SINKO

QUALITY

SERVICE

CREATIVE

WATER COOLED FLOODED TYPE CHILLER

R-134a

E-SWSF-2014A

Product Characteristics

● Compressor

The chiller has a newly developed semi-hermetic screw compressor. The difference of pressure and revolving blowing hole is small, the vibration is slight, the noise is low and the volume efficiency is high. It can work with accurate four-step or stepless capacity control(optional). It can adjust it's capacity input according to practical load change for energy saving.

● Evaporator

It is made of more than 6mm thick cylinder shape carbon steels, processed with rust-proof inside and outside, the structure is solid and tightly sealed. It consists of high-efficient heat conductivity copper tube which is fully submerged inside the refrigerant, completely brings the heat exchanger's efficiency and increases vapor pressure. When the refrigerant boils inside the cylinder, the pressure loss is low and the temperature is even, allowing the refrigerant to be closer to saturated vapor, which effectively increases the chiller's energy efficiency ratio. The working pressure on the refrigerant side is 20kg/cm², both sides of the shell panel can be removed for future maintenance; the shell is insulated with 19mm thick rubber foam material.

● Condenser

It is made of more than 6mm thick cylinder shape carbon steels, processed with rust-proof inside and outside. The two side covers of the shell body can be removed for the convenience of changing piping connection and future maintenance. There are air-vent valve and safety valve on the side of the shell body. The inside consists of high-efficient seamless copper tubes which fixed on the end cover with the rolling and expanding method, the condenser perform as high heat conductivity. The working pressure is 20kg/cm² on the refrigerant, and 10kg/cm² on the water side.

● Lubricant return device

The refrigerant is separated by the oil separator inside the compressor, which then enters the external second oil separator to effectively stop lubricant. With the addition of high pressure jet spread pump's lubricant return system, it is capable of achieving 98% or more under all types of working conditions. The second oil separator is made of 6mm thick cylinder carbon steel with high-efficient internal stainless steel strainer. The lubricant can be injected back into the system via the oil separator.

● Refrigerant flow control

Uses electrical expansion valve to control load variations under different conditions immediately and make precise adjustments according parameter changes of temperature and pressure.
In addition, the refrigerant flow can be adjusted according to parameters such as overheat ratio control period, refrigerant liquid level variation, PID adjustments….etc, to ensure the optinum refrigerant level, thus keeping the chiller to operate at high-efficient status at all times.

● Refrigerant circuit

The chiller has the independent refrigerant circuit, including electrical expansion valve, solenoid valve, high/low pressure gauge, refrigerant liquid valve, lubricant return device, liquid jet pump, window with liquid level indicator, multi-functional high/low pressure switch, extractable/ exchangeable dry strainer, anti-freeze switch, temperature switch, and refrigerant safety valve.

● Power Control Box

The power control box for the chiller in the series are water proof level and can categorized into the power box, the instrument panel box and the control box.
PLC procedure control, human-machine operation, clean circuit, safe and

● Microcomputer PLC programming control + human-machine interface

1. Uses industrial standard PLC programming controller with 4.7" touch screen human-machine interface capable of displaying the following status via diagrams, letters and figures : chiller operating status, chiller abnormality status, chiller load, shift switch, number of times of start, operation time and maintenance schedule reminder. Operation mode (human-machine interface mode, remote control mode): inlet/outlet chilled water temperature, inlet/outlet cooling water temperature, chilled water working temperature setting. The control box consists of power control switch, emergency switch, on/off switch, remote/close end control switch, abnormality recovery switch and chain chilled and cooling water pump operation indicator.

2. It consists of power shut off function, stores related work parameters and abnormal historical record. When the power returns, it automatically operates and can also set automatic rotation operation in order or manual selection operation.

3. Consists of centralized management and separate control function. Capable of connecting 16 chillers on the central monitoring computer screen or operate via human-machine interface.

4. Rotation Function, when chiller starts or stops, it is capable of switching automatically to rotation function in order, making the cumulative number of compressor starts is equal, prolonging compressor's life.

