MEHRASL

MANUFACTURING CORPORATION

COOLING TOWERS

FIBER GLASS BODIES

ISO 14001 TRB INTERNATIONAL DAkkS Deutsche Akkreditierungsstelle D-ZM-19486-01-00

ISO 9001 TRB INTERNATIONAL DAkkS Deutsche Akkreditierungsstelle D-ZM-19486-01-00

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CUA Series Specifications

Structure:
Structure of the cooling towers are made of strengthened fiber glass which is sun light resistant. Other parts are made of P.V.C, A.B.S, and F.R.P or galvanized steel and aluminum which are coated with electro static paint.The air inlet openings are made in such a way that prevents from splash of water to out side and direct sunlight into the tower in order to eliminate the production of bacterias in the tower. They are also removable, in order to be able to reach inside of the tower for cleaning and etc.

Cooling elements:
Cooling elements are made of P.V.C and formed in cellular form to improve the heat rejection.

Supports:
The cooling tower is supported with galvanized steel which is coated with electro static paint and all the screws are galvanized in order to prevent any rust.

Electromotor:
Electromotor used with the cooling towers are class IP54 (humidity resistant) and heat rejection class F. Mostly the electromotors used with the towers are Motogen trademark because of their variety in the market. Simens electromotors are also available upon request.

Fans:
The fans used with the towers are manufactured by MEHR ASL Co. and they are axial fans with four galvanized blades used with the CUA0020 and CUA0040 models. Multi-wing fans are used with CUA0010, CUA0060, CUA0080, CUA0100 and CUA0125 models where they have adjustable blades made of polyamide. Fans with aluminum blades are used with models higher than CUA0125.

Water distributor:

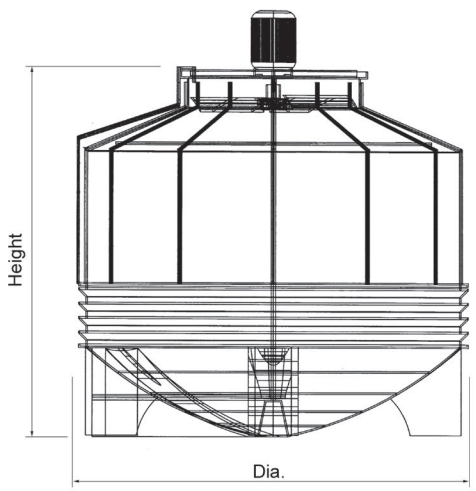
The inlet water is directed to the header which is made of aluminum with stainless steel pipe. Then the water is splashed on the packing by the arms made of P.V.C where special angular nozzles are fixed on the arms. The maximum heat rejection is achieved by rotation of the header and arms for uniform water distribution on the packing. Minimizing the space between the nozzles and packing prevents water splash to outside.

Fan coupling:

The fan is coupled to the electromotor directly for models up to CUA0125. and by belt and poly for models higher than CUA0125.

Performance data :

