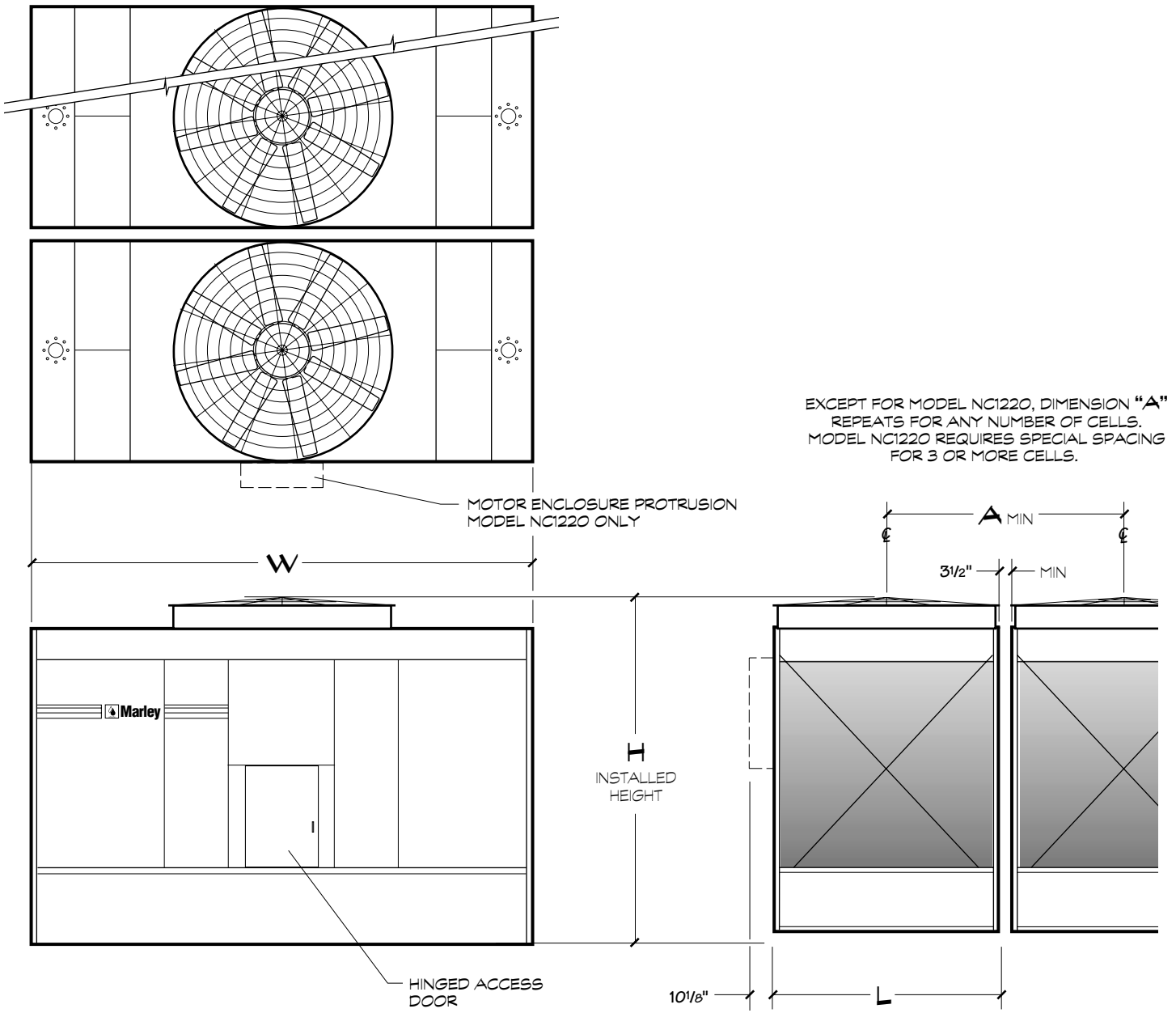
Tower Model	Motor bhp	temp	GPM Cooling capability at indicated Hot Water, Cold Water and Wet-Bulb temperatures												
		HW ° F	95	100	90	95	90	95	90	95	90	95	90	95	
		CW ° F	85	85	80	80	80	80	80	80	80	80	80	80	80
		WB ° F	75	75	72	72	70	70	68	68	66	66	64	64	
NC1201	5		499	389	391	306	448	347	500	384	548	419	593	452	
NC1211	7.5		565	441	444	347	507	393	566	436	620	475	671	512	
NC1221	10		616	481	484	379	553	429	617	475	676	518	731	558	
NC2201	7.5		672	524	528	413	603	468	673	518	737	565	798	609	
NC2211	10		749	585	589	461	673	522	750	578	821	630	888	679	
NC2221	15		841	657	661	518	755	586	842	649	923	708	997	762	
NC3201	10		829	652	656	518	747	584	831	645	909	702	981	755	
NC3211	15		949	747	752	594	856	670	951	740	1039	804	1121	865	
NC3221	20		1030	810	816	644	928	727	1032	802	1128	873	1217	938	
NC4201	15		1133	898	903	718	1024	807	1135	889	1236	964	1329	1034	
NC4211	20		1236	979	985	782	1117	879	1237	968	1347	1051	1449	1127	
NC4221	25		1323	1048	1054	837	1195	942	1324	1037	1441	1125	1549	1207	
NC5201	20		1488	1162	1166	920	1331	1037	1486	1146	1630	1248	1767	1345	
NC5211	25		1595	1246	1250	986	1427	1111	1592	1228	1747	1338	1893	1441	
NC5221	30		1662	1297	1302	1026	1487	1157	1659	1280	1820	1394	1972	1501	
NC5231	40		1848	1445	1450	1144	1654	1290	1845	1425	2022	1552	2189	1671	
NC6201	25		1745	1371	1375	1090	1566	1226	1742	1352	1906	1470	2060	1581	
NC6211	30		1847	1452	1456	1154	1658	1298	1844	1432	2017	1557	2179	1674	
NC6221	40		2010	1582	1587	1258	1805	1415	2007	1560	2194	1696	2368	1822	
NC7201	25		1826	1447	1449	1155	1643	1296	1820	1426	1983	1546	2134	1657	
NC7211	30		1927	1528	1531	1219	1734	1368	1921	1505	2092	1632	2251	1750	
NC7221	40		2089	1658	1661	1323	1881	1485	2082	1634	2267	1771	2437	1898	
NC7231	50		2245	1789	1792	1433	2026	1605	2237	1763	2431	1909	2610	2043	
NC7241	55		2295	1826	1829	1459	2069	1637	2288	1799	2487	1949	2671	2088	
NCA2A1	25		1950	1529	1535	1217	1747	1368	1946	1509	2132	1641	2307	1765	
NCA2B1	30		2087	1639	1645	1305	1872	1467	2083	1617	2280	1758	2465	1890	
NCA2C1	40		2277	1790	1795	1425	2043	1601	2273	1766	2487	1919	2688	2063	
NCA201	25		2042	1605	1610	1278	1832	1436	2038	1583	2231	1721	2411	1850	
NCA211	30		2169	1706	1712	1359	1947	1527	2166	1683	2369	1829	2560	1966	
NCA221	40		2385	1880	1886	1498	2143	1683	2381	1855	2602	2014	2808	2164	
NCB2A1	25		2033	1615	1618	1291	1831	1448	2026	1592	2205	1724	2371	1847	
NCB2B1	30		2168	1725	1728	1380	1954	1548	2161	1700	2350	1841	2524	1972	
NCB2C1	40		2346	1867	1870	1492	2115	1674	2338	1840	2542	1992	2731	2134	
NCB2D1	50		2455	1957	1960	1565	2215	1755	2447	1928	2659	2088	2760*	2235	
NCB201	25		2138	1692	1695	1349	1922	1515	2131	1667	2323	1808	2500	1940	
NCB211	30		2259	1791	1794	1429	2033	1604	2251	1764	2452	1913	2637	2051	
NCB221	40		2458	1953	1956	1559	2215	1750	2450	1924	2666	2085	2864	2235	
NCB231	50		2589	2050	2054	1633	2329	1834	2580	2020	2811	2191	3024	2350	
NCB241	60		2731	2166	2170	1727	2459	1939	2722	2134	2962	2314	3183	2481	



Tower Model	Motor bhp	temp	GPM cooling capability at indicated Hot Water, Cold Water and Wet-Bulb temperatures												
		HW ° F	95	100	90	95	90	95	90	95	90	95	90	95	
		CW ° F	85	85	80	80	80	80	80	80	80	80	80	80	80
		WB ° F	75	75	72	72	70	70	68	68	66	66	64	64	
NC8201	25		2204	1768	1770	1420	1995	1589	2197	1742	2380	1883	2546	2012	
NC8211	30		2335	1875	1878	1507	2115	1686	2328	1848	2521	1997	2696	2133	
NC8221	40		2541	2043	2047	1644	2303	1838	2533	2014	2740	2175	2927	2322	
NC8231	50		2785	2253	2257	1820	2532	2032	2777	2222	2995	2395	3192	2553	
NC8241	60		2913	2358	2362	1905	2649	2126	2904	2325	3133	2506	3194*	2671	
NC9201	25		2418	1948	1951	1571	2193	1755	2410	1921	2606	2073	2783	2212	
NC9211	30		2537	2044	2047	1648	2301	1841	2529	2015	2734	2174	2921	2321	
NC9221	40		2801	2265	2269	1830	2546	2043	2792	2234	3013	2408	3213	2566	
NC9231	50		2978	2410	2414	1948	2708	2174	2969	2377	3204	2561	3415	2730	
NC9241	60		3160	2572	2575	2087	2881	2324	3151	2537	3391	2729	3498*	2904	
NC9251	75		3336	2730	2734	2223	3050	2472	3327	2694	3498*	2893	3498*	3074	
NC9261	75		3498*	2903	2908	2373	3235	2634	3498*	2866	3498*	3073	3498*	3259	
NCC201	25		2721	2179	2182	1754	2460	1960	2712	2147	2943	2320	3154	2481	
NCC211	30		2866	2297	2301	1850	2593	2067	2857	2265	3099	2447	3319	2615	
NCC221	40		3144	2527	2531	2038	2848	2275	3134	2491	3394	2689	3631	2872	
NCC231	50		3414	2751	2755	2221	3097	2479	3403	2712	3591*	2926	3591*	3122	
NCC241	60		3475	2790	2794	2246	3146	2510	3464	2750	3752	2970	4016	3173	
NCC251	75		3723	2996	3001	2416	3375	2698	3711	2954	4016	3188	4100*	3403	
NCC261	75		3906	3198	3203	2610	3571	2899	3895	3156	4100*	3388	4100*	3598	

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- * Indicates maximum hydraulic limit.