5. The chiller can start, stop by a manual/remote control, and provides customer with open ModBus communication system (optional). The automatic monitor links to the central monitoring room of the management building, such controls of chiller starts or stops, can be controlled through RS-485 communication interface.

6. It consists of functions which can display operation time, operating status of each compressor and abnormal messages, which helps to quickly eliminate breakdowns. It can check the operating and abnormality status of chiller through communication interface in the central monitoring room.

7. It provides the link control of on/off supplementary connection points for surrounding equipment such as the chilled water pump and condensing pump.

8. The display ranges of volume control is from 25% ~50%~75%~ 100% four stages. It also has the function of displaying the reading and seting/comparing for inlet/outlet chilled and condensing water temperature.

SINKO Single Compressor Specification

ITEM \ MODEL		SWSF-040ES	SWSF-050ES	SWSF-060ES	SWSF-080ES	SWSF-100ES	SWSF-120ES
Power supply		3φ /380V/50HZ					
Cooling Capacity	(Kcal/Hr)	109000	144000	180000	237000	291000	358000
	(kW)	127	167	209	276	338	416
Total power consumption (kW)		26	34	41	54	66	79
Operation / Start current (A)		49/245	62/310	75/375	95/475	115/575	138/690
Compressor	Type	Semi-Hermetic Screw					
	Number	1					
	Capacity control (%)	100%~75%~50%~25% Start-0%					
	Start way	Y - Δ					
Evaporator	Type	High Efficiency Shell and Tube					
	Flow rate (M^3/H)	21.8	28.8	36	47.4	58.2	71.5
	Number	1					
	Piping connection (mm)	80A	80A	80A	100A	100A	125A
Condenser	Type	High Efficiency Shell and Tube					
	Flow rate (M^3/H)	26.3	34.6	43	56.6	69.5	85.1
	Number	1					
	Piping connection (mm)	80FPT	80FPT	80FPT	100A	100A	125A
Lubricant	Type	CPI-120					
	Charge (L)	8	14	14	15	20	23
Refrigerant	Type	R-134a					
	Control method	Electrical Expansion Valve					
Control system		PLC Micro Computerized Program					
Protecting devices		High/Low pressure switch, Temperature switch, Anti-freeze protector, Oil level switch, Safety valve, High/Low voltage protector, Loss of phase protector, Reverse phase protector, Compressor overload protector, Discharge temperature overload protector					
Dimension	Length (mm)	2100	2100	2400	2900	2900	3000
	Width (mm)	1500	1500	1500	1500	1600	1650
	Height (mm)	1650	1650	1650	1650	1700	1800
Weight (KG)		1700	1850	1950	2050	2700	3100

Note：◎ The cooling capactity base on above inlet chilled water temperature 12°C、outlet water temperature 7°C；inlet cooling water temperature 30°C 、outlet water temperature 35°C。

◎ Special requirement, please contact our business department.

◎ The SINKO reserve the rights to modify product design. Any specifications given in this catalogue are subject to change without notice.

SINKO **Single Compressor** **Specification**

ITEM \ MODEL		SWSF-140ES	SWSF-160ES	SWSF-190ES	SWSF-210ES	SWSF-230ES	SWSF-275ES
Power supply		3φ /380V/50HZ					
Cooling Capacity	(Kcal/Hr)	410000	489000	572000	635000	700000	831000
	(kW)	477	569	665	738	814	966
Total power consumption (kW)		91	109	126	142	157	179
Operation / Start current (A)		158/790	188/940	220/1060	254/1270	280/1400	320/1590
Compressor	Type	Semi-Hermetic Screw					
	Number	1					
	Capacity control (%)	100%~75%~50%~25% Start-0%					
	Start way	Y - Δ					
Evaporator	Type	High Efficiency Shell and Tube					
	Flow rate (M^3/H)	81.9	97.7	114.3	126.9	139.9	166.1
	Number	1					
	Piping connection (mm)	125A	125A	150A	150A	150A	200A
Condenser	Type	High Efficiency Shell and Tube					
	Flow rate (M^3/H)	97.6	116.5	136	151.3	166.9	196.8
	Number	1					
	Piping connection (mm)	125A	125A	150A	150A	150A	200A
Lubricant	Type	CPI-120					
	Charge (L)	23	28	28	40	40	40
Refrigerant	Type	R-134a					
	Control method	Electrical Expansion Valve					
Control system		PLC Micro Computerized Program					
Protecting devices		High/Low pressure switch, Temperature switch, Anti-freeze protector, Oil level switch, Safety valve, High/Low voltage protector, Loss of phase protector, Reverse phase protector, Compressor overload protector, Discharge temperature overload protector					
Dimension	Length (mm)	3100	3300	3300	3500	3600	3600
	Width (mm)	1700	1700	1750	1900	1900	2000
	Height (mm)	1850	1850	1950	2000	2050	2200
Weight (KG)		3400	3550	4100	4500	5000	5300

