CFC-free Refrigerant Air-cooled Water Chiller

SIC-33A-R2

Refer carefully to the manual before operation.

SIC-A-R2 Series

Coding Principle

SIC - xA -R2-xx

- xx: None=Medium Pressure Pump; HP=High Pressure Pump
- R2=R410A
- xA: Cooling capacity(kW) A=Air Cooled
- SIC: Shini Industrial Water Chiller

Control Panel

Features

- Cooling range: 7~25℃;
- Stainless steel insulated water tank;
- Equipped with an anti-freeze thermostat;
- Compressor and pump overload protection;
- The refrigerating system has high and low-pressure alarm protection;
- R410A ozone-friendly refrigerant with a high efficient cooling result;
- A well-known compressor that ensures low noise, energy-efficient, and long service life;
- Fin style condenser with internal thread copper pipe features rapid and well heat transfer, no need for cooling tower or water;
- Adopt high precision temperature controller with a display precision of ±0.1℃;
  It has a hot-gas bypass valve with a control accuracy of up to ±1℃;
- RS485 communication interface to realize centralized monitoring.

The following features apply to models with one or two compressors.

- Circular stainless steel thermal insulated water tank and unique cyclone design for even distribution of chill water;
- Water loop with a return water filter that adopts PVC-U water pipe to ensure the cleanliness of the water quality.
- Plate heat exchanger ensures efficient heat exchanging;
- Equipped with safety valves for stable system pressure. The inlet and outlet pipe adopt an adaptive bypass valve to ensure stable outlet water pressure;
- Equipped with a flow switch to avoid the unit from operating without water flow;
- The standard water tank level indicator for visualizing check of the water level;
- Compact outline and small foot.

Options

- Liquid solenoid valve for pump down a refrigerant circuit to avoid liquid migration back to the compressor on the off-cycle, and it can potentially prevent liquid slug on startup. Add “LS” at the end of the model code;
- Optional refrigerant indicator for visual checking of refrigerant moisture content, and add “LSG” at the end of the model code.

The following options apply to models with three or above compressors

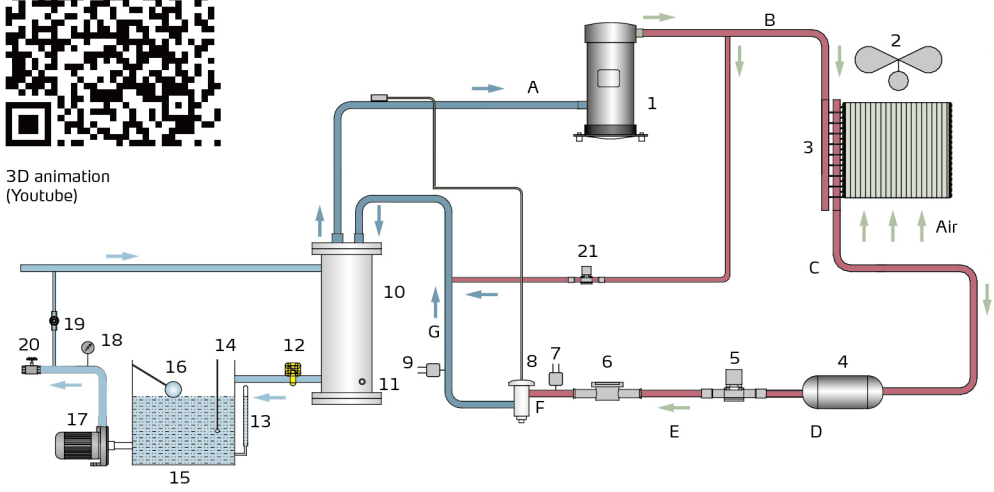
- For models with a medium-pressure pump, add “P” at the end of the model code and for models optional with a high-pressure pump, add “HP” at the end of the model code;
- The level indicator in the water tank is optional to check whether the water level is within normal range and add “SG” at the end of the model code;
- The flow switch is optional to ensure that the unit is working under water flow, and add “FW” at the end of the model code ;
- The level switch in the water tank is optional to check if the water level is normal, and add “LW” 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.

