



The Ultimate Cooling Machine

MK SERIES CROSSFLOW COOLING TOWER



MK SERIES



C67C-18R01



CERTIFIED PERFORMANCE
DURABLE ENERGY & SPACE SAVING

MK SERIES SELECTION TABLE



MK Series Quick Selection Table

The table below shows the common combinations of various cold water, hot water and wet bulb temperature. However, if there is a difference in temperature combination, please contact the company for a selection of the cooling tower by our computer software.

Deg F	In	*95	*95	*95	98.6	95	97	98	98.6	97	100	98.6	100	100	
	Out	85.1	85.1	85.1	89.6	86	87	88	89.6	87	90	89.6	90	90	
	WB	80.6	81.5	81.9	80.6	81	81	82	81.5	82	82	82.4	83	84	
Deg C	In	*35	*35	*35	37	35	36.11	36.67	37	36.11	37.78	37	37.78	37.78	
	Out	29.5	29.5	29.5	32	30	30.56	31.11	32	30.56	32.22	32	32.22	32.22	
	WB	27	27.5	27.7	27	27.22	27.22	27.78	27.5	27.78	27.78	28	28.33	28.89	
MODEL	REFERENCE **HRT	MOTOR (kW)	FLOWRATE (M³/HR)												
1928A	125	2.2	43.15	36.17	33.27	91.77	52.42	57.34	58.69	84.71	49.94	77.28	77.32	70.09	62.35
1928B	150	3.7	51.46	43.12	39.65	109.71	62.48	68.42	70.24	101.20	59.57	92.55	92.30	83.85	74.46
1928C	175	5.5	58.84	49.30	45.33	125.71	71.53	78.27	80.54	115.93	68.14	106.14	105.67	96.05	85.21
1928D	200	7.5	65.35	54.75	50.34	139.69	79.40	86.92	89.39	128.81	75.68	117.88	117.40	106.62	94.56
1928E	225	11	74.33	62.25	57.22	159.08	90.34	98.87	101.70	146.64	86.06	134.15	133.60	121.31	107.59
1928F	250	15	82.50	68.99	63.36	176.64	100.24	109.75	112.81	162.81	95.45	148.95	148.31	134.68	119.35
1938A	150	2.2	55.86	47.66	44.26	112.06	66.79	72.71	74.75	104.20	63.99	96.29	95.97	88.19	78.81
1938B	175	3.7	62.82	56.06	52.81	134.45	79.87	79.32	89.44	124.92	73.13	115.36	114.96	105.55	94.30
1938C	200	5.5	76.46	65.12	60.42	154.26	91.41	99.66	102.43	143.25	87.62	132.26	131.75	120.95	108.04
1938D	225	7.5	84.93	72.33	67.10	171.67	101.62	110.74	113.85	159.38	97.36	147.13	146.53	134.45	120.06
1938E	250	11	96.68	82.27	76.29	195.87	115.78	126.16	129.64	181.79	110.85	167.66	167.05	153.14	136.75
1938F	275	15	107.39	91.38	84.74	217.71	128.57	140.15	144.06	202.03	123.14	186.37	185.63	170.21	151.97
2328A	150	2.2	51.06	42.91	39.52	107.32	61.76	67.63	69.19	99.22	58.97	90.66	90.75	82.49	73.46
2328B	175	3.7	60.88	51.12	47.07	128.53	73.73	80.72	82.61	118.74	70.37	108.47	108.49	98.52	87.70
2328C	200	5.5	69.65	58.49	53.85	147.19	84.41	92.34	94.54	135.97	80.50	124.03	124.24	112.78	100.41
2328D	225	7.5	78.43	66.49	61.53	163.63	94.75	103.01	105.51	151.18	90.34	137.91	138.08	125.28	112.01
2328E	250	11	88.01	73.81	67.91	186.48	106.67	116.88	119.45	172.17	101.79	156.94	157.18	142.54	126.85
2328F	275	15	98.18	82.08	75.43	207.01	118.33	130.59	133.24	191.10	113.38	175.17	174.43	158.74	140.88
2338A	175	2.2	67.53	57.57	53.47	132.80	79.98	87.71	89.39	123.74	77.04	114.51	114.28	105.22	94.16
2338B	200	3.7	80.71	68.74	63.81	159.59	95.71	104.99	107.02	148.55	92.17	137.36	137.03	126.07	112.77
2338C	225	5.5	92.47	78.73	73.07	183.08	109.71	120.35	122.69	170.43	105.63	157.62	157.20	144.58	129.32
2338D	250	7.5	102.53	87.39	81.16	202.50	121.39	133.27	135.91	188.34	117.06	174.31	173.58	160.09	143.26
2338E	300	11	117.04	99.54	92.33	233.05	139.00	152.54	155.51	216.69	133.79	200.22	199.59	183.37	163.94
2338F	325	15	130.05	110.54	102.51	259.21	154.46	169.54	172.84	240.96	148.66	222.61	221.89	203.85	182.19
2348A	200	2.2	78.40	67.60	63.16	148.90	92.08	100.47	102.34	139.31	88.88	129.38	129.38	119.62	107.63
2348B	225	3.7	93.93	80.87	75.51	179.16	110.37	120.54	122.79	167.54	106.53	155.66	155.45	143.61	129.11
2348C	250	5.5	107.66	92.63	86.46	206.26	126.64	138.32	140.92	192.73	122.20	178.89	178.66	164.94	148.25
2348D	300	7.5	119.80	103.01	96.11	229.90	140.92	154.02	156.91	214.79	136.01	199.40	199.04	183.71	165.06
2348E	325	11	136.56	117.34	109.45	262.87	160.75	175.71	179.02	245.41	155.10	227.67	227.26	209.70	188.37
2348F	375	15	151.74	130.35	121.56	292.52	178.74	195.35	199.04	273.10	172.41	253.36	252.86	233.20	209.46
2638A	200	2.2	75.36	64.33	59.79	147.61	89.16	97.77	99.67	137.62	85.95	127.54	127.21	117.25	105.00
2638B	225	3.7	90.18	76.86	71.38	177.62	106.85	117.20	119.46	165.46	102.93	153.17	152.79	140.65	125.86
2638C	250	5.5	103.32	87.99	81.69	204.49	122.46	134.40	137.02	190.00	117.99	175.90	175.31	161.40	144.38
2638D	300	7.5	114.85	97.77	90.75	227.41	136.23	149.48	152.38	211.65	131.19	195.79	195.21	179.54	160.58
2638E	325	11	130.86	111.34	103.30	259.72	155.25	170.39	173.70	241.61	149.49	223.39	222.70	204.74	183.06
2638F	375	15	145.34	123.63	114.69	288.98	172.54	189.33	193.00	268.77	166.08	248.38	247.67	227.53	203.43
2648A	225	2.2	87.64	75.63	70.70	165.55	102.80	112.18	114.26	155.06	99.28	144.49	144.17	133.45	120.11
2648B	250	3.7	104.63	90.42	84.54	198.29	122.87	133.88	136.62	185.82	118.72	172.84	172.80	159.94	144.16
2648C	300	5.5	120.44	103.70	96.82	229.79	141.57	154.58	157.47	214.89	136.62	199.61	199.38	184.21	165.62
2648D	325	7.5	134.03	115.33	107.66	256.31	157.58	172.15	175.37	239.59	152.09	222.53	222.17	205.20	184.44
2648E	375	11	152.85	129.58	119.76	293.13	179.79	196.23	199.19	273.88	171.80	254.26	253.82	234.32	208.21
2648F	425	15	169.89	146.03	136.23	326.57	199.97	218.54	222.65	305.02	192.94	283.06	282.55	260.73	234.24
3038C	300	5.5	115.98	98.88	91.85	227.91	137.33	150.65	153.56	212.38	132.33	196.78	196.20	180.74	161.75
3038D	325	7.5	128.98	109.90	102.06	254.20	152.84	167.64	170.88	236.75	147.21	219.18	218.56	201.20	180.03
3038E	375	11	147.25	125.61	116.71	290.43	174.51	191.23	194.93	270.36	168.05	250.10	249.43	229.43	205.41
3038F	400	15	163.64	139.53	129.61	323.31	193.99	212.59	216.70	300.88	186.77	278.23	277.48	255.13	228.36
3038G	450	18.5	175.68	149.76	139.10	347.41	208.26	228.33	232.76	323.25	200.56	298.96	298.04	274.06	245.28
3038H	475	22	186.32	158.78	147.45	368.74	220.92	242.16	246.83	343.05	212.67	317.14	316.22	290.66	260.09
3048C	325	5.5	135.53	116.86	109.19	257.23	159.13	173.66	176.88	240.77	153.62	223.77	223.65	206.70	185.97
3048D	375	7.5	150.93	130.03	121.44	287.16	177.23	193.55	197.15	268.63	171.12	249.66	249.35	230.50	207.28
3048E	425	11	172.08	148.44	138.74	327.79	202.20	220.44	224.55	306.50	195.07	284.39	284.32	262.39	236.16
3048F	450	15	191.23	164.89	154.08	364.90	224.77	245.06	249.62	341.10	216.81	316.38	316.29	291.78	262.54
3048G	500	18.5	205.30	176.98	165.36	392.10	241.30	263.20	268.11	366.46	232.82	339.95	339.73	313.43	282.00
3048H	525	22	217.73	187.65	175.29	416.18	255.98	279.15	284.33	388.90	246.88	360.63	360.46	332.41	299.02
3438C	325	5.5	132.62	113.38	105.48	257.93	156.67	171.69	174.97	240.71	151.06	223.29	222.79	205.57	184.20
3438D	375	7.5	147.29	125.99	117.23	287.00	174.03	190.58	194.23	267.62	167.75	248.15	247.39	228.17	204.51
3438E	425	11	167.85	143.52	133.53	327.83	198.32	217.21.							