MODEL	Nominal Capacity	Nominal Water Flow [G.P.M]	Fan			Dimensions [m]		Weight [Kg]		Pipe Connections[inch]				Pump Head [m.H2o]
			Motor Power [Kw]	DIA [m]	Nominal air flow [cfm]	Height	DIA	DRY	OPER	In let Out let	Over Flow	Float Valve	Quick Fill	
CUA0010	10	35	0.75	0.60	3200	1.53	0.93	60	140	2	1 1/4	3/4	-	1.3
CUA0020	20	70	1.2	0.76	6700	1.64	1.17	85	220	3	1 1/4	3/4	-	1.6
CUA0040	40	140	1.5	0.76	7800	1.91	1.38	160	365	3	1 1/4	3/4	-	2
CUA0060	60	210	2.2	0.90	12000	2.00	1.78	220	520	4	1 1/4	3/4	-	2.5
CUA0080	80	280	2.2	1.20	14500	2.44	2.02	400	710	4	1 1/4	1	-	2.5
CUA0100	100	320	3	1.20	17300	2.55	2.02	435	795	4	1 1/4	1	3/4	3
CUA0125	125	440	3	1.20	24000	2.61	2.6	520	950	5	1 1/4	1	3/4	3.6
CUA0150	150	530	4	1.5	28000	3.16	3.1	630	1055	5	1 1/2	1	3/4	3.6
CUA0175	175	620	4	1.5	30000	3.36	3.1	790	1470	5	1 1/2	1	3/4	3.8
CUA0200	200	700	4	1.7	33000	2.98	3.47	875	1555	5	1 1/2	2	3/4	4.4
CUA0225	225	790	5.5	1.8	47000	3.38	3.7	1340	3040	5	1 1/2	2	3/4	4.4
CUA0250	250	880	5.5	1.8	57000	3.38	3.7	1460	3160	5	1 1/2	2	1	4.6
CUA0300	300	1050	7.5	2.4	67000	3.73	4.54	1660	3360	6	1 1/2	2	1	4.8
CUA0350	350	1230	7.5	2.4	84000	3.47	4.85	1765	3475	6	1 1/2	2	1	5
CUA0400	400	1400	11	2.4	91000	3.47	4.85	1860	3860	6	2	2	1	5
CUA0450	450	1580	11	3	107000	4.05	5.5	2310	4310	6	2	2	1	5.3
CUA0500	500	1760	15	3	120000	4.05	5.5	2535	8520	6	2	2	2	5.3
CUA0600	600	2110	15	3	140000	4.27	5.5	2590	7155	6	2	2	2	5.5



CFA Series Specifications

Structure:

Structure of the cooling towers are made of high quality hot dip galvanized steel sheets in suitable thickness & casing made of strengthened fiber glass which is sun light resistant. Other parts are made of P.V.C, A.B.S, and F.R.P or galvanized steel which are coated with electro static paint.

Cooling elements:

Cooling elements are made of P.V.C and formed in cellular form to improve the heat rejection.

Electromotor:

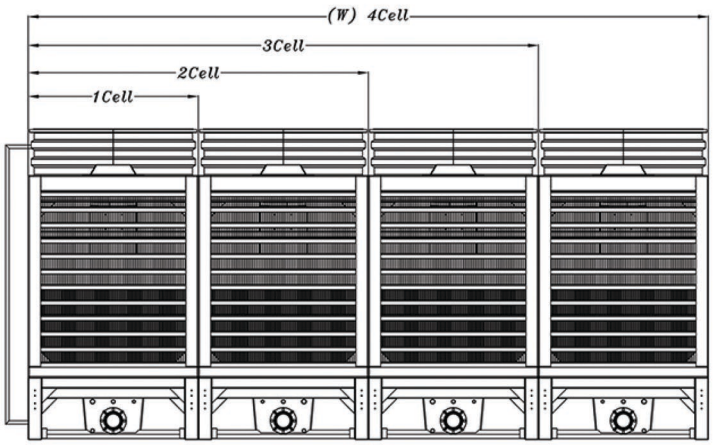
Electromotor used with the cooling towers are class IP54 (humidity resistant) and heat rejection class F. Mostly the electromotors used with the towers are Motogen trademark because of their variety in the market. Simens electromotors are also available upon request.

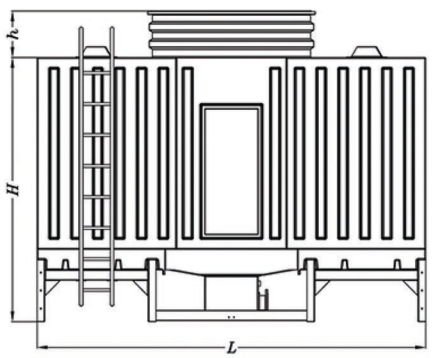
Fans:

The fans used with the cooling towers are manufactured by MEHR ASL Co. and they are axial fans with four aluminum blades used, the fan is coupled to the electromotor by belt and poly.