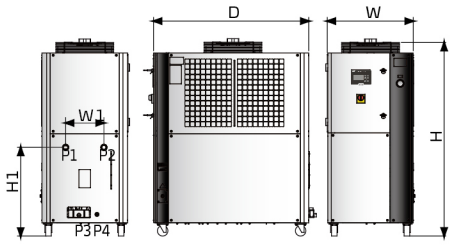
Working Principle

3D animation
(Youtube)

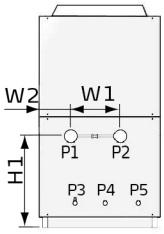


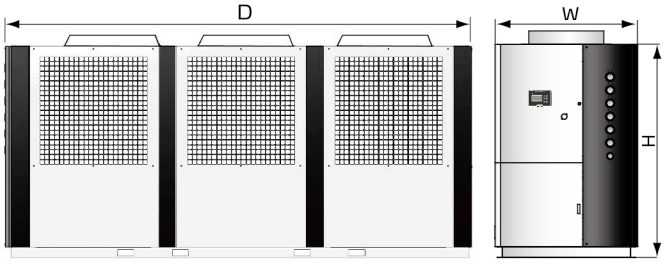
No.	Name	Remark
1	Compressor	
2	Fan	
3	Fin type condenser	
4	Drier filter	
5	Liquid solenoid valve	Option
6	Refrigerant indicator	Option
7	High pressure sensor	
8	Expansion valve	
9	Low pressure sensor	
10	Evaporator	
11	Anti-freezing switch	
12	Flow switch	Option
13	Level sensor of water tank	Option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

Outline Drawings



SIC-15A-R2~SIC-98A-R2





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

Model	H (mm)	H1 (mm)	W (mm)	W1 (mm)	W2 (mm)	D (mm)	P1 (inch) Cooling Water Inlet	P2 (inch) Cooling Water Outlet	P3 (inch) Water Tank Outlet Port	P4 (inch) Water Tank Overflow Port	P5 (inch) Water Tank Replenishment Port	Weight (kg)
SIC-15A-R2	1659	760	735	333	203	1333	Rc1.25	Rc1.25	Rc1/2	Rc1/2	1/2	350
SIC-25A-R2	1659	760	735	333	203	1333	Rc1.25	Rc1.25	Rc1/2	Rc1/2	1/2	366
SIC-33A-R2	1877	757	950	483	259	1210	Rc1.5	Rc1.5	Rc1/2	Rc1/2	1/2	421
SIC-49A-R2	1877	753	956	506	224.5	1512	Rc1.5	Rc1.5	Rc1/2	Rc1/2	1/2	520
SIC-66A-R2	1870	698	1053	435	266	2920	Rc2	Rc2	Rc1/2	Rc1/2	1/2	910
SIC-98A-R2	1870	701	1053	435	266	3102	Rc2	Rc2	Rc1/2	Rc1/2	1/2	1100
SIC-100A-R2	1942	641	1300	800	243	3475	$2^1/_2$	$2^1/_2$	1	1	1	1400
SIC-114A-R2	1942	641	1300	900	255	3475	$2^1/_2$	$2^1/_2$	1	1	1	1600

SIC-A-R2 Series

Specifications (50Hz)