TOWER SCHEMATIC

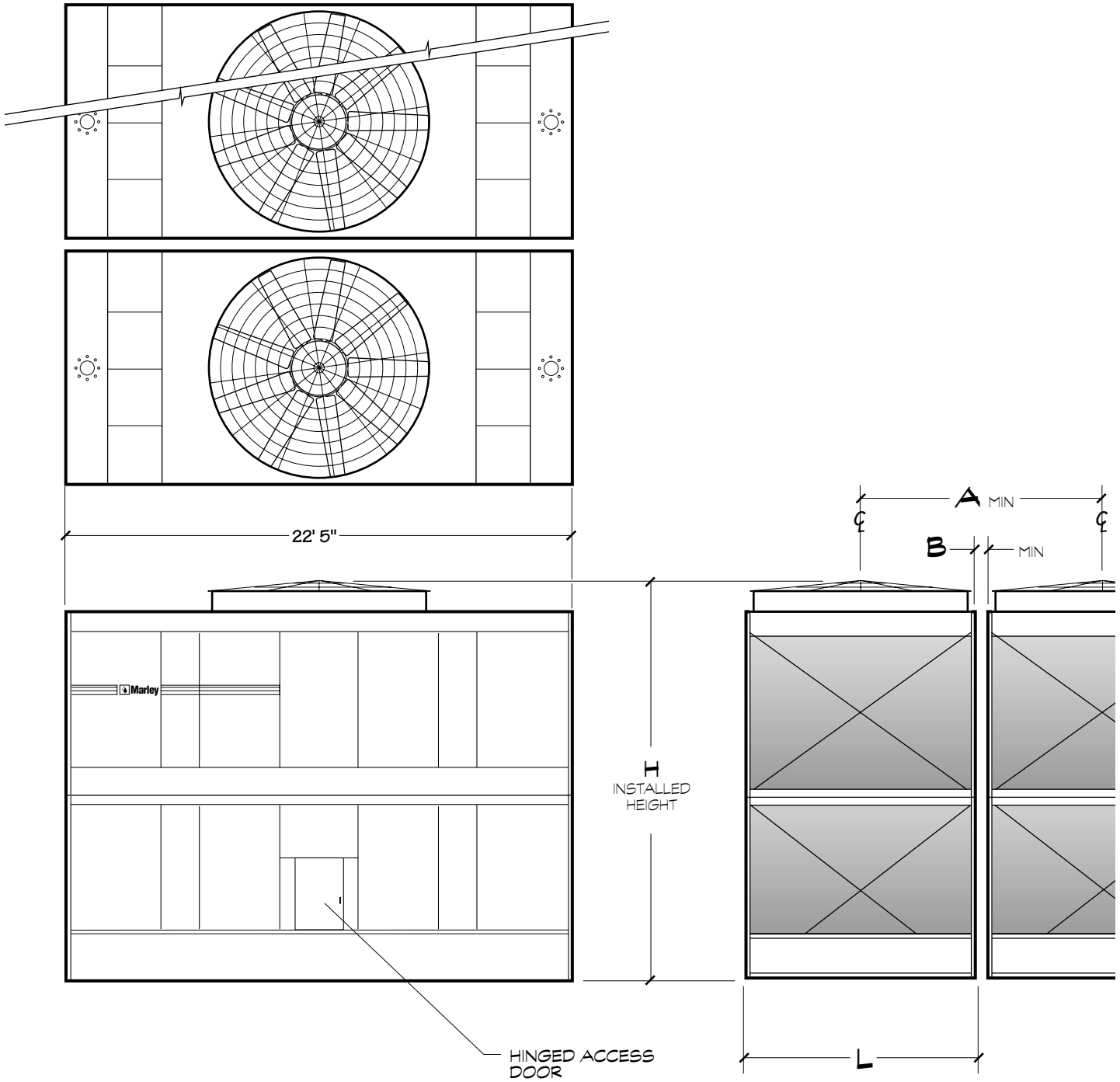


Tower Model Note 2	Nominal Tons Note 3	DIMENSIONS				Motor hp	Design Operating Wt/Cell lb	Shipping Weight lb
		W	L	H	A			
NC1201	135	14'-0" 4268mm	6'-4 3/4" 1950mm	10'-1 5/8" 3090mm	6'-8 1/4" 2039mm	5	9,129	4,541
NC1211	153					7 1/2	9,180	4,591
NC1221	167					10	9,298	4,709
NC2201	182	15'-6" 4725mm	7'-10 3/4" 2407mm	10'-2 3/8" 3109mm	8'-2 1/4" 2496mm	7 1/2	11,589	5,332
NC2211	203					10	11,615	5,358
NC2221	228					15	11,699	5,442
NC3201	226	15'-6" 4725mm	7'-10 3/4" 2407mm	11'-11 1/4" 3638mm	8'-2 1/4" 2496mm	10	12,021	5,764
NC3211	259					15	12,104	5,848
NC3221	281					20	12,165	5,909
NC4201	311	17'-0" 5182mm	8'-10 3/4" 2712mm	12'-11 3/4" 3956mm	9'-2 1/4" 2801mm	15	14,615	6,940
NC4211	339					20	14,692	7,017
NC4221	363					25	14,749	7,074
NC5201	403	18'-9" 5715mm	10'-10 3/4" 3321mm	12'-11 3/4" 3956mm	11'-2 1/4" 3410mm	20	19,275	8,980
NC5211	432					25	19,353	9,059
NC5221	450					30	19,415	9,121
NC5231	501					40	19,681	9,387
NC6201	475	19'-10" 6046mm	11'-10 3/4" 3626mm	12'-11 3/4" 3956mm	12'-2 1/4" 3715mm	25	21,834	10,021
NC6211	503					30	21,896	10,083
NC6221	548					40	22,039	10,226
NC7201	501	22'-5" 6833mm	11'-10 3/4" 3626mm	13'-3 3/4" 4058mm	12'-2 1/4" 3715mm	25	26,315	11,257
NC7211	529					30	26,377	11,319
NC7221	574					40	26,520	11,462
NC7231	619					50	26,586	11,528
NC7241	632					60	26,858	11,800
NCA2A1	530	22'-5" 6833mm	13'-10 3/4" 4236mm	12'-11 3/4" 3956mm	14'-2 1/4" 4325mm	25	27,314	12,048
NCA2B1	568					30	27,376	12,110
NCA2C1	619					40	27,729	12,463
NCA201	556	22'-5" 6833mm	13'-10 3/4" 4236mm	12'-11 3/4" 3956mm	14'-2 1/4" 4325mm	25	27,211	11,945
NCA211	591					30	27,273	12,007
NCA221	651					40	27,416	12,150
NCB2A1	559	22'-5" 6833mm	13'-10 3/4" 4236mm	13'-3 3/4" 4058mm	14'-2 1/4" 4325mm	25	30,659	13,063
NCB2B1	597					30	30,721	13,125
NCB2C1	646					40	31,074	13,478
NCB2D1	677					50	31,140	13,544
NCB201	586	22'-5" 6833mm	13'-10 3/4" 4236mm	13'-3 3/4" 4058mm	14'-2 1/4" 4325mm	25	30,556	12,960
NCB211	620					30	30,618	13,022
NCB221	676					40	30,761	13,165
NCB231	710					50	31,180	13,584
NCB241	750					60	31,452	13,856

NOTE

- 1 Use this bulletin for preliminary layouts only. Obtain current drawings from your Marley sales representative. All table data is per cell.
- 2 Last numeral of model number indicates number of cells. Change as appropriate for your selection.
- 3 Nominal tons are based upon 95°F HW, 85°F CW, 78°F WB and 3 GPM/ton.
- 4 Standard overflow is a 4" dia. standpipe in the collection basin floor. The standpipe removes for flush-out and draining. See page 16 for side overflow option.
- 5 Outlet sizes vary according to GPM and arrangement. See pages 16 and 17 for outlet sizes and details.
- 6 Makeup water connection may be 1" or 2" dia., depending upon tower heat load, water pressure, and desired connections. See page 11 for additional information.

TOWER SCHEMATIC



Tower Model Note 2	Nominal Tons Note 3	DIMENSIONS				Design Operating Wt/Cell lb	Motor hp	Shipping Weight lb	
		L	H	A	B			Weight/Cell	Heaviest Section
NC8201	611	10'-10 3/4" 3321mm	19'-9 3/4" 6039mm	11'-2 1/4" 3410mm	3 1/2" 89mm	33,014	25	15,337	8,338
NC8211	648					33,076	30	15,399	8,400
NC8221	706					33,219	40	15,542	8,543
NC8231	778					33,285	50	15,608	8,609
NC8241	814					33,557	60	15,880	8,881
NC9201	673	11'-10 3/4" 3626mm	19'-9 3/4" 6039mm	12'-2 1/4" 3715mm	3 1/2" 89mm	35,689	25	16,335	8,838
NC9211	706					35,751	30	16,397	8,900
NC9221	782					35,815	40	16,461	8,964
NC9231	832					35,881	50	16,527	9,030
NC9241	887					36,153	60	16,799	9,302
NC9251	941					36,292	75	16,938	9,441
NC9261	1,000	12'-8 5/8" 3877mm	23'-4" 7112mm	12'-9 1/2" 3899mm	10 3/4" 273mm	36,372	75	17,018	9,521
NCC201	753	13'-10 3/4" 4236mm	19'-9 3/4" 6039mm	14'-2 1/4" 4325mm	3 1/2" 89mm	41,545	25	18,905	9,997
NCC211	794					41,607	30	18,967	10,059
NCC221	873					41,751	40	19,110	10,202
NCC231	950					41,817	50	19,176	10,268
NCC241	964					42,299	60	19,658	10,750
NCC251	1035					42,354	75	19,718	10,810
NCC261	1,102	13'-10 3/4" 4236mm	23'-4" 7112mm	14'-2 1/4" 4325mm	3 1/2" 89mm	42,451	75	19,810	10,902

NOTE

- 1 Use this bulletin for preliminary layouts only. Obtain current drawings from your Marley sales representative. All table data is per cell.
- 2 Last numeral of model number indicates number of cells. Change as appropriate for your selection.
- 3 Nominal tons are based upon 95°F HW, 85°F CW, 78°F WB and 3 GPM/ton.
- 4 Standard overflow is a 4" dia. standpipe in the collection basin floor. The standpipe removes for flush-out and draining. See page 16 for side overflow option.
- 5 Outlet sizes vary according to GPM and arrangement. See pages 16 and 17 for outlet sizes and details.
- 6 Makeup water connection may be 1" or 2" dia., depending upon tower heat load, water pressure, and desired connections. See page 11 for additional information.

