

Portable Water Chillers



SIC-20A



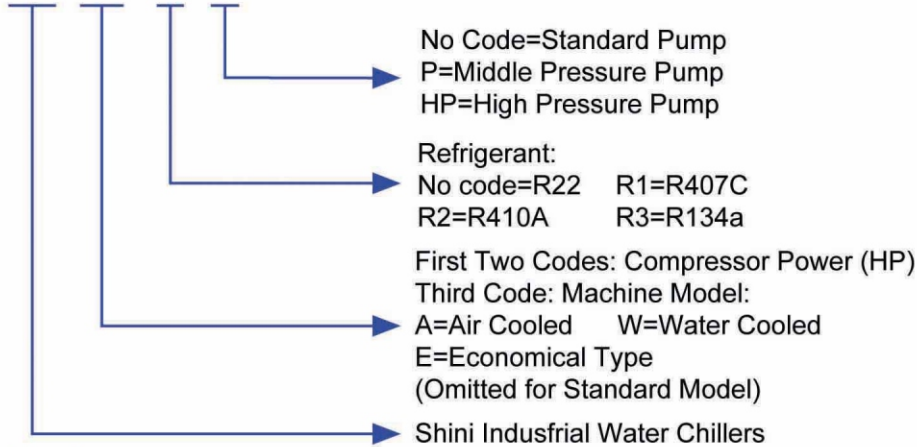
Refer carefully to the Manual before using products.



SIC-W/A Series

■ Coding Principle

SIC - xxx - xx - xx



SIC-5W

■ Features

- Cooling range 7~35°C.
- Stainless iron made insulated water tank.
- Equipped with anti-freeze thermostat.
- R22 refrigerant is used as standard and optional R407 for efficient cooling.
- Refrigeration loop controlled by high and low pressure switches.
- Compressor and pump overload relays.
- Italian made temperature controller maintains an accuracy of $\pm 1^{\circ}\text{C}$.
- Compact design, easy to operate and maintain.
- Low pressure pumps are standard configurations, while middle or high pressure pumps are optionally available.
- Level meter of water tank is available as an option.
- All adopt imported compressors.
- SIC-W adopts tube-in-shell condenser design for quick heat transfer and excellent heat radiation.
- SIC-A adopts tube-fin condenser design without any need of cooling water for excellent heat transfer and rapid cooling.
- Upon request, it can be built to comply with worldwide electrical safety standards (For example : CE, UL, CSA, JIS etc.).