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The table below shows the common combinations of various cold water, hot water and wet bulb temperature.
However, if there is a difference in temperature combination, please contact the company for a selection of the cooling tower
by our computer software.

Deg F	In	*95	*95	*95	98.6	95	97	98	98.6	97	100	98.6	100	100
	Out	85.1	85.1	85.1	89.6	86	87	88	89.6	87	90	89.6	90	90
	WB	80.6	81.5	81.9	80.6	81	81	82	81.5	82	82	82.4	83	84

Deg C	In	*35	*35	*35	37	35	36.11	36.67	37	36.11	37.78	37	37.78	37.78
	Out	29.5	29.5	29.5	32	30	30.56	31.11	32	30.56	32.22	32	32.22	32.22
	WB	27	27.5	27.7	27	27.22	27.22	27.78	27.5	27.78	27.78	28	28.33	28.89

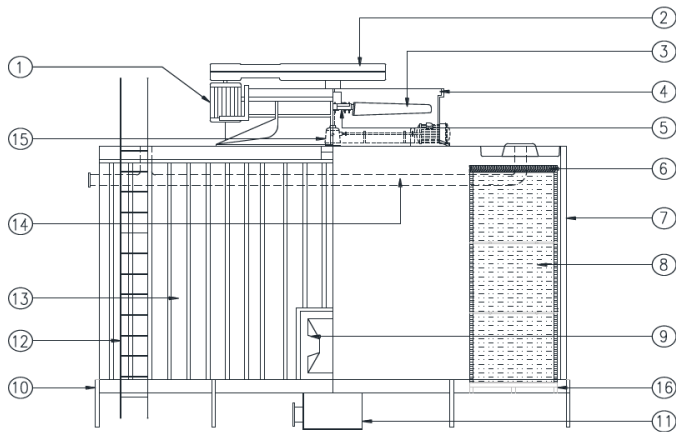
MODEL	REFERENCE **HRT	MOTOR (kW)	FLOWRATE (M³/HR)												
3838D	400	7.5	163.53	139.99	130.32	317	193.03	211.35	215.38	296.01	186.12	274.61	274.01	252.86	226.72
3838E	450	11	186.31	159.46	148.43	362	219.94	240.89	245.51	337.55	212.12	313.21	312.36	288.29	258.48
3838F	500	15	207.35	177.26	164.90	404	244.96	268.41	273.51	376.52	236.15	349.18	348.36	321.33	287.91
3838G	550	18.5	221.47	189.96	177.02	429	261.33	285.71	291.16	400.45	251.93	371.30	370.34	341.52	306.53
3838H	600	22	236.13	201.80	187.69	460	279.00	305.79	311.59	429.27	268.97	398.06	397.01	366.11	327.98
3838I	650	30	262.32	224.06	208.34	512	310.12	339.97	346.50	477.53	298.97	442.83	441.69	407.37	364.89
3838J	700	37	281.35	240.37	223.52	549	332.54	364.52	371.50	512.20	320.60	474.94	473.58	436.70	391.18
3848D	450	7.5	194.63	168.56	157.88	362	227.42	247.88	252.37	339.99	219.87	317.02	316.88	293.93	264.97
3848E	525	11	222.13	192.32	180.09	414	259.62	283.05	288.23	388.72	251.03	362.47	362.10	335.85	302.73
3848F	575	15	247.22	213.79	200.07	462	289.16	315.38	321.11	433.60	279.48	404.09	403.83	374.34	337.20
3848G	625	18.5	264.06	229.10	214.78	492	308.48	335.71	341.83	461.16	298.15	429.69	429.31	397.86	359.00
3848H	675	22	281.54	243.38	227.73	527	329.33	359.30	365.82	494.36	318.32	460.66	460.22	426.51	384.12
3848I	725	30	312.77	270.23	252.78	586	366.07	399.47	406.80	549.93	353.83	512.47	512.02	474.58	427.35
3848J	800	37	335.46	289.90	271.20	629	392.54	428.31	436.15	589.85	379.42	549.63	548.99	508.75	458.15
4238D	450	7.5	178.89	153.37	142.90	344	210.88	230.77	235.11	321.81	203.39	298.87	298.45	275.69	247.35
4238E	500	11	203.88	174.78	162.82	393	240.33	263.03	267.98	367.28	231.81	341.06	340.27	314.25	281.93
4238F	550	15	227.02	194.33	180.91	439	267.76	293.37	298.87	409.89	258.28	380.65	379.76	350.72	314.39
4238G	600	18.5	243.89	208.69	194.24	472	287.78	315.27	321.17	441.07	277.50	409.46	408.38	376.95	337.85
4238H	650	22	258.55	221.24	205.93	502	305.07	334.25	340.53	468.01	294.22	434.12	432.94	399.68	358.23
4238I	700	30	287.08	245.63	228.62	559	339.58	371.18	377.98	521.83	326.69	481.85	482.73	443.60	397.61
4238J	750	37	308.15	263.61	245.31	601	364.58	398.56	405.98	560.65	350.81	517.73	518.68	476.73	427.32
4238K	800	45	329.38	281.62	261.98	643	389.80	426.27	434.23	599.82	375.08	553.94	554.94	510.09	457.09
4238L	850	55	352.16	301.16	280.19	688	416.76	455.71	464.24	641.50	401.04	592.41	593.29	545.32	488.73
4248D	500	7.5	213.35	185.11	173.55	394	248.96	271.10	275.97	370.53	240.74	345.75	345.76	321.02	289.66
4248E	575	11	243.73	211.33	198.04	451	284.45	309.98	315.63	423.90	275.17	395.68	395.60	367.42	331.41
4248F	625	15	270.75	234.54	219.71	503	316.11	344.63	350.82	471.94	305.71	440.37	439.96	408.38	368.17
4248G	675	18.5	290.86	251.88	235.91	541	339.74	370.36	376.99	507.84	328.46	473.70	473.11	438.92	395.63
4248H	725	22	308.36	267.03	250.10	575	360.16	392.66	399.71	538.87	348.24	502.23	501.56	465.39	419.50
4248I	800	30	342.38	296.46	277.66	641	400.90	436.04	443.67	600.83	386.69	557.44	559.25	516.54	465.61
4248J	875	37	367.50	318.17	297.94	688	430.42	468.20	476.55	645.53	415.24	598.95	600.90	555.11	500.41
4248K	925	45	392.83	339.90	318.18	736	460.19	500.75	509.70	690.63	443.96	640.84	642.90	593.96	535.27
4248L	1000	55	419.99	363.48	340.30	788	492.02	535.34	544.93	738.62	474.68	685.35	687.33	634.98	572.32
4638D	475	7.5	193.68	166.26	155.01	371	228.00	249.41	254.09	346.76	220.00	322.34	321.89	297.69	267.24
4638E	525	11	220.67	189.48	176.69	423	259.78	284.15	289.47	395.54	250.67	367.64	366.76	339.09	304.45
4638F	600	15	245.77	210.86	196.54	473	289.55	316.83	322.81	441.75	279.36	410.55	409.29	378.38	339.60
4638G	650	18.5	264.326	226.643	211.18	510	311.448	341.005	347.469	475.959	300.56	442.389	440.757	407.474	365.595
4638H	675	22	281.00	240.63	224.06	543	331.37	363.08	370.01	507.26	319.76	471.47	469.75	434.29	389.41
4638I	750	30	312.63	267.51	248.99	606	368.76	404.32	412.04	565.44	355.89	525.52	523.41	483.82	433.65
4638J	825	37	335.78	287.28	267.36	652	396.19	434.36	442.71	607.99	382.32	565.04	562.58	519.99	466.05
4638K	875	45	359.35	307.13	285.69	699	424.17	465.38	474.32	651.78	409.34	605.71	603.10	557.41	499.32
4638L	950	55	384.87	328.75	305.71	749	454.48	498.78	508.36	699.00	438.54	649.61	646.59	597.59	535.15
4648D	550	7.5	231.97	201.60	189.17	426	270.18	294.12	299.36	400.48	261.45	374.10	374.18	347.79	314.04
4648E	625	11	264.93	230.21	215.99	488	308.68	335.99	342.02	458.16	298.67	427.93	427.70	397.45	358.87
4648F	700	15	295.06	256.18	240.26	545	344.06	374.64	381.40	511.68	332.84	477.87	477.30	443.50	400.30
4648G	750	18.5	317.34	275.36	258.16	587	370.07	403.22	410.54	551.30	358.10	514.93	514.00	477.60	430.94
4648H	800	22	337.36	292.35	273.91	626	393.74	429.32	437.17	587.56	380.98	548.77	547.81	509.03	459.02
4648I	875	30	375.34	325.01	304.39	698	438.17	478.08	486.83	654.95	424.02	611.70	610.39	567.09	511.16
4648J	950	37	403.123	349.024	326.838	751	470.77	513.61	523.074	704.239	455.521	657.688	656.069	609.481	549.359
4648K	1000	45	431.43	373.14	349.24	805	504.02	550.29	560.42	754.96	487.71	705.03	703.31	653.34	588.57
4648L	1100	55	462.06	399.41	373.72	863	540.03	589.78	600.64	809.66	522.50	756.13	754.03	700.43	630.80

*REMARKS - RANGE OF CERTIFICATION FOR CTI SHALL NOT EXTEND BEYOND 2.2 °C & 2.8 °C APPROACH

**REFERENCE HRT - THE REFERENCE NOMINAL TONNAGE BASED ON CONDITION (13L/M, 37/32/27 °C) PER TON

MODEL DEFINITION FOR MK2338E-2BI

MK	2338	E	2	B	I
CROSS FLOW TYPE	BOX SIZE	MOTOR SIZE	NO. OF CELLS	B - BELT & PULLEY G - GEAR REDUCER	I - INTERNAL PIPING S - SUPER LOW NOISE M - MODIFICATION (NON CTI)



