



(CLOSED TYPE)

Excellent Proven Performance and
Assurance of Superb Quality

KUKEN

COOLING TOWER

SERIES 01



ISO-9001 CERTIFIED
MANUFACTURING FACTORY



ISO-14001 CERTIFIED
MANUFACTURING FACTORY



MEMBER OF JCI

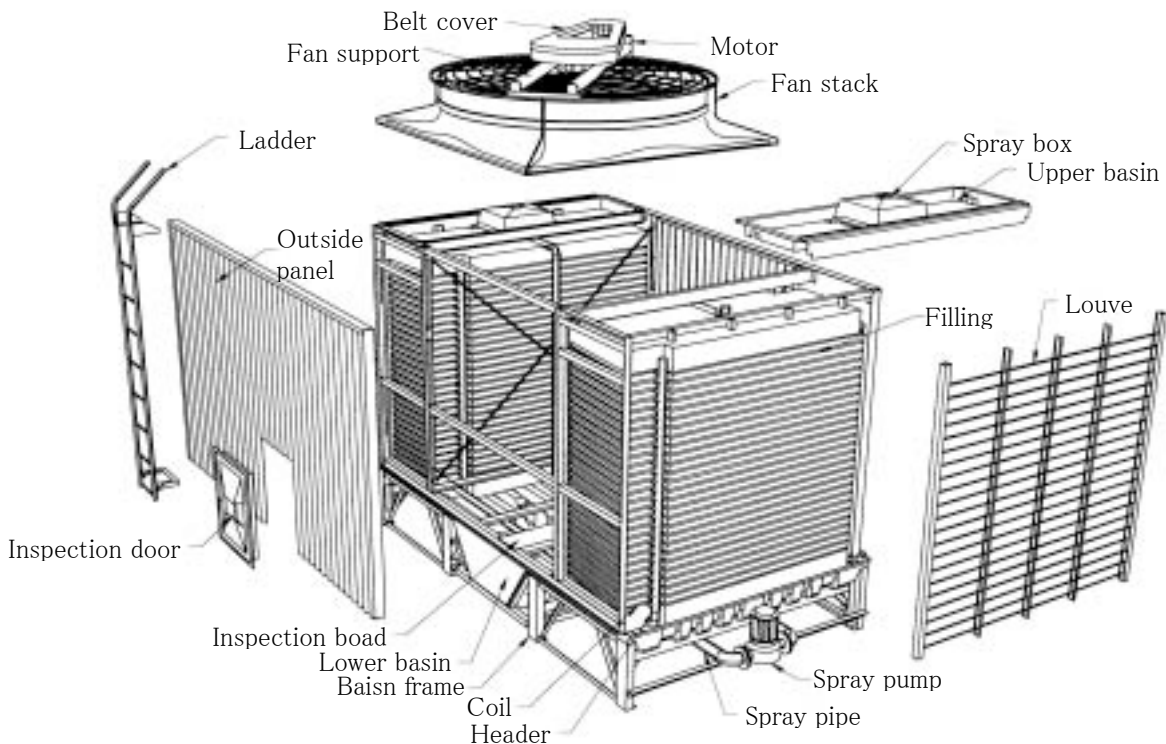


MEMBER OF CTI



KUKEN KOGYO CO., LTD.

Structure of KMB <Closed> type Cooling Tower



Design concept-wise, the closed cooling tower is the opposite of the open type in the sense that circulating water never contacts ambient air during cooling process. There are two independent sources of water used for the closed type tower : Circulating water and spray water.

Circulating water runs only inside a totally enclosed copper tube while spray water runs down through infill. In this system, spray water cools circulating water running inside the copper tube circuit without contacting with each other directly.

In this way water never gets concentrated due to the fact that no evaporation takes place in the tube. Based on this fact, the equipment such as chiller is totally protected against scale, and time & cost for maintenance can be minimized.

In the region under low W.B. temperature (about 8°C), closed-type cooling tower can be connected to main cooling equipment directly to function as "COLD WATER GENERATOR" such as chiller. This system is called "FREE-COOLING" and it greatly contributes to energy-saving.

Heat exchanger : Seamless phosphorus dioxide copper tube is used for the circuit, and the filling pieces are loaded at each individual stage to maximize cooling efficiencies.

Fan unit : Specification of newly-developed fan blade (KS wing) ensures great noise-reduction effect.

