

GENIUS™

The Ultimate Cooling Machine



GPC SERIES CROSSFLOW FRP COOLING TOWER



• DURABLE • ENERGY & SPACE SAVING

COMPLETED PROJECTS



MYDIN SENAWANG



BANK NEGARA TERENGGANU



HOTEL ISTANA



VINHOMES GOLDEN RIVER, VIETNAM



CROWNE PLAZA VIENTIANE COMPLEX HOTEL, VIETNAM



KOSSAN RUBBER INDUSTRIES BHD



MENARA AMBANK



IMPERIAL HOTEL AND PERMAISURI
IMPERIAL CITY MALL MIRI



UMW AEROSPACE



VELODROM NASIONAL, NILAI



DUTCH LADY, PETALING JAYA



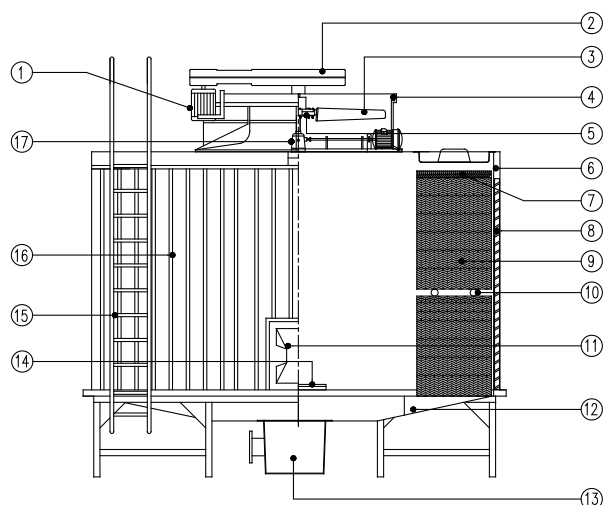
JABATAN KIMIA PENANG



MEMC, IPOH



MAHKAMAH KUANTAN



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	MAIN FRAME STRUCTURE	HOT DIPPED GALVANIZED STEEL
7	DISTRIBUTION PACK	PVC
8	INLET LOUVER	PVC
9	HIGH PERFORMANT FILM FILL PACK	PVC
10	FILL SUPPORT	HOT DIPPED GALVANIZED STEEL
11	ACCESS DOOR	FRP
12	SLOPE COLD WATER BASIN	FRP
13	COLD WATER BASIN SUMP	FRP
14	INTERNAL WALKWAY	HOT DIPPED GALVANIZED STEEL
15	LADDER	HOT DIPPED GALVANIZED STEEL
16	CASING PANEL	FRP
17	GEAR REDUCER SYSTEM	OPTIONAL

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 as 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.

1. Evaporating Loss (E) kg/h

The evaporating quantity may be calculated by the equation below:

$$E = \frac{Q}{600} = \frac{(T1-T2)}{600} \times WF \times C$$

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.

TECHNICAL DATA FOR GPC SERIES



TECHNICAL DATA - LOW NOISE

Model	1 Cell			2 Cells			3 Cells			4 Cells							
	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC					
Capacity	100	125	150	175	200	225	250	300	350	400	450	500	600	700	800	900	1000
Cooling Capacity	100	125	150	175	200	225	250	300	350	400	450	500	600	700	800	900	1000
Heat Rejections	390,000	487,500	585,000	682,500	780,000	877,500	975,000	1,170,000	1,365,000	1,560,000	1,750,000	1,950,000	2,340,000	2,725,575	2,925,000	3,510,000	3,900,000
Water Flow Rate	78	98	117	137	156	175	195	234	274	312	350	390	468	545	585	700	780
Hot Water Temp.	37																
Cold Water Temp.	32																
Wet Bulb Temp.	27																
Width (W)	3300	3700	3700	3700	4000	4400	4400	4400	4400	4000	4400	4400	4400	4400	4000	4400	4400
Length (L)	1910	1910	1910	1910	2110	2505	2505	3820	3820	4220	5010	5010	6330	7515	7515	8440	10020
Total Height	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720
Casing	FRP																
Framework	Hot-Dip Galvanized Steel																
Fill	PVC																
Water Sump	FRP																
Distribution Basin	FRP																
Cold Water Basin	FRP																
Fan Assembly	FRP																
Fan Cylinder	FRP																
Type	Axial Flow																
Diameter x Qty	1500 x 1	1500 x 1	1500 x 1	1700 x 1	2000 x 1	2000 x 1	2000 x 1	1500 x 2	1500 x 2	1700 x 2	2000 x 2	2000 x 2	1700 x 3	2000 x 3	2000 x 3	1700 x 4	2000 x 4
Number of Blades	4																
Fan Speed	490	490	490	575	510	380	425	490	575	510	380	425	510	380	425	510	380
Drive System	V-Belt and Pulley																
Type	TEFC / 4 poles																
Power Source	415V/3Ph/50Hz																
Rated Output x Qty	2.2 x 1	3.7 x 1	3.7 x 1	5.5 x 1	5.5 x 1	5.5 x 1	7.5 x 1	3.7 x 2	5.5 x 2	5.5 x 2	5.5 x 2	7.5 x 2	5.5 x 3	5.5 x 3	7.5 x 3	5.5 x 4	7.5 x 4
Distribution System	Open Gravity Type Flow																
Inlet Pipe	100 x 2	100 x 2	100 x 2	125 x 2	125 x 2	125 x 2	125 x 2	100 x 4	100 x 4	125 x 4	125 x 4	125 x 4	125 x 6	125 x 6	125 x 6	125 x 8	125 x 8
Outlet Pipe	125 x 1	125 x 1	125 x 1	150 x 1	200 x 1	200 x 1	200 x 1	200 x 1	200 x 1	250 x 1	250 x 1	250 x 1	200 x 2	200 x 2	200 x 2	250 x 2	250 x 2
Drain pipe	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2
Overflow pipe	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2
Auto make up	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 2	40 x 2	40 x 2	40 x 2	50 x 2
Manual make up	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 2	40 x 2	40 x 2	40 x 2	50 x 2
Evaporation loss	0.92																
Drift loss	0.02																
Dry weight	985	995	1250	1270	1300	1500	1550	2400	2430	2510	2900	2940	3800	4320	4330	5200	6200
Operating weight	2150	2160	2630	2680	2850	3720	3770	5100	5140	5600	6900	7200	8500	10900	11000	14500	14800