Control Panel

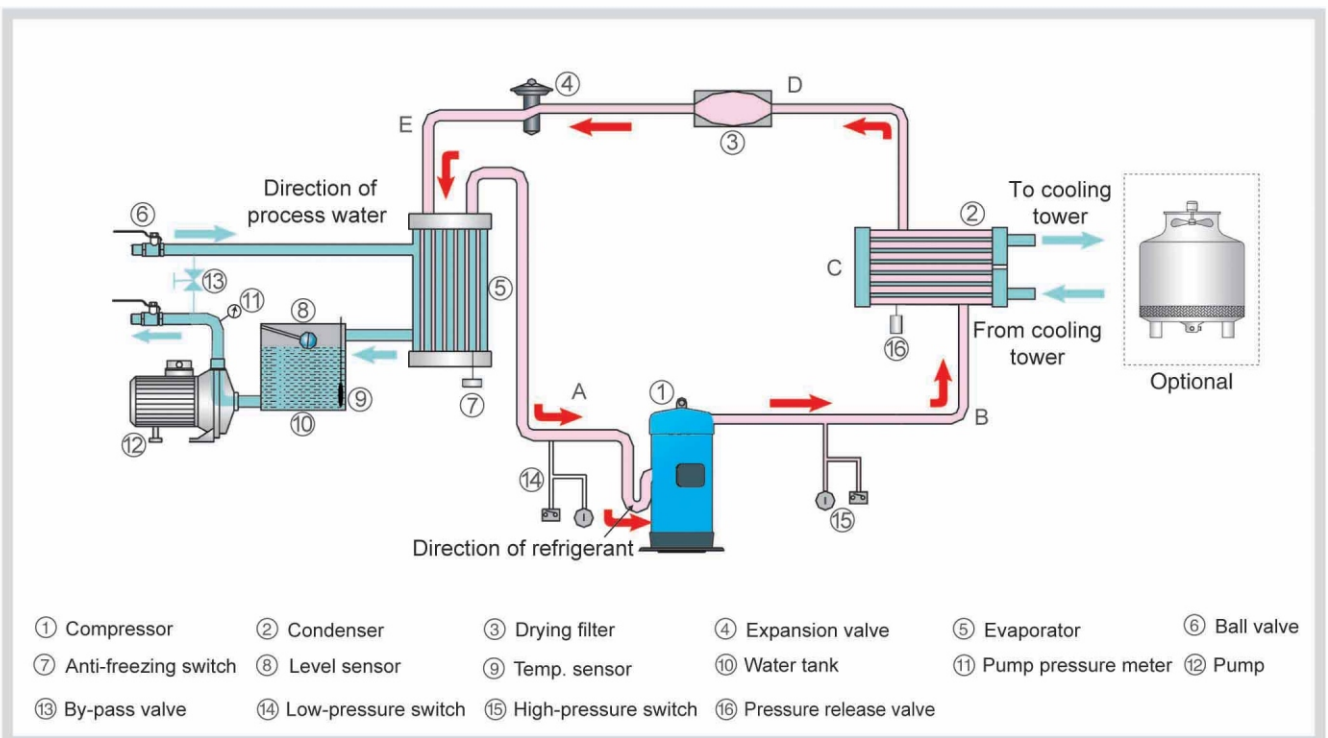
■ Application

This series of portable water chillers offer water-cooled type (SIC-W) and air-cooled type (SIC-A). All models are equipped with compressor and pump overload protector, phase shortage and reversal alarm, anti-freeze thermostat, pressure gauge etc. They feature excellent performance and a long life span. This series of working flow is based on the basic principle of heat exchange. It is applicable to the industry that requires flow of precisely controlled chilled water, and considered as indispensable equipment for modern industry.

■ Working Principle SIC-W

SIC-W water-cooled water chiller is mainly made up of four components. They are compressor, condenser, thermostatic expansion valve and evaporator. The machine uses single stage vapor compression refrigeration system and takes the advantage of the mechanism of transformation between gas and liquid status for absorbing and releasing heat by using of refrigerant to achieve the effectiveness of refrigeration.

When the machine is started, its compressor starts working. Refrigerant is compressed into high pressure and high temperature gas in the process from A to B. In the process from B to C and D, this high pressure and high temp. gas is cooled when it is passing through the condenser and changed into liquid. Heat is taken away by the cooling water. In the process from D to E, the pressure of liquid refrigerant is reduced by expansion valve and a part of the refrigerant is changed from liquid to gaseous state. In the process from E to A, refrigerant absorbs the heat of process water in the evaporator and returns back to the compressor. This heat exchange process repeats until process water is cooled down to required temperature.