SYSTEM CONNECT

Tired of having to design your piping and tower layout to accommodate the standards of cooling tower manufacturers? Marley's SystemConnect™ variety of piping systems accommodates your design intentions to make your layout of the NC Series both expedient and economical.

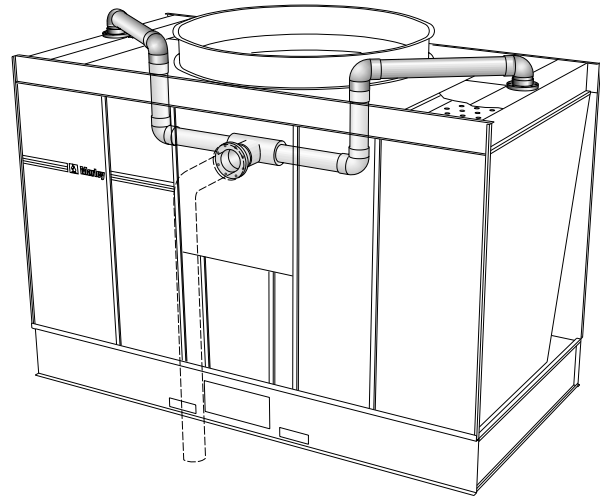
- Single or dual hot water inlet connections.
- Side inlet, bottom inlet or top inlet connections.
- Side or bottom cold water outlet connections.
- A variety of makeup, overflow and drain options.

All piping from the single inlet connection to the distribution basins is part of the tower package. Installation and design costs are reduced and the need for extra piping and supports are eliminated. The single bottom inlet connection is perfect for multicell applications—keeping all the inlet piping below the tower.

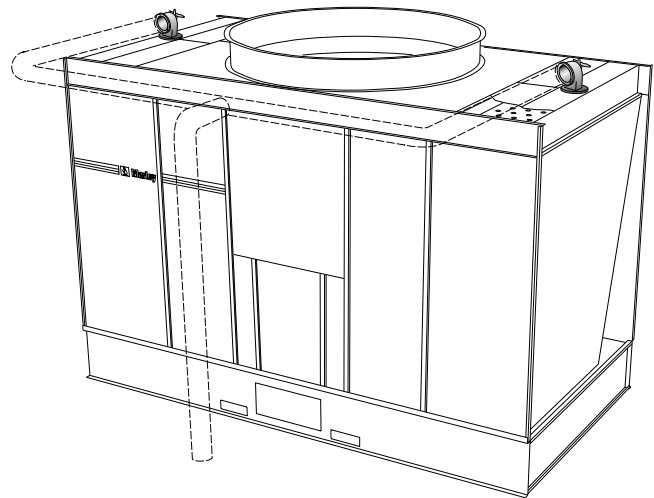
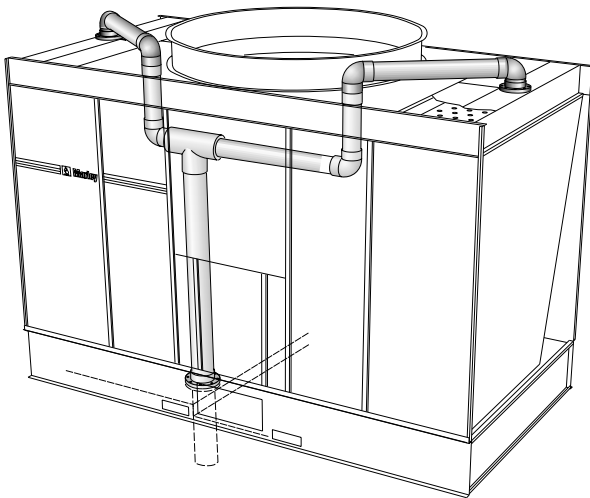
Unless otherwise specified, single-cell towers normally have a side-outlet suction appropriate for the design water flow rate—see pages 16 and 17. This usually assures the lowest possible installed tower elevation. Side-suction connection pipes extend roughly 3" outside the basin, and are beveled for weld connection and also grooved for a mechanical coupling.

Outlet piping can be kept below the cold water basin level by choosing either a depressed sump or a bottom outlet connection in lieu of the side suction. Both outlet designs conform to standard class 125 ANSI pipe flange specifications. Easily removable debris screens are optional on bottom outlets and are standard on all other outlet arrangements.

Depressed sumps are made of inert FRP or heavy-gauge welded stainless steel. Unless otherwise specified towers with galvanized steel collection basins are supplied with FRP sumps and towers with stainless steel basins are supplied with stainless sumps.



Multicell towers, intended to operate together as a common unit, are joined by steel flumes between the collection basins. These flumes equalize the operating water level between basins and also provide a flow passage from cells not equipped with outlets or makeup valves, often eliminating the need to specify an outlet and makeup valve for each cell on a multicell installation. Select the number of outlets required to maintain a maximum flow of 1,371 GPM through each flume for NC1 through NC6 and NCA models and 2,203 GPM for NC7 through NC9 and NCB through NCC models. Flow values are for side-suctions or bottom-outlets without trash screen. Refer to NC sales drawings to obtain flow values for sumps and bottom outlets with trash screens.



If each cell is to be equipped with an outlet, side-suctions can be used on end cells of multicell towers, but not on interior cells. For direct outlet from each cell on installations of three or more cells, use either the depressed sump or bottom outlet on interior cells.

The best choice for a tower used with a remote or indoor storage tank—see page 20—or on a concrete cold water basin is usually a bottom outlet.

A side-suction equipped tower can be installed on a flat concrete slab if a side drain and overflow are also specified—see page 16. Consult your Marley sales engineer for complete information.

Makeup

The amount of water constantly evaporated from a cooling tower varies directly with the heat load applied. In addition to evaporation, water is normally lost to the blow-down (bleed-off) necessary to maintain dissolved solids concentration at an acceptable level in the circulating water system.

The NC is equipped with one or more float-operated, mechanical makeup valves to automatically replenish this lost water. The tables on this page, calculated for a concentration of 3 times normal, indicate the rate of water loss—and the size of valve(s) required. If your installation’s cold water basin will drain by gravity to a remote storage tank—or if you plan a separate means of controlling makeup water—a price reduction is available for deleting the Marley-supplied valve(s). Marley also offers an optional electronic liquid-level control.

Makeup Water Flow Required—GPM to Maintain Three (3) Concentrations						
Tower GPM	Cooling "Range" (hot water minus cold water)					
	5° F	10° F	15° F	20° F	30° F	40° F
200	2	3	4	5	8	10
400	3	5	8	10	15	20
600	4	8	12	15	23	30
800	5	10	15	20	30	40
1,000	7	13	19	25	38	50
1,500	10	19	29	38	57	75
2,000	13	25	38	50	75	100
3,000	19	38	57	75	113	150
4,000	25	50	75	100	150	200
5,000	32	63	94	125	188	250
6,000	38	75	113	150	225	300
8,000	50	100	150	200	300	400

NOTE

If circulating water is to be maintained at 2 concentrations instead of 3, multiply table GPM values by 1.36 before sizing makeup valve.

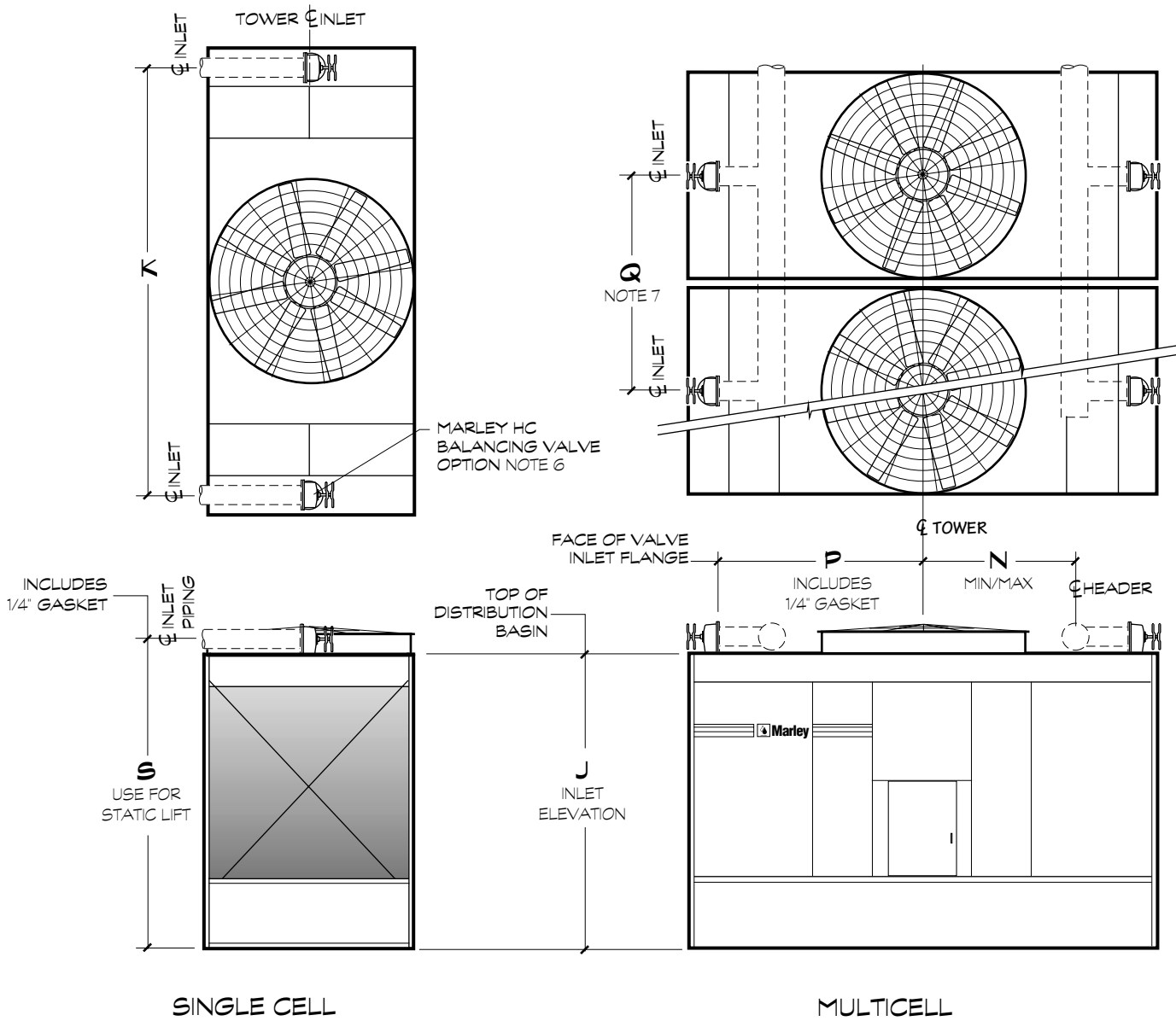
Makeup Valve Flow Capacities—GPM		
Pressure at Valve Inlet while flowing—psig	1" Diameter Valve	2" Diameter Valve
10	56	90
20	78	120
30	92	143
40	106	160
50	117	167