NOTE:
 1. The basic design condition of GPC series is based on hot water inlet 37°C, cold water outlet : 32°C, Ambient WB: 27°C, 13 l/min/HRT water flow rate.
 2. Manufacturer reserve the right to change the technical data for improvement of products without prior notice.
 3. The pump head requires is approximately the height of the cooling tower.

TECHNICAL DATA - COMPACT

Model	1 Cell		2 Cells		3 Cells		4 Cells		5 Cells		6 Cells							
	GPC 280C	GPC 300C	GPC 320C	GPC 560C	GPC 600C	GPC 640C	GPC 840C	GPC 900C	GPC 960C	GPC 1120C	GPC 1200C	GPC 1280C	GPC 1400C	GPC 1500C	GPC 1600C	GPC 1680C	GPC 1800C	GPC 1920C
Capacity	280	300	320	560	600	640	840	900	960	1120	1200	1280	1400	1500	1600	1680	1800	1920
Cooling Capacity	1,097,000	1,170,000	1,270,120	2,194,000	2,340,000	2,540,240	3,291,000	3,510,000	3,810,360	4,388,000	4,680,000	5,080,480	5,485,000	5,850,000	6,350,600	6,582,000	7,020,000	7,620,720
Heat Rejections	220	234	255	440	468	510	660	702	765	880	936	1020	1100	1170	1275	1320	1404	1530
Water Flow Rate	37																	
Hot Water Temp.	32																	
Cold Water Temp.	27																	
Wet Bulb Temp.	27																	
Width (W)	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400
Length (L)	2505	2505	2505	5010	5010	5010	7515	7515	7515	10020	10020	10020	12525	12525	12525	15030	15030	15030
Total Height	3720	4735	4735	3720	4735	4735	3720	4735	4735	3720	4735	4735	3720	4735	4735	3720	4735	4735
Casing	FRP																	
Framework	Hot-Dip Galvanized Steel																	
Fill	PVC																	
Water Sump	FRP																	
Distribution Basin	FRP																	
Cold Water Basin	FRP																	
Fan Assembly	FRP																	
Fan Cylinder	FRP																	
Type	Axial Flow																	
Diameter x Qty	2000 x 1	2000 x 1	2000 x 1	2000 x 2	2000 x 2	2000 x 2	2000 x 3	2000 x 3	2000 x 3	2000 x 4	2000 x 4	2000 x 4	2000 x 5	2000 x 5	2000 x 5	2000 x 6	2000 x 6	2000 x 6
Number of Blades	4																	
Fan Speed	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Drive System	V-Belt and Pulley																	
Type	TEFC / 4 poles																	
Power Source	415V/3Ph/50Hz																	
Rated Output x Qty	11 x 1	7.5 x 1	11 x 1	11 x 2	7.5 x 2	11 x 2	11 x 3	7.5 x 3	11 x 3	11 x 4	7.5 x 4	11 x 4	11 x 5	7.5 x 5	11 x 5	11 x 6	7.5 x 6	11 x 6
Distribution System	Open Gravity Type Flow																	
Inlet Pipe	165 x 2	165 x 2	165 x 2	165 x 4	165 x 4	165 x 4	165 x 6	165 x 6	165 x 6	165 x 8	165 x 8	165 x 8	165 x 10	165 x 10	165 x 10	165 x 12	165 x 12	165 x 12
Outlet Pipe	200 x 1	200 x 1	200 x 1	250 x 1	250 x 1	250 x 1	200 x 2	250 x 2	250 x 2	250 x 2	250 x 2	250 x 2	250 x 3	250 x 3	250 x 3	250 x 3	250 x 3	250 x 3
Drain pipe	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3
Overflow pipe	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3
Auto make up	40 x 1	40 x 1	40 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3
Manual make up	40 x 1	40 x 1	40 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3	50 x 3
Evaporation loss	0.92																	
Drift loss	0.02																	
Dry weight	1420	1750	1790	2600	3310	3350	3930	4870	4990	5120	6580	6620	6320	8099	8150	7630	9729	9780
Operating weight	3300	3660	3700	6100	7160	7200	9200	10380	10500	11980	13570	14720	14720	16769	16820	17650	20129	20180

NOTE :

1. The basic design condition of GPC series is based on hot water inlet 37°C, cold water outlet : 32°C, Ambient WB: 27°C, 13 l/min/HRT water flow rate.
2. Manufacturer reserve the right to change the technical data for improvement of products without prior notice.
3. The pump head requires is approximately the height of the cooling tower.