Performance data :

MODEL	Nominal Capacity [TR]	Nominal Water Flow [G.P.M]	Fan			Dimensions[mm]				Weight[kg]		Pipe Connections[inch]				CELL
			Qty × Motor Power [KW]	Qty × DIA [m]	Nominal air flow [CFM]	Height [H]	Length [L]	Fan Casing height[h]	Width [W]	DRY	OPER	Inlet Out [in]	over flow [in]	Quick Fill [in]	Float Valve [in]	
CFA0090-B	90	270	1×2.2	1×1.5	19000	2555	3760	445	1645	1060	1775	5	1 1/4	3/4	1	1
CFA0125-B	125	375	1×3	1×1.5	24000	2555	3760	445	1645	1080	1800	5	1 1/4	3/4	1	
CFA0160-B	160	480	1×4	1×1.7	33000	2555	3960	345	1900	1400	2100	5	1 1/4	3/4	1	
CFA0180-B	180	540	1×5.5	1×1.7	38000	2555	3960	345	1900	1420	2130	5	1 1/4	3/4	1	
CFA0220-B	220	660	2×3	2×1.5	44000	2555	3760	445	3290	2160	3600	6	1 1/2	1	1 1/4	2
CFA0250-B	250	750	2×3	2×1.5	48000	2555	3760	445	3290	2165	3610	6	1 1/2	1	1 1/4	
CFA0290-B	290	870	2×4	2×1.7	62000	2555	3960	345	3800	2795	4190	6	1 1/2	1	1 1/4	
CFA0370-B	370	1110	2×5.5	2×1.7	79000	2555	3960	345	3800	2845	4270	6	1 1/2	1	1 1/4	
CFA0430-B	430	1290	3×4	3×1.7	93000	2555	3960	345	5700	4190	6280	8	2	1 1/4	1 1/2	3
CFA0500-B	500	1500	3×5.5	3×1.7	103000	2555	3960	345	5700	4205	6310	8	2	1 1/4	1 1/2	
CFA0540-B	540	1620	3×5.5	3×1.7	114000	2555	3960	345	5700	4260	6390	8	2	1 1/4	1 1/2	
CFA0650-B	650	1950	4×4	4×1.7	134000	2555	3960	345	7600	5600	8400	10	2 1/2	1 1/2	2	4
CFA0750-B	750	2250	4×5.5	4×1.7	160000	2555	3960	345	7600	5700	8540	10	2 1/2	1 1/2	2	





CLOSED CIRCUIT COOLING TOWERS

Coil:

The unit includes two unit of tube heat exchanger (without aluminum fins) with copper tubes Of 16mm in diameter, which have been supported by galvanized tube sheet on both sides.

Pump:

The unit includes two pumps which circulated the cooling water between the reservoir and Spray nozzles.

Spray nozzles:

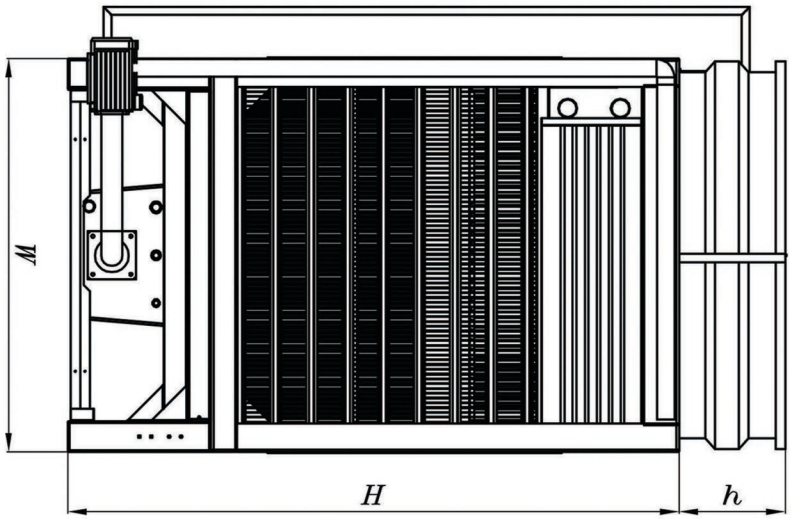
The Spray nozzles are mounted on top of the cooling tower and the cooling water is directed To the nozzles by steel tubes.

Eliminator:

The eliminator is made of aluminum and prevents water drop lets from spraying out of cooling tower.