NOTE

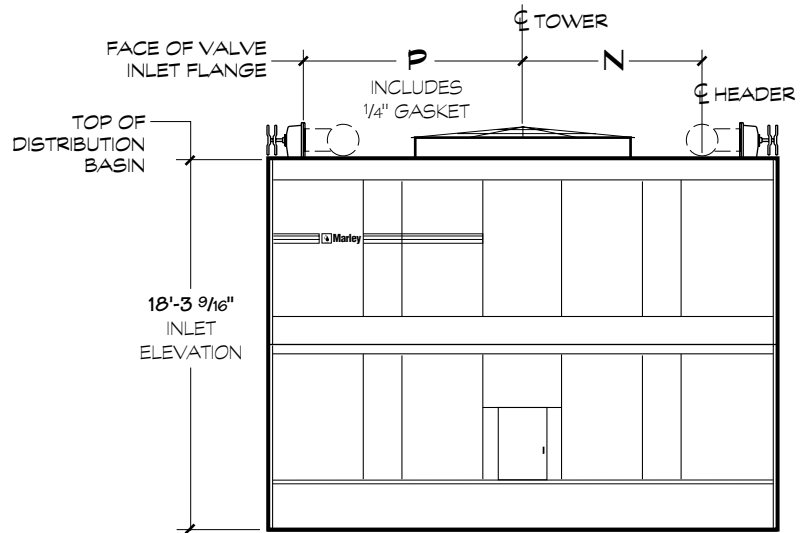
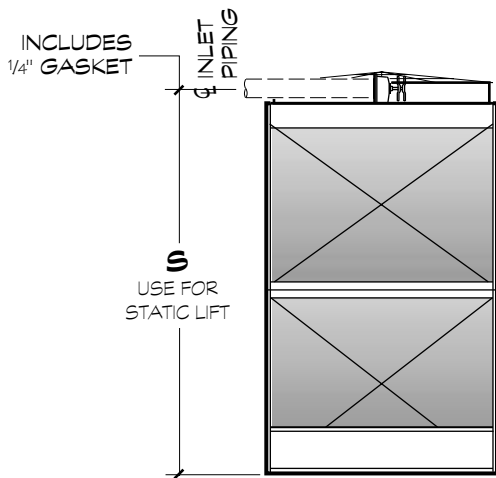
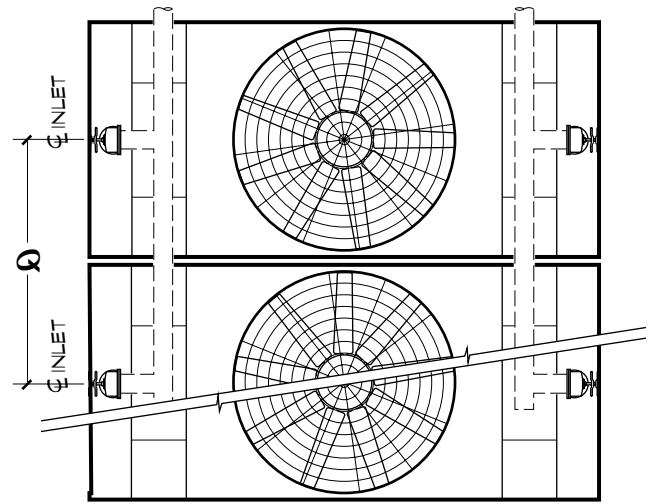
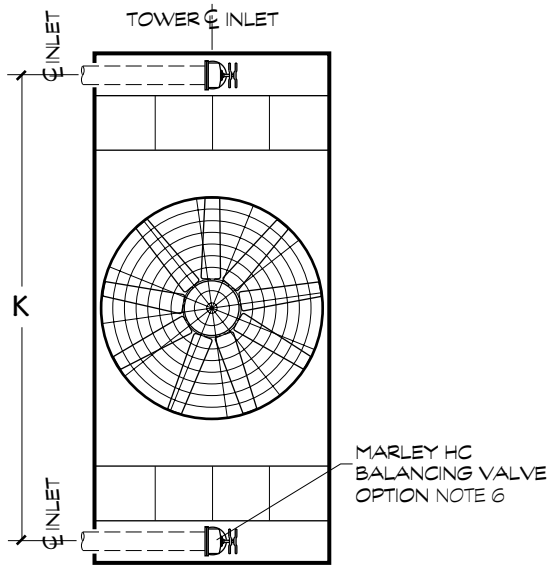
- If makeup water pressure exceeds 50 psig, use pressure reducer ahead of valve.
- For flow requirements exceeding the above limitations, use multiples of the same size valve.

SYSTEM CONNECT

DUAL INLET CONNECTION



Tower Model	DIMENSIONS						Inlet Diameter	
	J	K	S	N MIN/MAX		Q		
NC1200	8'-8 1/16"	12'-3"	9'-4 15/16"	3'-11 1/2"	4'-10"	5'-10"	6'-8 1/4"	2 at 6"
NC2200	8'-8 1/16"	13'-9"	9'-4 15/16"	5'-10 1/4"	Fit "P"	6'-7"	8'-2 1/4"	2 at 6"
NC3200	10'-5 9/16"	13'-9"	11'-1 13/16"	5'-10 1/4"	Fit "P"	6'-7"	8'-2 1/4"	2 at 6"
NC4200	11'-5 9/16"	15'-3"	12'-1 13/16"	5'-10 1/4"	Fit "P"	7'-4"	9'-2 1/4"	2 at 6"
NC5200	11'-5 9/16"	16'-10"	12'-2 13/16"	5'-11 3/4"	Fit "P"	8'-1 1/2"	11'-2 1/4"	2 at 8"
NC6200	11'-5 9/16"	17'-11"	12'-2 13/16"	6'-1 5/8"	Fit "P"	8'-8"	12'-2 1/4"	2 at 8"
NC7200	11'-9 9/16"	20'-6"	12'-6 13/16"	6'-1 5/8"	Fit "P"	9'-11 1/2"	12'-2 1/4"	2 at 8"
NCA200	11'-5 9/16"	20'-6"	12'-2 13/16"	6'-10 5/8"	Fit "P"	9'-11 1/2"	14'-2 1/4"	2 at 8"
NCB200	11'-9 9/16"	20'-3 1/2"	12'-8 13/16"	6'-10 5/8"	Fit "P"	9'-9 1/2"	14'-2 1/4"	2 at 10"