TECHNICAL DATA FOR GPC SERIES



TECHNICAL DATA - SUPER LOW NOISE

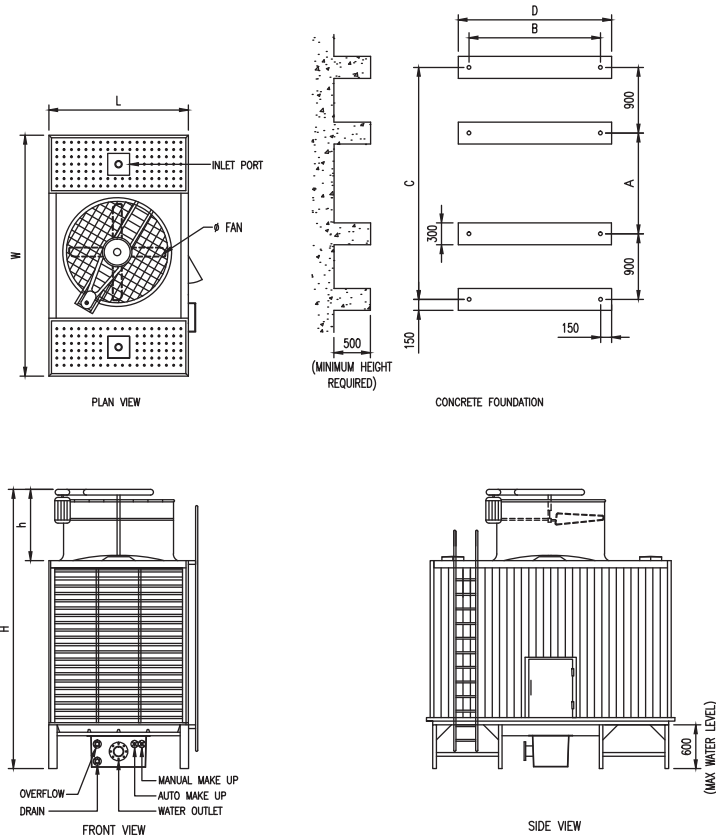
Model	1 Cell			2 Cells			3 Cells			4 Cells								
	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC	GPC						
Capacity	100S	125S	150S	175S	200S	225S	250S	300S	350S	400S	450S	500S	600S	700S	750S	800S	900S	1000S
Cooling Capacity	HRT	100	125	150	175	200	225	250	300	350	400	450	500	600	700	750	800	900
Heat Rejections	kcal/h	390,000	487,500	585,000	682,500	780,000	877,500	975,000	1,170,000	1,365,000	1,560,000	1,750,000	1,950,000	2,340,000	2,725,575	2,925,000	3,120,000	3,900,000
Water Flow Rate	m ³ /hr	78	98	117	137	156	175	195	234	274	312	350	390	468	545	585	624	780
Hot Water Temp.	°C	37																
Cold Water Temp.	°C	32																
Wet Bulb Temp.	°C	27																
Width (W)	mm	3300	3700	3700	3700	4000	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400
Length (L)	mm	1910	1910	1910	1910	2110	2505	2505	3820	3820	4220	5010	5010	6330	7515	7515	8440	10020
Total Height	mm	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720	3720
Casing		FRP																
Framework		Hot-Dip Galvanized Steel																
Fill		PVC																
Water Sump		FRP																
Distribution Basin		FRP																
Cold Water Basin		FRP																
Fan Assembly		Hub: Cast Aluminium Alloy, Blade: FRP																
Fan Cylinder		FRP																
Type		Axial Flow																
Diameter x Qty	mm	1500 x 1	1500 x 1	1500 x 1	1700 x 1	2000 x 1	2000 x 1	2000 x 1	1500 x 2	1500 x 2	1700 x 2	2000 x 2	2000 x 2	1700 x 3	2000 x 3	2000 x 3	1700 x 4	2000 x 4
Number of Blades		6																
Fan Speed	rpm	390	415	410	430	460	460	325	360	410	430	460	325	360	460	325	360	460
Drive System		V-Belt and Pulley																
Type		TEFC / 4 poles																
Power Source		415V/3Ph/50Hz																
Rated Output x Qty	kw	2.2 x 1	3.7 x 1	3.7 x 1	3.7 x 1	5.5 x 1	5.5 x 1	5.5 x 1	3.7 x 2	3.7 x 2	5.5 x 2	5.5 x 2	5.5 x 2	5.5 x 3	5.5 x 3	5.5 x 3	5.5 x 4	7.5 x 4
Distribution System		Open Gravity Type Flow																
Inlet Pipe	mm	100 x 2	100 x 2	100 x 2	100 x 2	125 x 2	125 x 2	125 x 2	100 x 4	100 x 4	125 x 4	125 x 4	125 x 4	125 x 6	125 x 6	125 x 6	125 x 8	125 x 8
Outlet Pipe	mm	125 x 1	125 x 1	125 x 1	150 x 1	200 x 1	200 x 1	200 x 1	200 x 1	200 x 1	250 x 1	250 x 1	250 x 1	200 x 2	200 x 2	200 x 2	250 x 2	250 x 2
Drain pipe	mm	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2
Overflow pipe	mm	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1	50 x 2	50 x 2	50 x 2	50 x 2	50 x 2
Auto make up	mm	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 2	40 x 2	40 x 2	40 x 2	50 x 2
Manual make up	mm	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 1	40 x 2	40 x 2	40 x 2	40 x 2	50 x 2
Evaporation loss	%	0.92																
Drift loss	%	0.02																
Dry weight	kg	985	995	2160	1250	1270	1300	1500	1550	2400	2430	2510	2900	3800	4320	4330	5200	6200
Operating weight	kg	2150	2160	2630	2680	2850	2850	3720	3770	5100	5140	5600	6900	8500	10900	11000	14400	14800

1. The basic design condition of GPC series is based on hot water inlet 37°C, cold water outlet : 32°C, Ambient WB: 27°C, 13 ℓ/min/HRT water flow rate.
2. Manufacturer reserve the right to change the technical data for improvement of products without prior notice.
3. The pump head requires is approximately the height of the cooling tower.

