CFC-free Refrigerant Air-cooled Water Chiller

SIC-12A-R2

Refer carefully to the manual before operation.

SIC-A-R2 Series

Coding Principle

SIC - xA -R2- xx- xx

- Opions
- P=Medium Pressure Pump
  HP=High Pressure Pump
- R2= R410A
- Cooling capacity
  A=Air Cooled
- Shini Industrial Water Chiller

Features

Control Panel

- Cooling range 7~25℃/44.6°F~77°F.
- Stainless steel insulated water tank.
- Equipped with anti-freeze thermostat.
- R410A ozone-friendly refrigerant.
- Refrigerant loop controlled by high and low pressure switches to ensure stable operation.
- Compressor and pump overload protection.
- Adopt high precision temperature controller with a max precision of +/- 1℃/1.8°F.
- All adopt quality compressors from major suppliers.
- Full-size air-cooled fin condenser for guaranty cooling capacity.
- Equipped with hot-gas bypass valve for precision temperature control without the need to frequent the ON/OFF cycle.
- Equipped with RS485 communication interface to realize centralized monitoring.

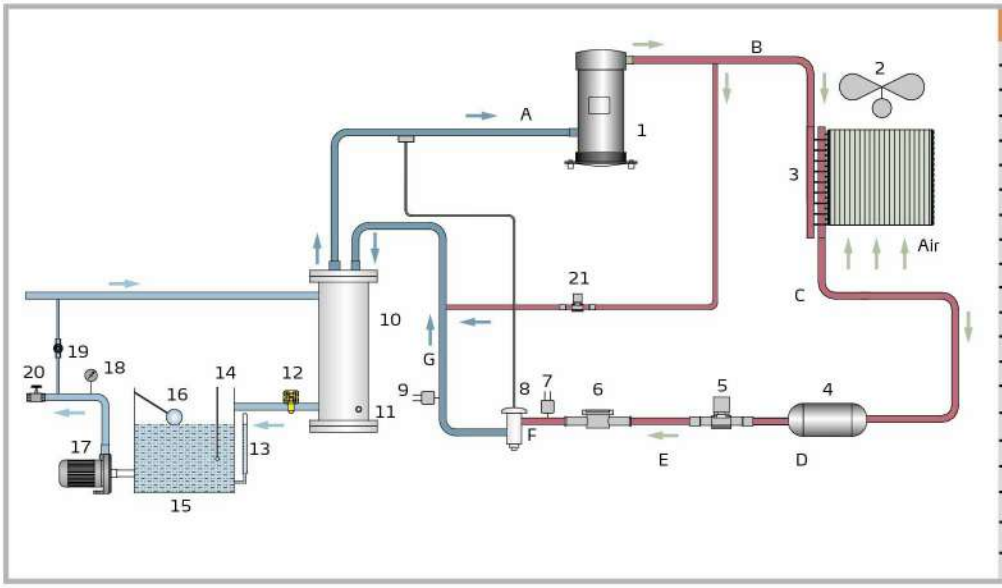
Options

- For models with a medium-pressure pump, add “P” at the end of the model code, and for models optional with a high-pressure pump, add “HP” at the end of the model code.
- The level indicator in water tank is optional to check whether the water level is within normal range, and add "SG" at the end of the model code.
- Liquid solenoid valve for pump down a refrigerant circuit to avoid liquid migration back to the compressor on the off-cycle. It can potentially prevent liquid slug on startup. Add "LS" at the end of the model code.
- Optional refrigerant indicator the refrigerant moisture content, and add "LSG" at the end of the model code.
- The flow switch is optional to ensure that the unit runs under sufficient water , and add "FW" at the end of the model code.

Application

SIC-A-R2 series are applicable for cooling moulds to reduce the product moulding cycle; they are also available in the cooling of equipment to maintain a normal temperature. Besides, they are suitable for other industries with the need for water cooling.