ITEM	DESCRIPTION	MATERIAL / SPECIFICATIONS
1	MOTOR	IE 1,2,3 / 3 PHASE / 4 POLES / 415V/ 50Hz
2	DRIVE SYSTEM	RIGHT ANGLE / HELICAL TYPE / V-BELT AND PULLEY
3	FAN BLADE	FRP/CAST ALUMINUM ALLOY
4	FAN STACK	FRP
5	FAN HUB	CAST ALUMINUM ALLOY
6	DRIFT ELIMINATOR	PVC
7	MAIN FRAME STRUCTURE	HOT DIP GALVANISED STEEL
8	HIGH PERFORMANCE FILM FILL PACK	PVC
9	INSPECTION DOOR	FRP
10	COLD WATER BASIN	HOT DIP GALVANISED STEEL
11	COLD WATER BASIN SUMP	FRP
12	LADDER	HOT DIP GALVANISED STEEL
13	CASING	FRP
14	INTERNAL PIPING	OPTIONAL
15	GEAR REDUCER SYSTEM	OPTIONAL
16	INFILL SUPPORT STAND	HOT DIP GALVANISED STEEL

Tower Construction

Tower casing body is made out of F.R.P. (Fiberglass Reinforced Plastics) which is corrosion free, very durable and yet light. Furthermore the body is coated with a special epoxy consist of anti-ultraviolet agent making the tower body more resistant to UV sunlight. The tower main structure frame is using steel which has undergo hot dipped galvanization (HDG) process to prevent rust.

Cold Water Basin

The cold water basin is constructed from F.R.P. (Fiberglass Reinforced Plastics) which is corrosion free and is supported by HDG steel frame underneath. The cold water basin is also slopping basin to ensure the dirt and sediments trapped inside the basin is being diverted towards the depressed sump in the centre of basin.

The depressed sump will prevent air lock from occurring during the tower operation. The sump is also supplied with suction strainer, makeup water ball valve, overflow and drain connection.

Mechanical drive system

Fans are of axial type designed to deliver air performance at low noise level. Fan blades material shall be FRP as standard and aluminium alloy as optional. . All fan blades are factory balanced before shipped out. The fan is operating inside a fan stack enclosure to streamline the air entry while maintaining maximum fan efficiency.

The V belt drive system which connects the cast iron pulleys at the motor and fan is contained inside FRP belt cover. This is to ensure that the belts are protected from moist discharge air. Optional aluminium alloy pulleys are available.

The motor is of TEFC weather proof squirrel cage for 3 phase 415 V / 50 Hz power supply.

The motor shall be located outside the discharge air stream below the belt cover to prolong the motor life and ease of maintenance and access.

The fan bearing has a lubrication delivery system from external point outside the fan stack to the fan bearing to allow grease top up to be carried even when the fan is in operation.

Fills

The film type cellular fill is made of air vacuum forming Ultra Violet (UV) Light resistant PVC sheets which have corrugated surface. The surface has been specially designed to spread the water droplet from hot water basin evenly.

The infill shall be installed in glued blocks and ease of removable for cleaning. The second layer of infill blocks shall be supported with galvanized pipes to prevent the weight being imposed on the bottom layer.

Water distribution system

The hot water basin is open gravity type flow made from FRP material that is resistant to Ultra Violet (UV) Light and corrosion. The water is distributed via specially positioned holes in the basin onto a scattering bars below. These scattering bars will sprinkle the water effective and evenly on the fill section underneath.

Access Door

Each tower should be provided with an access door to enter the internal compartment of cooling tower for inspection and maintenance. The access door shall be of FRP material and able to be locked.

COMPLETED PROJECTS

GENIUS™



HOSPITAL KL



HOSPITAL SERDANG



KPJ BATU PAHAT



AVILLION LEGACY HOTEL MELAKA



MEMC



CONDOTEL HOTEL VIETNAM



VINHOMES GOLDEN RIVER, VIETNAM



GARAVELLE HOTEL VIETNAM



PPUM



SAIGON CENTRE VIETNAM



SULTANAH AMINAH HOSPITAL



UMW TOYOTA



MENARA DBKL



INCEPTA PHARMACEUTICALS Ltd, BANGLADESH



WISMA PERSEKUTUAN SEREMBAN

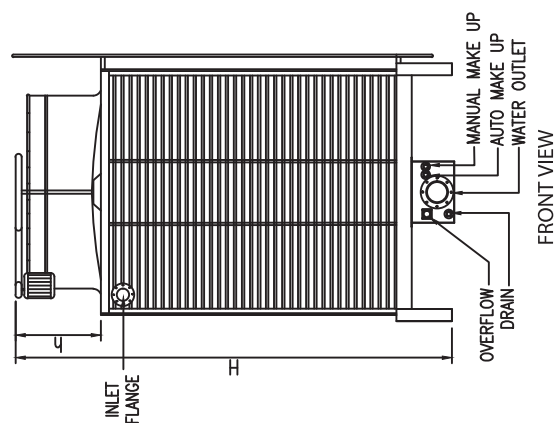
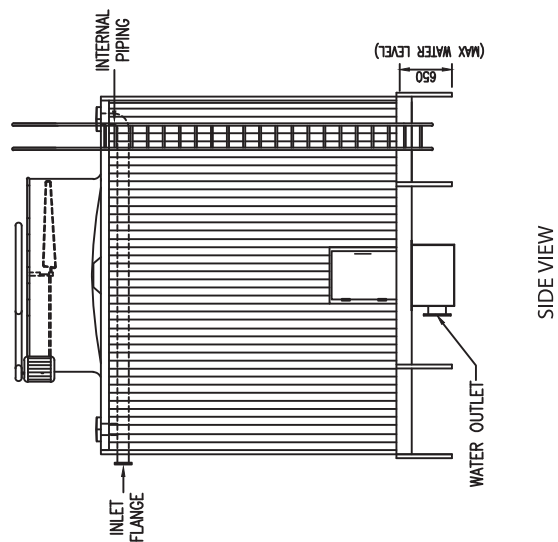
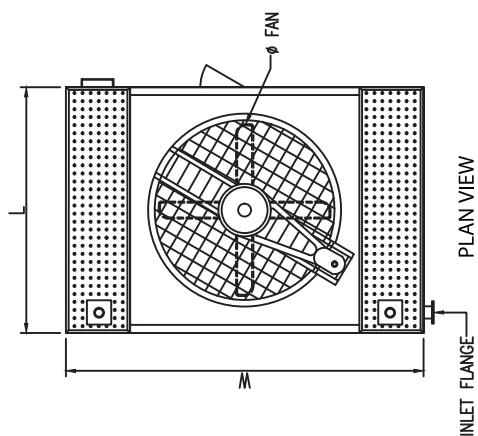


VINCOM THAO DIEN MEGAMALL, VIETNAM

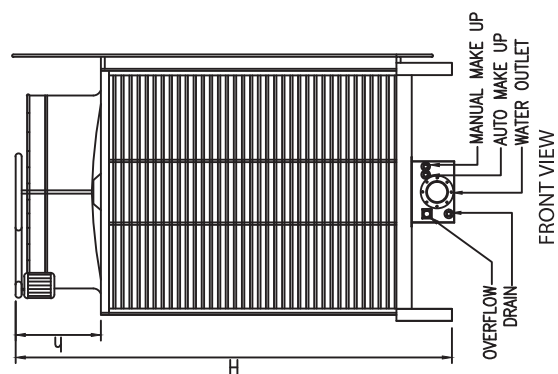
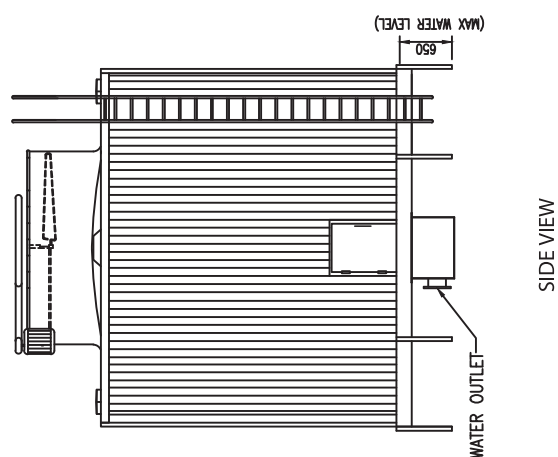
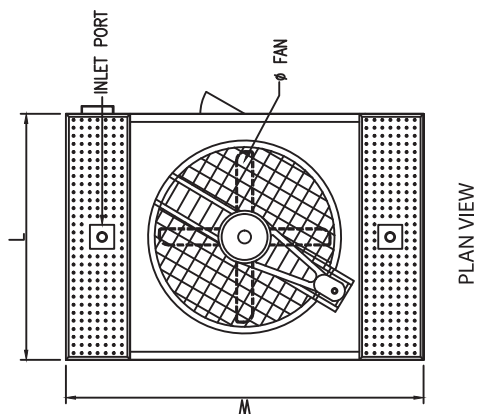