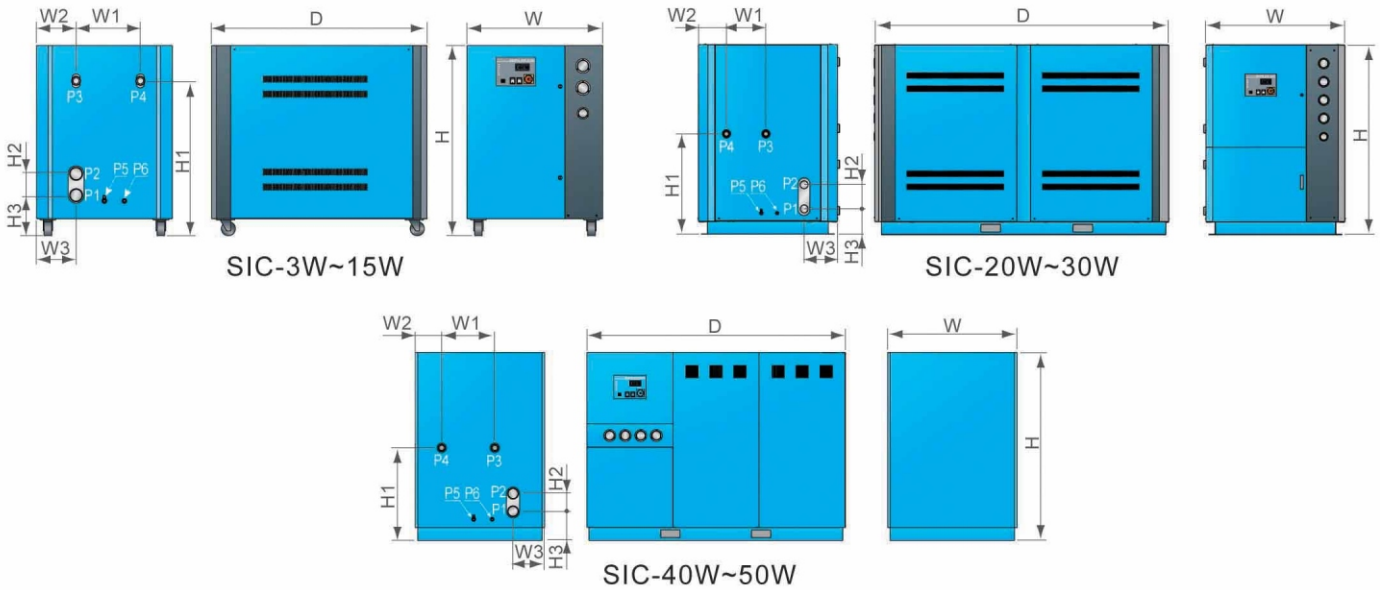
■ Structure SIC-W



- ① Stainless iron water tank for storage of circulation water.
- ② Heavy-duty 3-phase pump ensures no blockages and high torque.
- ③ Scroll / piston type compressor(s) for super high efficiency and low noise.
- ④ Dry filter.
- ⑤ Main switch.
- ⑥ High / low pressure gauges.
- ⑦ Pump pressure gauge.
- ⑧ Powder coated frame.
- ⑨ Tube-in-shell evaporator ensures efficient cooling.
- ⑩ Tube-in-shell condenser design for quick heat transfer and excellent heat radiation.

SIC-W/A Series

Outline Drawings SIC-W



Model	H (mm)	H1 (mm)	H2 (mm)	H3 (mm)	W (mm)	W1 (mm)	W2 (mm)	W3 (mm)	D (mm)	P1 (inch) Cooling Water Inlet	P2 (inch) Cooling Water Outlet	P3 (inch) Process Water Inlet	P4 (inch) Process Water Outlet	P5 (inch) Water Tank Outlet Port	P6 (inch) Water Tank Overflow Port	Weight (kg)
SIC-3W	970	790	91	207	550	273	164	164	1080	1	1	1	1	1/2	1/2	210
SIC-5W	970	790	91	207	550	273	164	164	1080	1 1/2	1 1/2	1	1	1/2	1/2	240
SIC-8W	1050	910	140	225	830	370	230	230	1200	1 1/2	1 1/2	1 1/2	1 1/2	1/2	1/2	330
SIC-10W	1050	910	140	225	830	370	230	230	1200	2	2	1 1/2	1 1/2	1/2	1/2	340
SIC-12.5W	1200	1078	140	308	865	459	202	162	1370	2	2	2	2	1/2	1/2	430
SIC-15W	1200	1078	140	308	865	459	202	162	1370	2 1/2	2 1/2	2	2	1/2	1/2	495
SIC-20W	1450	765	200	190	1055	300	295	205	2235	2 1/2	2 1/2	2	2	1/2	1/2	750
SIC-25W	1450	765	200	190	1055	300	295	205	2235	2 1/2	2 1/2	2	2	1/2	1/2	760
SIC-30W	1450	765	200	200	1055	300	215	205	2235	3	3	2 1/2	2 1/2	1/2	1/2	800
SIC-40W	1760	910	140	190	1100	370	229	230	2870	3	3	2 1/2	2 1/2	1	1	1200
SIC-45W	1760	1078	140	190	1100	459	202	162	2870	3	3	2 1/2	2 1/2	1	1	1450
SIC-50W	1760	170	120	190	1100	180	325	505	3285	3	3	2 1/2	2 1/2	1	1	1750