Item / Parameter \ Model SIC-		15A-R2	25A-R2	33A-R2	49A-R2	66A-R2	98A-R2	100A-R2	114A-R2
Cooling Capacity[1]	kW	15	25	33	49	66	98	121	135
Cooling Capacity[2]	kW	13	21	30	44	56	87	-	-
Cooling Capacity[3]	kW	12	19	27	40	52	77	100	114
Compressor	Type	Scroll							
	Quantity	1	1	1	1	2	2	3	3
	Power(kW)	3.8	6.18	8.5	12.35	8.5×2	12.35×2	33.58	37.29
Refrigerant	Filling volume(kg)	6.5	5.8	7.6	11	7.5×2	11×2	7.8×2+6.8	8.7×3
	Control Mode	Thermostatic expansion valve							
	Type	R410A							
Evaporator	Type	Plate style						Tube style	
	Chilled water flow (L/min)	43	71.7	94.6	140.5	189.2	281	286.7	326.8
Condenser	Type	Fin style							
	Power (kW)	0.42	0.42×2	0.7	0.7	0.7×2	0.7×2	2×2.2+1.5	3×2.2
Water Tank Capacity(L)		76	76	90	137	137	137	316	316
Pump[4] (50Hz)	Power (kW)	0.75/1.1	1.1/1.1	1.5/2.2	1.5/2.2	2.4/3.0	3.0/4.0	-/3.0/4.0	-/4.0/5.5
	Working Pressure (kgf/cm²)[5]	Medium pressure ≥3, High pressure≥4							
Total Power (kW)[6]		4.95/5.32	8.12	10.7/11.4	14.6/15.3	20.8/21.4	29.1/30.1	-/42.5/43.5	-/47.9/49.4
Pipe Coupling (female thread) (inch)	Chilled Water Outlet	Rc1.25"		Rc1.5"		Rc2"		Rc2.5"	
	Chilled Water Inlet	Rc1.25"		Rc1.5"		Rc2"		Rc2.5"	
	Water Tank Drainage Port	Rc0.5"						Rc1"	
	Water Tank Overflow Port	Rc0.5"						Rc1"	
Protective Devices	Compressor	Overload relay							
	Pump	Overload relay							
	Cooling Water Circuit	High and low pressure transmitter/Anti-freeze switch							
	Water Circuit	Flow switch (Optional)/Water level switch (Optional)/By-pass valve							
Operation Noise dB(A)		78							
Use environment[7]		Under the condition with good ventilation or ambient temperature not exceeding the service pressure							
Power(VAC)[8]		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 of 15℃/59℉ 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 10℃/50℉ of chilled water under the environmental temperature of 35℃/95℉.
3) 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℉.
4) Pump pressure of 3kgf/cm² is standard; customers can change for high-pressure pumps (use HP for short; e.g., SIC-and A-R2-HP), specific parameters in turn as shown above.
5) The pressure value is the state when the pump inlet negative pressure is 0;
6) Pump power, fan power, and compressor power are included in total power.
7) The air-cooled water chiller applies to the environment temperature of 45℃ or below.
8) Special orders of machine voltage are available according to the request.

Specifications (60Hz)

Item \ Model SIC- / Parameter		15A-R2	25A-R2	33A-R2	49A-R2	66A-R2	98A-R2	100A-R2	114A-R2
Cooling Capacity[1]	kW	18	29	38	56	76	109	122	136
Cooling Capacity[2]	kW	15	24	35	50	65	93	-	-
Cooling Capacity[3]	kW	14	22	31	46	60	88	133.5	144
Compressor	Type	Scroll							
	Quantity	1	1	1	1	2	2	3	3
	Power(kW)	4.56	7.42	10.2	14.82	10.2×2	14.82×2	39.8	44.4
Refrigerant	Filling volume(kg)	6.5	5.8	7.6	11	7.5×2	11×2	7.8×2+6.8	8.7×3
	Control Mode	Thermostatic expansion valve							
	Type	R410A							
Evaporator	Type	Plate style						Tube-in-shell style	
	Chilled water flow (L/min)	49.5	82.5	109	161.6	217.6	323.2	330	375.8
Condenser	Type	Fin style							
	Power (kW)	0.5	0.5×2	1.2	1.2	1.2×2	1.2×2	2×2.2+2.2	3×2.2
Water Tank Capacity(L)		76	76	90	157	137	137	400	400
Pump[4] (60Hz)	Power (kW)	1.1/1.5	1.1/1.5	1.5/2.2	1.5/2.2	2.2/3.0	4.0/5.5	350.4	390.7
	Working Pressure (kgf/cm²)[5]	Medium pressure ≥3, High pressure≥4							
Total Power (kW)[6]		6.16/6.56	9.52/9.92	12.9/13.6	18.22/19	25/25.8	36/37.54	51.9	56.5
Pipe Coupling (female thread) (inch)	Chilled Water Outlet	Rc1.25″		Rc1.5″		Rc2″		Rc2.5″	
	Chilled Water Inlet	Rc1.25″		Rc1.5″		Rc2″		Rc2.5″	
	Water Tank Drainage Port	Rc0.5″						Rc1″	
	Water Tank Overflow Port	Rc1/2″						Rc1″	
Protective Devices	Compressor	Overload relay							
	Pump	Overload relay							
	Cooling Water Circuit	High and low pressure transmitter/Anti-freeze switch							
	Water Circuit	Flow switch Optional/Water level switch (Optional)/By-pass valve							
Operation Noise dB(A)		78							
Use environment[7]		Under the condition with good ventilation or ambient temperature not exceeding the service pressure							
Power(VAC)[8]		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							

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