

SIS AIR CONDITIONING



- ▶ *Chillers*
- ▶ *Cooling Towers*
- ▶ *Air Handling Units*
- ▶ *Packaged Units*

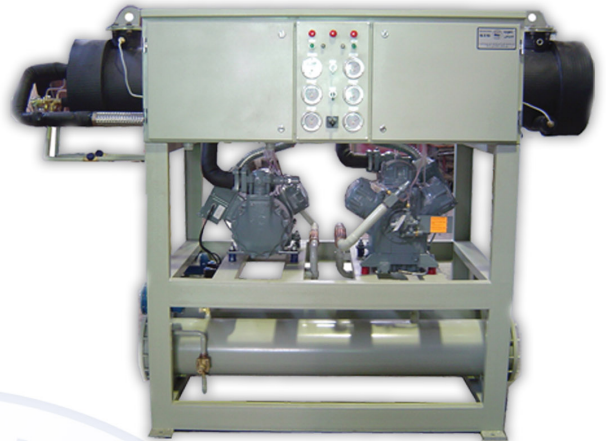


Water Chillers

SIS water chillers are available in 5 to 320 tons of refrigeration with a good selection and installation of this unit you can forget the running and maintenance problems.

SIS Water Chillers Features:

- Internal motor protection
- Protection against single-phasing
- The best marks of control and electrical systems units
- Multiple-step capacity control
- Stand by compressor protection
- Crank case heaters
- Low inrush current
- Better freeze-up protection
- Spring vibration isolators



Air Cooled Mini Chillers

SIS Air Cooled Mini Chiller are available in 3 to 60 tons of refrigeration suitable for apartment, office buildings, hotels. With easy installation and High efficiency and Lower energy consumption.

SIS Air Cooled Mini Chillers Features:

- Quiet application
- Compact system with small dimension
- Easy installation and maintenance
- Eliminating cooling tower
- Equipped with water pump
- Equipped with digital thermostat controller
- Equipped with high and low pressure controller
- Equipped with scroll compressor

Packaged Units

SIS Packaged Air Conditioning Units are compact systems intended for applications in new or existing stores, restaurants, offices, school, computer rooms, airports, and industrial plants. Available in cooling capacities from 5 to 80 tons in single units, supply the total cooling requirements in a variety of commercial, institutional and industrial applications.

SIS Packaged Units Features:

- Static and dynamic balanced centrifugal fan
- Inside of unit covered with Armoflex insulation
- All of the unit panels constructed from galvanized sheets.
- Long life paint



SIS liquid chillers are designed and built to provide reliable and efficient performance and are completely factory assembled for peak performance and high operating efficiency.

SIS liquid chillers are characterized by a combination of experience, expertise, innovation and technical data, how of engineers and production teams as well as state of the art technology.

Through the use of superior quality components with international standards plus the implementation of innovative design and quality control procedures along with gained experience in production and commissioning of many of these units have paved the path for SIS towards the production of such unique products.

SIS liquid chillers are designed to suit the complete scope of commercial , institutional , and residential applications as well as industrial process fluid cooling. Units are offered in capacities ranging from 5 to 360 Tons. Two basic systems are available, namely: water cooled models in which the condenser is integrated with the package and air cooled models where the air cooled condenser is a separate unit. SIS compression type liquid chillers are available different types of refrigerant (R – 22, R – 407C and R – 134a).

Units are supplied with one up to six compressors designed to run on 380 volt, 3 phase, 50 cycle electricity, a direct expansion type liquid cooler along with complete interconnecting piping, insulated low temperature lines, electrical wiring and control panel.

Compressors used may be of the following types: reciprocating hermetic and semi – hermetic, hermetic scroll or screw by reputable compressor manufacturers.

All control equipment, valves and electrical components used are by well – known foreign suppliers.

Water cooled evaporators and condensers used are of the shell and tube or plate types of which the shell and tube exchangers are manufactured by SIS but the plate heat exchangers are purchased from reputable foreign suppliers.

Of the noticeable features of SIS chillers is the availability of special control systems such as PLC and remote control of operation.

In case of using compression type chillers for industrial applications, SIS could offer the most suitable chiller based on the experiences gained in many industrial projects even in cryogenic (ie. up to -80°C) with successful records.



GENERAL

Cooling capacity is tabulated for all chiller models at a variety of conditions to cover most comfort cooling and industrial system requirements. The water cooled SISWC series are rated for leaving water temperature of 44 [°F] and condenser leaving water temperatures of 85 [°F] TO 105 [°F]. The SISAC series are rated over the same evaporator chilled water at condensing temperatures of 115 [°F] to 135 [°F].

Chilled Water Quantity and Range:

Required cooling capacity and the desired chilled water range are the two important factors in determining the amount of water to be circulated in the evaporator. This flow rate in (GPM) is given in the performance data tables. The following formula can also be used when needed.

$$\text{GPM} = \frac{\text{Tons} \times 24}{\text{Chilled water range } (\Delta T)[^{\circ}\text{F}]}$$

Water Cooled Chiller (SISWC) Series:

A 10 [°F] condenser water range is generally the best Compromise for the most economical cooling tower selection to satisfy the chiller requirements. Based on the above suggestion and referring to performance data tables under different condenser leaving water temperatures, we can extract the required condenser water flow rate in (GPM) and the water side pressure drop (PD).

Condenser Water Temperature and Head Pressure Control:

Since cooling towers are used in conjunction with water cooled condensers, the condenser water temperature available, shall be at least 5 [°F] above the ambient wet bulb temperature. For example if the ambient wet bulb temperature is 80 [°F] , a properly sized tower will provide 85 [°F] condenser water temperature.

For proper operation of a reciprocating water cooled chiller, it is necessary to maintain a condenser leaving water temperature not lower than 85 [°F]. This means that a method of head pressure control such as controlling cooling tower fan via a thermostat or using a condenser water regulating valve in order to control the condenser water flow rate, shall be employed.

Air Cooled Chiller (SISAC) Series:

SISAC units require the use of remotely located air cooled condensers. The column headed Q_c in the performance data tables show the required THR capacity at each condensing temperature condition.

Head Pressure Control and Winter Start in Air Cooled Chillers :

Air cooled condensers used with chillers must always include an accurate method of controlling the condensing pressure at 185 [psig] or higher. It is also necessary to determine the minimum outside air temperature at which the system will be operated. At an ambient temperature below 55 [°F] , a winter start system should be furnished with the condenser to enable the chiller to start without any difficulty.

WATER COOLED MODELS:

GIVEN:

Water flow rate to be chilled = 100 GPM

Design chilled water range = 10 °F

Evaporator leaving water temp. = 44 °F

Design condenser water range = 10 °F

Condenser leaving water temp. = 95 °F

From the corresponding performance table (Evap. Lvg. Water Temp = 44°F) we select unit (2 SISWC 60) , offering 45.3 tons at 95°F condenser leaving water temperature. From the same table we extract the Evap. Water Flow rate of 108.5 (GPM) and P.D of 12.6 (ft.w.g) for ΔT=10°F. We can also determine the condenser water flow rate of 132.8 (GPM) and P.D of 6.9 (ft.w.g).

DETERMINE UNIT MODEL AND SIZE:

Required cooling capacity:

$$Q_E = \frac{\text{GPM} \times \text{Chilled Water Range}}{24} = \frac{100 \times 10}{24} = 41.7 \text{ Tons of Refrigeration}$$

AIR COOLED MODELS:

GIVEN:

Water flow rate to be chilled = 110 GPM

Design chilled water range = 10 °F

Evaporator leaving water temp. = 44 °F

Design condensing temp. = 120 °F

Ambient temp. = 100 °F

DETERMINE UNIT MODEL AND SIZE:

Required cooling capacity:

$$Q_E = \frac{\text{GPM} \times \text{Chilled Water Range}}{24} = \frac{100 \times 10}{24} = 45.83 \text{ Tons of Refrigeration}$$

From the corresponding performance table (Evap. Lvg. Water Temp = 44°F) we select unit (2 SISAC 70) , offering 50.7 tons at 120°F condensing temperature. From the same table we extract the Evap. Water Flow rate of 121.4 (GPM) and P.D of 16.2 (ft.w.g) for ΔT=10°F. We can also extract the condenser THR capacity of 797.0 (MBH).

EVAPORATOR LEAVING WATER TEMPERATURE = 44 (°F)

MODELS	Condenser Leaving Temperature (°F)																	
	85						95						105					
	Q _E	W _C	EVAP. W.F.D. [ΔT=10 °F]		COND. W.F.D. [ΔT=10 °F]		Q _E	W _C	EVAP. W.F.D. [ΔT=10 °F]		COND. W.F.D. [ΔT=10 °F]		Q _E	W _C	EVAP. W.F.D. [ΔT=10 °F]		COND. W.F.D. [ΔT=10 °F]	
	TONS	KW	GPM	PD	GPM	PD	TONS	KW	GPM	PD	GPM	PD	TONS	KW	GPM	PD	GPM	PD
1 SISWC 5	5.3	4.4	12.7	1.9	15.6	2.6	4.9	4.5	11.7	1.7	15.0	2.7	4.6	4.9	11.0	1.5	13.9	2.5
1 SISWC 10	9.9	7.3	23.7	2.9	28.4	6.1	9.3	7.9	22.2	2.6	27.3	5.7	8.6	8.5	20.6	2.3	26.2	5.5
1 SISWC 15	13.2	9.5	31.6	3.6	37.6	5.2	12.4	10.4	29.6	3.2	36.4	4.8	11.6	11.2	27.8	2.2	35.2	4.5
1 SISWC 20	16.0	10.9	38.4	3.5	45.4	6.1	15.1	11.9	36.2	3.0	44.0	5.7	14.2	12.8	34.0	2.6	42.5	5.3
1 SISWC 25	20.1	13.9	48.2	4.2	57.1	9.6	19.0	15.1	45.5	3.8	55.3	9.0	17.9	16.5	42.7	3.4	53.6	8.5
1 SISWC 30	24.1	17.2	57.6	5.7	68.7	7.4	22.7	18.7	54.2	5.0	66.4	6.9	21.3	20.0	51.0	4.4	64.1	6.4
1 SISWC 35	29.9	21.5	71.5	9.1	85.7	5.5	28.2	23.5	67.4	8.3	83.0	5.0	26.3	25.7	63.0	7.3	80.2	4.8
1 SISWC 40	34.2	25.8	82.0	6.0	98.6	5.0	32.1	27.8	76.9	5.1	95.0	4.6	30.2	30.1	72.3	4.4	91.9	4.3
1 SISWC 50	43.3	29.6	103.6	10.1	124.7	7.0	41.0	32.5	98.2	9.5	120.6	6.4	38.2	36.0	91.4	9.0	117.1	6.0
1 SISWC 60	51.5	36.0	123.3	8.5	148.6	8.6	48.5	39.8	116.1	7.5	143.9	8.2	44.8	43.4	107.2	6.5	137.2	7.9
2 SISWC 30	26.4	19.0	63.2	6.6	75.4	5.2	24.8	20.7	59.4	5.6	72.8	4.8	23.2	22.5	55.6	4.8	70.4	4.5
2 SISWC 40	32.0	21.9	76.6	6.1	90.5	6.0	30.1	23.8	72.1	5.1	87.6	5.6	28.3	25.7	67.9	4.4	84.7	5.2
2 SISWC 50	40.0	27.7	95.8	9.0	113.5	9.4	37.7	30.2	90.3	8.0	109.9	8.8	35.4	33.0	84.8	7.0	106.4	8.3
2 SISWC 60	48.2	34.4	115.4	13.8	137.4	7.4	45.3	36.5	108.5	12.6	132.8	6.9	42.6	40.1	102.1	11.6	128.3	6.4
2 SISWC 70	59.7	43.1	142.9	18.0	171.2	5.5	56.3	46.9	134.8	17.4	165.8	5.0	52.6	51.4	125.9	16.7	160.1	4.8
2 SISWC 80	67.1	51.5	160.7	17.0	193.5	4.8	62.9	55.3	150.6	16.6	186.5	4.4	59.0	59.9	141.3	16.0	180.4	4.1
2 SISWC 100	86.5	59.2	207.0	15.2	248.0	7.0	81.8	64.9	195.8	13.8	241.2	6.4	76.3	71.6	182.6	19.5	233.7	6.0
2 SISWC 120	102.6	79.3	245.6	14.5	296.5	8.6	96.0	79.8	229.8	13.0	286.2	8.2	89.6	86.7	214.5	11.5	275.3	7.9
3 SISWC 60	48.0	32.8	114.9	13.1	135.8	6.0	45.3	35.7	108.5	12.1	131.7	5.6	42.7	38.4	102.2	11.0	127.3	5.2
3 SISWC 75	59.6	41.5	142.7	17.1	169.3	9.4	56.3	45.2	134.8	15.5	164.1	8.8	52.8	49.4	126.4	13.9	158.7	8.3
3 SISWC 90	72.0	51.4	172.4	14.5	203.9	7.4	67.7	55.2	162.1	12.9	196.7	6.9	63.7	59.9	152.5	11.5	190.3	6.4
3 SISWC 105	89.5	64.3	214.3	14.5	254.7	5.5	84.2	70.2	201.6	13.0	246.4	5.0	78.7	76.9	188.4	11.6	237.9	4.5
3 SISWC 120	100.0	75.7	239.4	15.7	285.7	4.5	94.9	82.0	227.2	17.1	275.1	4.4	87.8	89.4	210.2	14.8	266.4	4.1
3 SISWC 150	129.0	89.0	308.8	19.0	371.5	7.0	121.8	97.6	291.6	17.5	360.2	6.4	113.6	107.5	272.0	15.8	348.4	6.0
3 SISWC 180	153.5	107.4	367.5	19.8	443.1	8.6	149.0	119.8	356.7	18.5	441.2	8.2	133.5	130.0	319.6	15.0	412.2	7.9
4 SISWC 80	63.7	43.5	152.5	16.2	179.2	4.8	60.0	47.0	143.7	14.4	172.9	4.4	56.6	51.2	135.5	12.9	167.6	4.1
4 SISWC 100	80.2	55.4	192.0	9.3	226.0	7.0	75.8	60.3	181.5	8.6	219.0	6.4	71.2	65.9	170.5	7.7	211.9	6.0
4 SISWC 120	96.1	68.5	230.1	10.3	272.1	8.6	90.9	73.2	217.6	9.4	263.2	8.2	85.0	79.9	203.5	8.2	254.0	7.9
4 SISWC 140	119.4	85.8	285.9	18.5	339.5	6.7	112.4	93.6	269.1	17.6	328.4	6.2	105.0	102.6	251.4	16.4	317.2	5.6
4 SISWC 160	133.2	101.2	318.9	16.6	381.4	8.2	125.5	109.5	300.5	14.7	368.9	7.6	117.1	119.2	250.4	12.9	355.8	7.1
4 SISWC 200	171.5	118.5	410.6	16.7	493.3	10.4	162.0	130.0	387.8	15.2	479.8	9.8	151.2	143.5	362.0	13.5	442.0	8.5
4 SISWC 240	204.0	144.5	488.4	17.5	590.0	10.8	196.0	159.8	457.3	15.5	570.0	10.0	177.5	173.5	425.0	12.9	548.6	9.3