GPC SERIES PLINTH DETAILS



GPC - 1 CELL



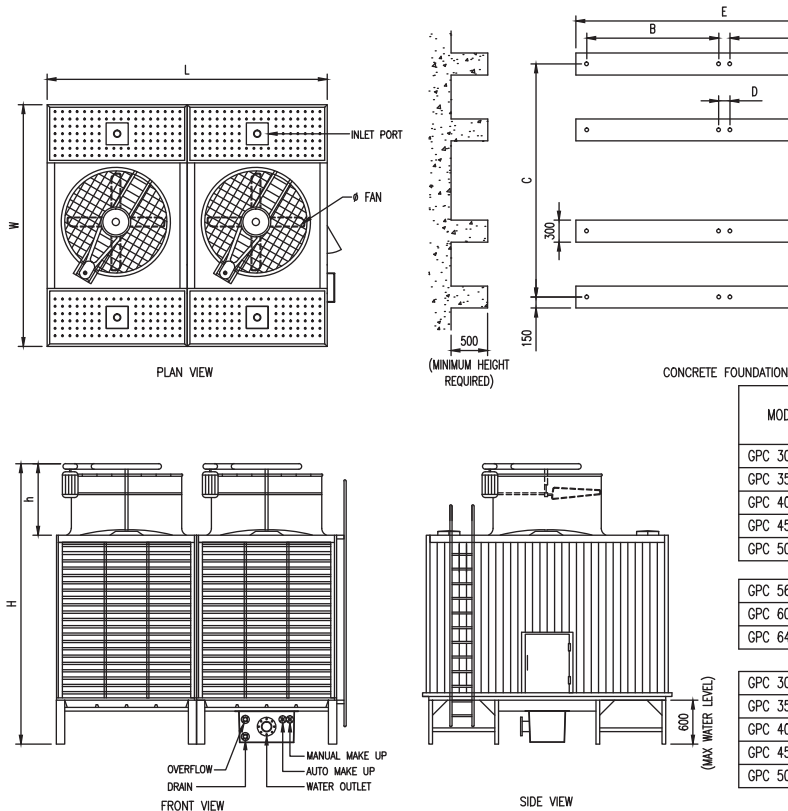
NOTE: ALL DIMENSION IN MM

MODEL	TOWER DIMENSION				FOUNDATION DETAILS			
	L	W	H	h	A	B	C	D
GPC 100	1910	3300	3720	880	1380	1800	3180	2100
GPC 125	1910	3300	3720	880	1380	1800	3180	2100
GPC 150	1910	3700	3720	880	1670	1760	3470	2060
GPC 175	1910	3700	3720	880	1670	1760	3470	2060
GPC 200	2110	4000	3765	925	2000	1970	3800	2270
GPC 225	2505	4400	3720	880	2365	2365	4165	2665
GPC 250	2505	4400	3720	880	2365	2365	4165	2665

GPC 280 C	2505	4400	3720	880	2365	2365	4165	2665
GPC 300 C	2505	4400	4735	880	2365	2365	4165	2665
GPC 320 C	2505	4400	4735	880	2365	2365	4165	2665

GPC 100 S	1910	3300	3720	880	1380	1800	3180	2100
GPC 125 S	1910	3300	3720	880	1380	1800	3180	2100
GPC 150 S	1910	3700	3720	880	1670	1760	3470	2060
GPC 175 S	1910	3700	3720	880	1670	1760	3470	2060
GPC 200 S	2110	4000	3765	925	2000	1970	3800	2270
GPC 225 S	2505	4400	3720	880	2365	2365	4165	2665
GPC 250 S	2505	4400	3720	880	2365	2365	4165	2665

GPC - 2 CELLS



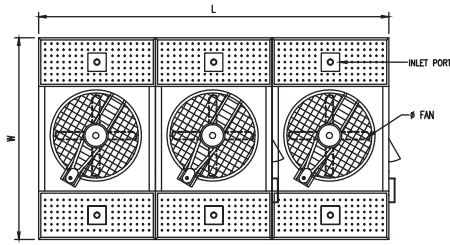
NOTE: ALL DIMENSION IN MM

MODEL	TOWER DIMENSION				FOUNDATION DETAILS				
	L	W	H	h	A	B	C	D	E
GPC 300	3820	3700	3720	880	1670	1760	3470	150	3970
GPC 350	3820	3700	3720	880	1670	1760	3470	150	3970
GPC 400	4220	4000	3765	925	2000	1970	3800	140	4380
GPC 450	5010	4400	3720	880	2365	2365	4165	140	5170
GPC 500	5010	4400	3720	880	2365	2365	4165	140	5170

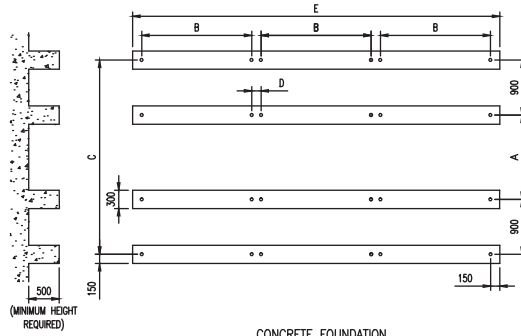
GPC 560 C	5010	4400	3720	880	2365	2365	4165	140	5170
GPC 600 C	5010	4400	4735	880	2365	2365	4165	140	5170
GPC 640 C	5010	4400	4735	880	2365	2365	4165	140	5170

GPC 300 S	3820	3700	3720	880	1670	1760	3470	150	3970
GPC 350 S	3820	3700	3720	880	1670	1760	3470	150	3970
GPC 400 S	4220	4000	3765	925	2000	1970	3800	140	4380
GPC 450 S	5010	4400	3720	880	2365	2365	4165	140	5170
GPC 500 S	5010	4400	3720	880	2365	2365	4165	140	5170