Note：◎ The cooling capactity base on above inlet chilled water temperature 12°C、outlet water temperature 7°C；inlet cooling water temperature 30°C、outlet water temperature 35°C。

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SINKO Double Compressor Specification

ITEM \ MODEL		SWSF-320ED	SWSF-380ED	SWSF-420ED	SWSF-460ED	SWSF-510ED
Power supply		3φ /380V/50HZ				
Cooling Capacity	(Kcal/Hr)	978000	1144000	1270000	1400000	1531000
	(kW)	1137	1330	1477	1628	1780
Total power consumption (kW)		218	252	284	314	336
Operation / Start current (A)		376/1130	438/1272	500/1530	560/1680	600/1908
Compressor	Type	Semi-Hermetic Screw				
	Number	2				
	Capacity control (%)	100%~75%~50%~25% Start-0%				
	Start way	Y - Δ				
Evaporator	Type	High Efficiency Shell and Tube				
	Flow rate (M^3/H)	195.4	228.6	253.8	279.8	306
	Number	1				
	Piping connection (mm)	200A	200A	200A	250A	250A
Condenser	Type	High Efficiency Shell and Tube				
	Flow rate (M^3/H)	233	272	302.6	333.7	363.7
	Number	1				
	Piping connection (mm)	200A	200A	200A	250A	250A
Lubricant	Type	CPI-120				
	Charge (L)	56	56	80	80	80
Refrigerant	Type	R-134a				
	Control method	Electrical Expansion Valve				
Control system		PLC Micro Computerized Program				
Protecting devices		High/Low pressure switch, Temperature switch, Anti-freeze protector, Oil level switch, Safety valve, High/Low voltage protector, Loss of phase protector, Reverse phase protector, Compressor overload protector, Discharge temperature overload protector				
Dimension	Length (mm)	4000	4100	5000	5000	5300
	Width (mm)	2050	2050	2150	2150	2300
	Height (mm)	2050	2100	2200	2200	2300
Weight (KG)		7300	7790	9100	9400	10200

Note：◎ The cooling capactity base on above inlet chilled water temperature 12°C、outlet water temperature 7°C；inlet cooling wate temperature 30°C、outlet water temperature 35°C。