Q_E : Actual Evaporator Cooling Capacity. [1 Tons of Ref. = 12000 BTU/Hr]

W_C : Compressor Motor Power Input at 380 V, 3Ø, 50 Hz

PD : Water Pressure Drop [FTWG]

QC : Condenser Total Heat Rejection [MBH = 1000 BTU/Hr]

W.F.D. : Water Flow Data

EVAPORATOR LEAVING WATER TEMPERATURE = 44 (°F)

MODELS	Condensing Temperature (°F)																			
	115					120					125					135				
	Q _E	W _C	Q _C	EVAP W.F.D [ΔT=10 °F]		Q _E	W _C	Q _C	EVAP W.F.D [ΔT=10 °F]		Q _E	W _C	Q _C	EVAP W.F.D [ΔT=10 °F]		Q _E	W _C	Q _C	EVAP W.F.D [ΔT=10 °F]	
	TONS	KW	MBH	GPM	PD	TONS	KW	MBH	GPM	PD	TONS	KW	MBH	GPM	PD	TONS	KW	MBH	GPM	PD
1 SISAC 5	4.4	4.9	62.2	10.5	1.5	4.3	5.1	60.0	10.2	1.3	4.2	5.2	59.0	10.0	1.2	3.7	5.7	54.9	8.9	1.1
1 SISAC 10	8.6	8.9	131.9	20.6	2.3	8.3	9.3	128.8	19.9	2.2	7.9	9.6	125.7	18.9	2.1	7.3	10.1	119.8	17.5	1.8
1 SISAC 15	11.7	11.9	178.2	28.0	2.2	11.3	12.4	178.8	27.1	2.0	10.9	12.8	171.2	26.1	1.7	10.1	13.6	164.1	24.2	1.4
1 SISAC 20	14.3	13.6	215.5	34.2	2.6	13.9	14.2	211.5	33.3	2.4	13.4	14.7	207.4	32.1	2.2	12.5	15.7	199.3	29.9	2.0
1 SISAC 25	18.0	17.5	271.6	43.1	3.4	17.4	18.2	266.5	41.7	3.2	16.8	18.8	261.4	40.2	3.0	15.6	20.0	250.9	37.4	2.6
1 SISAC 30	21.5	21.2	324.6	51.5	4.5	20.7	22.0	318.2	49.6	4.2	19.9	22.7	311.5	47.7	4.0	18.4	24.0	298.0	44.1	3.5
1 SISAC 35	26.6	27.3	406.3	63.7	7.4	25.7	28.4	398.7	61.5	6.9	24.8	29.4	390.9	59.4	6.4	23.0	31.3	375.5	55.1	5.8
1 SISAC 40	30.3	32.9	389.7	72.5	4.4	29.2	33.1	456.4	69.9	4.1	28.1	34.2	447.2	67.3	3.8	26.0	36.4	428.8	62.3	3.1
1 SISAC 50	39.0	37.4	587.4	93.4	8.9	37.6	38.8	574.6	90.9	8.6	36.2	40.1	561.7	86.7	8.3	33.4	42.6	536.3	80.0	7.8
1 SISAC 60	45.3	46.1	690.6	108.9	6.7	43.6	47.8	675.5	104.4	6.2	41.8	49.3	658.7	100.1	5.8	37.9	51.8	620.2	90.8	5.0
2 SISAC 30	23.4	23.9	357.2	56.0	5.0	22.6	24.7	350.2	54.1	4.7	21.8	25.6	343.2	52.2	4.4	20.2	27.2	329.0	48.4	3.9
2 SISAC 40	28.6	27.3	429.7	68.5	4.5	27.6	28.3	421.8	66.1	4.2	26.7	29.4	413.7	63.9	3.9	24.8	31.3	397.5	59.4	3.3
2 SISAC 50	35.7	35.0	539.6	85.5	7.1	34.5	36.3	529.5	82.6	6.8	33.3	37.6	519.3	79.7	6.5	30.9	39.9	498.5	74.0	5.9
2 SISAC 60	42.8	42.4	649.3	102.5	11.7	41.3	44.0	636.4	98.9	11.2	39.8	45.4	623.1	59.3	10.7	36.8	48.1	596.1	88.1	9.7
2 SISAC 70	52.6	54.6	812.0	125.9	16.7	50.7	56.7	797.0	121.4	16.2	48.9	58.8	781.9	117.1	15.7	45.4	62.6	751.6	108.7	15.0
2 SISAC 80	59.2	63.4	913.2	141.7	16.1	57.1	65.7	895.2	136.7	15.7	54.9	67.9	876.9	131.4	15.2	50.8	72.1	840.6	121.6	14.2
2 SISAC 100	78.6	75.0	1182	188.2	14.0	75.7	77.8	1157	181.2	13.5	72.8	80.5	1131	174.3	13.0	67.2	85.5	1080	160.9	12.0
2 SISAC 120	89.9	92.1	1375	215.2	13.1	86.5	98.4	1345	207.1	12.5	82.9	98.5	1311	198.5	12.0	75.3	103.4	1236	180.3	11.0
3 SISAC 60	42.9	40.9	645.4	102.7	11.1	41.5	42.5	633.5	99.4	10.6	40.0	44.1	621.4	95.8	10.0	37.3	47.0	597.2	89.3	8.9
3 SISAC 75	53.1	52.4	805.0	127.1	14.0	51.3	54.4	789.8	122.8	13.7	49.5	56.2	774.4	118.5	13.4	46.0	59.7	743.0	110.1	10.8
3 SISAC 90	63.9	63.4	963.1	153.0	11.6	61.6	65.7	943.6	147.5	11.0	59.4	67.8	923.6	142.2	10.4	54.9	71.8	883.0	131.4	9.2
3 SISAC 105	79.3	81.7	1206	189.9	11.8	76.5	84.8	1183	183.2	11.0	73.8	87.8	1160	176.7	10.2	68.4	93.5	1113	163.8	8.7
3 SISAC 120	87.8	94.6	1349	210.2	14.8	84.6	98.0	1322	22.6	13.8	81.5	101.3	1295	195.1	12.8	75.3	107.4	1241	180.3	10.9
3 SISAC 150	117.9	112.5	1775	282.3	15.0	113.5	116.7	1737	271.7	14.2	109.2	120.7	1698	261.5	13.4	100.8	128.3	1622	241.3	11.8
3 SISAC 180	135.0	138.2	2064	323.2	15.3	129.9	143.2	2019	311.0	14.1	124.5	147.8	1969	298.1	13.0	112.8	155.2	1858	270.1	11.0
4 SISAC 80	56.7	54.4	850.0	135.8	13.0	54.8	56.5	834.2	131.2	12.2	52.9	58.5	818.1	126.7	11.4	49.3	62.3	785.8	118.0	9.9
4 SISAC 100	71.5	68.9	1075	171.2	7.8	69.1	72.5	1055	165.4	7.3	66.7	75.0	1034	159.7	6.8	62.0	79.7	992.0	148.0	5.8
4 SISAC 120	85.2	84.5	1285	204.0	8.3	82.2	87.6	1259	196.8	7.7	79.2	90.5	1233	189.6	7.1	73.3	95.8	1179	175.5	5.9
4 SISAC 140	105.6	108.9	1607	252.8	16.5	102.0	113.1	1577	244.2	15.9	98.3	117.1	1546	234.4	15.3	91.1	124.7	1484	218.1	14.1
4 SISAC 160	117.1	126.1	181	280.4	12.9	112.9	130.7	1765	270.3	12.0	108.7	135.1	1729	260.3	11.1	100.5	143.3	1657	240.6	9.3
4 SISAC 200	156.4	149.8	2358	374.5	15.7	150.6	155.4	2307	360.6	15.2	144.9	160.7	2256	346.9	14.7	134.0	170.5	2157	320.8	13.7
4 SISAC 240	179.4	184.1	2746	429.5	14.1	172.6	190.8	2686	413.2	12.8	165.4	196.8	2619	396.0	11.5	149.9	206.8	2466	358.9	9.0

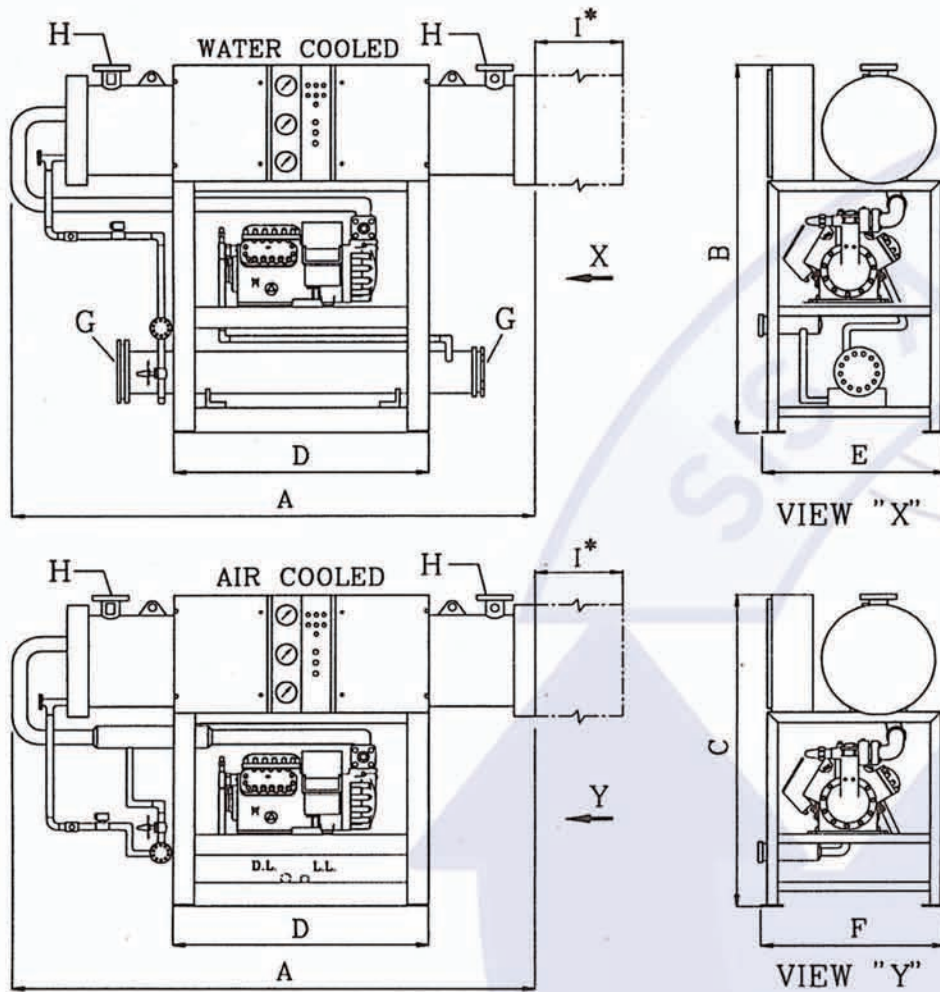
Q_E: Actual Evaporator Cooling Capacity [1 Tons = 12000 BTU/Hr]

W_C: Compressor Motor Power Input at 380V/30/50 Hz

FD: Water Pressure Drop [Ft W.C.]