SINGLE CELL

MULTICELL

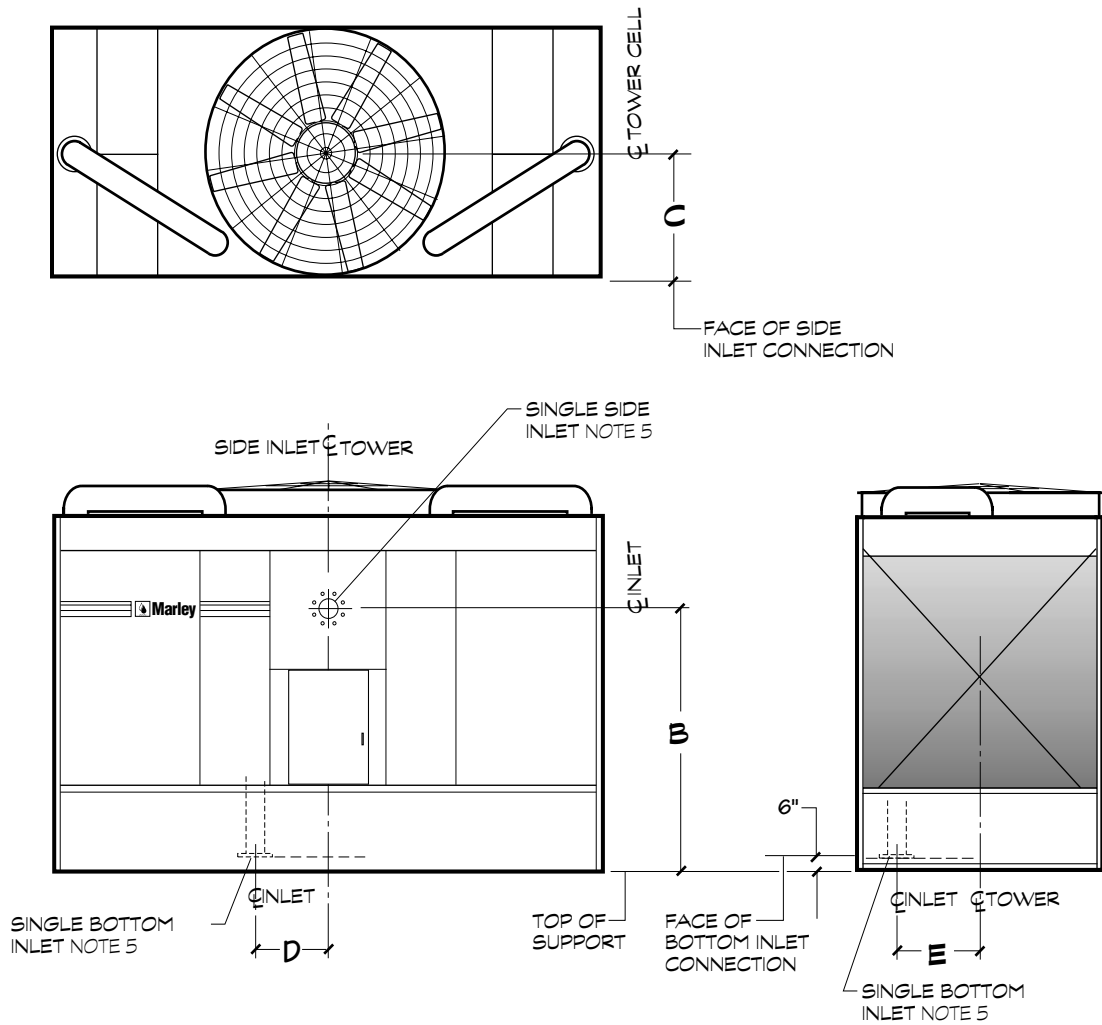
Tower Model	DIMENSIONS					Inlet Diameter
	K	S	N	Q	P	
NC8200	20'-6"	19'-0 13/16"	6'-1 5/8"	11'-2 1/4"	9'-11 1/2"	2 at 8"
NC9200 thru NC9250	20'-6"	19'-0 13/16"	6'-1 5/8"	12'-2 1/4"	9'-11 1/2"	2 at 8"
NC9260	20'-6"	19'-0 13/16"	6'-1 5/8"	12'-9 1/2"	9'-11 1/2"	2 at 8"
NCC200	20'-3 1/2"	19'-2 9/16"	6'-10 5/8"	14'-2 1/4"	9'-9 1/2"	2 at 10"

NOTE

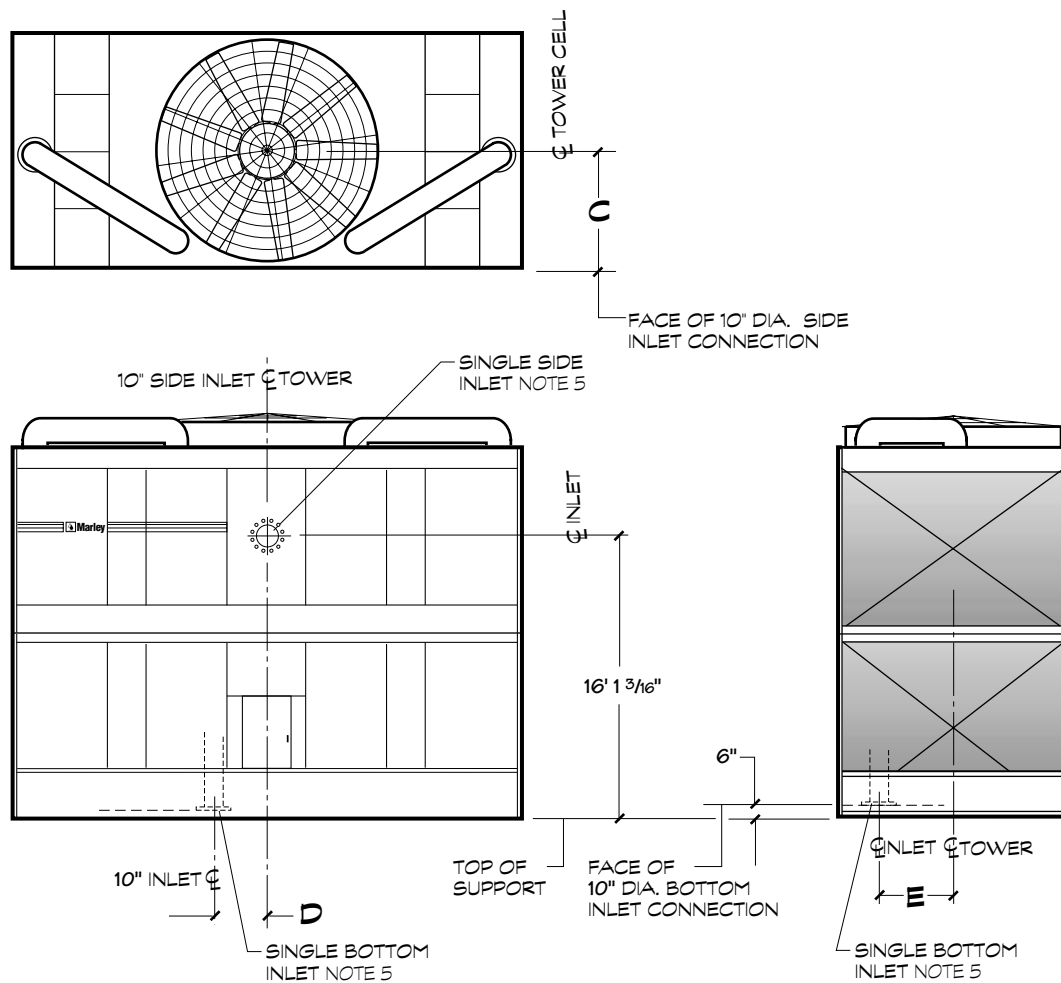
- 1 Use this bulletin for preliminary layouts only. Obtain current drawings from your Marley sales representative.
- 2 Pumping head contributed by the tower is static lift "S". Add your system dynamic pipe losses for total.
- 3 The tower will support the vertical weight of piping shown within the plan area of the tower only. All piping loads, including thrust and lateral loads of riser and horizontal piping must be supported independent of the tower. See inlet piping drawings for details.
- 4 All piping and supports—and their design—are by others.
- 5 Allow adequate clearance for entry to tower access doors and safe use of optional ladder. Refer to appropriate Marley drawings.
- 6 You may choose to use 90° short radius flanged elbows in place of HC balancing valves on single-cell towers where inlet piping is balanced for equal flow. Pipe elevation remains as shown.
- 7 Because of the motor enclosure protrusion model NC1220 requires special spacing for 3 or more cells.

SYSTEM CONNECT

SINGLE INLET CONNECTION OPTION



Tower Model	DIMENSIONS				Inlet Diameter
	B	C	D	E	
NC1200	6'-8 1/4"	3'-0 5/16"	2'-8"	1'-11 13/16"	6"
NC2200	6'-6 15/16"	3'-9 5/16"	2'-8"	2'-5 5/16"	8"
NC3200	8'-3 13/16"	3'-9 5/16"	2'-8"	2'-5 5/16"	8"
NC4200	9'-3 13/16"	4'-3 5/16"	2'-10 3/8"	2'-11 5/16"	8"
NC5200	9'-3 3/16"	5'-3 5/16"	2'-8 7/8"	1'-4 1/8"	10"
NC6200	9'-3 3/16"	5'-9 5/16"	2'-8 7/8"	2'-9 3/8"	10"
NC7200	9'-7 3/16"	5'-9 5/16"	2'-8 7/8"	2'-9 3/8"	10"
NCA200	9'-3 3/16"	6'-9 5/16"	2'-4"	3'-7 7/16"	10"
NCB200	9'-7 3/16"	6'-9 5/16"	2'-4"	1'-2 5/16"	10"



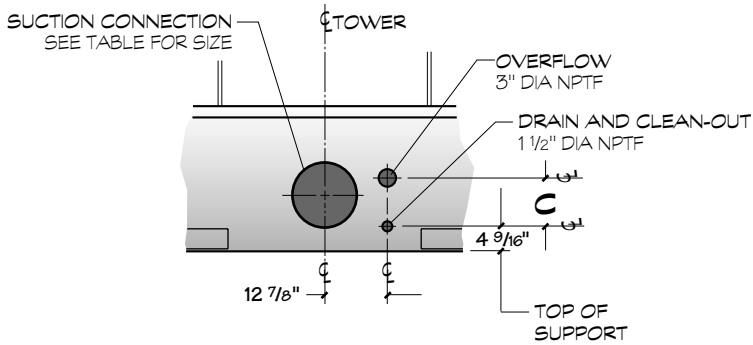
Tower Model	DIMENSIONS		
	C	D	E
NC8200	5'-3 5/16"	2'-5 3/8"	3'-10 1/8"
NC9200	5'-9 5/16"	2'-5 3/8"	4'-4 1/8"
NCC200	6'-9 5/16"	2'-4 1/4"	3'-4 1/8"

NOTE

- 1 Use this bulletin for preliminary layouts only. Obtain current drawings from your Marley sales representative.
- 2 All external piping loads, including weight, thrust and lateral loads of riser and horizontal piping plus the weight of water in the internal riser must be supported independent of the tower. Internal riser adds additional vertical operating loads to external piping at the bottom inlet flange.
- 3 All piping and supports beyond the inlet connection—and their design—are by others.
- 4 Allow adequate clearance for entry to tower access doors and safe use of optional ladder. Refer to appropriate Marley drawings.
- 5 You may choose either a bottom inlet connection or a side inlet connection. The bottom inlet connects at the tower collection basin floor. Refer to appropriate Marley drawings.
- 6 Contact your Marley sales representative for the required pump head for single-inlet applications.
7. Weight of internal piping must be added to tower weights. Contact your Marley sales representative for combined tower weight information.