Model Selection Reference SIC-W

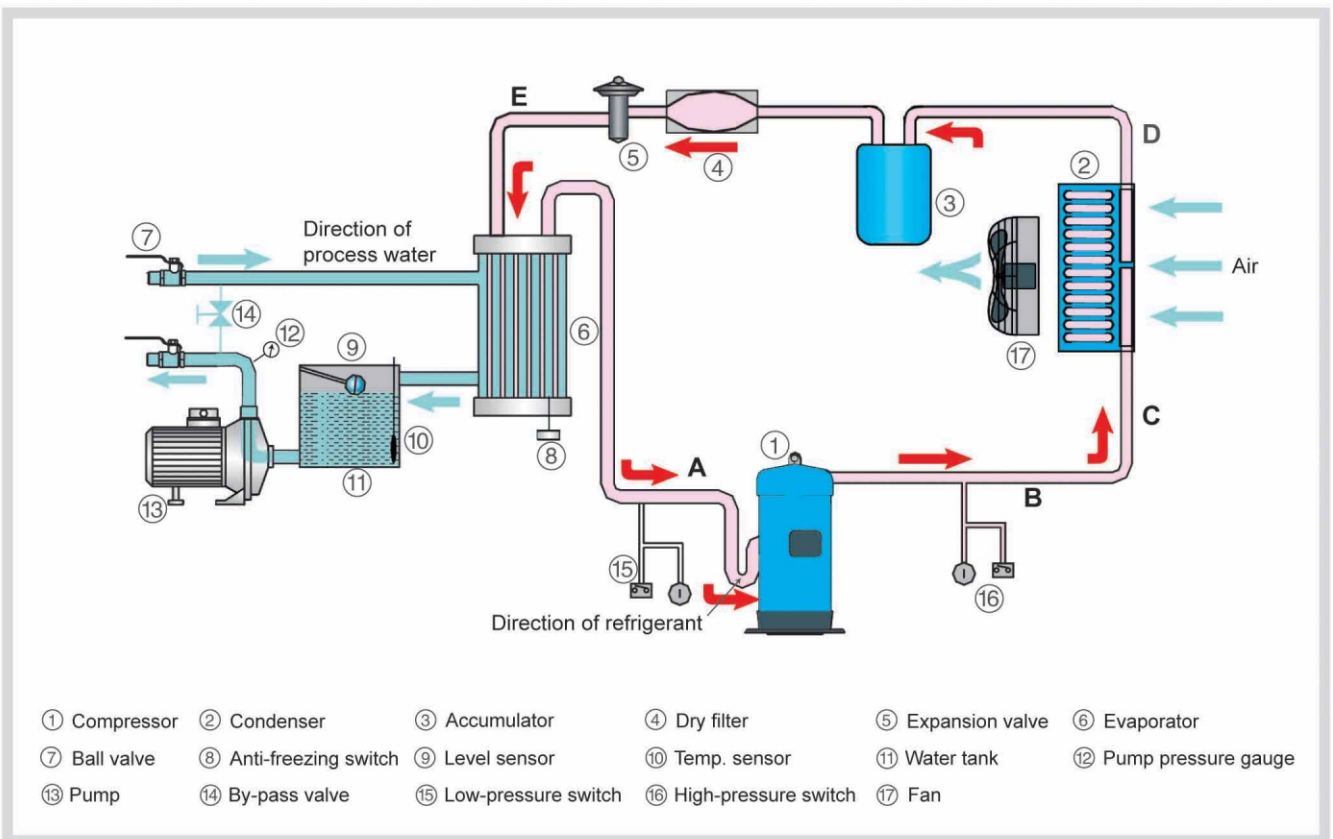
Mould Clamping Force (T)	Moulding Capacity (kg / hr)	Model
≤250	≤25	SIC-3W
≤450	≤45	SIC-5W
≤650	≤65	SIC-8W
≤850	≤85	SIC-10W
≤1300	≤130	SIC-12.5W
≤1800	≤180	SIC-15W