Q_C: Condenser Total Heat Rejection [1 MBH = 1000 BTU/Hr]

W/FD: Water Flow Data



MODEL	A	B	C	D	E	F	G	H	I	D.L	L.L
1 SIS(W,A)C 5	1700	1570	1470	900	730	830	2x1"	2x1 1/2"	1200	5/8"	5/8"
1 SIS(W,A)C 10	1700	1570	1470	900	780	880	2x1 1/4"	2x2"	1200	7/8"	5/8"
1 SIS(W,A)C 15	2000	1570	1470	900	780	880	2x2"	2x2"	1500	1 1/8"	7/8"
1 SIS(W,A)C 20	2000	1620	1470	1000	780	880	2x2"	2x2 1/2"	1500	1 1/8"	7/8"
1 SIS(W,A)C 25	2000	1620	1470	1000	780	880	2x2"	2x2 1/2"	1500	1 1/8"	1 1/8"
1 SIS(W,A)C 30	2500	1720	1470	1200	780	880	2x2"	2x3"	2000	1 3/8"	1 1/8"
1 SIS(W,A)C 35	2500	1720	1470	1200	780	880	2x2 1/2"	2x3"	2000	1 3/8"	1 1/8"
1 SIS(W,A)C 40	2500	1720	1470	1200	780	910	2x2 1/2"	2x3"	2000	1 3/8"	1 1/8"
1 SIS(W,A)C 50	2500	1720	1470	1200	780	910	2x3"	2x4"	2250	1 5/8"	1 3/8"
1 SIS(W,A)C 60	2900	1720	1470	1200	780	910	2x3"	2x4"	2250	1 5/8"	1 3/8"

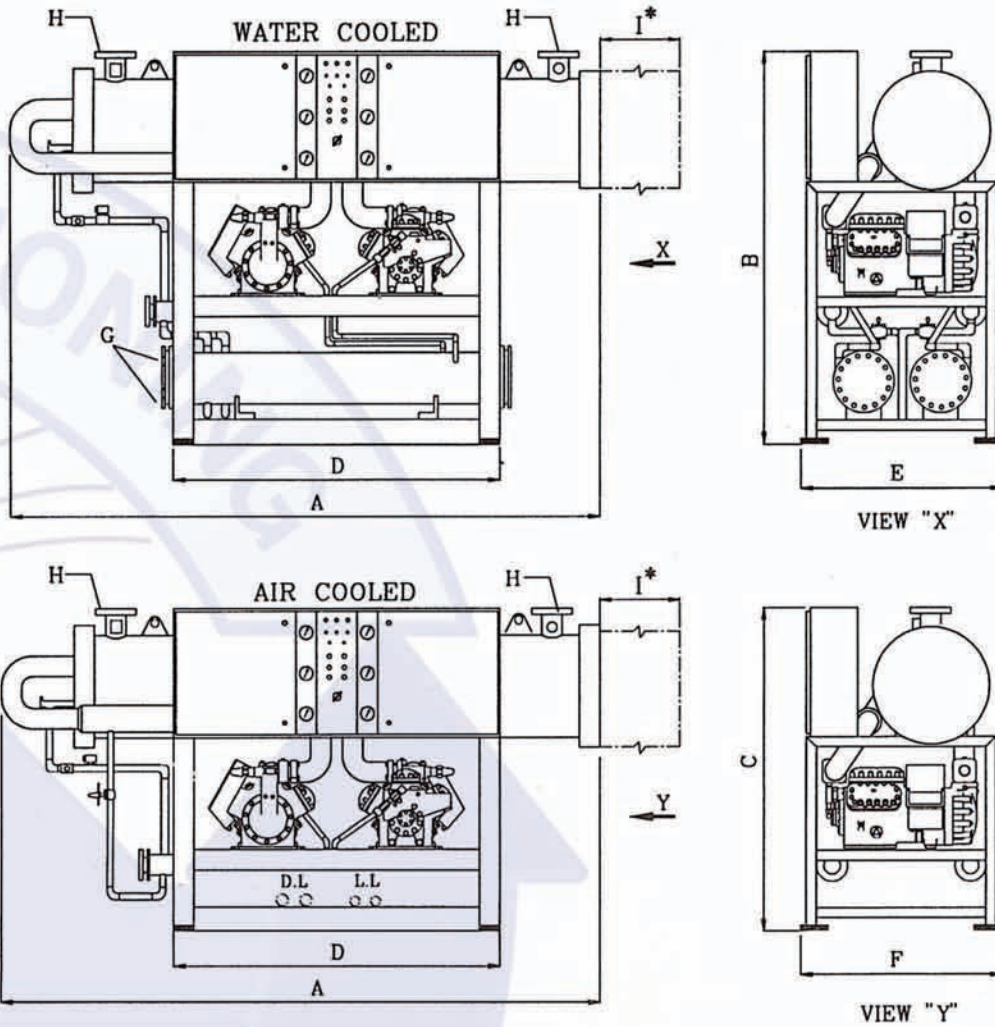
NOTES:

For Air Cooled Models, Discharge & Liquid Line Size Are Based On A Maximum Distance Of 15 Meters Between Chiller And Air Cooled Condenser.

D.L = Discharge Line

L.L = Liquid Line

* Servicing Space To Be Allowed On Either End.



MODEL	A	B	C	D	E	F	G	H	I	D.L	L.L
2 SIS(W,A)C 10	2000	1620	1450	1500	860	960	4x1"	2x2"	1500	2x $\frac{5}{8}$ "	2x $\frac{5}{8}$ "
2 SIS(W,A)C 15	2000	1620	1450	1500	860	960	4x1 $\frac{1}{4}$ "	2x2"	1500	2x $\frac{7}{8}$ "	2x $\frac{5}{8}$ "
2 SIS(W,A)C 20	2500	1720	1500	1500	860	960	4x1 $\frac{1}{4}$ "	2x2 $\frac{1}{2}$ "	2000	2x $\frac{7}{8}$ "	2x $\frac{5}{8}$ "
2 SIS(W,A)C 30	2500	1720	1500	1600	910	1060	4x2"	2x3"	2000	2x1 $\frac{1}{8}$ "	2x $\frac{7}{8}$ "
2 SIS(W,A)C 40	2500	1720	1500	1600	910	1060	4x2"	2x3"	2000	2x1 $\frac{1}{8}$ "	2x $\frac{7}{8}$ "
2 SIS(W,A)C 50	2500	1770	1500	1600	910	1060	4x2"	2x3"	2000	2x1 $\frac{1}{8}$ "	2x1 $\frac{1}{8}$ "
2 SIS(W,A)C 60	2900	1770	1500	1600	910	1060	4x2"	2x3"	2400	2x1 $\frac{3}{8}$ "	2x1 $\frac{1}{8}$ "
2 SIS(W,A)C 70	2900	1770	1500	1600	1010	1160	4x2 $\frac{1}{2}$ "	2x4"	2400	2x1 $\frac{3}{8}$ "	2x1 $\frac{1}{8}$ "
2 SIS(W,A)C 80	2900	1770	1500	1600	1010	1160	4x2 $\frac{1}{2}$ "	2x4"	2400	2x1 $\frac{3}{8}$ "	2x1 $\frac{1}{8}$ "
2 SIS(W,A)C 100	3500	2030	1620	1740	1060	1260	4x3"	2x5"	3000	2x1 $\frac{5}{8}$ "	2x1 $\frac{3}{8}$ "
2 SIS(W,A)C 120	3500	2030	1620	1740	1060	1260	4x3"	2x5"	3000	2x1 $\frac{5}{8}$ "	2x1 $\frac{3}{8}$ "

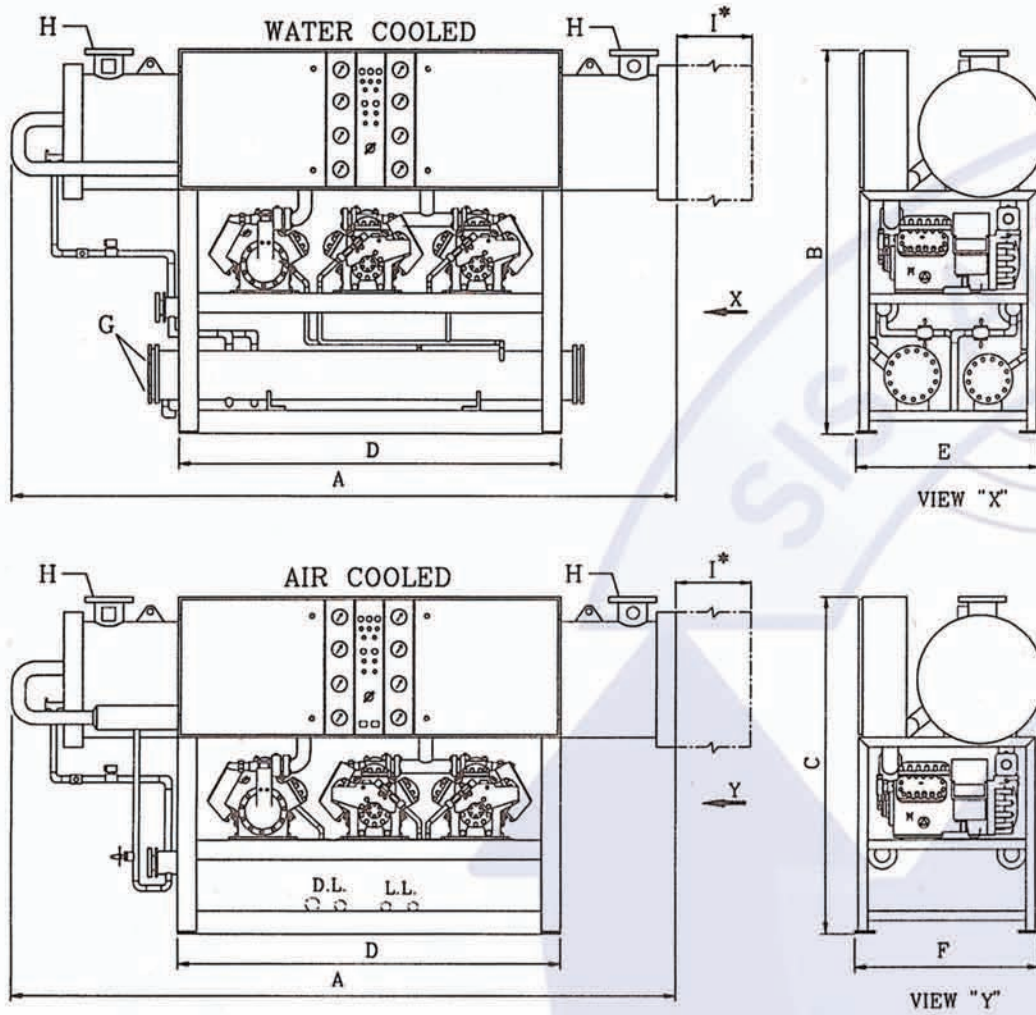
NOTES:

For Air Cooled Models, Discharge & Liquid Line Size Are Based On A Maximum Distance Of 15 Meters Between Chiller And Air Cooled Condenser.

D.L = Discharge Line

L.L = Liquid Line

* Servicing Space To Be Allowed On Either End.



MODEL	A	B	C	D	E	F	G	H	I	D.L	L.L
3 SIS(W,A)C 60	3000	1940	1550	2000	940	1110	2x1 $\frac{3}{8}$ "	2x4"	2500	1 $\frac{3}{8}$ " 1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ " 7 $\frac{7}{8}$ "
3 SIS(W,A)C 75	3000	1940	1550	2000	990	1160	2x3"	2x4"	2500	1 $\frac{5}{8}$ " 1 $\frac{1}{8}$ "	1 $\frac{3}{8}$ " 1 $\frac{1}{8}$ "
3 SIS(W,A)C 90	3500	1940	1550	2000	990	1160	2x3"	2x4"	3000	1 $\frac{5}{8}$ " 1 $\frac{3}{8}$ "	1 $\frac{3}{8}$ " 1 $\frac{1}{8}$ "
3 SIS(W,A)C 105	3200	1940	1550	2000	990	1160	2x3"	2x5"	2700	2 $\frac{1}{8}$ " 1 $\frac{3}{8}$ "	1 $\frac{3}{8}$ " 1 $\frac{1}{8}$ "
3 SIS(W,A)C 120	3500	1970	1550	2000	990	1210	2x3"	2x5"	3000	2 $\frac{1}{8}$ " 1 $\frac{3}{8}$ "	1 $\frac{3}{8}$ " 1 $\frac{1}{8}$ "
3 SIS(W,A)C 150	4000	2280	1720	2300	1210	1360	2x4"	2x5"	3500	2 $\frac{5}{8}$ " 1 $\frac{5}{8}$ "	3x1 $\frac{3}{8}$ "
3 SIS(W,A)C 180	4000	2280	1720	2300	1210	1360	2x4"	2x6"	3500	2 $\frac{5}{8}$ " 1 $\frac{5}{8}$ "	3x1 $\frac{3}{8}$ "