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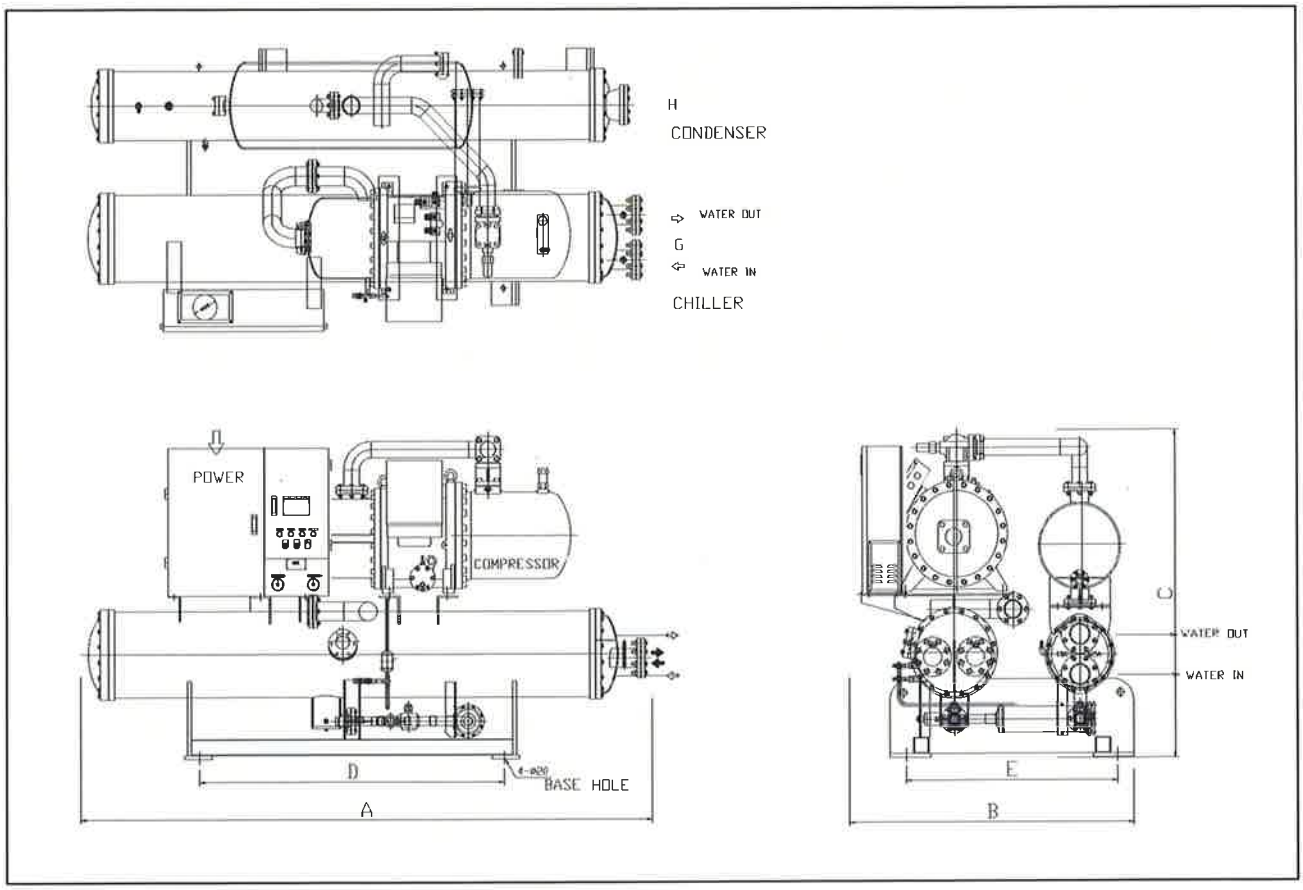