Mould Clamping Force (T)	Moulding Capacity (kg / hr)	Model
≤2500	≤250	SIC-20W
≤3000	≤300	SIC-25W
≤4000	≤400	SIC-30W
≤5000	≤500	SIC-40W
≤6000	≤600	SIC-45W
≤7000	≤700	SIC-50W

Working Principle SIC-A

SIC-A air-cooled water chillers include four main components, such as compressor, condenser, thermostatic expansion valve and evaporator. The system adopts a single closed-loop design for refrigeration system. Refrigerant is alternatively changed from gaseous to liquid state to absorb or release heat thus a cooling effect is achieved.

When the machine is started, compressor starts working. Refrigerant is compressed into high pressure and high temperature gas in the process from A to B. In the process from B to C and D, this high pressure and high temperature gas is cooled when it is passing through the condenser and changed into liquid. Heat is taken away by the cooling air. In the process from D to E, the pressure of liquid refrigerant is reduced by expansion valve and a part of the refrigerant is changed from liquid to gaseous state. In the process from E to A, refrigerant absorbs the heat of process water in the evaporator and returns back to the compressor. This heat exchange process repeats until process water is cooled down to required temperature.



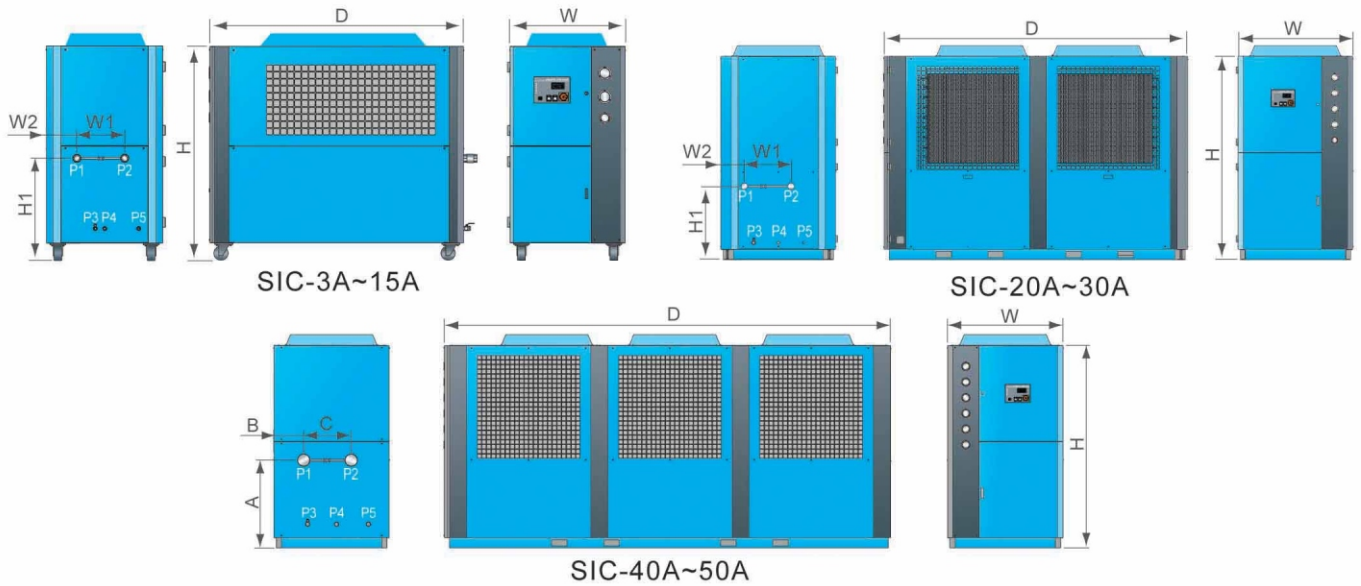
Structure SIC-A



- ① Stainless iron water tank for storage of circulation water.
- ② Heavy duty 3-phase pump ensures no blockages and high torque.
- ③ High / low system pressure gauges.
- ④ Main power switch.
- ⑤ Pump pressure gauge.
- ⑥ Scroll / piston type compressor(s) for super high efficiency and low noise.