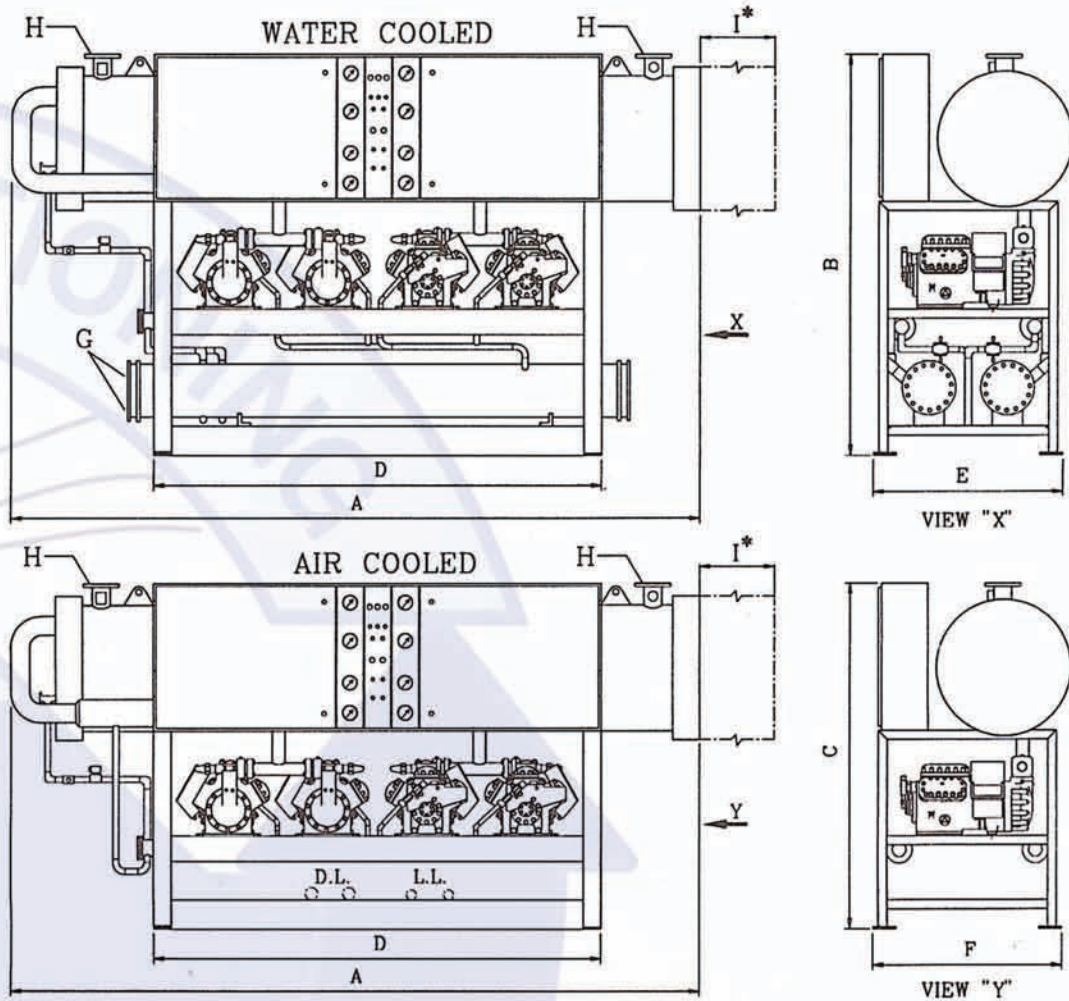
NOTES:

For Air Cooled Models, Discharge & Liquid Line Size Are Based On A Maximum Distance Of 15 Meters Between Chiller And Air Cooled Condenser.

D.L = Discharge Line

L.L = Liquid Line

* Servicing Space To Be Allowed On Either End.



MODEL	A	B	C	D	E	F	G	H	I	D.L	L.L
4 SIS(W,A)C 80	3500	1940	1600	2500	1060	1260	4x2 1/2	2x4"	3000	2x1 5/8	2x1 1/8
4 SIS(W,A)C 100	3500	2070	1660	2500	1060	1260	4x3"	2x5"	3000	2x1 5/8	2x1 3/8
4 SIS(W,A)C 120	3500	2070	1660	2500	1060	1260	4x3"	2x5"	3000	2x2 1/8	2x1 3/8
4 SIS(W,A)C 140	3500	2070	1660	2500	1060	1260	4x3"	2x5"	3000	2x2 1/8	2x1 3/8
4 SIS(W,A)C 160	3500	2070	1660	2500	1060	1260	4x3"	2x5"	3000	2x2 1/8	2x1 3/8
4 SIS(W,A)C 200	4000	2070	1700	2900	1240	1310	4x4"	2x6"	3500	2x2 5/8	4x1 3/8
4 SIS(W,A)C 240	4500	2170	1700	2900	1240	1310	4x4"	2x6"	4000	2x2 5/8	4x1 3/8

NOTES:

For Air Cooled Models, Discharge & Liquid Line Size Are Based On A Maximum Distance Of 15 Meters Between Chiller And Air Cooled Condenser.

D.L = Discharge Line

L.L = Liquid Line

* Servicing Space To Be Allowed On Either End.

ONE COMPRESSOR MODELS

MODEL			1 SIS-5		1 SIS-10		1 SIS-15		1 SIS-20		1 SIS-25		1 SIS-30		1 SIS-35		1 SIS-40		1 SIS-50		1 SIS-60	
			WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC
ELECTRICAL DATA	COMPRESSOR MOTOR (PER UNIT)	HP	5		10		15		20		25		30		35		40		50		60	
		RLA	6.8	7.8	16.2	17.6	19.8	23.2	22.2	25.8	30.5	35.3	39.1	45.7	43.7	50.9	48.3	55.9	65.8	75.7	79.0	90.4
		FLA	7.6	8.5	17.5	19.2	22.3	25.8	24.6	28.3	33.9	38.9	43.9	50.4	48.7	56.0	53.7	61.3	72.5	83.0	86.9	99.4
		MOC	10.1		21.1		31.4		32.7		45.0		59.0		65.5		70.5		92.0		112	
		LRA	45		104		117		143		165		200		253		311		395		475	
	SYSTEM	INPUT [KW]	4.5	5.0	10.0	10.9	11.9	14.2	13.7	16.2	19.4	22.8	26.3	30.7	27.2	32.0	32.3	38.0	37.8	44.8	45.6	53.8
		FLA	7.6	8.5	17.5	19.2	22.3	25.8	24.6	28.3	33.9	38.9	43.9	50.4	48.7	56	53.7	61.3	72.5	83.0	86.9	99.4
		WIRE SIZE*	4x4	4x4	4x4	4x4	4x6	4x6	4x10	4x10	4x10	4x10	4x16	4x16	4x16	4x16	3x25, 16	3x25, 16	3x25, 16	3x35, 16	3x35, 16	3x50, 16
	PHYSICAL DATA	OIL CHARGE [US GALS]	0.5		1		1		1		1.1		1.1		1.1		2		2		2	
		REF. CHARGE [KG]**	3	1.3	6	3.5	9	6.5	12	8	15	9.5	18	11.5	21	13	24	15	30	18.5	36	23
OPER. WEIGHT [KG]		360	310	460	410	670	570	770	660	820	700	970	810	1050	840	1220	1110	1380	1180	1585	1350	

TWO COMPRESSOR MODELS

MODEL			2 SIS-30		2 SIS-40		2 SIS-50		2 SIS-60		2 SIS-70		2 SIS-80		2 SIS-100		2 SIS-120	
			WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC
ELECTRICAL DATA	COMPRESSOR MOTOR (PER UNIT)	HP	15		20		25		30		35		40		50		60	
		RLA	19.8	23.2	22.2	25.8	30.5	35.3	39.1	48.7	43.7	50.9	48.3	55.9	68.8	75.7	79.0	90.4
		FLA	23.3	25.8	24.6	28.3	33.9	38.9	43.9	50.4	48.7	56.0	53.7	61.3	72.5	83.0	86.9	99.4
		MOC	31.4		32.7		45.0		59.0		65.5		70.5		92.0		112	
		LRA	117		143		165		200		253		311		395		475	
	SYSTEM	INPUT [KW]	23.8	28.4	27.4	32.4	38.8	45.6	52.6	61.4	54.4	64.0	64.6	76.0	75.6	89.6	91.2	107.6
		FLA	44.6	51.6	49.2	56.6	67.8	77.8	87.8	100.8	97.4	112	107.4	122.6	145.0	166.0	173.8	198.8
		WIRE SIZE*	4x16	4x16	4x16	4x16	3x25, 16	3x25, 16	3x35, 16	3x50, 25	3x50, 25	3x50, 25	3x50, 25	3x70, 35	3x70, 35	3x95, 50	3x95, 50	3x120, 70
	PHYSICAL DATA	OIL CHARGE [US GALS]	2		2		2.2		2.2		2.2		4		4		4	
		REF. ** CHARGE [KG]	23	17	28	20	35	2.3	40	27	46	29	53	34	64	40	76	50
OPER. WEIGHT [KG]		1210	1010	1370	1150	1450	1200	1690	1380	1910	1500	2140	1690	2200	1750	2350	1810	

NOTES:

LRA : Locked Rotor AMPS

MOC : Maximum Operation Current

FLA : Full Load AMPS

RLA : Rated Load AMPS

* Suggested Cable Size Based On Copper Conductor Under Full Load Conditions (FLA) At Maximum Ambient Temperature Of 50°F And Maximum Distance Of 70 m.

** Excluding The Amount Of Refrigerant For An Air Cooled Condenser & Relevant Piping.

THREE COMPRESSOR MODELS

MODEL			3 SIS-60		3 SIS-75		3 SIS-90		3 SIS-105		3 SIS-120		3 SIS-150		3 SIS-180	
			WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC
ELECTRICAL DATA	COMPRESSOR MOTOR (PER UNIT)	HP	20		25		30		35		40		50		60	
		RLA	22.2	25.8	30.5	35.3	39.1	45.7	43.7	50.9	48.3	55.9	65.8	75.7	79.0	90.4
		FLA	24.6	28.3	33.9	38.9	43.9	50.4	48.7	56.0	53.7	61.3	72.5	83.0	86.9	99.4
		MOC	32.7		45.0		59.0		65.5		70.5		92.0		112	
		LRA	143		165		200		253		311		395		475	
	SYSTEM	INPUT [KW]	41.1	48.6	58.2	68.4	78.9	92.1	81.6	96.0	96.9	114.0	113.4	134.4	136.8	161.4
		FLA	73.8	84.9	101.7	116.7	131.7	151.2	146.1	168.0	161.1	183.9	217.5	249.0	260.7	298.2
WIRE SIZE*		4x16	4x16	4x16	4x16	3x25, 16	3x25, 16	3x35, 16	3x50, 25	3x50, 25	3x50, 25	3x50, 25	3x70, 35	3x70, 35	3x95, 50	
PHYSICAL DATA	OIL CHARGE [US GALS]	3		3.3		3.3		3.3		6		6		6		
	REF. CHARGE [KG]**	40	28	45	32	54	38	66	42	75	49	92	59	109	73	
	OPER. WEIGHT [KG]	1890	1550	2160	1750	2500	2000	2880	2250	2980	2350	3100	2470	3280	2630	

FOUR COMPRESSOR MODELS

MODEL			4 SIS-80		4 SIS-100		4 SIS-120		4 SIS-140		4 SIS-160		4 SIS-200		4 SIS-240	
			WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC	WC	AC
ELECTRICAL DATA	COMPRESSOR MOTOR (PER UNIT)	HP	20		25		30		35		40		50		60	
		RLA	22.2	25.8	30.5	35.3	39.1	45.7	43.7	50.9	48.3	55.9	65.8	75.7	79.0	90.4
		FLA	24.6	28.3	33.9	38.9	43.9	50.4	48.7	56.0	53.7	61.3	72.5	83.0	86.9	99.4
		MOC	32.7		45.0		59.0		65.5		70.5		92.0		112	
		LRA	143		165		200		253		311		395		475	
	SYSTEM	INPUT [KW]	54.8	64.8	76.6	91.2	105.2	122.8	108.8	128.0	129.2	152.0	151.2	179.2	182.4	215.2
		FLA	98.4	113.2	135.6	155.6	175.6	201.6	194.8	224	214.8	245.2	290.0	332.0	347.6	397.6
WIRE SIZE*		3x50, 25	3x50, 25	3x70, 35	3x95, 50	3x95, 50	3x120, 70	3x120, 70	3x150, 70	3x150, 70	3x150, 70	3x185, 95	3x240, 120	3x240, 120	3x240, 120	3x300, 150
PHYSICAL DATA	OIL CHARGE [US GALS]	4		4.4		4.4		4.4		8		8		8		
	REF. CHARGE [KG]**	52	35	65	42	75	50	85	56	96	64	120	78	144	96	
	OPER. WEIGHT [KG]	2570	2150	3000	2450	3200	2600	3680	2900	3880	3100	4100	3300	4350	3550	

NOTES:

LRA : Locked Rotor AMPS

MOC : Maximum Operation Current

FLA : Full Load AMPS

RLA : Rated Load AMPS

* Suggested Cable Size Based On Copper Conductor Under Full Load Conditions (FLA) At Maximum Ambient Temperature Of 50°F And Maximum Distance Of 70 m.