Performance data :

MODEL	Nominal Capacity [TR]	Nominal Water Flow [G.P.M]	Fan			Dimensions[mm]				Weight[kg]		Pipe Connections[inch]				CELL
			Qty × Motor Power [KW]	Qty × DIA [m]	Nominal air flow [CFM]	Height [H]	Length [L]	Fan Casing height[h]	Width [W]	DRY	OPER	coil Inlet Out [in]	over flow [in]	Quick Fill [in]	Float Valve [in]	
CFA0090-C	90	270	1×2.2	1×1.5	19000	2555	3760	445	1645	1250	2070	2*3	1 1/4	3/4	1	1
CFA0125-C	125	375	1×3	1×1.5	24000	2555	3760	445	1645	1270	2090	2*3	1 1/4	3/4	1	
CFA0160-C	160	480	1×4	1×1.7	33000	2555	3960	345	1900	1620	2450	2*4	1 1/4	3/4	1	
CFA0180-C	180	540	1×5.5	1×1.7	38000	2555	3960	345	1900	1640	2480	2*4	1 1/4	3/4	1	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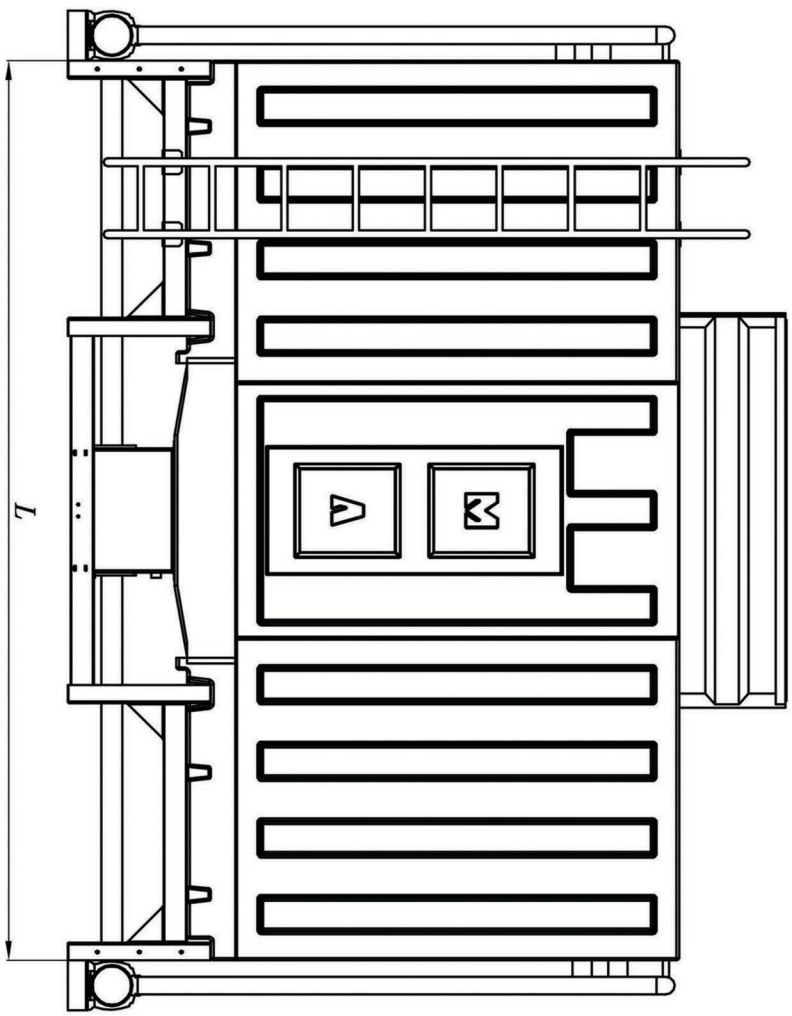
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Selection method:

Given cooling capacities in performance data table are based on MASS standard conditions:

Entering water temperature:	35 ℃	(95 ℉)
Leaving water temperature:	29.5 ℃	(85 ℉)
Entering air wet bulb temperature:	25 ℃	(77 ℉)

Performance data table can be used for selecting directly, if the standard conditions meet your design conditions entirely. On nonstandard conditions the model of cooling tower can be selected by specifying the values of four initial requisite parameters as following examples:

Example 1.
Given initial data:

Water flow rate:	106 L/s
Entering water temperature:	43 ℃
Leaving water temperature:	37 ℃
Entering air wet bulb temperature:	30 ℃

Temperature range = Entering water temperature - Leaving water temperature = 43 - 37
Temperature range = 6 ℃

Approach temperature = Leaving water temperature - Entering air W.B. temperature = 37 - 30
Approach temperature = 7 ℃

Choose CUA model type through a planar view on general data table by considering water flow rate.