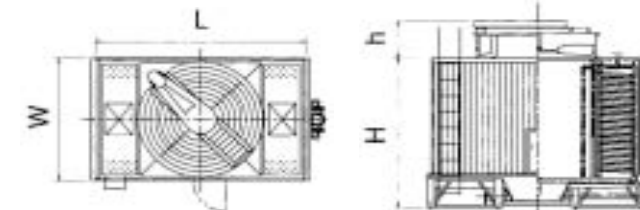
Lower basin : Adoption of the complete "One-piece basin" eliminates overlaying work at site, and time spent for tower erection is minimized. Basin bottom is designed to have slope towards the center for the purpose of cleaning.

Internal of body : Wide inspection board and the location of internal pipe ensures easier maintenance.

Framework : By adopting steel, tower body strength has been increased. Also, galvanizing has been richer in property.

CLOSED TYPE (Low noise)
KMB-R

Keep circulating water clean,
and avoid concentration.



MODEL	FLOW RATE (m ³ /h)					DIMENSION (mm)				WEIGHT		KUKEN AXIAL FLOW FAN					PIPING SIZE (mm)				SPRAY	SOUND LEVEL dB(A)					
	IN(°C)	37.0	37.5	38.0	39.0	40.0	length L	width W	height H	Fan height h	Net. kg	Ope. kg	Fan Diameter mm	Kw	Poles P	Current (50Hz/60Hz) A	No.	Water In/Out	Over flow	Drain	Make up (Auto, Manual)	SPRAY	SOUND LEVEL dB(A)				
	OUT(°C)	32.0				PUMP																Louver side	Panel side	Fan 45°			
	W.B(°C)	27.0																							kw x Q'ty	2 m	10 m
KMB-	60	46.8	44.6	41.8	37.4	34.0	3030	1670	1930	570	1180	2430	1400	3.7	4	14.6/14.2	1	100	50	50	15	1.5	67.0	59.0	62.5	57.0	71.0
	80	62.4	59.4	55.8	50.0	45.6	3230	1870	2230	570	1370	2930	1600	3.7	4	14.6/14.2	1	100	50	50	15	1.5	67.5	59.0	63.0	57.0	72.0
	100	78.0	74.3	69.7	62.5	56.9	3230	1870	2630	570	1520	3300	1600	5.5	4	22.0/21.0	1	100	50	50	15	1.5	69.0	61.0	64.0	58.0	73.0
	125	97.5	92.8	87.1	78.0	71.0	3630	2270	2780	700	1840	4210	2000	5.5	4	22.0/21.0	1	100	50	50	15	2.2	69.5	61.0	65.0	59.5	74.0
	150	117	111	105	93.7	85.3	3230	3700	2130	570	2630	6020	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	71.0	63.0	65.5	59.0	75.0
	175	137	130	122	109	99.6	3230	3700	2430	570	2860	6360	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	71.0	63.0	65.5	59.0	75.0
	200	156	149	139	125	114	3230	3700	2630	570	3030	6600	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	71.0	63.0	65.5	59.0	75.0
	225	176	167	157	141	128	3430	4100	2630	700	3300	7460	1800	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	71.0	63.0	66.0	60.0	75.5
	250	195	186	174	156	142	3630	4500	2780	700	3670	8410	2000	5.5	4	22.0/21.0	2	100x2	50x2	50x2	32	2.2x2	71.5	63.5	67.0	61.5	76.0
	275	215	204	197	172	157	3230	5530	2430	570	4320	9600	1600	5.5	4	22.0/21.0	3	100x3	50x3	50x3	32	1.5x3	72.0	64.0	67.5	60.0	76.0
	300	234	223	209	188	171	3230	5530	2630	570	4540	9900	1600	5.5	4	22.0/21.0	3	100x3	50x3	50x3	32	1.5x3	72.0	64.0	67.5	60.0	76.0
	350	273	260	244	219	199	3430	6130	2780	700	5170	11480	1800	5.5	4	22.0/21.0	3	100x3	50x3	50x3	32	1.5x3	72.0	64.0	67.5	61.0	76.0
	400	312	297	279	250	228	3230	7360	2630	570	6060	13200	1600	5.5	4	22.0/21.0	4	100x4	50x4	50x4	32	1.5x4	73.0	65.0	68.5	61.5	77.0
	450	351	334	314	281	256	3430	8160	2630	700	6600	14910	1800	5.5	4	22.0/21.0	4	100x4	50x4	50x4	32x2	1.5x4	73.0	64.5	68.0	63.0	77.5
	500	390	371	348	312	284	3630	8960	2780	700	7340	16810	2000	5.5	4	22.0/21.0	4	100x4	50x4	50x4	32x2	2.2x4	74.0	66.0	69.5	64.0	78.0
	550	429	408	383	344	313	3430	10190	2630	700	8250	18340	1800	5.5	4	22.0/21.0	5	100x5	50x5	50x5	32x2	1.5x5	74.0	66.5	70.0	63.5	78.5
	600	468	445	418	375	342	3430	10190	2780	700	8610	19140	1800	5.5	4	22.0/21.0	5	100x5	50x5	50x5	32x2	1.5x5	74.0	66.5	70.0	63.5	78.5