** Excluding The Amount Of Refrigerant For An Air Cooled Condenser & Relevant Piping.

SIS Air Cooled Industrial Water Chiller Performance Data

COP=3.6		Model No. : SISAI	03	05	08	10	12	15	20	25	30	40	50	60
Cooling Capacity		[USRtons]	2.6	4.2	6.8	8.6	10.3	13.6	17.2	20.6	22.8	28.8	36.2	42.8
Chilled Water Data	Cooling Capacity	[MBH]	31.2	50.4	81.6	103.2	123.6	163.2	206.4	247.2	273.6	345.6	434.4	513.6
	Inlet / Outlet Temp.	[°F]	54 → 44											
	Flow Rate	[gpm]	6.3	10.1	16.3	20.7	24.7	32.7	41.3	49.5	54.7	69.1	86.9	102.7
	Pressure Drop	[psi]	2.5	4.5	3.0	4.5	5.5	5.0	5.5	7.0	5.5	6.5	7.5	7.0
	Pump Power	[kW]	0.4	0.8	0.8	1.5	1.5	2.2	2.2	4.0	4.0	5.5	5.5	7.5
	Connections in/out	[inch]	1	1¼	1½	2	2	2½	2½	2½	2½	3	3	3
Air Cooled Condenser Data	Heat Rejection	[MBH]	39.9	64.5	05	132	158	209	264	316	350	442	556	657
	Amb. Dry Bulb Temp.	[°F]	103											
	Condensing Temp.	[°F]	115											
Compressors Data	Type	-	Hermetic/Screw/Scroll											
	No.		1	1	1	1	1	2	2	2	2	2	2	2
	Motor H.P.	[hp]	3	5	8	10	12	2×8	2×10	2×12	2×15	2×20	2×25	2×30
	Power Input	[kW]	2.55	4.12	6.67	8.43	10.10	13.33	16.86	20.19	22.35	28.23	35.48	41.95
Dimension Data	Tank Capacity	[lit]	50	90	140	210	240	280	320	400	490	610	750	900
	Net Weight	[kg]	220	255	320	375	520	800	880	950	1100	1420	1600	1650
	External Length (L)	[mm]	900	1300	1400	1600	1600	2100	2650	2650	3000	3200	3600	3600
	External Width (W)	[mm]	650	650	750	800	800	850	850	850	950	1100	1250	1250
	External Height (H)	[mm]	1000	1100	1200	1300	1400	1400	1400	1600	1800	1900	2100	2300

Considering the vast use of central air conditioning systems and also the variety of air handling unit models and capacities, it is one of the most utilized air conditioning equipment.

SIS air handling units are offered in air flow rates of 2500 to 40000 CFM and total static pressures up to 6 IN.W.G and in special cases up to 7 IN.W.G these units may be ordered as single or multi-zone types and in structural configurations of horizontal, vertical and semi – vertical with outlet positions suitable for horizontal, upward or downward air delivery.

Air handling units may be used to provide cooling or heating for cooling a chiller or a condensing unit is coupled with the AHU and for heating, hot-water or steam coils or even electrical heating elements may be incorporated into the unit as required.

Blower fans are of the centrifugal type, with forward or backward curved blade configurations. These fans are manufactured by well-known international brands.

DX or chilled water coils and hot-water or steam coils may be incorporated in AHU as needed. Copper tubes are used in the construction of DX, chilled water and hot-water coils while in the steam coils seamless steel tubes are used. In order to increase heat transfer rate plate fins in aluminum or copper material with density of 8 to 14 FPI are used in the production of coils. All air handling units have condensate drain pan(s) and may also be equipped with droplet eliminators most suitable for environments with high humidity and also upon customer's request. Droplet eliminators may be made of galvanized steel, stainless steel or plastic. All air handling units are equipped with filter compartment and generally have a mixing box which means the AHU should have two adjustable air dampers, one for fresh air and another for return air, which could be equipped with damper actuators. The above mentioned dampers are made of aluminum with air foil shaped opposed blades. Installation of special filters in air handling units is possible upon request.

Installation of different types of humidifiers in Air Handling units such as steam grid, immersed electrode, spray nozzle and microprocessor based is possible. In case of high humidifying requirement or cooling through the use of evaporating systems, SIS air washers in 3, 4, 6 and 8 classes with circulation pumps installed inside or outside the air washer compartment are available. Air washer body structure is of galvanized steel sheets for higher life expectancy, assembled using fasteners. Water distribution piping is made of PVC material. In general, air handling unit frames are of aluminum and the body panels are of galvanized steel sheets. Fasteners include screws and nuts.

In case of installation and transportation limitations air handling units may be offered in semi – knocked down or completely knocked down state.

AIR HANDLING UNIT SELECTION PROCEDURE:

Refer to following tables by desired air flow rate, select size of unit and then search for proper coil for computed cooling capacity in standard entering air condition as follow:

Cooling coil: Entering air 80°F D.B. and 67°F W.B.

Heating coil: Entering air 60°F D.B.

-Cooling-Based on entering air at 80°F D.B, 67°F W.B. and chilled water entering at 45°F and leaving at 55°F.

- Heating-Based on entering air at 60°F and hot water entering at 180°F and leaving at 160°F

Notes:

EDB = Entering air Dry Bulb temperature (°F).

EWB = Entering air Wet Bulb temperature (°F)

DB = Leaving air Dry Bulb temperature (°F)

WB = Leaving air Wet Bulb temperature (°F)

MBH = 1000 Btu/hr.

AIR HANDLING UNITS (8 FIN PER INCH)

MODEL	CFM	COOLING CAPACITY [MBH]					HEATING CAPACITY [MBH]					
		CHILLED WATER			D.R. COIL		HOT WATER				STEAM	
		4 Row	6 Row	8 Row	4 Row	6 Row	1 Row	2 Row	3 Row	4 Row	1 Row	2 Row
SISAHU-250	2500	86	108	122	79	100	70	115	170	210	136	240
SISAHU-350	3500	128	162	184	115	145	105	180	260	310	202	365
SISAHU-500	5000	171	216	244	157	200	140	245	350	420	270	490
SISAHU-700	7000	244	304	342	211	270	200	340	490	600	375	680
SISAHU-1000	10000	345	430	486	317	405	280	485	700	850	535	980
SISAHU-1500	15000	530	660	745	475	615	440	770	1110	1330	805	1470
SISAHU-2200	22000	825	1025	1160	700	910	600	1050	1600	1800	1190	2160
SISAHU-2500	25000	855	1065	1205	781	995	700	1200	1700	2100	1330	2470
SISAHU-3000	30000	1034	1290	1460	913	1160	840	1460	2100	2540	1620	3000
SISAHU-4000	40000	1390	1730	1965	1215	1540	1240	2110	2800	3450	2120	4010

AIR HANDLING UNITS (14 FIN PER INCH)

MODEL	CFM	COOLING CAPACITY [MBH]					HEATING CAPACITY [MBH]					
		CHILLED WATER			D.R. COIL		HOT WATER				STEAM	
		4 Row	6 Row	8 Row	4 Row	6 Row	1 Row	2 Row	3 Row	4 Row	1 Row	2 Row
SISAHU-250	2500	113	142	161	91	116	108	161	221	250	163	288
SISAHU-350	3500	169	210	242	132	168	160	240	330	375	242	438
SISAHU-500	5000	225	285	322	180	230	215	343	455	525	324	588
SISAHU-700	7000	322	401	451	243	310	308	476	637	755	450	816
SISAHU-1000	10000	455	567	642	365	466	431	679	910	1095	642	1176
SISAHU-1500	15000	699	871	983	547	700	677	1020	1370	1681	966	1764
SISAHU-2200	22000	1089	1333	1462	806	1030	924	1470	2010	2486	1428	2592
SISAHU-2500	25000	1128	1405	1590	899	1146	1078	1680	2260	2822	1596	2984
SISAHU-3000	30000	1364	1702	1927	1051	1340	1293	2044	2730	3376	1944	3600
SISAHU-4000	40000	1834	2283	2593	1399	1784	1795	2800	3640	4478	2544	4812

CHILLED WATER RATING OF AIR HANDLING UNITS (8 FIN PER INCH)

MODEL	CFM	EDB (°F)	EWB (°F)	4 ROW COIL			6 ROW COIL			8 ROW COIL		
				MBH	DB (°F)	WB (°F)	MBH	DB (°F)	WB (°F)	MBH	DB (°F)	WB (°F)
SISAHU-250	2500	80	67	86	60.0	65.2	108	55.0	53.0	122	52.0	50.8
		90	72	115	62.5	58.7	144	56.5	54.7	163	53.0	51.8
		100	75	135	66.2	60.2	169	59.0	55.6	190	54.6	52.5
SISAHU-350	3500	80	67	128	58.4	55.4	162	53.0	51.8	184	50.0	49.5
		90	72	171	61.2	57.7	217	55.0	53.0	245	51.0	50.0
		100	75	201	64.0	59.1	254	56.2	53.8	288	52.5	51.0
SISAHU-500	5000	80	67	171	60.0	56.3	216	55.0	53.0	244	52.0	50.8
		90	72	229	62.5	58.8	289	56.5	54.6	325	53.5	51.9
		100	75	268	66.2	60.3	339	59.0	55.5	383	54.2	52.2
SISAHU-700	7000	80	67	244	59.0	56.0	304	55.0	52.9	342	52.0	50.8
		90	72	327	62.0	58.5	407	56.4	54.5	458	53.3	51.7
		100	75	383	66.0	60.0	477	59.0	55.4	535	54.2	52.3
SISAHU-1000	10000	80	67	345	59.0	56.1	430	55.0	53.0	486	52.1	50.9
		90	72	462	62.0	58.7	576	56.5	54.7	650	53.5	51.9
		100	75	541	66.0	60.1	675	59.0	55.6	762	54.2	52.4
SISAHU-1500	15000	80	67	530	59.0	55.9	660	54.2	52.7	745	51.7	50.5
		90	72	710	62.0	58.3	884	56.2	54.2	995	53.0	51.4
		100	75	832	66.0	59.7	1036	58.2	55.1	1165	54.0	52.0
SISAHU-2200	22000	80	67	825	58.0	55.1	1025	53.0	51.7	1160	50.0	49.1
		90	72	1105	61.0	57.3	1375	55.0	53.0	1550	51.0	49.8
		100	75	1295	64.0	58.6	1605	56.2	53.5	1820	52.0	50.0
SISAHU-2500	25000	80	67	855	59.7	56.2	1065	55.1	53.2	1205	52.0	51.0
		90	72	1145	62.4	58.8	1425	57.0	54.9	1610	53.6	52.1
		100	75	1342	66.0	60.3	1670	59.2	55.9	1890	54.5	52.6
SISAHU-3000	30000	80	67	1034	59.7	56.2	1290	55.0	53.0	1460	52.0	50.9
		90	72	1385	62.4	58.7	1725	56.5	54.7	1950	53.5	51.9
		100	75	1623	66.0	60.2	2025	59.0	55.6	2290	54.5	52.3
SISAHU-4000	40000	80	67	1390	59.6	56.1	1730	55.0	53.0	1965	51.8	50.7
		90	72	1860	62.4	58.6	2315	56.5	54.6	2630	53.0	51.5
		100	75	2175	66.0	60.1	2715	59.0	55.5	3085	54.0	52.0

CHILLED WATER RATING OF AIR HANDLING UNITS (14 FIN PER INCH)

MODEL	CFM	EDB (°F)	EWB (°F)	4 ROW COIL			6 ROW COIL			8 ROW COIL		
				MBH	DB (°F)	WB (°F)	MBH	DB (°F)	WB (°F)	MBH	DB (°F)	WB (°F)
SISAHU-250	2500	80	67	113	54.0	52.0	142	47.8	47.3	161	44.0	43.9
		90	72	151	56.0	53.4	185	48.7	48.0	205	44.5	44.4
		100	75	178	57.0	54.0	214	49.1	48.5	233	45.0	44.9
SISAHU-350	3500	80	67	169	52.1	50.9	210	46.2	46.0	242	41.8	41.7
		90	72	225	53.5	52.0	270	46.9	46.6	303	42.5	42.4
		100	75	265	54.6	52.5	308	47.7	47.1	343	43.0	42.9
SISAHU-500	5000	80	67	225	53.9	52.1	285	47.6	47.1	322	44.0	44.0
		90	72	302	55.3	53.4	381	48.2	47.0	408	44.5	44.4
		100	75	354	57.0	54.0	427	49.0	48.4	465	45.0	45.0
SISAHU-700	7000	80	67	322	52.9	51.6	401	47.6	47.1	451	44.0	43.9
		90	72	431	55.0	53.0	524	48.0	47.7	570	44.5	44.4
		100	75	505	56.0	53.6	603	48.9	48.1	652	45.0	44.9
SISAHU-1000	10000	80	67	455	53.5	52.0	567	47.6	47.2	842	44.0	43.9
		90	72	609	55.1	53.2	746	48.1	47.8	818	44.5	44.4
		100	75	714	56.2	53.9	860	48.9	48.2	930	45.0	44.9
SISAHU-1500	15000	80	67	599	52.9	51.5	871	47.0	46.9	983	43.5	43.4
		90	72	937	54.2	52.6	1136	47.5	47.3	1245	44.0	43.9
		100	75	1098	55.2	53.2	1302	48.2	47.9	1410	44.5	44.4
SISAHU-2200	22000	80	67	1089	51.8	50.5	1333	45.8	45.7	1462	43.0	42.9
		90	72	1458	52.5	51.2	1700	46.7	46.5	1860	43.5	43.4
		100	75	1705	53.5	51.8	1948	47.6	47.0	2100	44.0	43.9
SISAHU-2500	25000	80	67	1128	53.9	52.0	1405	47.8	47.5	1590	43.3	44.2
		90	72	1511	55.2	53.8	1831	48.9	48.3	2035	44.8	44.7
		100	75	1771	57.0	54.1	2104	50.0	49.0	2310	45.3	45.2
SISAHU-3000	30000	80	67	1364	54.0	52.0	1702	47.7	47.3	1927	44.0	43.9
		90	72	1828	55.0	53.2	2217	48.8	48.0	2454	44.5	44.4
		100	75	2142	56.5	53.9	2563	49.2	48.5	2790	45.0	45.0
SISAHU-4000	40000	80	67	1834	53.4	51.8	2283	47.5	47.2	2593	43.9	43.8
		90	72	2455	55.0	53.0	2960	48.7	47.0	3271	44.5	44.4
		100	75	2871	56.2	53.8	3408	49.2	48.5	3723	45.0	45.0