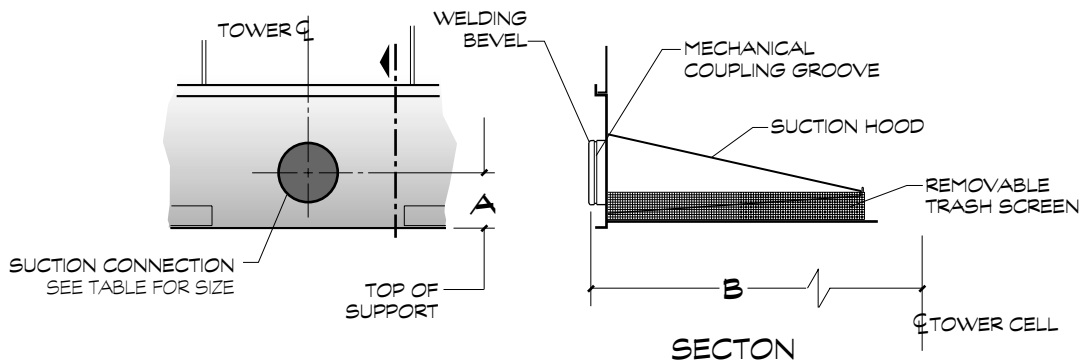
SYSTEM CONNECT

OUTLET CONNECTION

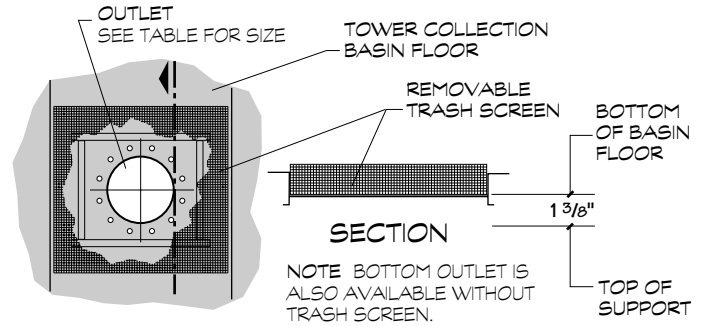
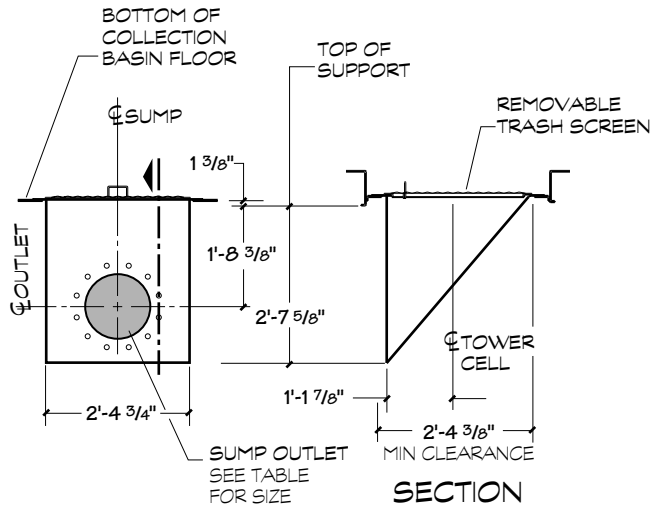


DRAIN AND OVERFLOW CONNECTION
OPTION

Tower Model	DIMENSIONS		
	A	B	C
NC1200	10"	3'-3 3/16"	6 7/8"
NC2200	10"	4'-0 3/16"	6 7/8"
NC3200	10"	4'-0 3/16"	6 7/8"
NC4200	10"	4'-6 3/16"	6 7/8"
NC5200	10"	5'-6 3/16"	6 7/8"
NC6200	10"	6'-0 3/16"	6 7/8"
NC7200	11 1/4"	6'-0 3/16"	10 3/16"
NC8200	11 1/4"	5'-6 3/16"	10 3/16"
NC9200	11 1/4"	6'-0 3/16"	10 3/16"
NCA200	10"	7'-0 3/16"	6 7/8"
NCB200	11 1/4"	7'-0 3/16"	10 3/16"
NCC200	11 1/4"	7'-0 3/16"	10 3/16"



SIDE-OUTLET SUCTION CONNECTION



BOTTOM OUTLET CONNECTION

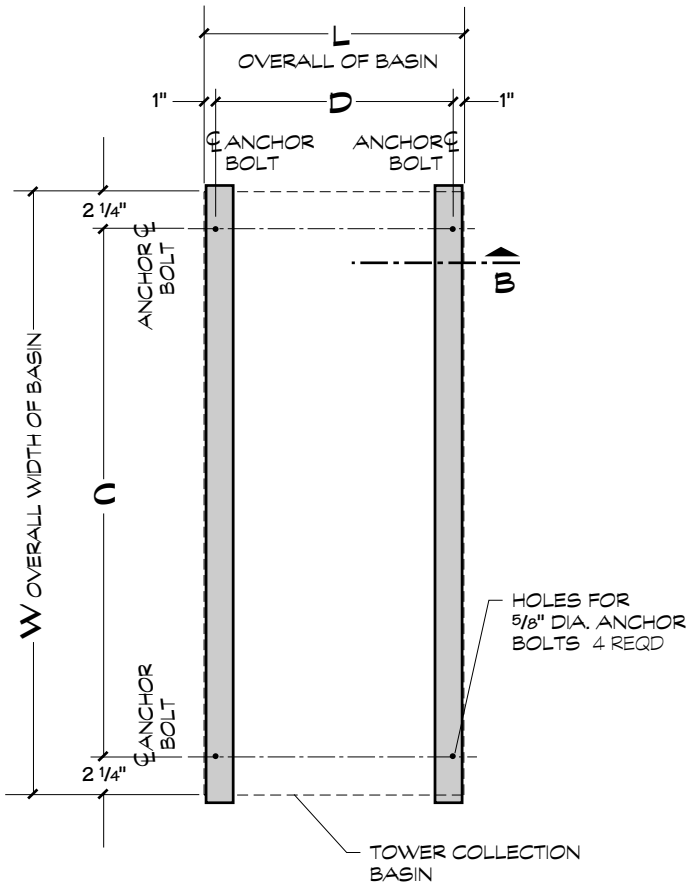
DEPRESSED SIDE-OUTLET SUMP CONNECTION STAINLESS STEEL OR FRP

Maximum GPM per Outlet								
Outlet Dia	Side Suction pump flow		Sump pump flow w/o anti-vortex plate	Sump pump flow w/ anti-vortex plate or gravity flow w/ or w/o anti-vortex plate		Bottom Outlet pump flow w/o anti-vortex plate	Bottom Outlet pump flow w/ anti-vortex plate or gravity flow w/ or w/o anti-vortex plate	
	NC1 thru NC6 NCA	NC7 thru NC9 NCB NCC	ALL	NC1 thru NC6 NCA	NC7 thru NC9 NCB NCC	ALL	NC1 thru NC6 NCA	NC7 thru NC9 NCB NCC
4"						71	157	
6"	900		630	895	900	162	355	
8"	1,595	1,595	1,116	1,584	1,595	287	629	673
10"	2,515	2,515	1,760	2,498	2,515	453	992	1,061
12"	2,720 NC1 thru NC4	3,578	2,504	3,458	3,578	644	1,412	1,509
	3,501 NC5 NC6 NCA							
14"		4,252	3,065	3,458	4,378	788	1,728	1,847
16"						1,041	2,283	2,441
18"						1,349	2,958	3,162
20"						1,675	3,321	4,045
24"						2,433	4,018	4,897

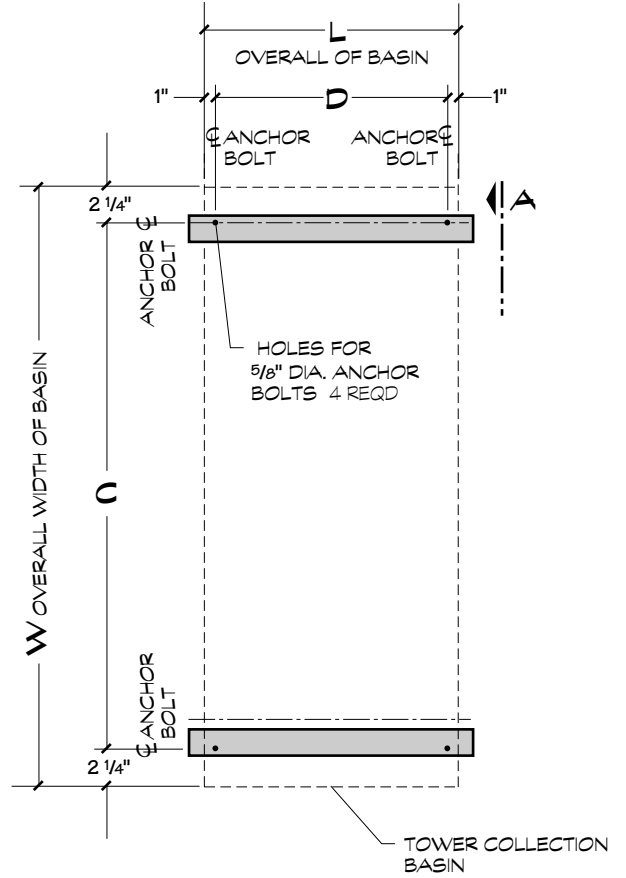
NOTE

- For gravity-flow situations (as to an indoor tank), use bottom outlet or depressed side outlet sump. **Side outlet suction is not recommended for gravity flow.**
- GPM limits are the outlet capacities per outlet based on the design operating water level—8½" above the top of support on models NC1 through NC6 and NCA— 9½" on NC7 through NC9 and NCB and NCC.