TANAKA ELECTRONIC SINGAPORE

MK SERIES
INTERNAL PIPING



MK SERIES
EXTERNAL PIPING



TECHNICAL DATA FOR MK SERIES



MODEL	TOWER DIMENSION (mm)				MOTOR	FAN DIAMETER		PIPING INFORMATION (mm)							WEIGHT (KG)	
	MK	L	W	h	H	kW	F (mm)	MATERIAL	INTERNAL PIPING	EXTERNAL PIPING	OUTLET	DRAIN	OVER FLOW	MAKE UP AUTO MANUAL	DRY WEIGHT	OPERATING WEIGHT
1928A		1960	3845	2840	3765	2.2	1700	FRP	150 x 1	100 x 2	125 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1314	3894
1928B		1960	3845	2840	3765	3.7	1700		150 x 1	100 x 2	125 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1320	3900
1928C		1960	3845	2840	3765	5.5	1700		150 x 1	100 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1345	3925
1928D		1960	3845	2840	3765	7.5	1700		150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1354	3934
1928E		1960	3845	2840	3765	11	1700		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1405	3985
1928F		1960	3845	2840	3765	15	1700		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1428	4008
1938A		1960	3845	3855	4780	2.2	1700	FRP	150 x 1	100 x 2	125 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1446	4026
1938B		1960	3845	3855	4780	3.7	1700		150 x 1	100 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1452	4032
1938C		1960	3845	3855	4780	5.5	1700		150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1477	4057
1938D		1960	3845	3855	4780	7.5	1700		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1486	4066
1938E		1960	3845	3855	4780	11	1700		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1537	4117
1938F		1960	3845	3855	4780	15	1700		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	1560	4140
2328A		2300	4170	2840	3720	2.2	2000	FRP	150 x 1	100 x 2	125 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1574	4512
2328B		2300	4170	2840	3720	3.7	2000		150 x 1	100 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1580	4518
2328C		2300	4170	2840	3720	5.5	2000		150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1605	4543
2328D		2300	4170	2840	3720	7.5	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1614	4552
2328E		2300	4170	2840	3720	11	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1665	4603
2328F		2300	4170	2840	3720	15	2000		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	1688	4626
2338A		2300	4170	3855	4735	2.2	2000	FRP	150 x 1	100 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1706	4644
2338B		2300	4170	3855	4735	3.7	2000		150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1712	4650
2338C		2300	4170	3855	4735	5.5	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1737	4675
2338D		2300	4170	3855	4735	7.5	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1746	4684
2338E		2300	4170	3855	4735	11	2000		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	1797	4735
2338F		2300	4170	3855	4735	15	2000		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	1820	4758
2348A		2300	4170	4870	5750	2.2	2000	FRP	150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2037	4975
2348B		2300	4170	4870	5750	3.7	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2043	4981
2348C		2300	4170	4870	5750	5.5	2000		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2068	5006
2348D		2300	4170	4870	5750	7.5	2000		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2077	5015
2348E		2300	4170	4870	5750	11	2000		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2128	5066
2348F		2300	4170	4870	5750	15	2000		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2151	5089

TECHNICAL DATA FOR MK SERIES



MODEL	TOWER DIMENSION (mm)				MOTOR	FAN DIAMETER		PIPING INFORMATION (mm)							WEIGHT (KG)	
	MK	L	W	h	H	kW	F (mm)	MATERIAL	INTERNAL PIPING	EXTERNAL PIPING	OUTLET	DRAIN	OVER FLOW	MAKE UP AUTO MANUAL	DRY WEIGHT	OPERATING WEIGHT
2638A		2660	4300	3855	4915	2.2	2180	FRP	150 x 1	125 x 2	150 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1986	5202
2638B		2660	4300	3855	4915	3.7	2180		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	1992	5208
2638C		2660	4300	3855	4915	5.5	2180		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2017	5233
2638D		2660	4300	3855	4915	7.5	2180		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2026	5242
2638E		2660	4300	3855	4915	11	2180		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2077	5293
2638F		2660	4300	3855	4915	15	2180		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2100	5316
2648A		2660	4300	4870	5930	2.2	2180	FRP	150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2339	5555
2648B		2660	4300	4870	5930	3.7	2180		150 x 1	125 x 2	200 x 1	50 x 1	50 x 1	25 x 1 25 x 1	2345	5561
2648C		2660	4300	4870	5930	5.5	2180		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2370	5586
2648D		2660	4300	4870	5930	7.5	2180		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2379	5595
2648E		2660	4300	4870	5930	11	2180		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2430	5646
2648F		2660	4300	4870	5930	15	2180		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2453	5669
3038C		3060	4450	3855	4915	5.5	2400	FRP	200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2265	5805
3038D		3060	4450	3855	4915	7.5	2400		200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2274	5814
3038E		3060	4450	3855	4915	11	2400		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2325	5865
3038F		3060	4450	3855	4915	15	2400		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2348	5888
3038G		3060	4450	3855	4915	18.5	2400		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2380	5920
3038H		3060	4450	3855	4915	22	2400		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2403	5943
3048C		3060	4450	4870	5930	5.5	2400	FRP	200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2641	6181
3048D		3060	4450	4870	5930	7.5	2400		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2650	6190
3048E		3060	4450	4870	5930	11	2400		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2701	6241
3048F		3060	4450	4870	5930	15	2400		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2724	6264
3048G		3060	4450	4870	5930	18.5	2400		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2756	6296
3048H		3060	4450	4870	5930	22	2400		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2779	6319
3438C		3460	4900	3855	5175	5.5	2750	ALUMINIUM	200 x 1	125 x 2	200 x 1	50 x 1	50 x 1	40 x 1 40 x 1	2719	6763
3438D		3460	4900	3855	5175	7.5	2750		200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2728	6772
3438E		3460	4900	3855	5175	11	2750		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2779	6823
3438F		3460	4900	3855	5175	15	2750		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2802	6846
3438G		3460	4900	3855	5175	18.5	2750		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2834	6878
3438H		3460	4900	3855	5175	22	2750		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	2857	6901

TECHNICAL DATA FOR MK SERIES

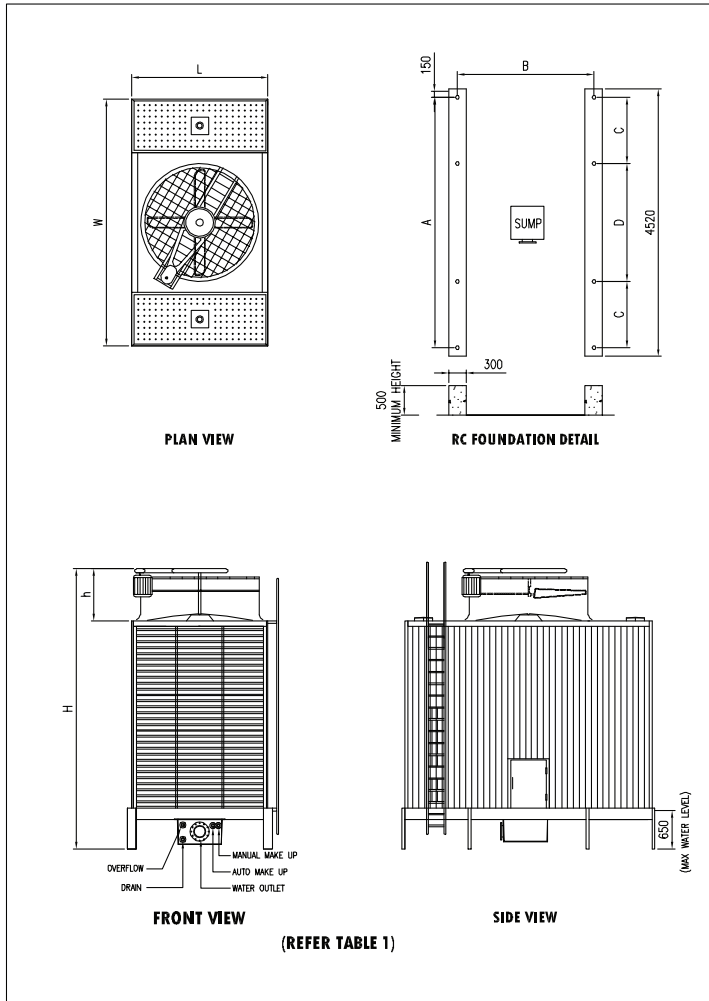


MODEL	TOWER DIMENSION (mm)				MOTOR	FAN DIAMETER		PIPING INFORMATION (mm)						WEIGHT (KG)	
	MK	L	W	h	H	F (mm)	MATERIAL	INTERNAL PIPING	EXTERNAL PIPING	OUTLET	DRAIN	OVER FLOW	MAKE UP AUTO MANUAL	DRY WEIGHT	OPERATING WEIGHT
3448C		3460	4900	4870	6190	2750	ALUMINIUM	200 x 1	125 x 2	200 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3120	7164
3448D		3460	4900	4870	6190	2750		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3129	7173
3448E		3460	4900	4870	6190	2750		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3180	7224
3448F		3460	4900	4870	6190	2750		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3203	7247
3448G		3460	4900	4870	6190	2750		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3235	7279
3448H		3460	4900	4870	6190	2750	ALUMINIUM	250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3258	7302
3448I		3460	4900	4870	6190	2750		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3345	7389
3838D		3860	5350	3855	5150	3050		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3186	8084
3838E		3860	5350	3855	5150	3050		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3237	8135
3838F		3860	5350	3855	5150	3050		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3260	8158
3838G		3860	5350	3855	5150	3050	ALUMINIUM	250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3292	8190
3838H		3860	5350	3855	5150	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3315	8213
3838I		3860	5350	3855	5150	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3402	8300
3838J		3860	5350	3855	5150	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3455	8353
3848D		3860	5350	4870	6165	3050		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3386	8484
3848E		3860	5350	4870	6165	3050	ALUMINIUM	250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3437	8535
3848F		3860	5350	4870	6165	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3460	8558
3848G		3860	5350	4870	6165	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3492	8590
3848H		3860	5350	4870	6165	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3515	8613
3848I		3860	5350	4870	6165	3050		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3602	8700
3848J		3860	5350	4870	6165	3050	ALUMINIUM	250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3655	8753
4238D		4260	5650	3855	5190	3350		200 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3688	8798
4238E		4260	5650	3855	5190	3350		250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3739	8849
4238F		4260	5650	3855	5190	3350		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3762	8872
4238G		4260	5650	3855	5190	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3794	8904
4238H		4260	5650	3855	5190	3350	ALUMINIUM	250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3817	8927
4238I		4260	5650	3855	5190	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3904	9014
4238J		4260	5650	3855	5190	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3957	9067
4238K		4260	5650	3855	5190	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	3981	9091
4238L		4260	5650	3855	5190	3350		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4109	9219