HOT WATER RATING OF AIR HANDLING UNITS (8 FIN PER INCH)

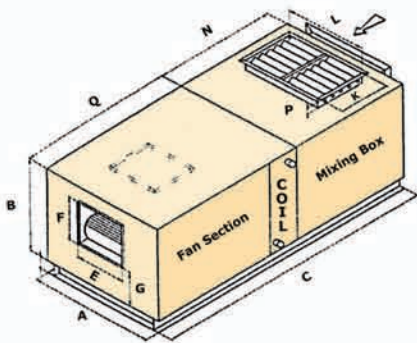
MODEL	CFM	EDB (°F)	1 ROW COIL		2 ROW COIL		3 ROW COIL		4 ROW COIL	
			MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)
SISAHU-250	2500	0	117	43.0	195	71.7	260	95.6	320	117.7
		20	102	57.5	165	80.7	220	101.0	280	123.0
		40	87	72.0	140	91.5	195	111.7	230	125.0
		60	70	85.7	115	102.3	170	122.5	210	137.2
SISAHU-350	3500	0	177	46.5	300	78.8	400	105.1	475	124.8
		20	154	60.5	260	88.3	335	108.0	410	127.7
		40	130	74.1	220	97.8	300	118.8	340	129.3
		60	105	87.6	180	107.3	260	128.3	310	141.5
SISAHU-500	5000	0	236	43.4	405	74.5	535	98.4	645	118.6
		20	206	57.9	350	84.4	450	102.8	555	122.1
		40	147	72.0	300	95.2	405	114.5	460	124.6
		60	140	85.7	245	105.0	350	124.4	420	137.2
SISAHU-700	7000	0	338	44.4	570	74.9	750	98.5	920	120.9
		20	294	58.6	495	85.0	635	103.4	795	124.5
		40	249	72.7	415	94.5	570	114.9	655	126.0
		60	200	86.3	340	104.6	490	124.4	600	138.0
SISAHU-1000	10000	0	473	43.5	815	75.0	1075	98.9	1305	120.0
		20	412	57.9	705	84.8	905	103.2	1130	124.0
		40	349	72.0	590	94.2	815	114.9	935	126.4
		60	280	85.7	485	104.6	700	124.0	850	138.0
SISAHU-1500	15000	0	745	45.7	1300	79.7	1705	104.5	2045	125.4
		20	647	59.6	1120	88.6	1440	108.3	1770	128.6
		40	549	73.6	940	97.6	1300	119.7	1460	129.6
		60	440	87.0	770	107.2	1110	128.0	1330	141.0
SISAHU-2200	22000	0	1010	42.2	1770	74.0	2460	102.8	2810	117.5
		20	875	56.5	1530	84.0	2070	106.5	2395	120.1
		40	735	70.7	1280	93.5	1870	118.2	1975	122.6
		60	600	85.3	1050	103.9	1600	126.9	1800	135.0
SISAHU-2500	25000	0	1185	43.6	2020	74.3	2615	96.2	3220	118.5
		20	1031	57.9	1750	84.4	2205	102.8	2795	122.8
		40	873	72.1	1470	94.0	1985	113.0	2305	124.8
		60	700	85.7	1200	104.1	1700	122.5	2100	137.0
SISAHU-3000	30000	0	1420	43.5	2460	75.4	3230	99.0	3910	119.9
		20	1235	57.8	2130	85.3	2720	103.4	3385	123.8
		40	1045	72.0	1785	94.7	2450	115.0	2790	125.5
		60	840	85.7	1460	104.7	2100	124.4	2540	137.9
SISAHU-4000	40000	0	2095	48.2	3560	81.8	4300	98.9	5300	121.9
		20	1825	61.9	3080	90.8	3630	103.5	4590	125.5
		40	1545	75.5	2580	99.3	3270	115.2	3790	127.2
		60	1240	85.5	2110	108.5	2800	124.4	3450	139.3

HOT WATER RATING OF AIR HANDLING UNITS (14 FIN PER INCH)

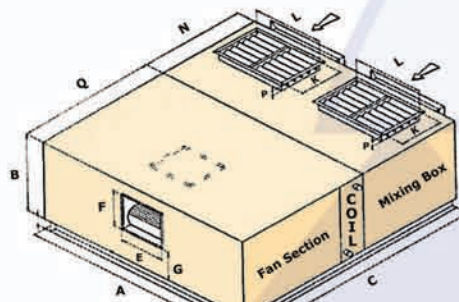
MODEL	CFM	EDB (°F)	1 ROW COIL		2 ROW COIL		3 ROW COIL		4 ROW COIL	
			MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)
SISAHU-250	2500	0	180	66.2	273	100.4	328	120.6	385	134.0
		20	157	77.7	231	105.0	286	125.2	320	137.7
		40	134	89.3	196	112.1	253	133.1	280	143.0
		60	108	99.7	161	119.2	221	141.3	250	150.9
SISAHU-350	3500	0	265	69.5	400	105.0	495	130.0	550	144.5
		20	227	79.6	350	112.0	435	134.3	495	150.0
		40	192	90.4	300	118.8	380	140.3	415	154.3
		60	160	102.0	240	123.0	330	146.7	375	158.8
SISAHU-500	5000	0	363	66.7	576	104.3	710	130.6	774	142.4
		20	317	78.3	490	110.1	620	134.0	696	148.0
		40	268	89.3	420	117.2	540	139.3	610	152.2
		60	215	99.5	343	123.1	455	143.7	525	156.6
SISAHU-700	7000	0	520	86.3	798	104.8	975	128.1	1100	144.5
		20	452	79.4	693	111.0	860	133.3	990	150.1
		40	383	90.3	581	116.3	745	138.0	880	155.6
		60	308	100.4	476	122.5	637	143.7	755	159.2
SISAHU-1000	10000	0	728	67.0	1140	104.9	1397	128.5	1576	145.0
		20	634	78.3	987	110.8	1230	133.0	1411	149.8
		40	537	89.4	826	116.0	1065	138.3	1262	156.0
		60	431	99.6	679	124.4	910	143.7	1095	160.7
SISAHU-1500	15000	0	1174	70.3	1720	105.5	2100	128.7	2860	144.7
		20	996	81.0	1500	111.9	1860	134.0	2146	151.6
		40	845	91.8	1260	117.2	1610	138.7	1930	159.3
		60	677	117.5	1020	122.5	1370	144.0	1681	163.1
SISAHU-2200	22000	0	1555	65.0	2480	103.6	3090	129.2	3477	145.4
		20	1347	76.0	2142	109.6	2700	133.0	3150	151.7
		40	1131	78.3	1792	114.9	2361	138.7	2827	158.2
		60	924	96.6	1470	121.5	2010	144.0	2486	164.0
SISAHU-2500	25000	0	1825	67.1	2830	104.0	3500	128.8	3980	146.4
		20	1587	78.4	2450	110.1	3066	132.8	3600	152.4
		40	1344	89.4	2058	115.7	2680	138.6	3200	157.7
		60	1078	99.7	1680	121.8	2260	143.1	2822	163.8
SISAHU-3000	30000	0	2187	67.0	3445	105.6	4200	128.8	4740	145.3
		20	1902	78.3	2982	111.4	3686	133.0	4268	150.9
		40	1610	89.3	2499	116.6	3185	137.6	3822	157.2
		60	1293	99.6	2044	122.7	2730	143.7	3376	163.5
SISAHU-4000	40000	0	3050	70.0	4585	105.4	5590	128.5	6308	145.0
		20	2650	80.9	4000	112.0	4920	133.1	5664	150.2
		40	2237	91.4	3350	117.0	4255	137.9	5100	157.3
		60	1795	101.2	2800	124.3	3640	143.7	4478	163.0

STEAM HEATING OF AIR HANDLING UNITS

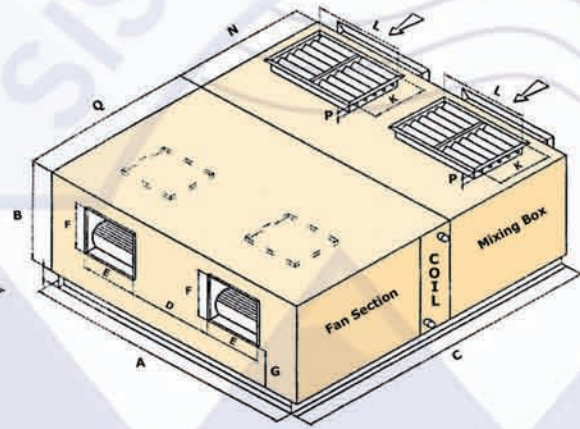
MODEL	CFM	EDB (°F)	8 FIN PER INCH				14 FIN PER INCH			
			1 ROW COIL		2 ROW COIL		1 ROW COIL		2 ROW COIL	
			MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)	MBH	DB (°F)
SISAHU-250	2500	-15	198	57.8	345	111.9	237	72.2	414	137.3
		10	177	75.1	310	124.0	121	88.0	372	146.9
		35	156	92.4	275	136.2	187	103.8	330	156.4
		60	136	110.0	240	148.3	163	120.0	288	166.0
SISAHU-350	3500	-15	293	62.0	524	122.7	351	77.2	628	150.0
		10	263	79.1	471	133.8	315	92.8	565	158.5
		35	231	95.7	418	144.8	277	107.8	501	166.7
		60	202	113.0	365	155.9	242	123.6	438	175.1
SISAHU-500	5000	-15	393	57.1	703	114.3	470	71.5	843	140.1
		10	351	74.5	633	126.4	421	87.4	760	149.8
		35	310	92.0	561	138.2	372	103.4	673	158.8
		60	270	109.6	490	150.1	324	119.6	588	168.1
SISAHU-700	7000	-15	545	56.6	976	113.2	645	71.0	1171	138.9
		10	488	74.1	878	125.3	585	86.9	1053	148.3
		35	430	91.5	780	137.5	516	102.8	936	158.0
		60	375	109.2	680	149.3	450	119.0	816	167.2
SISAHU-1000	10000	-15	778	56.6	1406	114.3	933	70.8	1687	140.1
		10	690	73.5	1266	126.4	828	86.1	1520	149.8
		35	613	91.4	1123	138.3	735	102.6	1347	158.9
		60	535	109.4	980	150.1	642	119.0	1176	168.1
SISAHU-1500	15000	-15	1170	56.7	2110	114.4	1404	71.1	2532	140.3
		10	1047	74.2	1899	126.4	1256	87.0	2279	149.7
		35	923	91.6	1684	138.2	1107	102.8	2020	158.9
		60	805	109.3	1470	150.1	966	119.2	1764	168.1
SISAHU-2200	22000	-15	1730	57.3	3100	114.6	2076	71.8	3720	140.5
		10	1548	74.7	2790	126.6	1857	87.6	3348	150.0
		35	1346	91.2	2475	138.5	1615	102.5	2970	159.2
		60	1190	109.7	2160	150.3	1428	119.7	2592	168.3
SISAHU-2500	25000	-15	1934	56.1	3510	114.1	2321	70.4	4228	140.6
		10	1730	73.6	3180	127.0	2076	86.4	3824	150.7
		35	1525	91.1	2845	139.7	1830	102.3	3384	159.5
		60	1330	109.0	2470	150.9	1596	118.7	2984	169.8
SISAHU-3000	30000	-15	2356	57.2	4217	114.3	2827	71.7	5068	140.4
		10	2107	74.6	3876	128.8	2528	87.5	4561	150.0
		35	1857	91.9	3438	140.0	2228	103.3	4125	161.5
		60	1620	109.6	3000	152.0	1944	119.6	3600	170.3
SISAHU-4000	40000	-15	3083	55.9	5642	114.7	3700	70.0	6890	143.4
		10	2758	73.4	5168	128.8	3310	86.1	6201	152.6
		35	2430	90.9	4584	140.4	2916	102.0	5500	161.5
		60	2120	108.7	4010	152.0	2544	118.5	4812	170.6



SISAHU-(250-2200)



SISAHU-2500



SISAHU-4000

MODEL	A	B	C	D	E	F	G	K	L	N	P	Q
SISAHU-250	1200	850	1870	-	466	470	235	410	700	620	170	1250
SISAHU-350	1200	850	1970	-	515	519	238	410	700	620	170	1350
SISAHU-500	1450	950	2300	-	561	566	267	530	1200	850	170	1450
SISAHU-700	1650	1100	2430	-	616	621	326	650	1200	880	170	1550
SISAHU-1000	2000	1250	2650	-	725	730	370	770	1200	1000	210	1650
SISAHU-1500	2360	1650	3100	-	821	828	553	950	1400	1250	210	1650
SISAHU-2200	2720	1760	3300	-	927	940	607	950	2000	1300	210	2000
SISAHU-2500	3300	1900	3000	-	927	940	683	770	2x1400	1000	210	2000
SISAHU-3000	3800	1900	3400	710	821	828	714	950	2x1400	1250	210	2150
SISAHU-4000	4500	2050	3450	870	927	940	759	950	2x1800	1300	210	2150

SIS cooling towers are forced draft, Counter flow and with splash type nozzles designed for the refrigeration, air conditioning, and industrial process cooling applications. Among the numerous applications are petrochemical, pulp and paper, injection mold cooling, and dairy production industrial.