Actual capacity = Q(kw) 106 Lit/s of water =106 Kg/s

Q= 4.2(Kj/(Kg X ˚C)) X Watre flow (Kg/s) X Temp. range
= 4.2 X 106 X 6 = 2671.2 Kw

From table 1 read coreection factor =0.68

Nominal capacity = Actual X Correction factor
= 2671.2 X 0.68 = 1816.42 Kw
- 516.62 R-ton

Selected model : **CUA0600**

Table 1 - Correction factor - SI unit

Approach	Temperature range [°C]												
Temp. [°C]	2	3	4	5	6	7	8	9	10	11	12	13	14
2	.71	1.25	1.57	1.77	1.83	2.01	2.32	2.38	2.49	2.57	2.72	2.86	3.00
3	.64	.90	1.10	1.29	1.45	1.57	1.67	1.75	1.81	1.99	2.09	2.20	2.30
4	.59	.71	.85	1.01	1.12	1.23	1.32	1.42	1.51	1.63	1.68	1.74	1.79
5	.38	.56	.71	.86	.95	1.05	1.11	1.20	1.30	1.41	1.47	1.52	1.59
6	.30	.45	.62	.63	.77	.89	.98	1.04	1.09	1.16	1.26	1.32	1.37
7	.25	.40	.49	.56	.68	.75	.84	.90	.97	1.01	1.07	1.11	1.15
8	.24	.34	.43	.50	.62	.68	.74	.77	.80	.88	.93	.98	1.04
9	.21	.32	.38	.44	.54	.59	.64	.69	.75	.78	.83	.90	.99
10	.26	.28	.34	.41	.46	.52	.57	.60	.68	.72	.76	.81	.85
11	.16	.24	.29	.36	.43	.46	.50	.56	.63	.67	.70	.74	.78
12	.10	.19	.26	.31	.38	.42	.44	.52	.59	.64	.63	.67	.71

Table 2 - Correction factor - Imperial unit

Approach	Temperature range [°F]												
Temp. [° F]	5	6	7	8	9	10	12	14	16	18	20	22	24
4	1.07	1.33	1.42	1.57	1.65	1.71	1.80	2.14	2.21	2.30	2.46	2.61	2.75
5	.89	1.04	1.14	1.25	1.36	1.47	1.62	1.71	1.79	1.85	2.14	2.25	2.38
6	.76	.89	.99	1.11	1.19	1.27	1.42	1.59	1.66	1.75	1.84	1.89	2.01
7	.70	.77	.85	.94	1.02	1.09	1.22	1.33	1.42	1.53	1.66	1.72	1.77
8	.61	.67	.76	.86	.93	1.00	1.13	1.22	1.33	1.42	1.53	1.62	1.69
9	.52	.62	.69	.79	.86	.89	1.02	1.10	1.19	1.30	1.42	1.48	1.54
10	.46	.56	.60	.66	.69	.76	.91	1.02	1.10	1.17	1.30	1.37	1.45
11	.40	.50	.61	.62	.63	.70	.85	.94	1.02	1.07	1.13	1.25	1.30
12	.37	.46	.49	.56	.61	.66	.75	.87	.94	1.04	1.07	1.14	1.19
13	.36	.43	.46	.51	.52	.63	.69	.81	.86	.92	.98	1.04	1.09
14	.33	.38	.43	.46	.51	.61	.68	.75	.79	.81	.93	.94	1.02
15	.31	.37	.40	.44	.49	.56	.64	.69	.74	.79	.85	.92	.97
16	.30	.36	.37	.43	.44	.51	.58	.63	.69	.75	.80	.85	.94
17	.29	.33	.34	.40	.43	.49	.54	.60	.62	.72	.75	.81	.88
18	.28	.29	.34	.37	.41	.44	.50	.56	.60	.68	.73	.77	.82
19	.25	.28	.31	.34	.38	.43	.46	.52	.56	.64	.69	.74	.79
20	.21	.27	.28	.31	.36	.40	.44	.49	.55	.62	.68	.69	.75

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