- ⑦ Refrigerant tank is fixed to make full use of the condenser cooling fin.
- ⑧ Expansion valve for accurate adjustment of R22 refrigerant.
- ⑨ Tube-fin condenser features quick heat transfer and heat radiation.
- ⑩ Tube-in-shell evaporator ensures efficient cooling.
- ⑪ Powder coated frame.

SIC-W/A Series

Outline Drawings SIC-A



Model	H (mm)	H1 (mm)	W (mm)	W1 (mm)	W2 (mm)	D (mm)	P1 (inch) Process Water Inlet	P2 (inch) Process Water Outlet	P3 (inch) Water Tank Outlet Port	P4 (inch) Water Tank Overflow Port	P5 (inch) Water Tank Refill Port	Weight (kg)
SIC-3A	1400	640	735	360	174	1320	1	1	1/2	1/2	1/2	305
SIC-5A	1400	640	735	360	174	1320	1	1	1/2	1/2	1/2	315
SIC-8A	1430	640	735	300	204	1610	1 1/2	1 1/2	1/2	1/2	1/2	400
SIC-10A	1440	640	735	300	204	1610	1 1/2	1 1/2	1/2	1/2	1/2	420
SIC-12.5A	1520	648	905	457	189	1780	2	2	1/2	1/2	1/2	520
SIC-15A	1520	648	905	457	189	1780	2	2	1/2	1/2	1/2"	560
SIC-20A	1950	700	1200	450	150	2920	2	2	1	1/2	1/2	775
SIC-25A	1950	700	1200	450	150	2920	2	2	1	1/2	1/2	800
SIC-30A	1950	760	1200	430	160	2920	2 1/2	2 1/2	1	1/2	1/2	840
SIC-40A	1970	780	1300	450	200	3390	2 1/2	2 1/2	1	1	1	1400
SIC-45A	1970	780	1300	450	200	3800	2 1/2	2 1/2	1	1	1	1800
SIC-50A	1970	823	1420	700	360	4000	2 1/2	2 1/2	1	1	1	2000

Model Selection Reference SIC-A

Mould Clamping Force (T)	Moulding Capacity (kg / hr)	Model	Mould Clamping Force (T)	Moulding Capacity (kg / hr)	Model
≤ 250	≤ 25	SIC-3A	≤ 2500	≤ 250	SIC-20A
≤ 450	≤ 45	SIC-5A	≤ 3000	≤ 300	SIC-25A
≤ 650	≤ 65	SIC-8A	≤ 4000	≤ 400	SIC-30A
≤ 850	≤ 85	SIC-10A	≤ 5000	≤ 500	SIC-40A
≤ 1300	≤ 130	SIC-12.5A	≤ 6000	≤ 600	SIC-45A
≤ 1800	≤ 180	SIC-15A	≤ 7000	≤ 700	SIC-50A