Working Principle

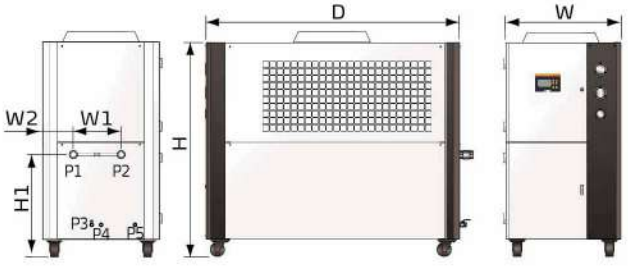


No.	Name	Remark
1	Compressor	
2	Fan	
3	Fin type condenser	
4	Drier filter	
5	Solenoid valve	Option
6	Refrigerant indicator	Option
7	High pressure switch	
8	Expansion valve	
9	Low pressure switch	
10	Evaporator	
11	Anti-freezing switch	
12	Flow switch	Option
13	Level sensor of water tank	Option
14	Temp.sensor	
15	Water tank	
16	Floating-ball valve	
17	Pump	
18	Water pressure guage	
19	By-pass valve	
20	Sluice valve	For medium and high pressure pumps
21	Hot-gas by-pass valve	

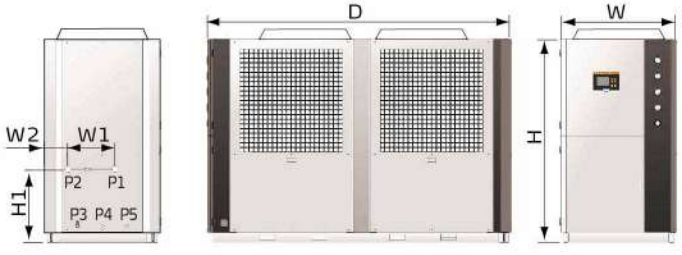
3D animation
(Tencent)

3D animation
(Youtube)

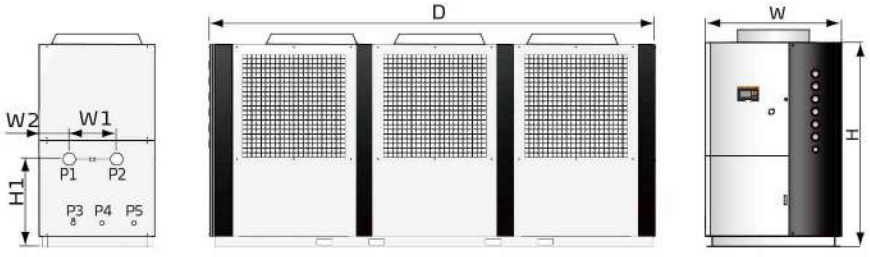
Outline Drawings



SIC-7.5A-R2~SIC-38A-R2



SIC-48A-R2~SIC-75A-R2



SIC-100A-R2~SIC-114A-R2

SIC-A-R2 Series

Outline Drawings

Model		SIC-7.5A -R2	SIC-12A -R2	SIC-18A -R2	SIC-24A -R2	SIC-28A -R2	SIC-38A -R2	SIC-48A -R2	SIC-58A -R2	SIC-75A -R2	SIC-100A -R2	SIC-114A -R2
H	mm	1200	1490	1430	1440	1560				1942		
	inch	47.2	58.7	56.3	56.7	61.4				76.5		
H1	mm	625	640			726			755		641	
	inch	24.6	25.2			28.6			29.7		25.2	
W	mm	685	735			905			1208		1300	
	inch	27	28.9			35.6			47.6		51.1	
W1	mm	277	360	300		390		400		418	800	900
	inch	10.9	14.1	11.8		15.4		15.7		16.5	31.5	35.4
W2	mm	200	174	204		223			257		243	255
	inch	7.9	6.9	8		8.8			10.1		9.6	10
D	mm	1190	1320	1610		1782			2922		3475	
	inch	46.9	52	63.4		70.2			115		136.8	
P1 (inch) Cooling Water Inlet		1		$1^{1}/_{2}$		2				$2^{1}/_{2}$		
P2 (inch) Cooling Water Outlet		1		$1^{1}/_{2}$		2				$2^{1}/_{2}$		
P3 (inch) Water Tank Outlet Port		1/2						1				
P4 (inch) Water Tank Overflow Port		1/2									1	
P5 (inch) Water Tank Refill Port		1/2									1	
Weight	kg	305	315	400	420	530	540	775	800	840	1400	1600
	lb	672	695	882	926	1,168	1,191	1,709	1,764	1,852	3,087	3,527

Structure of Air-cooled Models

① Stainless steel circulating water tank.
② Large flow 3-phase pump ensures no blockage and high torque.
③ High/low pressure gauges to display system pressure.
④ Main power switch.
⑤ Pump pressure gauge to display water pressure.
⑥ Scroll-type compressor(s) for high efficiency and low noise.
⑦ Expansion valve .
⑧ Tube-fin condenser .
⑨ Shell-and-tube type evaporator.
⑩ Powder coating coated frame and control box.