High efficiency spray nozzles are used to ensure optimum performance. All body parts are assembled using screw and nut along with sealing tapes to seal air and water at all connections. Therefore these units can be easily assembled and disassembled when required.

An access door is also provided for service and maintenance purposes.

The versatility of applications along with the broad range of capacities offered-from 10 to 1660 tons of refrigeration, make SIS cooling towers the premium choice in industrial and commercial refrigeration and air conditioning.

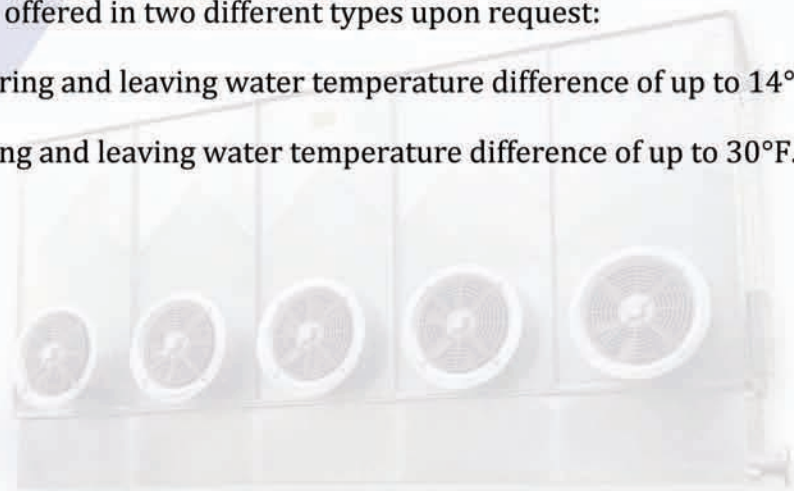
The heat transfer surface in SIS cooling towers are splash type, Non-Clogging fills fabricated of polypropylene. The unique design of the fill with optimum 3-dimensional flow through the fill promotes greater air to water contact over other types of designs and are more effective with in the same amount of space, air flow and GPM with really inconsiderable pressure drop.

The durability against blockage, non-corrosive material and ease of service and replacement are the benefits of this type of fill.

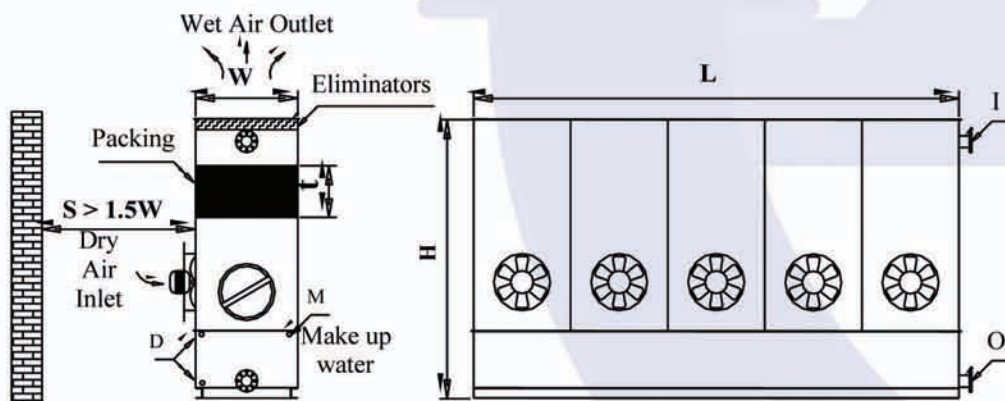
Tubeaxial type blowers are designed and assembled so that components of fans, electric motors, shafts and bearings are not exposed to the wet air, avoiding possible damages due to corrosion. Blowers, body panels, water basins,cooling surfaces and droplet eliminators are manufactured of galvanized steel sheets in appropriate thicknesses.

Galvanized steel cooling towers are offered in two different types upon request:

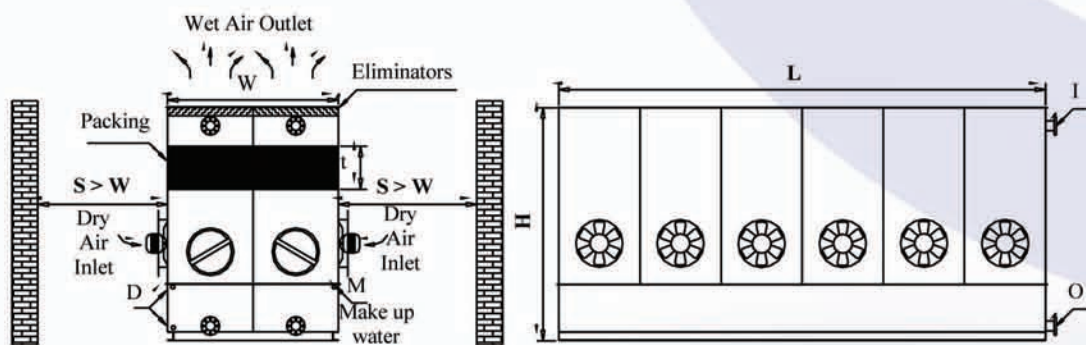
- Single stage type, suitable for entering and leaving water temperature difference of up to 14°F.
- Two stage type, suitable for entering and leaving water temperature difference of up to 30°F.



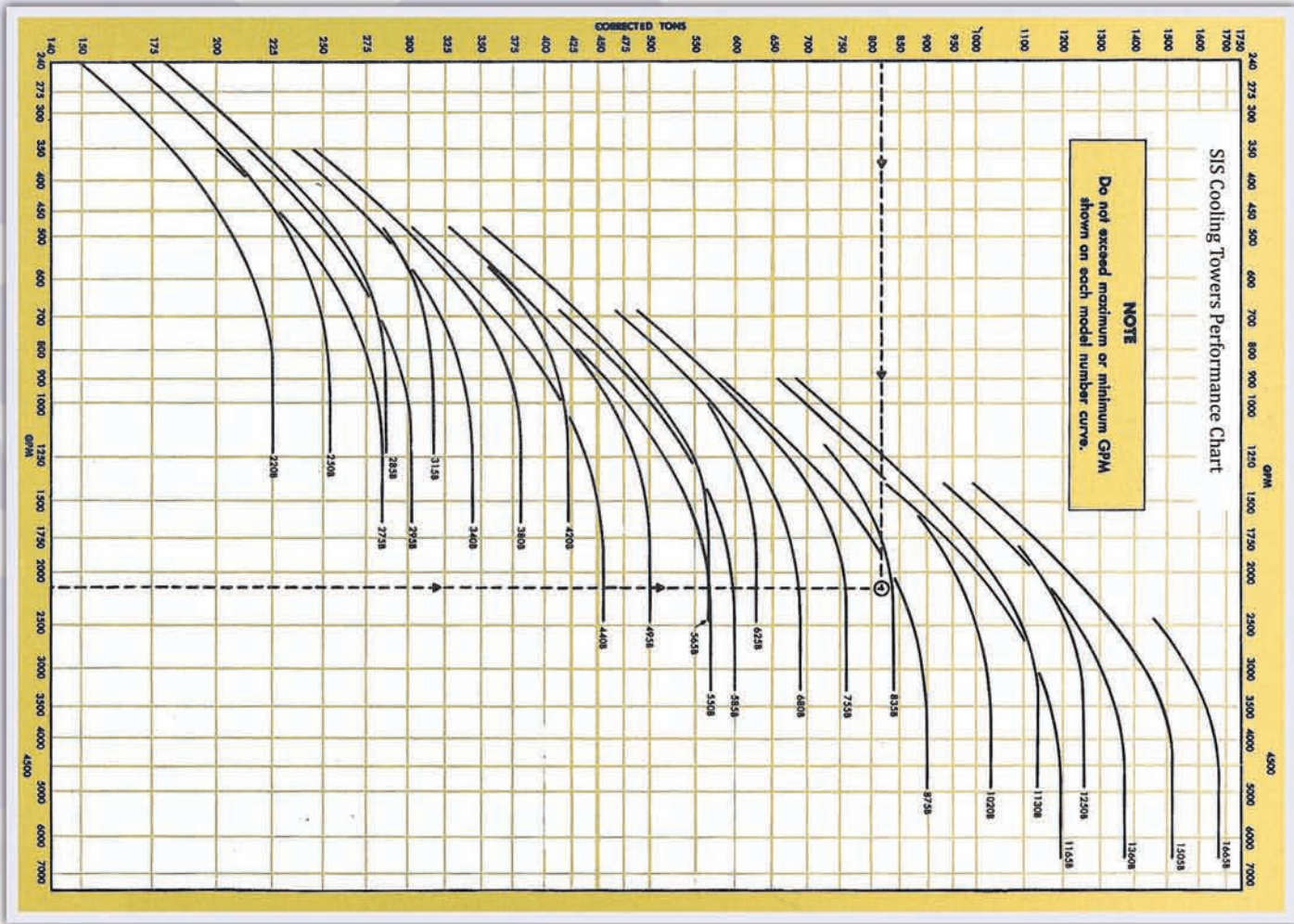
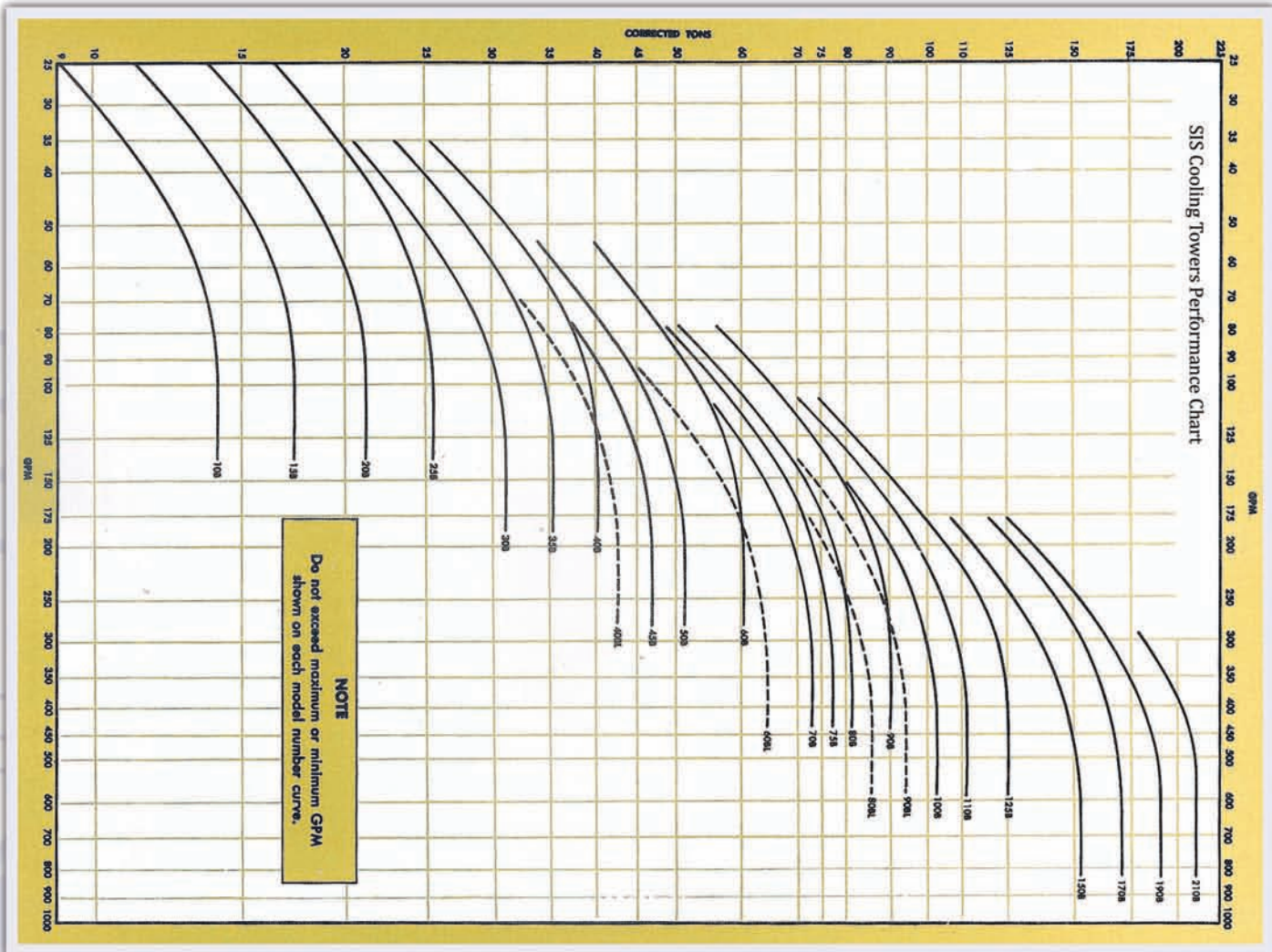
Model No. GCT	Air Flow		Approximate Weights [kg]		Dimensions [m]			No of Fans	Motor		Connections [inch]			
	CFM	m ³ /hr	Ship	Oper.	L	W	H		[kW]	[RPM]	In/Out	M	D	O.F.
10S	2800	4760	220	520	0.95	1	2.6	1	0.35	1300	2	1	2	2
15S	4000	6800	240	550	0.95	1	2.6	1	0.55	1350	2 ½	1	2	2
20S	4650	7900	250	560	0.95	1	2.6	1	0.60	1300	3	1	2	2
25S	5300	9000	275	580	0.95	1	2.7	1	0.70	1300	3	1	2	2
30S	7000	11900	285	600	0.95	1	2.7	1	0.80	1450	3	1	2	2
35S	8000	13600	400	1000	1.90	1	2.6	2	2x0.55	1350	3	1	2	2
40S	9300	15800	430	1050	1.90	1	2.6	2	2x0.60	1300	3	1	2	2
45S	10600	18000	520	1170	1.90	1	2.7	2	2x0.70	1300	4	1	2	2
60S	14000	23800	540	1200	1.90	1	2.7	2	2x0.80	1450	4	1	2	2
70S	16900	28700	580	1800	2.85	1	2.7	3	3x0.70	1300	4	1	2	2
90S	21000	35700	600	1850	2.85	1	2.7	3	3x0.80	1450	4	1	2	2
115S	28000	47600	750	2350	3.80	1	2.7	4	4x0.80	1450	4	1 ¼	2	2
145S	35000	59500	1150	3100	4.75	1	2.7	5	5x0.80	1450	5	1 ¼	2	2
175D	42000	71400	1200	3600	2.85	2	2.8	6	6x0.80	1450	2x4	1 ¼	2 ½	2
235D	56000	95200	1450	4500	3.80	2	2.8	8	8x0.80	1450	2x4	1 ¼	2 ½	2
290D	70000	119000	1750	5600	4.75	2	2.8	10	10x0.80	1450	2x5	1 ½	3	2
350D	84000	142800	2050	6700	5.70	2	2.8	12	12x0.80	1450	2x5	1 ½	3	2
470D	112000	190400	2900	9000	2x3.80	2x2	2.8	16	16x0.80	1450	4x4	2x1 ¼	2x2 ½	2x2
580D	140000	238000	3500	11200	2x4.75	2x2	2.8	20	20x0.80	1450	4x5	2x1 ½	2x3	2x2
700D	168000	285600	4100	13400	2x5.70	2x2	2.8	24	24x0.80	1450	4x5	2x1 ½	2x3	2x2