CLOSED TYPE (Extra low noise)
KMB-S

Most suitable for the environment in need of super-quiet equipment.

By adopting newly-developed super silent fan blade, sound level has been decreased by 2-4dB(A).

MODEL	FLOW RATE (m ³ /h)					DIMENSION (mm)				WEIGHT		KUKEN AXIAL FLOW FAN					PIPING SIZE (mm)				SPRAY	SOUND LEVEL dB(A)					
	IN(°C)	37.0	37.5	38.0	39.0	40.0	length L	width W	height H	Fan height h	Net. kg	Ope. kg	Fan Diameter mm	Kw	Poles P	Current (50Hz/60Hz) A	No.	Water In/Out	Over flow	Drain	Make up (Auto, Manual)	SPRAY	SOUND LEVEL dB(A)				
	OUT(°C)	32.0				PUMP																Louver side	Panel side	Fan 45°			
	W.B(°C)	27.0																							kw x Q'ty	2 m	10 m
KMB-	60	46.8	44.6	41.8	37.4	34.0	3030	1670	1930	570	1180	2430	1400	3.7	4	14.6/14.2	1	100	50	50	15	1.5	63.0	56.0	59.0	53.0	67.0
	80	62.4	59.4	55.8	50.0	45.6	3230	1870	2230	570	1370	2930	1600	3.7	4	14.6/14.2	1	100	50	50	15	1.5	63.0	56.5	60.0	54.5	67.5
	100	78.0	74.3	69.7	62.5	56.9	3230	1870	2630	570	1520	3300	1600	5.5	4	22.0/21.0	1	100	50	50	15	1.5	64.0	57.0	60.0	54.0	69.0
	125	97.5	92.8	87.1	78.0	71.0	3630	2270	2780	700	1840	4210	2000	5.5	4	22.0/21.0	1	100	50	50	15	2.2	65.0	57.5	60.5	55.0	69.0
	150	117	111	105	93.7	85.3	3230	3700	2130	570	2630	6020	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	66.0	59.0	62.0	55.0	70.5
	175	137	130	122	109	99.6	3230	3700	2430	570	2860	6360	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	66.0	59.0	62.0	55.0	70.5
	200	156	149	139	125	114	3230	3700	2630	570	3010	6580	1600	5.5	4	22.0/21.0	2	100x2	50x2	50x2	20	1.5x2	66.0	59.0	62.0	55.0	70.5
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REMARKS

* 1: Rated current values indicated above are just for reference.

(Based on 1 unit of motor under 200V/50Hz or 200V/60Hz)

* 2: Piping size varies depending on circulating water flow rate and temperature.

Optional Parts

Variety of optional parts are available for Kuken Cooling Tower.
Consult with KUKEN sales-agents for more detail.



For Safety

Handrail, Ladder with cage,
Upper basin cover, staircase, etc..

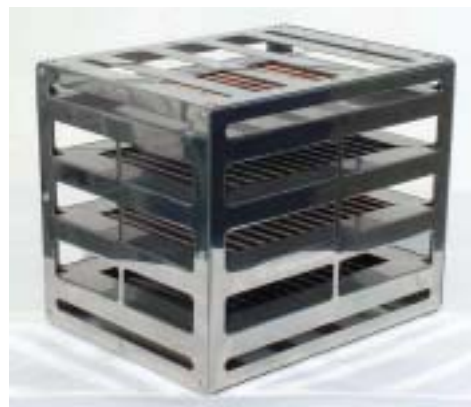


For Discharge Air, Silencer

Duct, Elbow duct, Silencer,
Bird-proof net, Snow-proof parts, etc..



Heater Unit



Water activator

*Specification subject to change without notice.

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