TECHNICAL DATA FOR MK SERIES



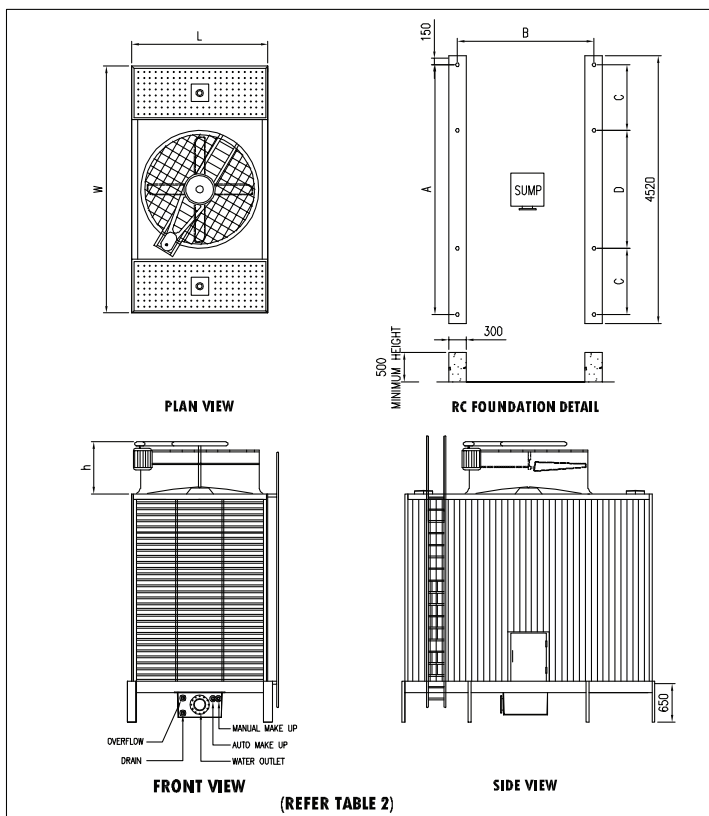
MODEL	TOWER DIMENSION (mm)				MOTOR	FAN DIAMETER		PIPING INFORMATION (mm)							WEIGHT (KG)	
	MK	L	W	h	H	kW	F (mm)	MATERIAL	INTERNAL PIPING	EXTERNAL PIPING	OUTLET	DRAIN	OVER FLOW	MAKE UP AUTO MANUAL	DRY WEIGHT	OPERATING WEIGHT
4248D		4260	5650	4870	6205	7.5	3350	ALUMINIUM	250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4136	9246
4248E		4260	5650	4870	6205	11	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4187	9297
4248F		4260	5650	4870	6205	15	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4210	9320
4248G		4260	5650	4870	6205	18.5	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4242	9352
4248H		4260	5650	4870	6205	22	3350		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4265	9375
4248I		4260	5650	4870	6205	30	3350	ALUMINIUM	250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4352	9462
4248J		4260	5650	4870	6205	37	3350		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4405	9515
4248K		4260	5650	4870	6205	45	3350		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4429	9539
4248L		4260	5650	4870	6205	55	3350		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4557	9667
4638D		4660	6100	3855	5205	7.5	3650	ALUMINIUM	250 x 1	125 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4732	10800
4638E		4660	6100	3855	5205	11	3650		250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4783	10851
4638F		4660	6100	3855	5205	15	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4806	10874
4638G		4660	6100	3855	5205	18.5	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4838	10906
4638H		4660	6100	3855	5205	22	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4861	10929
4638I		4660	6100	3855	5205	30	3650	ALUMINIUM	250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4948	11016
4638J		4660	6100	3855	5205	37	3650		250 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	5001	11069
4638K		4660	6100	3855	5205	45	3650		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	5025	11093
4638L		4660	6100	3855	5205	55	3650		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	5153	11221
4648D		4660	6100	4870	6220	7.5	3650	ALUMINIUM	250 x 1	150 x 2	250 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4694	10758
4648E		4660	6100	4870	6220	11	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4745	10809
4648F		4660	6100	4870	6220	15	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4768	10832
4648G		4660	6100	4870	6220	18.5	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4800	10864
4648H		4660	6100	4870	6220	22	3650		250 x 1	150 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4823	10887
4648I		4660	6100	4870	6220	30	3650	ALUMINIUM	300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4910	10974
4648J		4660	6100	4870	6220	37	3650		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4963	11027
4648K		4660	6100	4870	6220	45	3650		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	4987	11051
4648L		4660	6100	4870	6220	55	3650		300 x 1	200 x 2	300 x 1	50 x 1	80 x 1	50 x 1 50 x 1	5115	11179



NOTE : ALL DIMENSION IN MM

MODEL	TOWER DIMENSION				CONCRETE PLINTH DETAILS				
	L	W	H	h1	A	B	C	D	E
MK1928A-1B	1960	3845	3765	925	3895	1960	1222	1451	-
MK1928B-1B									
MK1928C-1B									
MK1928D-1B									
MK1928E-1B									
MK1928F-1B	1960	3845	4780	925	3895	1960	1222	1451	-
MK1938A-1B									
MK1938B-1B									
MK1938C-1B									
MK1938D-1B									
MK2328A-1B	2300	4170	3720	880	4220	2300	1115	1990	-
MK2328B-1B									
MK2328C-1B									
MK2328D-1B									
MK2328E-1B									
MK2328F-1B	2300	4170	4735	880	4220	2300	1115	1990	-
MK2338A-1B									
MK2338B-1B									
MK2338C-1B									
MK2338D-1B									
MK2338E-1B	2300	4170	5750	880	4220	2300	1115	1990	-
MK2338F-1B									
MK2348A-1B									
MK2348B-1B									
MK2348C-1B									
MK2348D-1B	2660	4300	4915	1060	4350	2660	1115	2120	-
MK2348E-1B									
MK2348F-1B									
MK2638A-1B									
MK2638B-1B									
MK2638C-1B	2660	4300	5930	1060	4350	2660	1115	2120	-
MK2638D-1B									
MK2638E-1B									
MK2638F-1B									
MK2648A-1B									
MK2648B-1B	2660	4300	5930	1060	4350	2660	1115	2120	-
MK2648C-1B									
MK2648D-1B									
MK2648E-1B									
MK2648F-1B									

TABLE 1

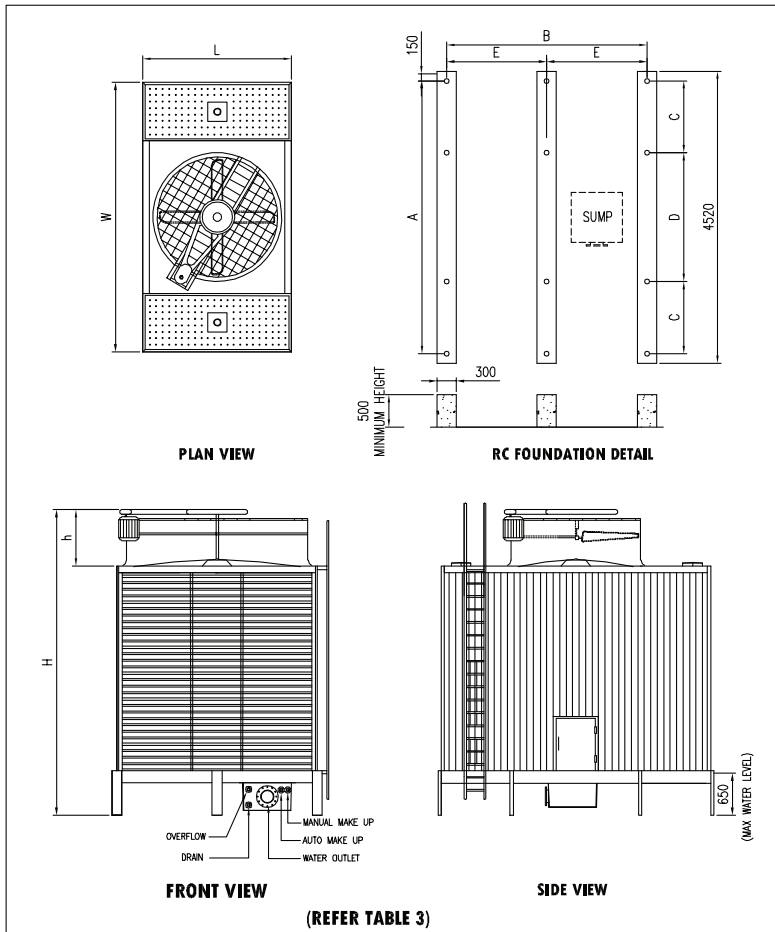


NOTE : ALL DIMENSION IN MM

MODEL	TOWER DIMENSION				CONCRETE PLINTH DETAILS				
	L	W	H	h1	A	B	C	D	E
MK3038C-1B	3060	4450	4915	1060	4500	3060	1115	2270	-
MK3038D-1B									
MK3038E-1B									
MK3038F-1B									
MK3038G-1B									
MK3038H-1B	3060	4450	5930	1060	4500	3060	1115	2270	-
MK3048C-1B									
MK3048D-1B									
MK3048E-1B									
MK3048F-1B									
MK3048G-1B	3060	4450	5930	1060	4500	3060	1115	2270	-
MK3048H-1B									