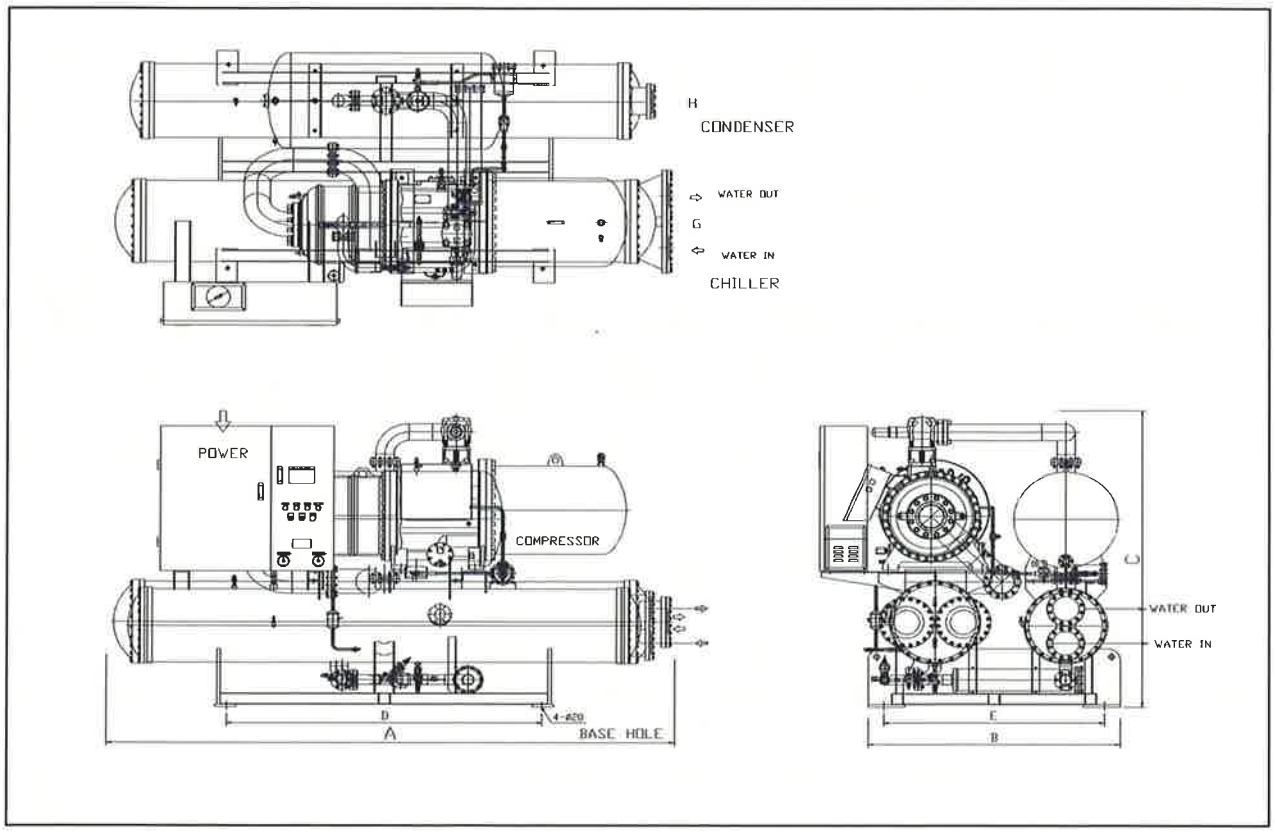
SINKO Single Compressor Dimension