■ Specifications (50Hz)

Item \ Model SIC-		7.5A-R2	12A-R2	18A-R2	24A-R2	28A-R2	38A-R2	48A-R2	58A-R2	75A-R2	100A-R2	114A-R2
Cooling [1] Capacity	kW	7.5	12	18	24	28	38	48	58	75	100	114
Cooling[2] Capacity	kW	9.5	14	24	32	38	45	64	76	90	121	135
Compressor	Type	Scroll										
	Power(kW)	2.9	4.2	6.4	8.72	9.36	12.25	17.44	18.72	24.86	33.58	37.29
Refrigerant	Filling volume kg	3.5	5.0	5.5		9.0	12.5	7.5×2	8×2		7.8×2+6.8	8.7×3
	Filling volume lb	7.7	11	12.1		19.8	27.6	16.5×2	17.6×2		17×2+15	19.2×3
	Control Mode	Thermostatic expansion valve										
	Type	R410A										
Evaporator	Type	Tube-in-shell style										
Condenser	Type	Fin style										
	Blower (kW)	0.19	0.55	2×0.23	2×0.385	2×0.6	2×0.78	2×1.03	2×0.85	2×1.92	2×2.2+1.5	3×2.2
Water Tank Capacity	L	30		65		80		186		230	316	
	gal	7.9		17.2		21.1		49.1		60.8	83.5	
Pump[4]	Power (kW)	0.75 / 0.75 / 1.1		1.1 / 1.1 / 1.1		1.1 / 1.5 / 2.2		- / 1.8 / 2.4		- / 3.0 / 4.0		-/4.0/5.5
	Pump Flow L/min	21.5	34.4	51.6	68.8	80.3	108.9	137.6	166.3	215.0	286.7	326.8
	Pump Flow gal/min	5.7	9.0	13.6	18.2	21.2	28.8	36.4	43.9	56.8	75.7	86.3
	Working Pressure (kgf/cm²)[3]	3.3/3.7/4.5	3.2/3.5/4.4	2.8/4.1/4.9	2.7/3.85/4.5	3.1/3.9/4.9	2.4/3.8/4.6	-/3.4/4.5	-/3.2/4.3	-/3.5/4.1	-/3.1/3.9	-/3.7/4.9
Total Power (kW)[5]		3.8/3.8/4.2	5.5/5.5/5.9	7.8/7.8/7.8	10.6/10.6/10.6	11.7/12/12.8	14.9/15.3/16	-/21.3/21.9	-/22.2/22.8	-/31.7/32.7	-/42.5/43.5	-/47.9/49.4
Pipe Coupling (female thread)	Chilled Water Outlet	1"G		1 1/2 "G			2"G			2 1/2"G		
	Chilled Water Inlet	1"G		1 1/2"G			2"G			2 1/2"G		
	Water Tank Drainage Port	1/2"G						1"G				
	Water Tank Overflow Port	1/2"G									1"G	
Protective Devices	Compressor	Overload relay										
	Pump	Overload relay										
	Cooling Water Circuit	High and low pressure switches/Anti-freeze switch										
	Water Circuit	Flow switch Optional/Water level switch (Optional)/By-pass valve										
Operation Noise dB(A)		78	75	74	78	81	86	84	82	86	90	90
Power(VAC)[6]		3Φ, 400VAC, 50Hz										
Unit Conversion		1 kW = 860 kcal/hr 1 RT = 3,024 kcal/hr 10,000 Btu/hr = 2,520 kcal/hr										

Notes: 1) Cooling capacity is measured based on the flow of 0.172m³/(h.kW) and the outlet temperature 7°C/44.6°F of chilled water under the environmental temperature of 35°C/95°F.

2) Cooling capacity is measured based on the flow of 0.172m³/(h.kW) and the outlet temperature 15°C/59°F of chilled water under the environmental temperature of 25°C/77°F.

3) It is the working pressure of water pump when negative pressure of inlet water is 0.