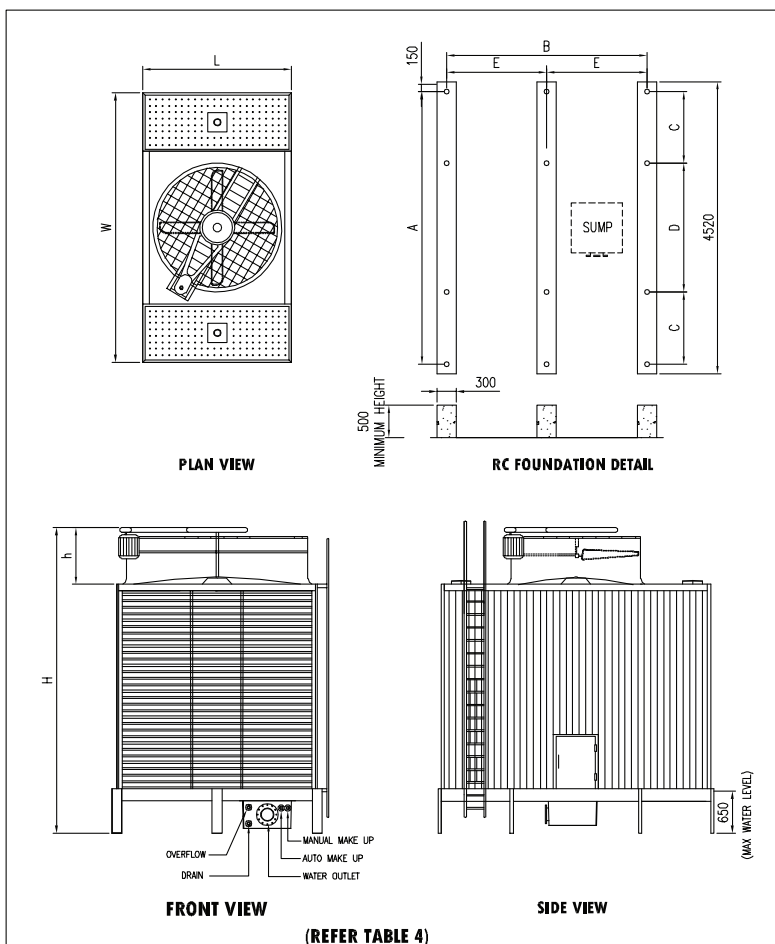
TABLE 2

NOTE : ALL DIMENSION IN MM



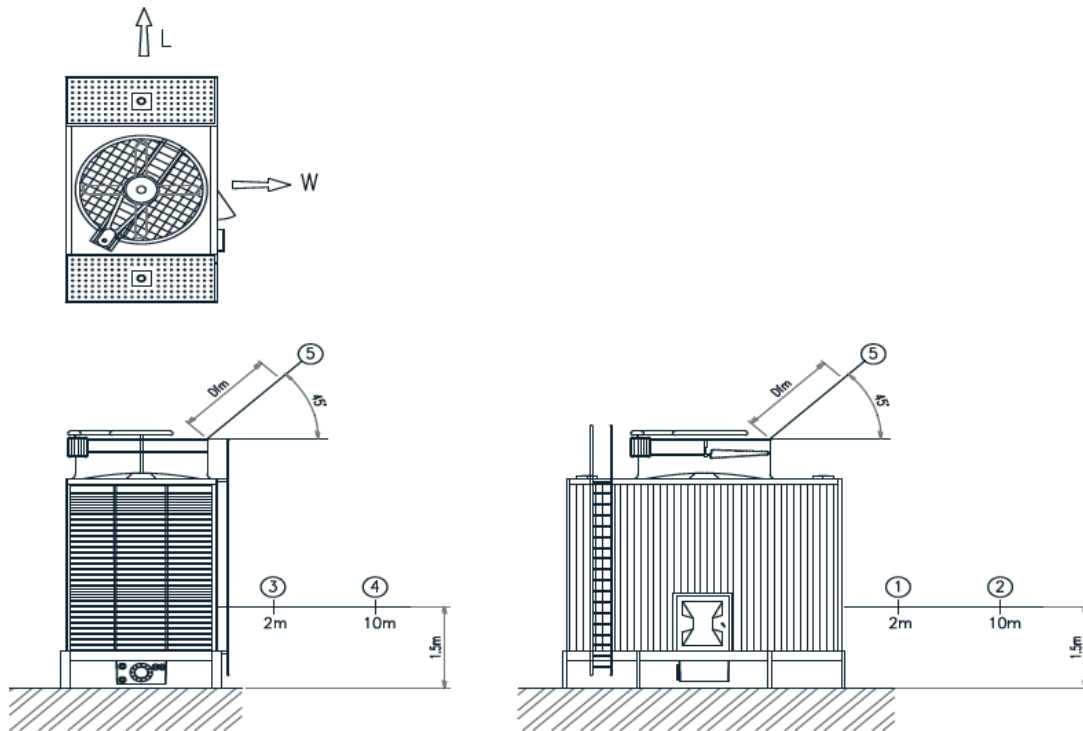
MODEL	TOWER DIMENSION				CONCRETE PLINTH DETAILS				
	L	W	H	h1	A	B	C	D	E
MK3438C-1B	3460	4900	5175	1320	4950	3460	1500	1950	1730
MK3438D-1B									
MK3438E-1B									
MK3438F-1B									
MK3438G-1B									
MK3438H-1B	3460	4900	6190	1320	4950	3460	1500	1950	1730
MK3448C-1B									
MK3448D-1B									
MK3448E-1B									
MK3448F-1B									
MK3838D-1B	3860	5350	5150	1295	5400	3860	1500	2400	1930
MK3838E-1B									
MK3838F-1B									
MK3838G-1B									
MK3838H-1B									
MK3848D-1B	3860	5350	6165	1295	5400	3860	1500	2400	1930
MK3848E-1B									
MK3848F-1B									
MK3848G-1B									
MK3848H-1B									

TABLE 3



MODEL	TOWER DIMENSION				CONCRETE PLINTH DETAILS				
	L	W	H	h1	A	B	C	D	E
MK4238D-1B	4260	5650	5190	1335	5700	4260	1500	2700	2130
MK4238E-1B									
MK4238F-1B									
MK4238G-1B									
MK4238H-1B									
MK4248D-1B	4260	5650	6205	1335	5700	4260	1500	2700	2130
MK4248E-1B									
MK4248F-1B									
MK4248G-1B									
MK4248H-1B									
MK4638D-1B	4660	6100	5205	1350	6150	4660	1500	3150	2330
MK4638E-1B									
MK4638F-1B									
MK4638G-1B									
MK4638H-1B									
MK4648D-1B	4660	6100	6220	1350	6150	4660	1500	3150	2330
MK4648E-1B									
MK4648F-1B									
MK4648G-1B									
MK4648H-1B									

TABLE 4



TOWEL MODEL	Louver (L) dB(A)		Panel (W) dB(A)		FAN (Dfm) (45°) dB(A)	TOWEL MODEL	Louver (L) dB(A)		Panel (W) dB(A)		FAN (Dfm) (45°) dB(A)
	①	②	③	④	⑤		①	②	③	④	⑤
MK						MK					
1928A	64.50	50.52	61.00	47.02	69.50	2638A	66.50	52.52	63.00	49.02	71.50
1928B	65.00	51.02	61.50	47.52	69.50	2638B	67.00	53.02	63.50	49.52	72.00
1928C	65.00	51.02	61.50	47.52	70.50	2638C	68.00	54.02	64.50	50.52	72.00
1928D	65.50	51.52	62.00	48.02	71.50	2638D	68.50	54.52	65.00	51.02	72.00
1928E	66.00	52.02	62.50	48.52	71.50	2638E	69.00	55.02	65.50	51.52	72.50
1928F	66.50	52.52	63.00	49.02	72.00	2638F	69.50	55.52	66.00	52.02	73.00
1938A	65.00	51.02	61.50	47.52	69.50	2648A	67.00	53.02	63.50	49.52	72.00
1938B	65.50	51.52	62.00	48.02	69.50	2648B	67.50	53.52	64.00	50.02	72.00
1938C	65.50	51.52	62.00	48.02	70.50	2648C	68.00	54.02	64.50	50.52	72.00
1938D	66.00	52.02	62.50	48.52	71.50	2648D	68.50	54.52	65.00	51.02	73.00
1938E	66.50	52.52	63.00	49.02	71.50	2648E	69.50	55.52	66.00	52.02	74.00
1938F	67.50	53.52	64.00	50.02	72.00	2648F	70.00	56.02	66.50	52.52	75.00
2328A	65.00	51.02	61.50	47.52	70.00	3038C	68.00	54.02	64.50	50.52	72.00
2328B	65.50	51.52	62.00	48.02	70.00	3038D	68.50	54.52	65.00	51.02	73.00
2328C	65.50	51.52	62.00	48.02	71.00	3038E	69.50	55.52	66.00	52.02	74.00
2328D	66.00	52.02	62.50	48.52	72.00	3038F	70.00	56.02	66.50	52.52	75.00
2328E	66.50	52.52	63.00	49.02	72.00	3038G	70.50	56.52	67.00	53.02	75.50
2328F	67.00	53.02	63.50	49.52	72.50	3038H	71.50	57.52	68.00	54.02	76.00
2338A	65.50	51.52	62.00	48.02	70.00	3048C	70.00	56.02	66.50	52.52	73.50
2338B	66.00	52.02	62.50	48.52	70.00	3048D	70.50	56.52	67.00	53.02	75.00
2338C	66.00	52.02	62.50	48.52	71.00	3048E	71.50	57.52	68.00	54.02	76.00
2338D	66.50	52.52	63.00	49.02	72.00	3048F	72.50	58.52	69.00	55.02	76.50
2338E	67.00	53.02	63.50	49.52	72.00	3048G	73.00	59.02	69.50	55.52	77.50
2338F	68.00	54.02	64.50	50.52	72.50	3048H	74.00	60.02	70.50	56.52	78.50
2348A	66.00	52.02	62.50	48.52	70.00	3438C	70.00	56.02	66.50	52.52	73.50
2348B	66.50	52.52	63.00	49.02	70.00	3438D	70.50	56.52	67.00	53.02	75.00
2348C	67.50	53.52	64.00	50.02	71.00	3438E	71.00	57.02	67.50	53.52	76.00
2348D	68.00	54.02	64.50	50.52	72.00	3438F	72.00	58.02	68.50	54.52	76.50
2348E	68.50	54.52	65.00	51.02	72.00	3438G	73.00	59.02	69.50	55.52	77.50
2348F	69.00	55.02	65.50	51.52	72.50	3438H	73.50	59.52	70.00	56.02	78.50