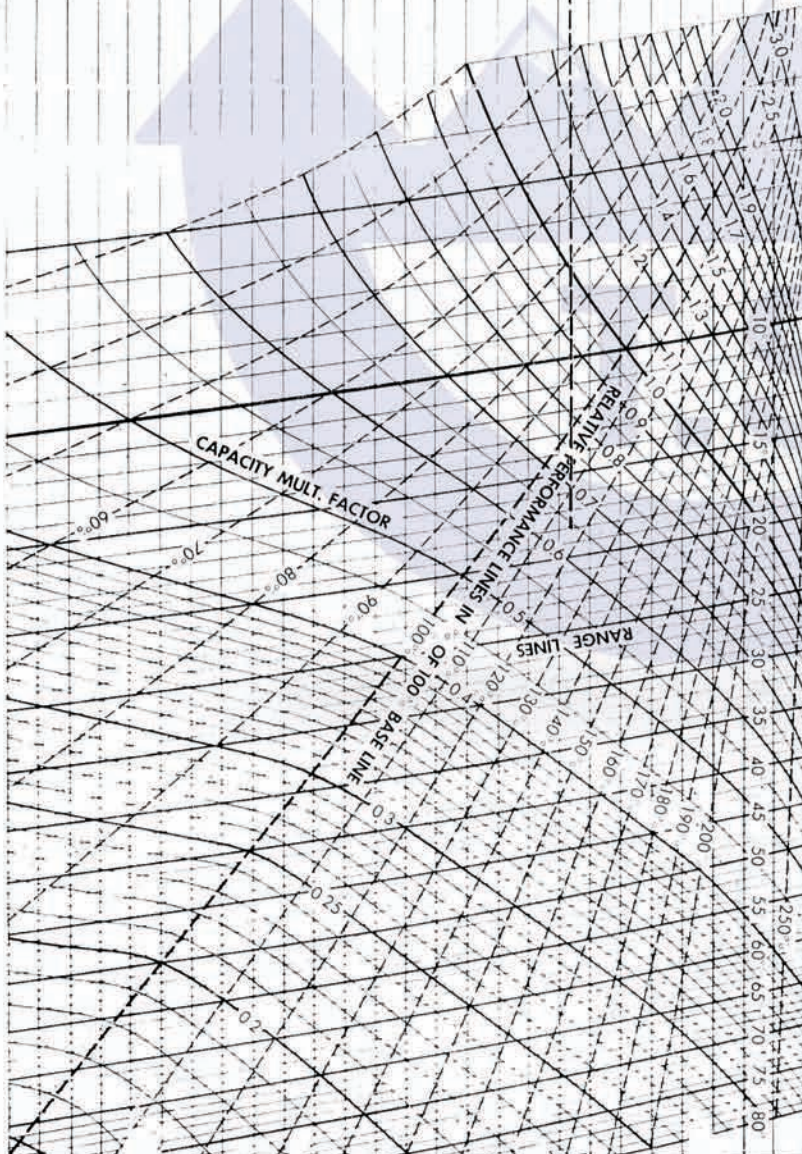
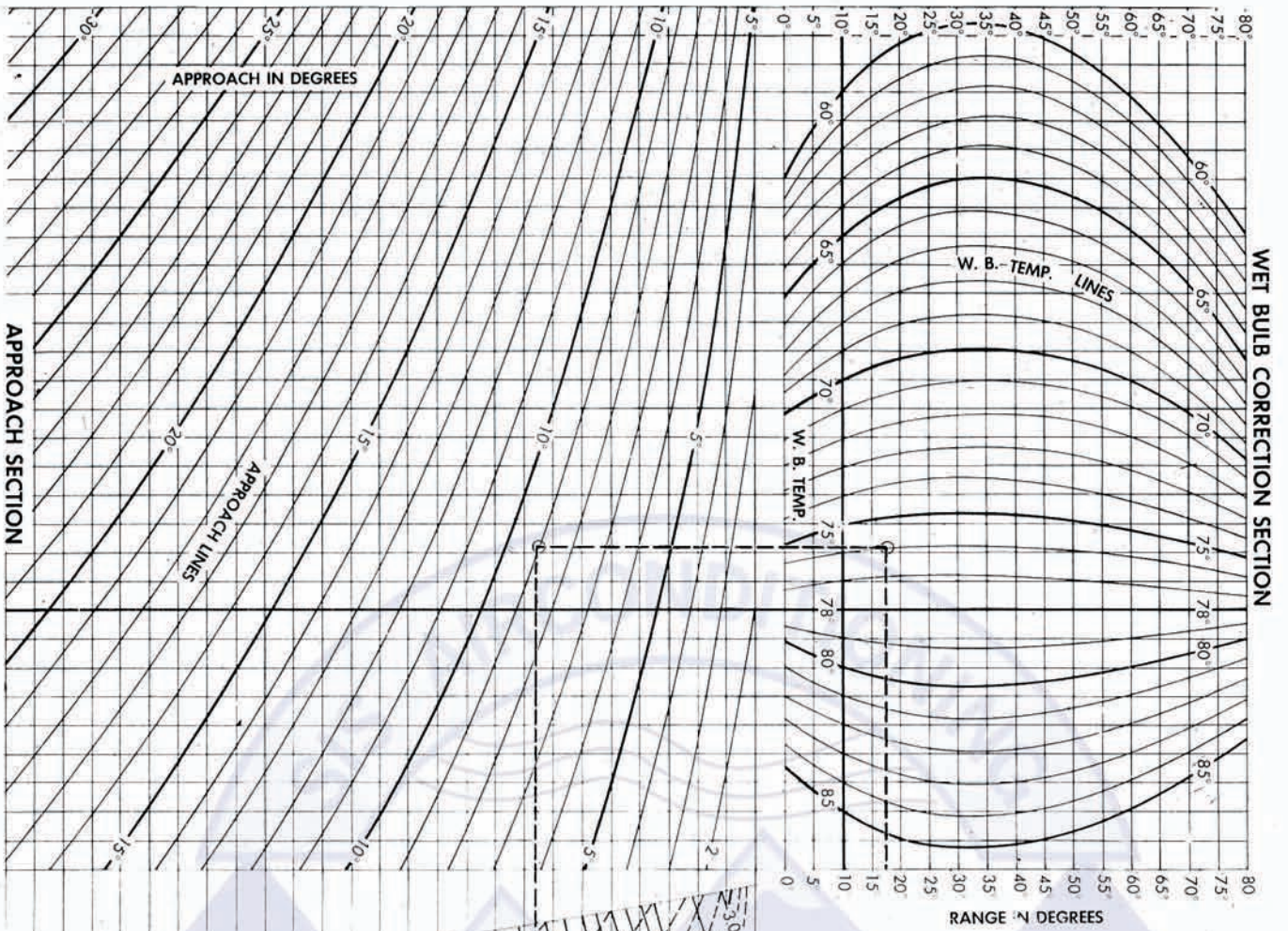
Single Models Cooling Tower Dimensions [GCT 10S~125S]



Double Models Cooling Tower Dimensions [GCT 150D~350D]



COUNTERFLOW COOLING TOWER SELECTION AND PERFORMANCE CHART



WET BULB CORRECTION SECTION

APPROACH SECTION

CAPACITY MULTIPLIER FACTOR SECTION

EXAMPLE:

Given: To cool 2090 GPM from 103°F. to 85°F. with 76°F. wet bulb.

RANGE = 103° - 85° = 18°
 APPROACH = 85° - 76° = 9°
 LOAD = $\frac{2090 \times 500 \times 18}{15,000} = 1254$ Tons

The factor is 0.65. Multiply 0.65 x 1254 = 815 corrected tons.

Referring to chart 2, using the GPM and corrected tonnage, either Unit 835B or 875B can be selected. These units are available in Tubaxial Fan.

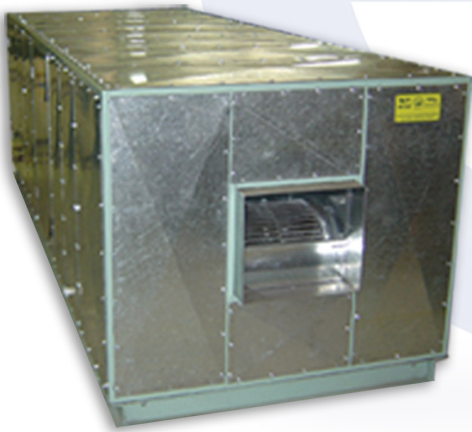
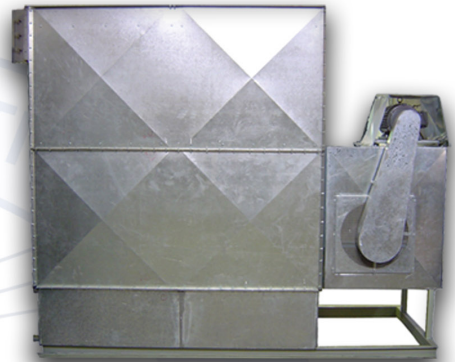
Enter the Wet Bulb Correction Section of Chart 1 on the 18° Range line as shown by the dotted line. From the intersection of the 18° Range line and the 76° Wet Bulb curve, project a straight line into the Approach Section to intersect the 9° Approach curve. From this point, extend a line horizontally into the Capacity Multiplier Factor Section, intersecting the 18° Range line to obtain the correction factor.

Cooling Towers

SIS Cooling towers are constructed from galvanized steel sheet, and plastic deck which impervious to decay organisms, rot or corrosion.

SIS Cooling Towers Features:

- Weight of the plastic fill is 1/2 of wood fill which leads to 40% reduction in unit weight.
- This plastic deck surface has been treated by a special process which totally removes the oily characteristics of PVC and leaves a highly hydrophilic surface.



Air Handling Units

SIS Air Handling Units are available in air flow of 2500 to 40000 CFM. These are offered in configuration of horizontal and vertical up blast and front blast discharge, single and multizone or a combination of the DX, chilled water hot water and steam coils can be installed upon request.

SIS Air handling units in 3 different class (4,6,8) can be installed on the units. Humidifiers are available in types of spray nozzle and steam grid.

SIS air handling units properly insulated and all surfaces are covered with fine quality enamel.



Accomplished Projects



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