■ Specifications SIC-W

Item	Parameter	Model	SIC-3W	SIC-5W	SIC-8W	SIC-10W	SIC-12.5W	SIC-15W	SIC-20W	SIC-25W	SIC-30W	SIC-40W	SIC-45W	SIC-50W	
Refrigeration Capacity	kW	50Hz	8	13.5	21.6	27	33.75	40.5	54	67.5	81	110.4	124.2	138	
		60Hz	9	15	24	30	37.5	45	60	75	90	120	135	150	
	kcal/hr	50Hz	6,880	11,607	18,576	23,220	29,025	34,830	46,440	58,050	69,660	94,944	106,812	118,680	
		60Hz	7,740	12,900	20,640	25,800	32,250	38,700	51,600	64,500	77,400	103,200	116,100	129,000	
Compressor	Type	Scroll [®]			Scroll										
	Power	kW	50Hz	2.77	4.65	7	9.35	12	14.2	18.7	24	28.4	37.35	42.6	48
		60Hz	3.32	5.6	8.5	11.5	14.7	17.6	23	29.4	35.2	46.7	52.8	58.8	
Hp	3	5	8	10	12.5	15	20	25	30	40	45	50			
Refrigerant	Weight (kg)	1.5	2.5	3.8	5	7	8.5	10	14	17	20	25	34		
	Control Mode	Thermostatic expansion valve													
	Type	R22													
Evaporator	Type	Tube-in-shell style													
Condenser	Type	Tube-in-shell style													
	In/out Pipe (inch)	1	1 1/2		2		2 1/2			3					
	Cooling Water Flow (L/Min)	56	65	90	100	130	160	220	270	330	480	500	600		
Water Tank (L)		50		85		150		180	200	270	400				
Pump [®]	Power (kW)	(50Hz)	0.75 / 0.75 / 1.1		1.1		1.1 / 1.5 / 2.2		2.2 / 3 / 4		4 / 3 / 4		4 / 4 / 5.5		
		(60Hz)	0.75 / 0.75 / 1.5		1.1 / 1.1 / 1.5		2.2		3		5.5		5.5		
	Pump Flow (L/Min)	50 / 83 / 67		80 / 100 / 89		130 / 150 / 133		200 / 300 / 300		300 / 300 / 300		533 / 366 / 367			
	Working Pressure (kgf/cm ²)	2.0 / 2.6 / 3.8		2.0 / 2.6 / 3.5		2.0 / 3 / 4.2		2.5 / 3 / 4.2		2.7 / 3.4 / 4.3					
Total Power (kW)	50Hz	3.52	5.4	8.1	10.45	13.1	15.3	20.9	26.2	32.4	41.35	46.6	52		
	60Hz	4.07	6.35	9.6	12.6	15.8	18.7	25.2	31.6	29.2	50.7	56.8	62.8		
Pipe Coupling (inch)	Cooling Water Outlet	1/2" x 4		1 1/2" x 1		2" x 1			2 1/2" x 1		2 1/2" x 1				
	Cooling Water Inlet	1/2" x 4		1 1/2" x 1		2" x 1			2 1/2" x 1		2 1/2" x 1				
	Drainage Port Of Water Tank	1/2"					1"								
	Overflow Port Of Water Tank	1/2"					1"								
Protections	Compressor	Overload relay													
	Pump	Overload relay													
	Refrigerant Circuit	High and low pressure switch / Anti-freezing switch													
	Cooling water Circuit	By-pass valve / Water level switch (Option)													
Power		3Φ, 230 / 400 / 460 / 575VAC, 50 / 60Hz													
Measures Exchange		1 kW = 860 kcal/hr			1 RT = 3,024 kcal/hr			10,000 Btu/hr = 2,520 kcal/hr							

Note: 1) Refrigeration capacity is tested under conditions that process water inlet temp. is at 12°C, process water outlet temp. is at 7°C, cooling water inlet temp. is at 30°C and cooling water outlet temp. is at 35°C.

2) A piston type compressor is used with 3Φ, 230V power supply (SIC-3W~SIC-5W).

3) This pump is used as standard either for domestic or Southeast Asia; medium (Model denotes "P", such as SIC-5W-P) or high pressure pump (Model denotes "HP", such as SIC-5W-HP) are optional for installation on customer's demands.

4) Pump power is included in total power.

5) Demands on special voltage of power supply could be satisfied.

We reserve the right to change specifications without prior notice.