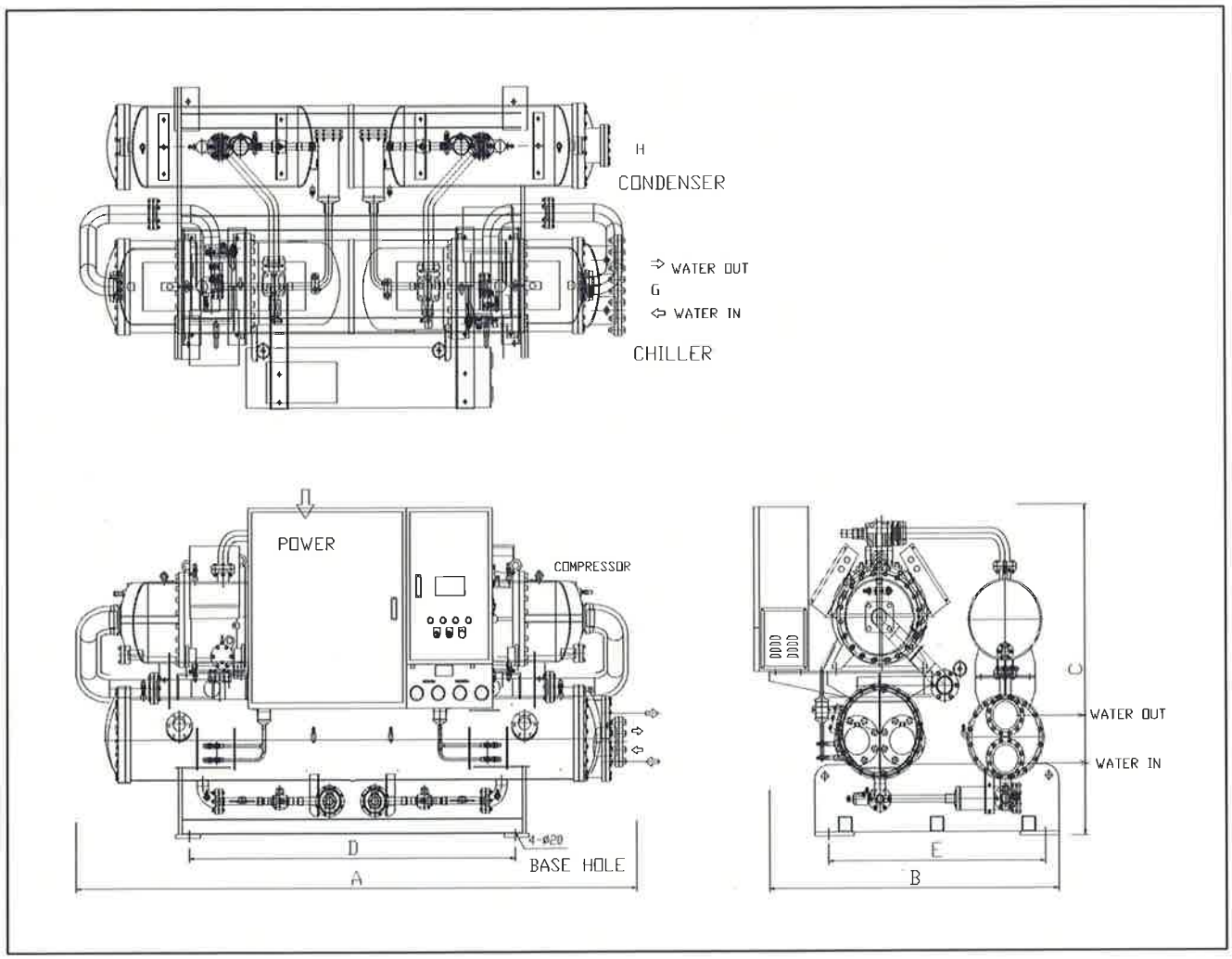
Size / Model	External Dimension (mm)			Basic (mm)		Chilled Water Pipe Diameter	Condensing Water Pipe Diameter
	A	B	C	D	E	G	H
SWSF-040ES	2100	1500	1650	1200	1200	80A	80FPT
SWSF-050ES	2100	1500	1650	1200	1200	80A	80FPT
SWSF-060ES	2400	1500	1650	1200	1200	80A	80FPT
SWSF-080ES	2900	1500	1650	1600	1200	100A	100A
SWSF-100ES	2900	1600	1700	1600	1200	100A	100A
SWSF-120ES	3000	1650	1800	1800	1300	125A	125A