MK SERIES NOISE DATA



TOWEL MODEL	Louver (L) dB(A)		Panel (W) dB(A)		FAN (Dfm) (45°) dB(A)	TOWEL MODEL	Louver (L) dB(A)		Panel (W) dB(A)		FAN (Dfm) (45°) dB(A)
MK	①	②	③	④	⑤	MK	①	②	③	④	⑤
3448C	70.50	56.52	67.00	53.02	75.00	4238L	78.00	64.02	74.50	60.52	81.00
3448D	71.00	57.02	67.50	53.52	76.00	4248D	72.00	58.02	68.50	54.52	76.50
3448E	72.00	58.02	68.50	54.52	76.50	4248E	72.50	58.52	69.00	55.02	77.00
3448F	73.00	59.02	69.50	55.52	77.50	4248F	73.50	59.52	70.00	56.02	78.00
3448G	73.50	59.52	70.00	56.02	78.00	4248G	75.00	61.02	71.50	57.52	78.50
3448H	74.00	60.02	70.50	56.52	78.50	4248H	76.50	62.52	73.00	59.02	79.00
3448I	75.00	61.02	71.50	57.52	79.50	4248I	77.00	63.02	73.50	59.52	79.50
3838D	71.00	57.02	67.50	53.52	76.00	4248J	77.50	63.52	74.00	60.02	80.00
3838E	72.00	58.02	68.50	54.52	76.50	4248K	78.00	64.02	74.50	60.52	81.00
3838F	73.00	59.02	69.50	55.52	77.50	4248L	79.00	65.02	75.50	61.52	81.50
3838G	73.50	59.52	70.00	56.02	78.50	4638D	72.00	58.02	68.50	54.52	77.00
3838H	74.00	60.02	70.50	56.52	79.00	4638E	72.50	58.52	69.00	55.02	77.50
3838I	75.00	61.02	71.50	57.52	79.50	4638F	73.50	59.52	70.00	56.02	78.00
3838J	75.50	61.52	72.00	58.02	80.00	4638G	75.00	61.02	71.50	57.52	78.50
3848D	71.50	57.52	68.00	54.02	76.00	4638H	76.50	62.52	73.00	59.02	79.00
3848E	72.00	58.02	68.50	54.52	76.50	4638I	77.00	63.02	73.50	59.52	79.50
3848F	73.00	59.02	69.50	55.52	77.00	4638J	77.50	63.52	74.00	60.02	80.00
3848G	74.00	60.02	70.50	56.52	78.00	4638K	78.00	64.02	74.50	60.52	81.00
3848H	75.00	61.02	71.50	57.52	78.50	4638L	79.00	65.02	75.50	61.52	82.00
3848I	75.50	61.52	72.00	58.02	79.00	4648D	73.00	59.02	69.50	55.52	77.50
3848J	76.00	62.02	72.50	58.52	79.50	4648E	73.50	59.52	70.00	56.02	78.00
4238D	71.50	57.52	68.00	54.02	76.00	4648F	74.50	60.52	71.00	57.02	78.50
4238E	72.00	58.02	68.50	54.52	76.50	4648G	75.50	61.52	72.00	58.02	79.00
4238F	73.00	59.02	69.50	55.52	77.00	4648H	77.00	63.02	73.50	59.52	79.50
4238G	74.00	60.02	70.50	56.52	78.00	4648I	77.50	63.52	74.00	60.02	80.00
4238H	75.00	61.02	71.50	57.52	78.50	4648J	78.50	64.52	75.00	61.02	81.00
4238I	75.50	61.52	72.00	58.02	79.00	4648K	79.00	65.02	75.50	61.52	82.00
4238J	76.00	62.02	72.50	58.52	79.50	4648L	80.00	66.02	76.50	62.52	82.50
4238K	77.00	63.02	73.50	59.52	80.00						

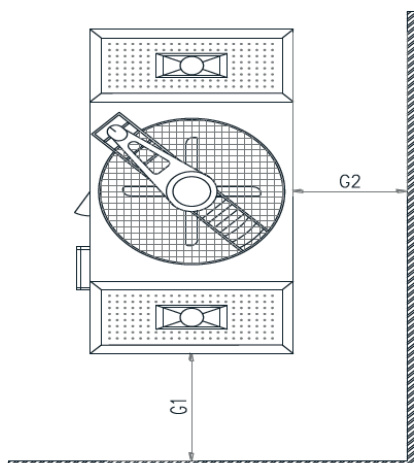


FIGURE : 1

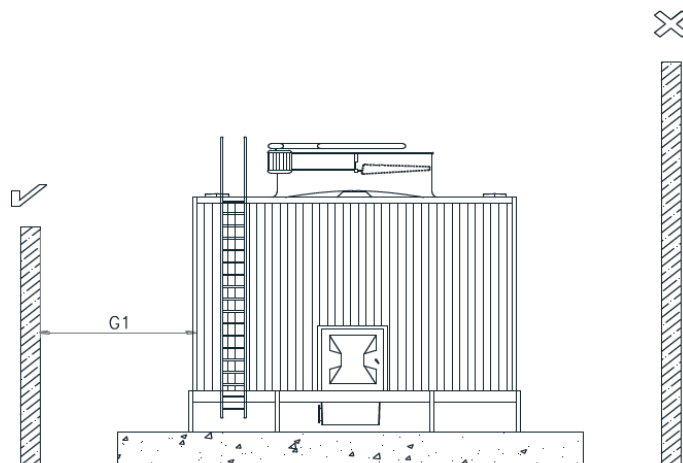


FIGURE : 2

Refer Table 1, for the distance recommended if cooling tower is located near to a wall.

Tower Model MK Series	Recommended Distance (mm)	
	G1 (Air Intake)	G2 (For Maintenance Access)
1928A-2648F	2000-2500	1000
3038C-3448I	2500-3000	1000
3838D-3848J	3500-4000	1000
4238D-4648L	4500-5000	1000

Table 1 : Distance Cooling Tower to Wall

Based on Figure 2, the wall near to the cooling tower is always recommended to be lower than cooling tower. This is to prevent discharge air from cooling tower to recirculate, as this will effect the cooling tower's performance.

It is always preferred that, if the wall is louvered wall, that there should be a 70% net free area and the louver height should not be higher than cooling tower.

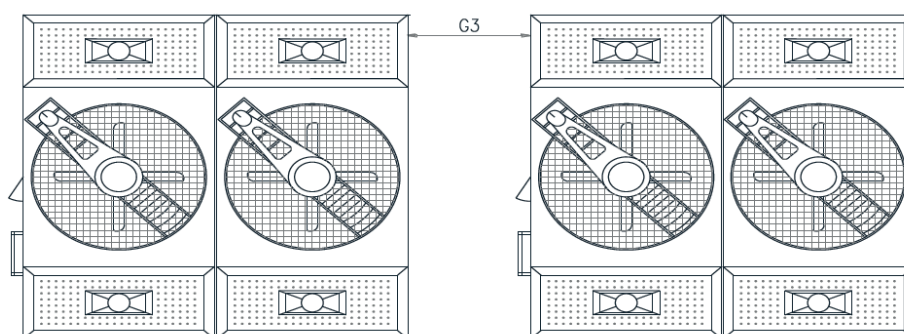


FIGURE 3

Tower Model MK Series	Recommended Distance (mm)
	G3
All Models	1000

Table 2 : Distance Cooling In Series Arrangement

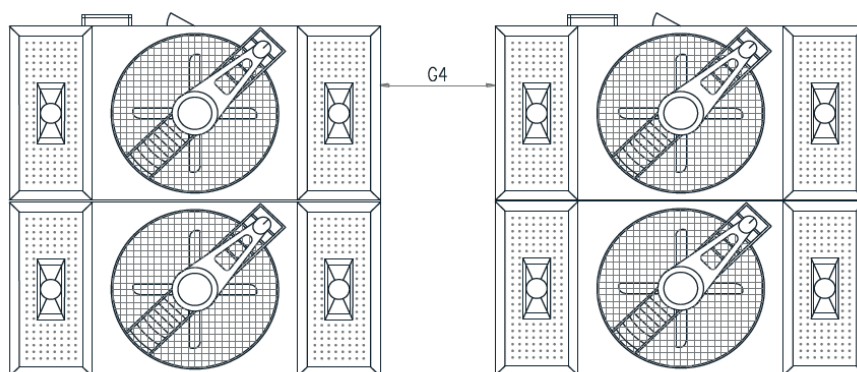


FIGURE 4

Tower Model MK Series	Recommended Distance (mm)	
	G4	
1928A-2648F	3000-3500	
3038C-3448I	4000-4500	
3838D-4648L	5000-5500	