TOWER SUPPORT

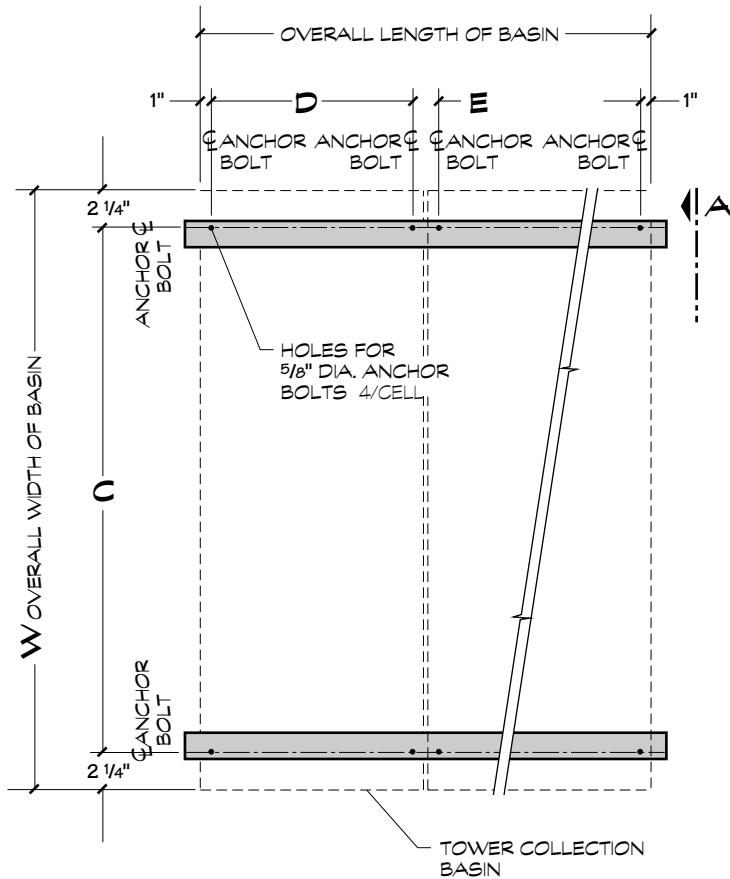


SUPPORTING STEEL
SINGLE CELL

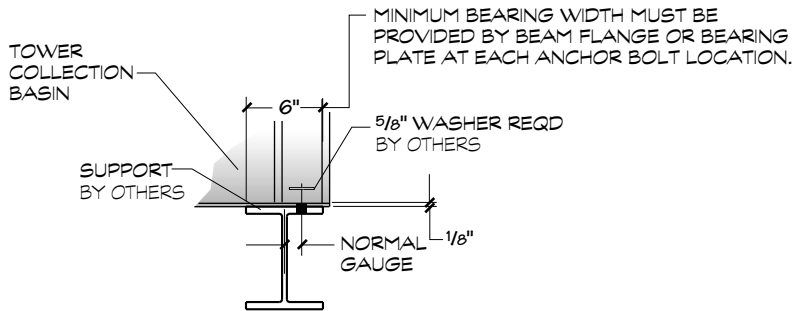


SUPPORTING STEEL ALTERNATE
SINGLE CELL

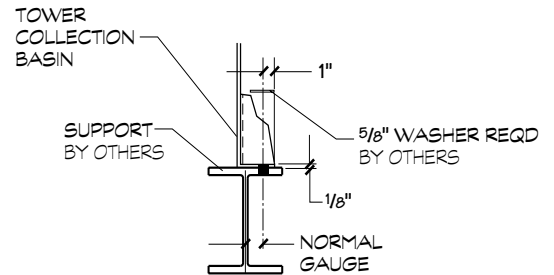
Tower Model	DIMENSIONS					Design Operating Wt/Cell lb	Design Operating Load at Anchor lb	Wind/Seismic Loads lb	
	W	L	C	D	E Note 7			Max. Vertical Reaction at Anchor	Max. Horizontal Reaction at Anchor
NC1200	14'-0" 4268mm	6'-4 3/4" 1950mm	13'-7 1/2" 4153mm	6'-2 3/4" 1899mm	5 1/2" 140mm	9,298	2,324	1,364/1,212	943/794
NC2200	15'-6" 4725mm	7'-10 3/4" 2407mm	15'-1 1/2" 4611mm	7'-8 3/4" 2356mm	5 1/2" 140mm	11,699	2,925	1221/1,225	1,046/1002
NC3200	15'-6" 4725mm	7'-10 3/4" 2407mm	15'-1 1/2" 4611mm	7'-8 3/4" 2356mm	5 1/2" 140mm	12,165	3,041	1,737/1578	1,248/1,042
NC4200	17'-0" 5182mm	8'-10 3/4" 2712mm	16'-7 1/2" 5068mm	8'-8 3/4" 2661mm	5 1/2" 140mm	14,749	3,687	2,019/1,789	1,498/1,263
NC5200	18'-9" 5715mm	10'-10 3/4" 3321mm	18'-4 1/2" 5601mm	10'-8 3/4" 3271mm	5 1/2" 140mm	19,681	4,920	1,803/2,108	1,648/1,686
NC6200	19'-10" 6046mm	11'-10 3/4" 3626mm	19'-5 1/2" 5931mm	11'-8 3/4" 3576mm	5 1/2" 140mm	22,039	5,510	1,759/2,106	1,750/1,889
NC7200	22'-5" 6833mm	11'-10 3/4" 3626mm	22'-0 1/2" 6719mm	11'-8 3/4" 3576mm	5 1/2" 140mm	26,858	6,714	2,090/2,518	2,029/2,301
NC8200	22'-5" 6833mm	10'-10 3/4" 3321mm	22'-0 1/2" 6719mm	10'-8 3/4" 3271mm	5 1/2" 140mm	33,557	8,389	5,405/5,554	3,121/2,875
NC9200 thru NC9250	22'-5" 6833mm	11'-10 3/4" 3626mm	22'-0 1/2" 6719mm	11'-8 3/4" 3576mm	5 1/2" 140mm	36,292	9,073	4,958/5,484	3,126/3,110
NC9260	22'-5" 6833mm	11'-10 3/4" 3626mm	22'-0 1/2" 6719mm	11'-8 3/4" 3576mm	1'-0 3/4" 324mm	36,372	9,093	5,779/5,498	3,353/3,117
NCA200	22'-5" 6833mm	13'-10 3/4" 4236mm	22'-0 1/2" 6719mm	13'-8 3/4" 4185mm	5 1/2" 140mm	27,729	6,933	1,704/2,062	1,982/2,154
NCB200	22'-5" 6833mm	13'-10 3/4" 4236mm	22'-0 1/2" 6719mm	13'-8 3/4" 4185mm	5 1/2" 140mm	31,452	7,863	1,801/2,465	2,037/2,697
NCC200 thru NCC250	22'-5" 6833mm	13'-10 3/4" 4236mm	22'-0 1/2" 6719mm	13'-8 3/4" 4185mm	5 1/2" 140mm	42,354	10,589	4,248/5,420	3,131/3,636
NCC260	22'-5" 6833mm	13'-10 3/4" 4236mm	22'-0 1/2" 6719mm	13'-8 3/4" 4185mm	5 1/2" 140mm	42,451	10,613	4,971/5,434	3,364/3,644



SUPPORTING STEEL MULTICELL



VIEW A



SECTION B

NOTE

- 1 Use this bulletin for preliminary layouts only. Obtain current drawings from your Marley sales representative for final design.
- 2 Purchaser to provide tower support complete with holes and anchor bolts. Do not use studs! Anchor points must be framed flush and level at top.
- 3 Design operating weight occurs with collection basin full to overflow level. Actual operating weight varies with GPM and piping scheme, but is less than shown here.
- 4 Wind loads are based on 30 psf and are additive to operating loads. Seismic loads based on 1994 UBC, Zone 4.
- 5 Tower may be placed on a flat concrete slab. Side outlet and optional side drain and overflow must be specified. See pages 10 and 16 and consult your Marley application engineer.
- 6 Tower may be supported from piers at each anchor bolt location, as a support alternative.
7. Dimensions between cells "E" may vary depending on the number of cells and options. Dimensions shown are for a standard two cell arrangement. Obtain current drawings from your Marley sales representative for final dimension.

FREEZE PREVENTION

When the ambient air temperature falls below 32°F, the water in a cooling tower can freeze. *Marley Technical Report #H-003 “Operating Cooling Towers in Freezing Weather”* describes how to prevent freezing during operation. Ask your Marley sales representative for a copy.

During shutdown, water collects in the cold water basin and may freeze solid. You can prevent freezing by adding heat to the water left in the tower—or, you can drain the tower and all exposed pipework at shutdown.

Electric Basin Heaters

Marley offers an automatic basin water heater system, consisting of the following components:

- Stainless steel electric immersion heater(s).
—Threaded couplings are provided in the side of the collection basin.
- NEMA 4 enclosure containing:
—Magnetic contactor to energize heater.
—Transformer to convert power supply to 24 volts for control circuit.
—Solid state circuit board for temperature and low-water cutoff.
Enclosure may be mounted on the side of the tower.
- Control probe in the collection basin to monitor water temperature and level.

Heater components are normally shipped separately for installation by others. When purchased in conjunction with the Marley Control System option, they are factory installed and tested.

Note: any exposed piping that is still filled with water at shutdown—including the makeup water line—should be electrically traced and insulated (by others).

Steam Jet Basin Heaters

Penberthy Houdaille bronze steam jet heaters ($\frac{1}{4}$ " to $\frac{3}{4}$ ") are available from Marley for freeze protection (installation by others). Injectors install in a coupling provided in the side of the collection basin. Live steam, as required, is injected directly into the water. Condensed steam adds water to the basin, and the excess will exit the overflow of the tower.

Indoor Storage Tank

With this type of system, water flows from an indoor tank, through the load system, and back to the tower, where it is cooled. The cooled water flows by gravity from the tower to the tank located in a heated space. At shutdown, all exposed water drains into the tank, where it is safe from freezing.

The table on page 21 lists typical drain-down capacities for all NC Series tower models. Although Marley does not produce tanks, many of our representatives offer tanks supplied by reputable manufacturers.

The amount of water needed to successfully operate the system depends on the tower size and GPM and on the volume of water contained in the piping system to and from the tower. You must select a tank large enough to contain those combined volumes—plus a level sufficient to maintain a flooded suction on your pump. Control makeup water according to the level where the tank stabilizes during operation.