Single Compressor Dimension



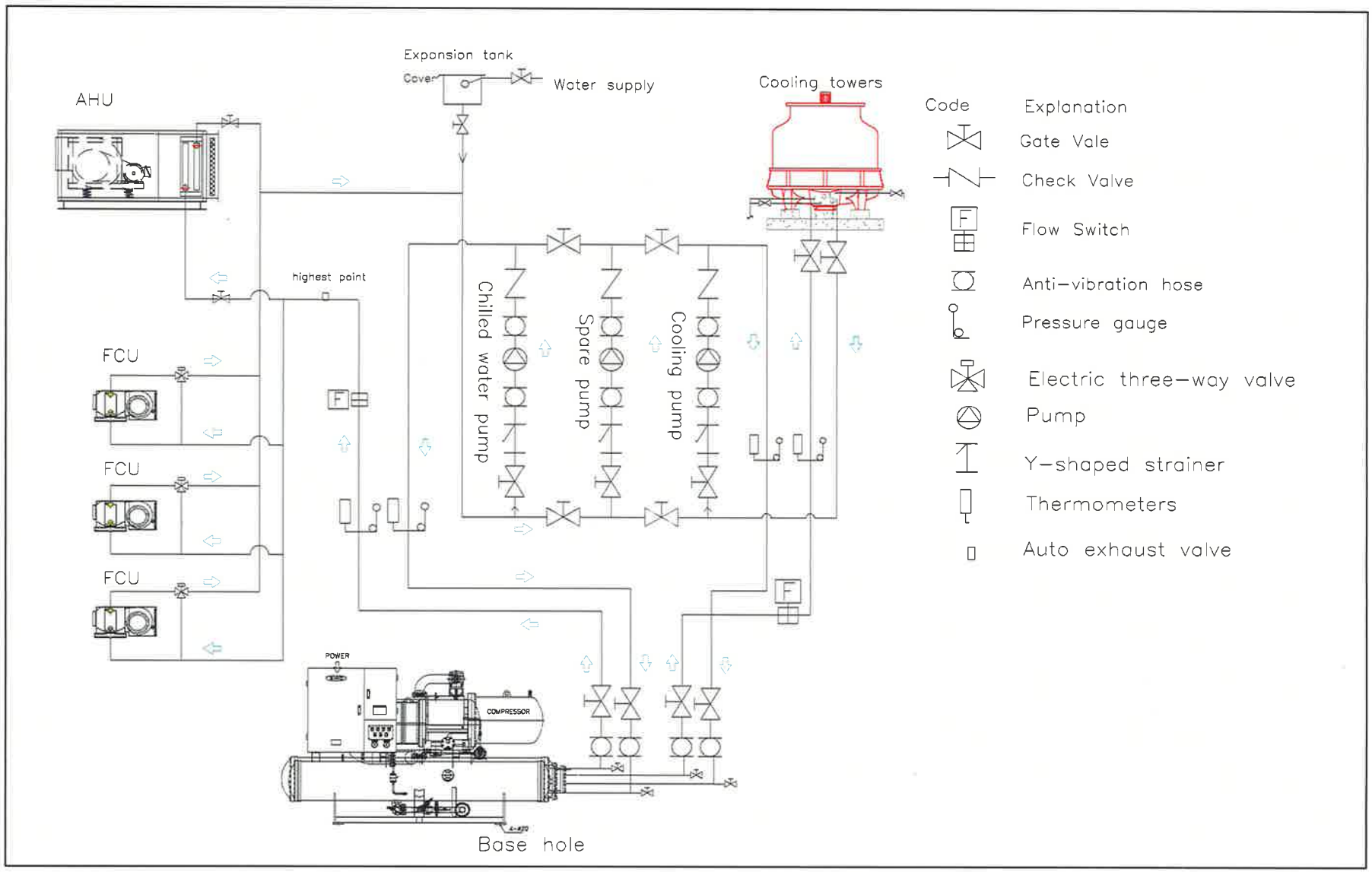
Size / Model	External Dimension (mm)			Basic (mm)		Chilled Water Pipe Diameter	Condensing Water Pipe Diameter
	A	B	C	D	E	G	H
SWSF-140ES	3100	1700	1850	1800	1300	120A	125A
SWSF-160ES	3300	1700	1850	1800	1300	120A	125A
SWSF-190ES	3300	1750	1950	1800	1300	150A	150A
SWSF-210ES	3500	1900	2000	2000	1400	150A	150A
SWSF-230ES	3600	1900	2050	2000	1400	150A	150A
SWSF-275ES	3600	2000	2200	2000	1500	200A	200A

SINKO Double Compressor Dimension



Size / Model	External Dimension (mm)			Basic (mm)		Chilled Water Pipe Diameter	Condensing Water Pipe Diameter
	A	B	C	D	E	G	H
SWSF-320ED	4000	2050	2050	2200	1500	200A	200A
SWSF-380ED	4100	2050	2100	2200	1600	200A	200A
SWSF-420ED	5000	2150	2200	2500	1700	200A	200A
SWSF-460ED	5000	2150	2200	2500	1700	250A	250A
SWSF-510ED	5300	2300	2300	2600	1800	250A	250A

SINKO Piping diagram Reference



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