4) Low pressure pump is standard, customers can change for medium pressure pumps (use P for short; e.g.: SIC-and A-R2-P) or high pressure pumps (use HP for short; e.g.: SIC-and A-R2-HP), specific parameters in turn as shown above.

5) Pump power is included in total power.

6) Special orders of machine voltage can be acceptable according to customers's request.

7) The air-cooled water chiller is applicable to the conditions under the environment temperature of 43℃.

SIC-A-R2 Series

■ Specifications (60Hz)

Item \ Parameter \ Model SIC-			12A-R2	24A-R2	28A-R2	38A-R2	48A-R2	58A-R2	75A-R2	100A-R2	114A-R2
Cooling[1] Capacity	kW		15	30	35.5	45	60	70	90	122	136
Cooling [2] Capacity	kW		17.5	37.5	41	48	75	82	96	133.5	144
Compressor	Type		Scroll								
	Power(kW)		5.28	10.2	11.73	14.8	20.4	23.76	29.6	39.8	44.4
Refrigerant	Filling Volume	kg	5.0	5.5	9.0	12.5	7.5×2	8×2		7.8×2+6.8	8.7×3
		lb	11	12.4	19.8	27.6	16.5×2	17.6×2		17.2×2+15	19.2×3
	Control Mode		Thermostatic expansion valve								
	Type		R410A								
Evaporator	Type		Plate style							Tube-in-shell style	
Condenser	Type		Fin style								
	Blower (kW)		0.91	2×0.57	2×0.91	2×1.1	2×2.2		2×2.2	2×2.2+2.2	3×2.2
Water Tank Capacity	L		50	85	150		180	200	270	400	
	gal		13.2	22.5	39.6		47.6	52.8	71.3	105.7	
Pump[4]	Power (kW)		0.75/1.5	1.1/1.5	2.2/3.0		3.0/3.0		5.5/5.5		
	Pump Flow	L/min	43.1	86.2	102	129.3	172.3	201.1	258.5	350.4	390.7
		gal/min	11.4	22.8	26.9	34.2	45.5	53.1	68.3	92.6	103.2
	Working Pressure (kgf/cm²)[3]		-/3.1/5.1	-/3.0/4.2	-/2.7/4.1	-/2.5/3.9	-/4.5/5.6	-/3.9/4.8	-/2.8/2.8	-/4.5/4.5	-/4.1/4.1
Total Power (kW)[5]			-/6.9/7.6	-/12.4/12.8	-/15.7/16.5	-/19.2/20	27.8	31.1	39.5	51.9	56.5
Pipe Coupling (female thread)	Chilled Water Outlet		1"G	1 1/2"G	2"G				2.5"G		
	Chilled Water Inlet		1"G	1 1/2"G	2"G				2.5"G		
	Water Tank Drainage Port		1/2"G				1"G				
	Water Tank Overflow Port		1/2"G							1"G	
Protective Devices	Compressor		Overload relay								
	Pump		Overload relay								
	Cooling Water Circuit		High and low pressure switches/Anti-freeze switch								
	Water Circuit		Flow switch/Water level switch (Optional)/By-pass valve								
Operation Noise dB(A)			75	78	81	86	84	82	86	90	90
Power(VAC)[6]			3Φ, 230/400/460/575VAC, 60Hz								
Unit Conversion			1 kW = 860 kcal/hr 1 RT = 3,024 kcal/hr 10,000 Btu/hr = 2,520 kcal/hr								

Notes: 1) Cooling capacity is measured based on the flow of 0.172m³/(h.kW) and the outlet temperature 7℃/44.6℉ of chilled water under the environmental temperature of 35℃/95℉.

2) Cooling capacity is measured based on the flow of 0.172m³/(h.kW) and the outlet temperature 15℃/59℉ of chilled water under the environmental temperature of 25℃/77℉.

3) It is the working pressure of water pump when negative pressure of inlet water is 0.

4) Low pressure pump is standard, customers can change for medium pressure pumps (use P for short; e.g.: SIC-and A-R2-P) or high pressure pumps (use HP for short; e.g.: SIC-and A-R2-HP), specific parameters in turn as shown above.

5) Pump power is included in total power.

6) Special orders of machine voltage can be acceptable according to customers's request.

7) The air-cooled water chiller is applicable to the conditions under the environment temperature of 43℃/109.5℉.

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