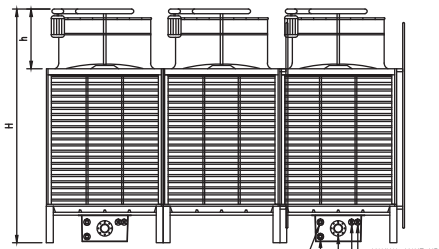
GPC - 3 CELLS



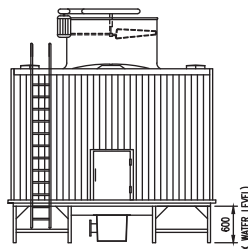
PLAN VIEW



CONCRETE FOUNDATION



FRONT VIEW



SIDE VIEW

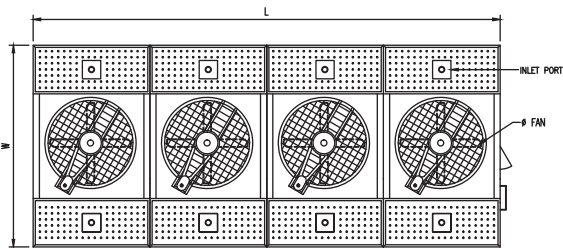
NOTE: ALL DIMENSION IN MM

MODEL	TOWER DIMENSION				FOUNDATION DETAILS				
	L	W	H	h	A	B	C	D	E
GPC 600	6330	4000	3765	925	2000	1970	3800	140	6490
GPC 700	7515	4400	3720	880	2365	2365	4165	140	7675
GPC 750	7515	4400	3720	880	2365	2365	4165	140	7675

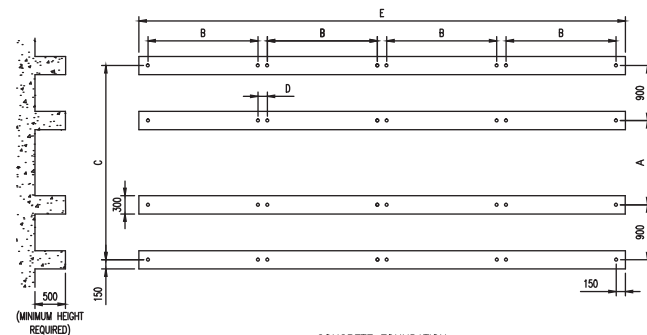
GPC 840 C	7515	4400	3720	880	2365	2365	4165	140	7675
GPC 900 C	7515	4400	4735	880	2365	2365	4165	140	7675
GPC 960 C	7515	4400	4735	880	2365	2365	4165	140	7675

GPC 600 S	6330	4000	3765	925	2000	1970	3800	140	6490
GPC 700 S	7515	4400	3720	880	2365	2365	4165	140	7675
GPC 750 S	7515	4400	3720	880	2365	2365	4165	140	7675

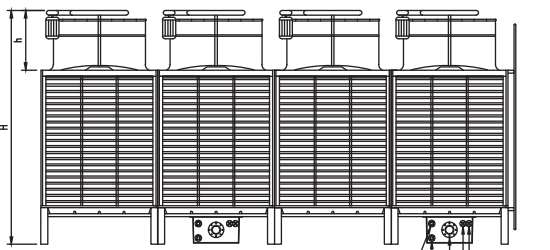
GPC - 4 CELLS



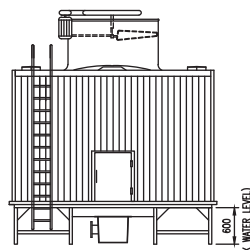
PLAN VIEW



CONCRETE FOUNDATION



FRONT VIEW



SIDE VIEW

NOTE: ALL DIMENSION IN MM

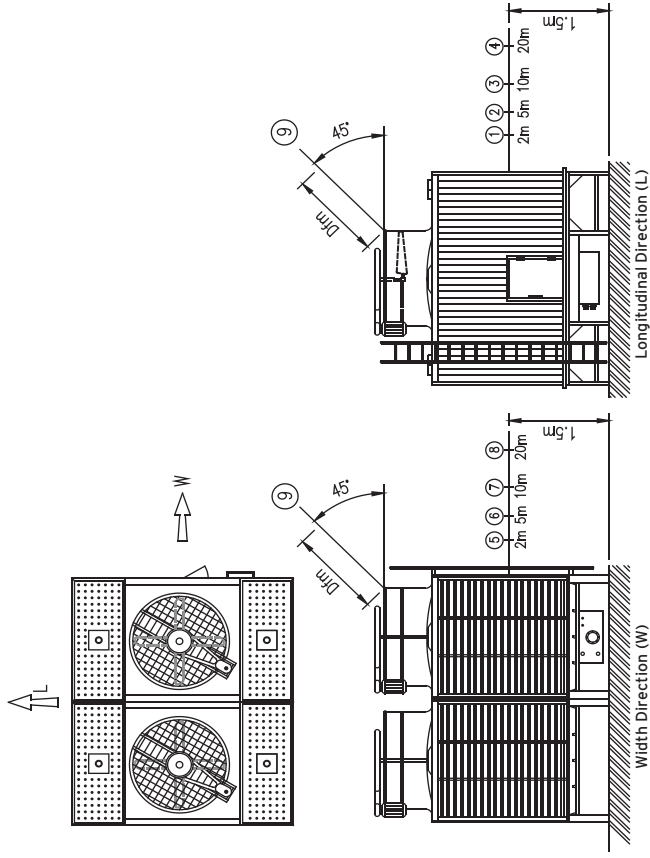
MODEL	TOWER DIMENSION				FOUNDATION DETAILS				
	L	W	H	h	A	B	C	D	E
GPC 800	8440	4000	3765	925	2000	1970	3800	140	8600
GPC 900	10020	4400	3720	880	2365	2365	4165	140	10180
GPC 1000	10020	4400	3720	880	2365	2365	4165	140	10180

GPC 1120 C	10020	4400	3720	880	2365	2365	4165	140	10180
GPC 1200 C	10020	4400	4735	880	2365	2365	4165	140	10180
GPC 1280 C	10020	4400	4735	880	2365	2365	4165	140	10180