Table 3 : Distance Cooling In Parallel Arrangement

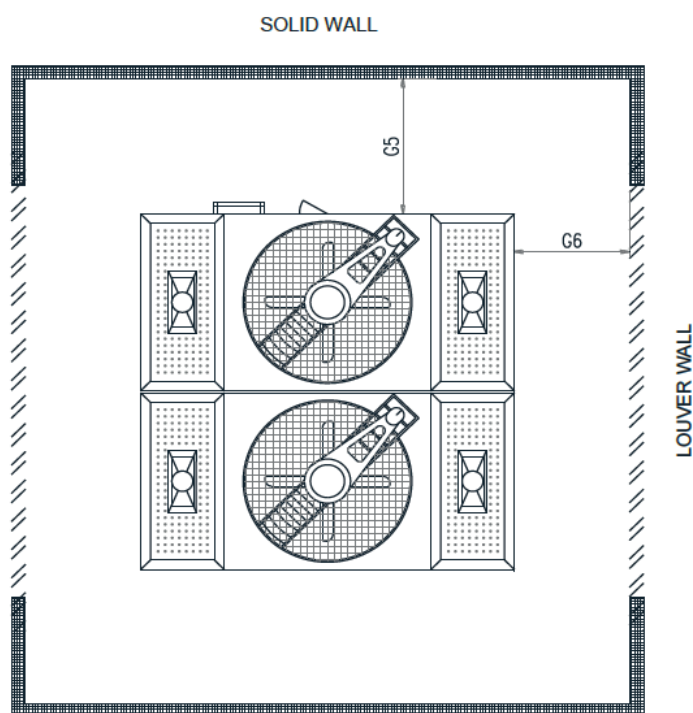


FIGURE 5

Tower Model MK Series	Recommended Distance (mm)	
	G5 (Panels Side)	G6 (Louver Side)
1928A-2648F	1000	1500-2000
3038C-3448I	1000	2000
3838D-4648L	1000	2500

Table 4 : Distance Cooling Between Solid Wall & Louver Wall



GEAR REDUCER

In addition to using V belt, right angle reduction gears are used for stringer application that requires no down time due to wear and tear. This type of option gives the building owner the convenience of planning the down time for planned maintenance. Design features and ratings are in accordance with the minimum requirements of AGMA (American Gear Manufacturers Association) and CTI (Cooling Technology Institute) standards.



HIGH EFFICIENCY MOTOR

Our high efficiency motor are rated to Eff2 or IE1 (standard) , Eff1 and IE2 (high efficiency). We also offer latest IE3 (premium) standards as indicated by IEC 60034-30. The choice of efficiency is up the client's preferences. For usage with variable speed inverters, we recommend special modification to the motor is required in order to allow the motor to operate at low frequency.



HANDRAIL

The safety option is to ensure that working at elevated height of cooling tower is now complete with guard rail around the tower parameters. This option can be further enhanced with caged ladder which is an added feature as well.



DISCHARGE HOOD

This option gives alternative diversion of hot air discharge from the fan stack to other direction deem more suitable. It is made from Fibreglass Reinforced Polyester (FRP) which is the same material as the fan stack. The most popular discharge angle is 45°.

1. Evaporating Loss (E) kg/h

The evaporating quantity may be calculated by the equation below:

$$E = \frac{Q}{600} = \frac{(T_1 - T_2) \times WF \times C}{600}$$

Where WE : Evaporating Quantity kg/h
Q : Heat of Cooling Kcal/h
600 : Latent Heat of Water Kcal/kg °C
T₁ : Intake Water Temperature °C
T₂ : Discharge water Temperature °C
WF : Circulating Water Flow kg/h
C : Specific Heat of Water 1 Kcal/kg °C

2. Drift Loss (D) kg/h

The drift loss (D) depend on the type of cooling tower and drift eliminators used. Due to the air flow at a certain speed created by the fan, some water droplets are carried away with the air, this is called carry-over loss.

There are many factors affecting the figure and this generally at a low level, approximately 0.005% of the normal circulating water quantity.

3. Blowdown Quantity (B) kg/h

The blow-down (B) can be carried out in any of the following methods

- (1) The drain valve is kept slightly open during the run.
- (2) Maintain the operating water level higher to create slight overflow
- (3) The whole basin water is replenished with fresh water during shut down for cleaning

The required level of blowdown varies depending on the water quantity or the extent of concentrations, but is generally believed to be about 0.2% to 0.4 % for air conditioning applications.

4. Replenishing Water Flow rate (R) kg/h

$$R = E + D + B$$

Eg: Evaporation loss : E = 0.98%
Drift loss : D = 0.005%
Blow-down : B = 0.4%

Therefore, the make-up water required is approximately
= 0.98% + 0.005% + 0.4%
= 1.385%

Hence, considering safety margin, a make up of 2% of the circulating water flow rate is sufficient.



COOLING TECHNOLOGY INSTITUTE

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February 24, 2020
(Revision 1)

Genius Cooling Towers Sdn Bhd
N. 35-2,35-3, Jalan Puteri 4/1,
Bandar Puteri, 47100 Puchong,
Selangor, Malaysia

Subject: CTI Cooling Tower Certification for the
Genius Cooling Towers
Line of MK Series Cooling Towers

Greetings:

The Genius Cooling Towers Sdn Bhd (Genius), line of MK Series induced-draft, cross-flow, cooling towers, as described in your original application and subsequent revisions and clarifications through January 17, 2020, has satisfactorily fulfilled the requirements for certification of thermal performance by the Cooling Technology Institute (CTI), as set forth in the CTI Certification Standard STD-201(19). A listing of the one-hundred-seventeen (117) primary single-cell models of the MK Series line of cooling towers presently encompassed by this certification is included with this letter for reference.

The Genius line of MK Series cooling towers has been assigned and should use CTI Certification Validation Number C67C-18R01. You are hereby authorized and encouraged to display the CTI Certification Logo in all pertinent literature and are required to affix the CTI Certification Label on all towers comprising the line, as provided in the Certification Standard.

This CTI Certification requires the successful completion of a CTI Annual Reverification Test on a different model each year to remain in effect in the subsequent year.

Very truly yours,

Michael G. Womack, PE
CTI Thermal Certification Administrator



COOLING TECHNOLOGY INSTITUTE

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Genius Cooling Towers Sdn Bhd (Genius)
MK Series Line of CTI Certified Cooling Towers
CTI Certification Validation Number C67C-18R01
February 24, 2020 (Revision 1)

MK1928A	MK2638A	MK3448C	MK4248D
MK1928B	MK2638B	MK3448D	MK4248E
MK1928C	MK2638C	MK3448E	MK4248F
MK1928D	MK2638D	MK3448F	MK4248G
MK1928E	MK2638E	MK3448G	MK4248H
MK1928F	MK2638F	MK3448H	MK4248I
		MK3448I	MK4248J
MK1938A	MK2648A		MK4248K
MK1938B	MK2648B	MK3838D	MK4248L
MK1938C	MK2648C	MK3838E	
MK1938D	MK2648D	MK3838F	MK4638D
MK1938E	MK2648E	MK3838G	MK4638E
MK1938F	MK2648F	MK3838H	MK4638F
		MK3838I	MK4638G
		MK3838J	MK4638H
MK2328A	MK3038C		MK4638I
MK2328B	MK3038D		MK4638J
MK2328C	MK3038E	MK3848D	MK4638K
MK2328D	MK3038F	MK3848E	MK4638L
MK2328E	MK3038G	MK3848F	
MK2328F	MK3038H	MK3848G	
		MK3848H	MK4648D
MK2338A	MK3048C	MK3848I	MK4648E
MK2338B	MK3048D	MK3848J	MK4648F
MK2338C	MK3048E		MK4648G
MK2338D	MK3048F	MK4238D	MK4648H
MK2338E	MK3048G	MK4238E	MK4648I
MK2338F	MK3048H	MK4238F	MK4648J
		MK4238G	MK4648K
		MK4238H	MK4648L
MK2348A	MK3438C		
MK2348B	MK3438D	MK4238I	
MK2348C	MK3438E	MK4238J	
MK2348D	MK3438F	MK4238K	
MK2348E	MK3438G	MK4238L	
MK2348F	MK3438H		

See Footnotes, Last Page



COOLING TECHNOLOGY INSTITUTE

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Genius Cooling Towers Sdn Bhd (Genius)
MK Series Line of CTI Certified Cooling Towers
CTI Certification Validation Number C67C-18R01
February 24, 2020 (Revision 1)

Footnotes:

1. Certification includes optional structural materials:
 - Hot Dipped Galvanized Steel Structure (Standard)
 - Stainless Steel Structure
 - Pultruded FRP Structure
 - Timber structure
2. Certification includes alternate Drive Configurations:
 - Belt and Pulley Drive (Standard)
 - Gear-Reducer Drive
3. Certification includes alternate water inlet configuration :-
 - External Inlet Piping
 - Internal Inlet Piping
4. Certification also includes additional items :-
 - Handrail & Cage Ladder
 - Discharge Hood (Straight or Elbow type)
5. Certification does not include Modified (model with suffix M) Cooling Tower that will affect the thermal performance.
6. Certification includes standard low noise fan configuration (no suffix) and optional super low noise fan configuration (suffix S).
7. Multiple cell configuration of a single cell models above are also available but not listed individually. Multi-cell configurations are end-wall to end-wall arrangement of the single cell design which do not impact the air flow rate or capacity of the individual cells, and are included in the certification.
8. Certified Model Number Example: MK 2338D – 2BS

Where,

- MK = Product Line for Cross-Flow Cooling Tower
- 2338 = Nominal Box Size
- D = Nominal Motor Size
- 2 = 1-Cell Configuration (Twice the capacity of the base value)
- B = Belt & Pulley / G = Gear Reducer Drive
- S = Suffix Entry
- I - Internal Piping
- M - Modification (non certified)
- S – Super Low Noise



The Ultimate Cooling Machine

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