NC Series Drain Down Capacity					
Tower Model	Range of Tower Design GPM	Maximum Gallons of Drain-Down	Tower Model	Range of Tower Design GPM	Maximum Gallons of Drain-Down
NC1	130-280	391	NC7	480-830	1256
	290-480	413		840-1440	1415
	490-700	436		1450-2090	1508
	710-920	458		2100-2730	1589
	930-1200	476		2740-3410	1656
NC2	160-340	488	NC8	350-630	1394
	350-500	512		640-950	1507
	510-680	531		960-1320	1607
	690-1140	578		1330-1910	1746
	1150-1530	601		1920-3120	1974
NC3	160-340	585	NC9	480-690	1526
	350-500	546		700-1040	1649
	510-680	570		1050-1440	1755
	690-1140	627		1450-2090	1909
	1150-1530	656		2100-3410	2156
NC4	190-390	622	NCA	480-1040	1231
	400-570	655		1050-1640	1318
	580-770	683		1650-2090	1384
	780-1290	755		2100-2730	1463
	1300-1730	791		2740-3620	1557
NC5	310-650	928	NCB	480-1220	1575
	660-940	977		1230-1930	1683
	950-1280	1029		1940-2460	1762
	1290-2140	1146		1270-3210	1855
	2150-2810	1208		3220-4100	1962
NC6	340-710	1019	NCC	480-810	1773
	720-1240	1115		820-1220	1917
	1250-1790	1189		1230-1690	2042
	1800-2340	1258		1700-2460	2226
	2350-3080	1325		2470-4100	2549

NOTE

Volumes shown are maximums for the GPM ranges indicated. Actual volumes will usually be less. Contact your Marley sales representative for more specific information.

OPERATING AND ENVIRONMENTAL AWARENESS

Sound Control

Sound produced by a NC Series tower operating in an unobstructed environment will meet all but the most restrictive noise limitations—and will react favorably to natural attenuation. Where the tower has been sized to operate within an enclosure, the enclosure itself will have a damping effect on sound. Sound also declines with distance—by about 5 dBA each time the distance doubles. Where noise at a critical point is likely to exceed an acceptable limit, several options are available—listed below in ascending order of cost impact:

- In many cases, noise concerns are limited to nighttime, when ambient noise levels are lower and neighbors are trying to sleep. You can usually resolve these situations by using two-speed motors in either 1800/900 or 1800/1200 RPM configuration—operating the fans at reduced speed **without cycling** “after hours”. The natural nighttime reduction in wet-bulb temperature makes this a very feasible solution in most areas of the world, but the need to avoid cycling may cause the cold water temperature to vary significantly.
- The Marley Variable Speed Drive automatically minimize the tower’s noise level during periods of reduced load and/or reduced ambient temperature without sacrificing the system’s ability to maintain a constant cold water temperature. This is a relatively inexpensive solution, and can pay for itself quickly in reduced energy costs.
- Where noise is a concern at all times—for example, near a hospital—the best solution is to oversize the tower so it can operate continuously at reduced (1200 or 900 RPM) motor speed. Typical sound reductions are 7 dBA at 2/3 fan speed or 10 dBA at 1/2 fan speed.
- Extreme cases may require inlet and discharge sound attenuator sections—however, the static pressure loss imposed by attenuators may necessitate an increase in tower size. This is the least desirable approach because of the significant cost impact—and because of the obstruction to normal maintenance procedures.

Your Marley sales representative will help you meet your sound requirements.

Enclosures

Occasionally, cooling towers are located inside architectural enclosures for aesthetic reasons. Although NC Series towers adapt well to enclosures, the designer must realize the potential impact of a poorly arranged enclosure on the tower’s performance and operation. The designer must take care to provide generous air inlet paths, and the tower’s fan cylinder discharge height should not be lower than the elevation of the top of the enclosure. Obtain a copy of *Marley Technical Report #H-004 “External Influences on Cooling Tower Performance”* from your Marley sales representative.

As suggested in the aforementioned *Technical Report*, it may also be advisable to specify a design wet-bulb temperature 1°F higher than normal to compensate for potential recirculation initiated by the enclosure. You’ll benefit from discussing your project with your Marley sales representative.

System Cleanliness

Cooling towers are very effective air washers. Atmospheric dust able to pass through the relatively small louver openings will enter the circulating water system. Increased concentrations can intensify system maintenance by clogging screens and strainers—and smaller particulates can coat system heat transfer surfaces. In areas of low flow velocity—such as the cold water basin—sedimentary deposits can provide a breeding ground for bacteria.

In areas prone to dust and sedimentation, you should consider installing some means for keeping the cold water basin clean. Typical devices include side stream filters and a variety of filtration media.

Water Treatment

In order to control the inevitable buildup of dissolved solids as water evaporates from the cooling tower, you should plan to develop a consistent, effective program of water treatment. The program must control corrosion, scale buildup and accumulation of biological contaminants.

An acceptable water treatment program must be compatible with the variety of materials incorporated in a cooling tower, ideally the pH of the circulating water should fall between 6.5 and 8.0. Batch feeding of chemicals directly into the cooling tower is not a good practice, since localized damage to the tower is possible. Additional water quality requirements appear in the *NC User Manual* which accompanies the tower.

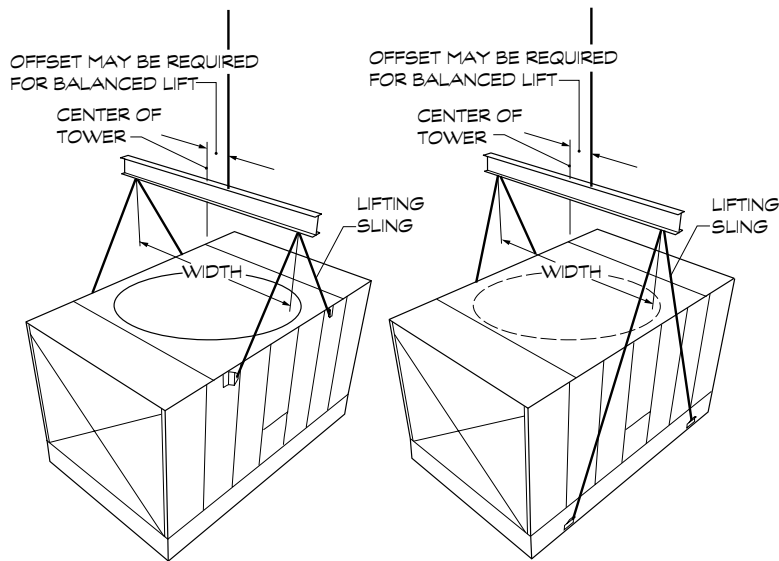
For complete water treatment recommendations, consult a competent, qualified water treatment supplier.

Most systems can be successfully treated with a **MARLEYOZONE™** System. This usually removes the requirement for other chemical feed systems. In many installations there is the potential for significant water savings. For complete information, contact your local Marley sales representative.

△ CAUTION

The cooling tower must be located at such distance and direction to avoid the possibility of contaminated tower discharge air being drawn into building fresh air intake ducts. The purchaser should obtain the services of a Licensed Professional Engineer or Registered Architect to certify that the location of the tower is in compliance with applicable air pollution, fire, and clean air codes.

HOISTING INFORMATION



Model	Width	Minimum Sling Length
NC1	6'-6"	5'-6"
NC2-NC3	8'-0"	7'-0"
NC4	9'-0"	8'-6"
NC5	11'-0"	8'-6"
NC6	12'-0"	8'-6"
NC7	12'-0"	10'-0"
NCA-NCB	14'-0"	17'-5"
NC8 Top	11'-0"	10'-0"
NC8 Bottom	11'-0"	17'-6"
NC9 Top	12'-0"	10'-0"
NC9 Bottom	12'-0"	17'-6"
NCC Top	14'-0"	10'-0"
NCC Bottom	14'-0"	17'-6"

NOTE

- All hoisting clip holes are 1¼".
- Overall length of shackle pins should not exceed 5¼".
- For overhead lifts or where additional safety is required, add slings beneath the tower unit.

ADDITIONAL INFORMATION

Typical Applications

The NC Series tower is an excellent choice for normal applications requiring cold water for the dissipation of heat. This includes condenser water cooling for air conditioning, refrigeration, and thermal storage systems, as well as their utilization for free-cooling in all of those systems. The NC Series can also be used in the cooling of jacket water for engines and air compressors, and are widely applied to dissipate waste heat in a variety of industrial and manufacturing processes.

Being constructed of stainless steel and other inert materials, the NC Diamond Series can be confidently applied in unusually corrosive processes and operating environments. However, no single product line can answer all problems, and selective judgement should be exercised in the following situations

Applications Requiring Alternative Cooling Tower Selections

Certain types of applications are incompatible with any cooling tower with PVC film fill—whether NC Series or a competitive tower of similar manufacture. PVC is subject to distortion in high water temperatures, and the narrow passages typical of film-type fill are easily clogged by turbid or debris-laden water. Some of the applications, which call for alternative tower designs are:

- **Water temperatures exceeding 125°F**—adversely affect the service life and performance of normal PVC fill.
- **Ethylene glycol content**—can plug fill passages as slime and algae accumulate to feed on the available organic materials.
- **Fatty acid content**—found in processes such as soap and detergent manufacturing and some food processing—fatty acids pose a serious threat for plugging fill passages.
- **Particulate carry over**—often found in steel mills and cement plants—can both cause fill plugging, and can build up to potentially damaging levels on tower structure.
- **Pulp carry over**—typical of the paper industry and food processing where vacuum pumps or barometric condensers are used. Causes fill plugging which may be intensified by algae.

Alternative Selections

In addition to the NC Series, Marley offers a full scope of products in various designs and capacities to meet the special demands of specific applications.

Corrosion Resistance

- **QuadraFlow®**—fiberglass and stainless steel construction assures long service life in virtually any environment. Five-year full product warranty. Efficient PVC film fill. Uniquely different and architecturally attractive. Similar capacities to the NC Series.
- **Sigma™ Series**—available in wood, fiberglass, HDG steel or stainless steel structure. Field-erected for medium to large projects. Available in a wide range of sizes. Efficient PVC film fill.

Splash-Fill Towers

- **Series 10 / Series 15**—wood structure, fiberglass casing, with splash-type fill. Similar capacities to Sigma series towers. Proven in hundreds of installations. Excellent in “dirty water” situations.

World Wide Web

- **www.marleyct.com**—visit Marley on the web for a complete list of products, services and to find your nearest sales representative.



Marley Cooling Tower

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In the interest of technological progress, all products are subject to design and/or material change without notice.

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Printed in USA

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