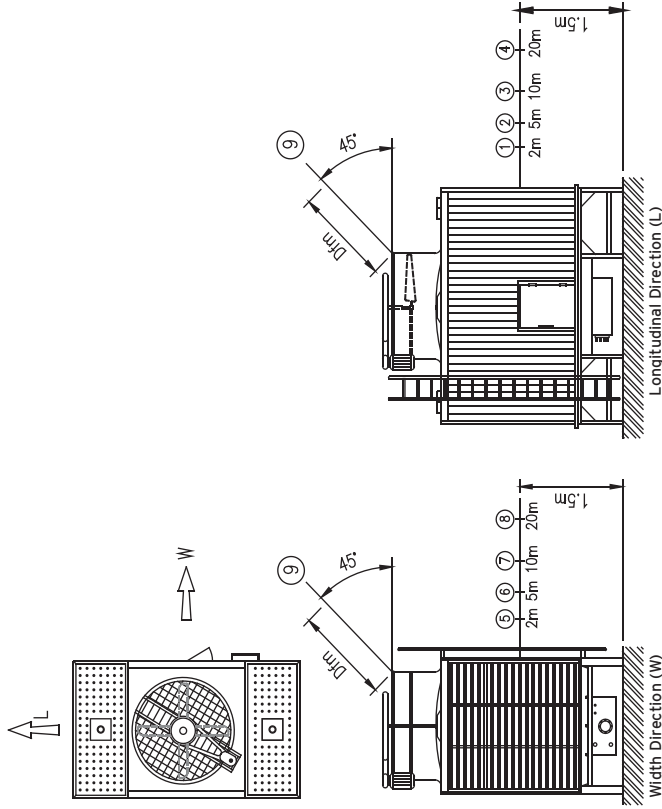
GPC 800 S	8440	4000	3765	925	2000	1970	3800	140	8600
GPC 900 S	10020	4400	3720	880	2365	2365	4165	140	10180
GPC 1000 S	10020	4400	3720	880	2365	2365	4165	140	10180

GPC SERIES NOISE DATA

GPC - 2 CELLS



GPC - 1 CELL



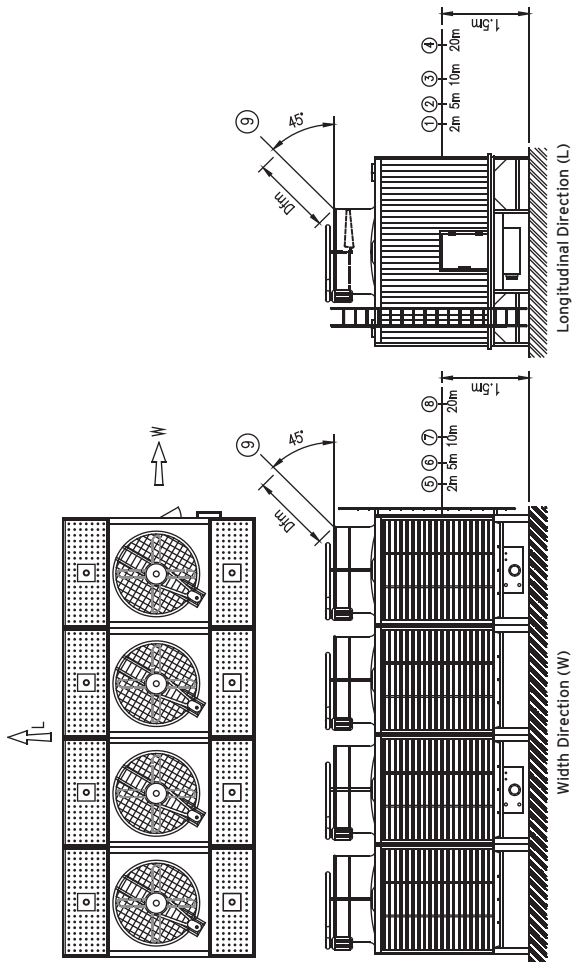
TOWER MODEL	Louver (L)			Panel (W)			FAN (Dfm) (45°)		
	①	②	③	④	⑤	⑥	⑦	⑧	⑨
GPC300	69.51	61.55	55.53	49.51	66.51	58.55	52.53	46.51	72.01
GPC350	70.51	62.55	56.53	50.51	67.51	59.55	53.53	47.51	72.51
GPC400	70.51	62.55	56.53	50.51	67.51	59.55	53.53	47.51	74.01
GPC450	71.01	63.05	57.03	51.01	68.01	60.05	54.03	48.01	75.01
GPC500	71.51	63.55	57.53	51.51	68.51	60.55	54.53	48.51	75.51
GPC300S	63.51	55.55	49.53	43.51	60.51	52.55	46.53	40.51	68.01
GPC350S	65.51	57.55	51.53	45.51	62.51	54.55	48.53	42.51	69.01
GPC400S	65.51	57.55	51.53	45.51	62.51	54.55	48.53	42.51	69.51
GPC450S	66.01	58.05	52.03	46.01	63.01	55.05	49.03	43.01	69.51
GPC500S	67.01	59.05	53.03	47.01	64.01	56.05	50.03	44.01	70.51
GPC560C	72.01	64.05	58.03	52.01	69.01	61.05	55.03	49.01	77.51
GPC600C	72.01	64.05	58.03	52.01	69.01	61.05	55.03	49.01	77.01
GPC640C	72.01	64.05	58.03	52.01	69.01	61.05	55.03	49.01	77.51