SIC-W/A Series

Specifications SIC-A

Item	Parameter	Model	SIC-3A	SIC-5A	SIC-8A	SIC-10A	SIC-12.5A	SIC-15A	SIC-20A	SIC-25A	SIC-30A	SIC-40A	SIC-45A	SIC-50A
		50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
Refrigeration Capacity	kW	50Hz	7.69	13.5	19.08	25.56	31.41	38.79	51.12	62.82	77.58	102.24	113.94	125.64
		60Hz	9.12	16.2	22.8	30.6	37.6	46.5	61.2	75.3	93.1	122.4	136.6	150.7
	kcal/hr	50Hz	6,612	11,607	16,405	21,976	27,006	33,352	43,943	54,013	66,703	87,906	97,956	108,026
		60Hz	7,838	13,928	19,686	26,371	32,407	40,022	52,731	64,815	80,043	105,487	117,547	129,631
Compressor	Type	Scroll ²⁾												
	Power	kW	2.77	4.65	7	9.35	12	14.2	18.7	24	28.4	37.75	42.6	48
		Hp	3	5	8	10	12.5	15	20	25	30	40	45	50
Refrigerant	Weight (kg)	2.7	4.3	7	8	11	13	18	22	26	34	42	48	
	Control Mode	Thermostatic expansion valve												
	Type	R22												
Evaporator	Type	Tube-in-shell style												
Condenser	Type	Tube-fin style												
	Blower (kW)	50Hz	0.25	0.45	0.25 × 2	0.45 × 2	0.25 × 2	0.55 × 2	1.1 × 2	1.5 × 2	1.85 × 3	1.5 × 3	1.85 × 4	
		60Hz	0.30	0.54	0.3 × 2	0.58 × 2	0.30 × 2	0.66 × 2	0.66 × 2	2.2 × 2	2.7 × 3	1.5 × 3	2.7 × 4	
Water Tank (L)	50	85	150	180	200	270	400	650						
Pump ³⁾	Power (kW)	(50Hz)	0.75 / 0.75 / 1.1	1.1	1.1 / 1.5 / 2.2	2.2 / 3 / 4	4 / 3 / 4	4 / 4 / 5.5						
		(60Hz)	0.75 / 0.75 / 1.5	1.1 / 1.1 / 1.5	2.2	3	5.5	5.5						
	Pump Flow (L/Min)	50 / 83 / 67	80 / 100 / 89	130 / 150 / 133	200 / 300 / 300	300 / 300 / 300	533 / 366 / 367							
	Working Pressure (kg/cm ²)	2.0 / 2.6 / 3.8	2.0 / 2.6 / 3.5	2.0 / 3 / 4.2	2.5 / 3 / 4.2	2.7 / 3.4 / 4.3								
Total Power (kW)	50Hz	3.77	5.85	8.6	11.35	11.6	15.8	22	28.4	35.4	47.3	51.1	59.4	
	60Hz	4.37	6.89	10.25	13.76	16.4	19.3	26.52	32.9	45.1	59.8	61.3	73.6	
Pipe Coupling (inch)	Cooling Water Outlet	1" × 1	1 1/2" × 1	2" × 1	2 1/2" × 1	2 1/2" × 1								
	Cooling Water Inlet	1" × 1	1 1/2" × 1	2" × 1	2 1/2" × 1	2 1/2" × 1								
	Drainage Port Of Water Tank	1/2"			1"									
	Overflow Port Of Water Tank	1/2"			1"									
Protections	Compressor	Overload relay												
	Pump	Overload relay												
	Refrigerant Circuit	High and low pressure switch / anti-freezing switch												
	Cooling water Circuit	By-pass valve / Water level switch (Option)												
Power	3Φ, 230 / 400 / 460 / 575VAC, 50 / 60Hz													
Measures Exchange	1 kW = 860 kcal/hr			1 RT = 3,024 kcal/hr			10,000 Btu/hr = 2,520 kcal/hr							

Note: 1) Refrigeration capacity is tested under conditions that process water inlet temp. is at 12°C, process water outlet temp. is at 7°C, cooling water inlet temp. is at 30°C and cooling water outlet temp. is at 35°C.

2) A piston type compressor is used with 3Φ, 230V power supply (SIC-3A~SIC-5A).

3) This pump is used as standard either for domestic or Southeast Asia; medium (Model denotes "P", such as SIC-5A-P) or high pressure pump (Model denotes "HP", such as SIC-5A-HP) are optional for installation on customer's demands.

4) Pump power is included in total power.

5) Demands on special voltage of power supply could be satisfied.

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