TOWER MODEL	Louver (L)			Panel (W)			FAN (Dfm) (45°)		
	①	②	③	④	⑤	⑥	⑦	⑧	⑨
GPC100	63.5	55.54	49.52	43.50	63.5	55.54	49.52	43.50	68
GPC125	65	57.04	51.02	45.00	65	57.04	51.02	45.00	68.5
GPC150	66.5	58.54	52.52	46.50	66.5	58.54	52.52	46.50	69
GPC175	67.5	59.54	53.52	47.50	67.5	59.54	53.52	47.50	69.5
GPC200	67.5	59.54	53.52	47.50	67.5	59.54	53.52	47.50	71
GPC225	68	60.04	54.02	48.00	68	60.04	54.02	48.00	72
GPC250	68.5	60.54	54.52	48.50	68.5	60.54	54.52	48.50	72.5
GPC100S	58.5	50.54	44.52	38.50	58.5	50.54	44.52	38.50	63
GPC125S	60.5	52.54	46.52	40.50	60.5	52.54	46.52	40.50	63.5
GPC150S	60.5	52.54	46.52	40.50	60.5	52.54	46.52	40.50	65
GPC175S	62.5	54.54	48.52	42.50	62.5	54.54	48.52	42.50	66
GPC200S	62.5	54.54	48.52	42.50	62.5	54.54	48.52	42.50	66.5
GPC225S	63	55.04	49.02	43.00	63	55.04	49.02	43.00	66.5
GPC250S	64	56.04	50.02	44.00	64	56.04	50.02	44.00	67.5
GPC280C	69	61.04	55.02	49.00	69	61.04	55.02	49.00	74.5
GPC300C	69	61.04	55.02	49.00	69	61.04	55.02	49.00	74
GPC320C	69	61.04	55.02	49.00	69	61.04	55.02	49.00	74.5

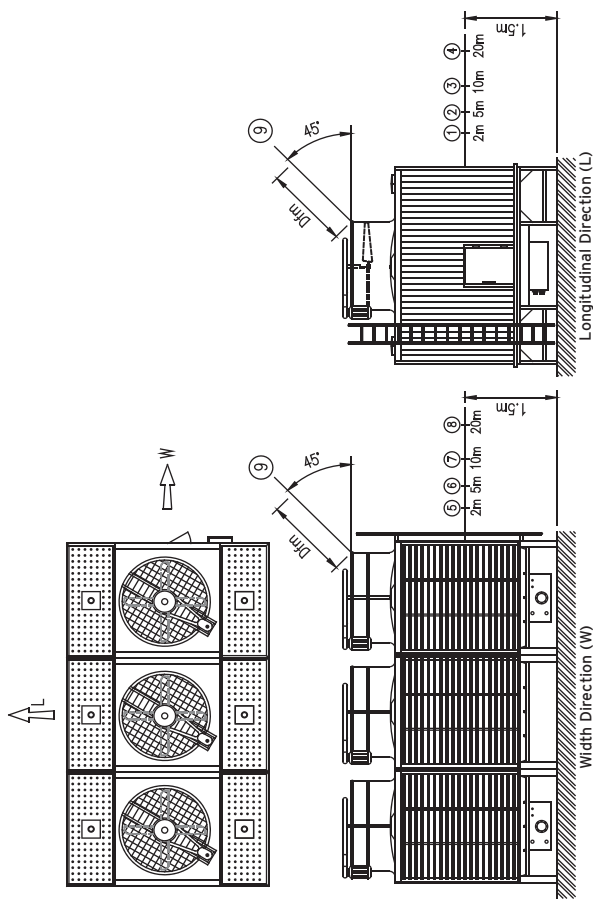
GPC SERIES NOISE DATA



GPC - 4 CELLS



GPC - 3 CELLS



TOWER MODEL	Louver (L)				Panel (W)				FAN (Dfm) (45°)				
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
GPC800	73.52	65.56	59.54	53.52	70.52	62.56	56.54	50.52	77.02				
GPC900	74.02	66.06	60.04	54.02	71.02	63.06	57.04	51.02	78.02				
GPC1000	74.52	66.56	60.54	54.52	71.52	63.56	57.54	51.52	78.52				
GPC800S	68.52	60.56	54.54	48.52	65.52	57.56	51.54	45.52	72.52				
GPC900S	69.02	61.06	55.04	49.02	66.02	58.06	52.04	46.02	73.52				
GPC1000S	70.02	62.06	56.04	50.02	67.02	59.06	53.04	47.02	73.52				
GPC1120C	75.02	67.06	61.04	55.02	72.02	64.06	58.04	52.02	80.52				
GPC1200C	75.02	67.06	61.04	55.02	72.02	64.06	58.04	52.02	80.52				
GPC1280C	75.02	67.06	61.04	55.02	72.02	64.06	58.04	52.02	80.52				

TOWER MODEL	Louver (L)				Panel (W)				FAN (Dfm) (45°)				
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
GPC600	72.27	64.31	58.29	52.27	69.27	61.31	55.29	49.27	75.77				
GPC700	73.00	65.04	59.02	53.00	70.00	62.04	56.02	50.00	76.77				
GPC750	73.27	65.31	59.29	53.27	70.27	62.31	56.29	50.27	77.27				
GPC600S	67.27	59.31	53.29	47.27	64.27	56.31	50.29	44.27	71.27				
GPC700S	68.50	60.54	54.52	48.50	65.50	57.54	51.52	45.50	72.27				
GPC750S	68.77	60.81	54.79	48.77	65.77	57.81	51.79	45.77	72.27				
GPC840C	73.77	65.81	59.79	53.77	70.77	62.81	56.79	50.77	79.27				
GPC900C	73.77	65.81	59.79	53.77	70.77	62.81	56.79	50.77	78.77				
GPC960C	73.77	65.81	59.79	53.77	70.77	62.81	56.79	50.77	79.27				

RECOMMENDED COOLING TOWER ARRANGEMENT

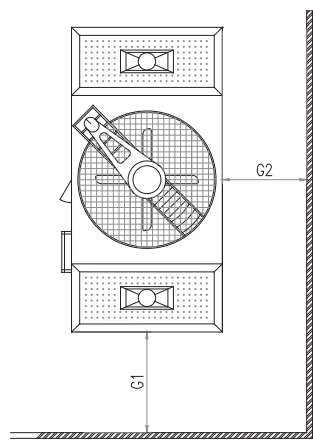


FIGURE : 1

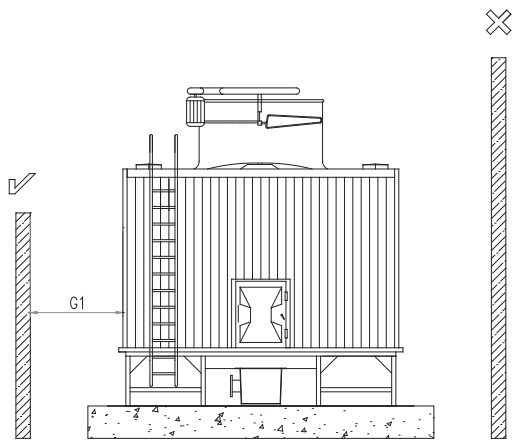


FIGURE : 2

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

Tower Size	Recommended Distance (mm)	
	G1 (Air Intake)	G2 (For Maintenance Access)
100 - 250	1500	1000
280 - 450	1800	1000
500 - 950	2400	1000
1000 - 1500	3000	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, if the wall is a louvered wall, that there should be a 70% net free area and the louver height should not be higher than cooling tower.

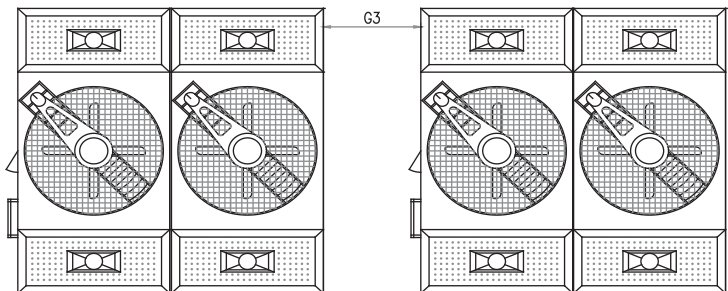


FIGURE 3

Tower Size	Recommended Distance (mm)
	G3
All Models	1000

Table 2: Distance Cooling in Series Arrangement

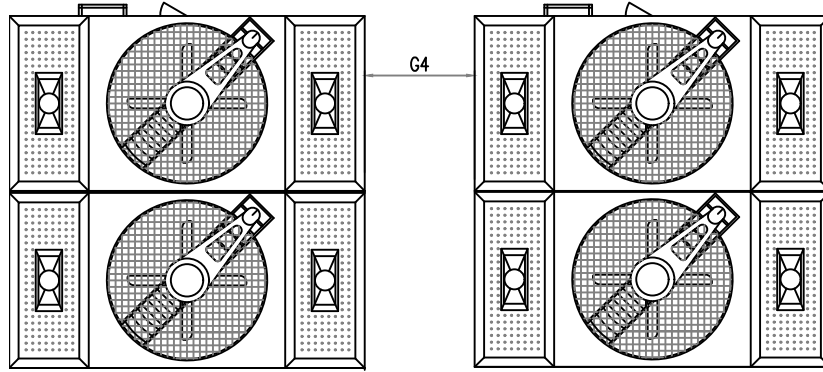


FIGURE 4

Tower Size	Recommended Distance (mm)	
	G4	
100 - 450	3000	
500 - 950	4000	
1000 - 1500	5000	

Table 3 : Distance Cooling In Parallel Arrangement

SOLID WALL

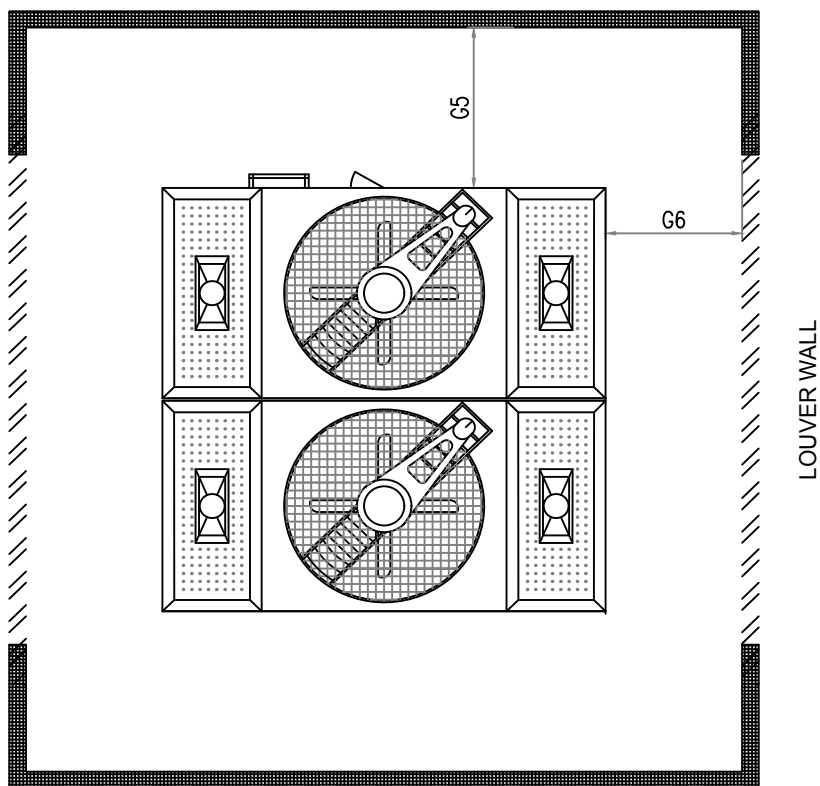


FIGURE 5

Tower Size	Recommended Distance (mm)	
	G5 (Panels Side)	G6 (Louvers Side)
100 - 450	1000	1500
500 - 950	1000	2000
1000 - 1500	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.



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.



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.



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°.



The Ultimate Cooling Machine

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**SUMMER AIR-CONDITIONING
ENGINEERING SDN.BHD.**

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