



CFC-free Refrigerant Water-cooled Water Chiller

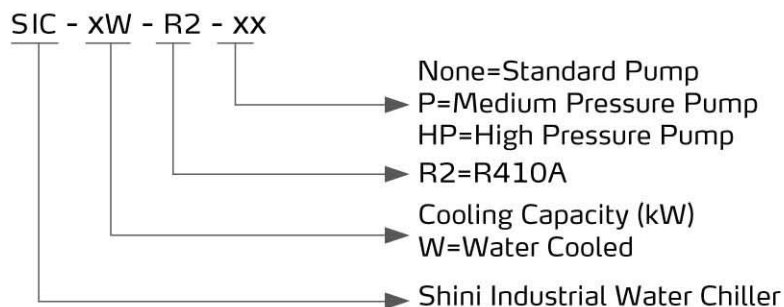
SIC-33W-R2



Refer carefully to this manual before operation.

SIC-W-R2 Series

■ Coding Principle



■ Features

Standard configuration

- Cooling range 7~25 °C.
- Insulated water tank made of stainless steel.
- Equipped with anti-freeze thermostat.
- Adopt R410A refrigerant, used to improve coefficient of performance (COP) and R410A is ozone-friendly.
- Refrigeration loop controlled by high and low pressure switches to ensure stable operation.
- Compressor and pump overload protection.
- Adopts precise Italian temperature controller with an accuracy of $\pm 1^{\circ}\text{C}$.
- All adopt quality compressors from major supplier.
- Middle Pressure Pump is optional.
- SIC-W-R2 adopts tube-in-shell condenser design. Without any need of cooling water for excellent heat transfer and rapid cooling.

Accessory option

- Medium and high pressure pumps are optional to meet any pressure requirements.
- Water tank level sensor is available to detect whether the water level is normal.
- Hot-air bypass valve can be opted for with an accuracy of $\pm 1^{\circ}\text{C}$.
- Solenoid valves are optional to immediately cut the refrigerant after machine halts to prevent compressor freezing.
- Refrigerant indicator can be opted to detect the refrigerant and ensure its quality and water ratio.
- Flow switches are optional to detect the chilled water.
- 1/2" water flow regulator SFR-400 is optional. (Only suitable for SIC-9W-R2 & SIC-14W-R2)

■ Application

It is applied to plastics industry to precisely control moulds temperature so that molding cycle can be reduced and quality would be improved. Also SIC-W-R2 series can be applicable for electronic and machinery manufacturing to ensure normal operation temperature for devices.

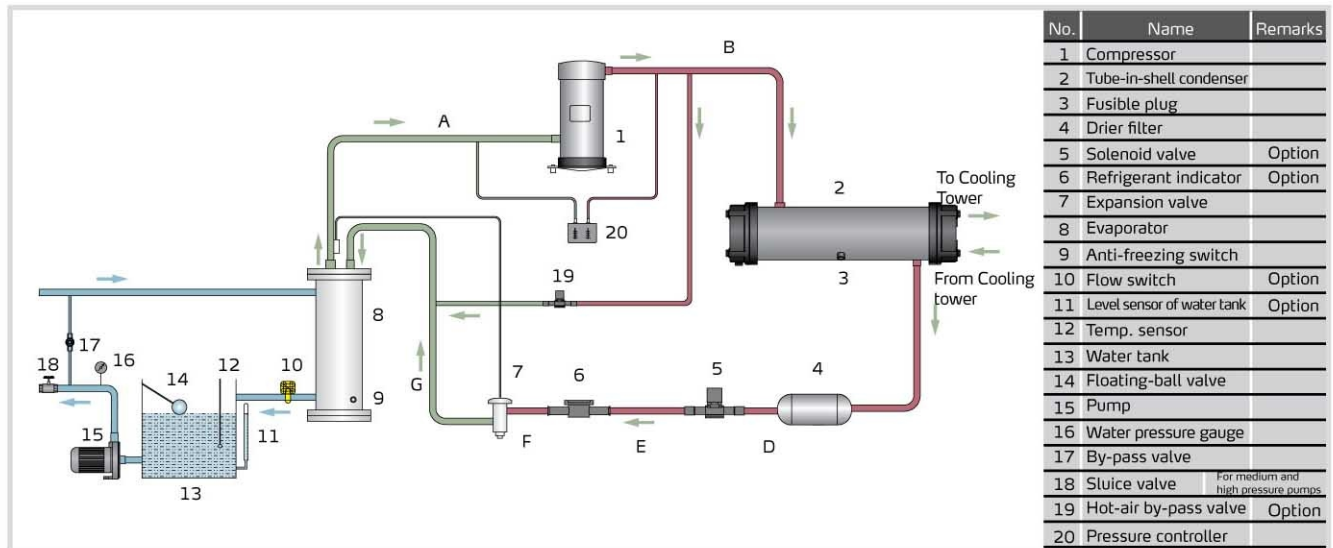


SIC-9W-R2

Working Principle

When the SIC-W water-cooled water chiller starting up, compressor starts working. Refrigerant is compressed into high temperature and high pressure gas in the process from B to C, and then be cooled when passing through the condenser and changed into liquid. Heat is taken away by the cooling water. In the process from C to D to E and F, the liquid refrigerant is dried and filtered by drier filter. After that, it will pass through solenoid valve, refrigerant indicator and then reach expansion valve. In the process from F to G, the high pressure liquid refrigerant will be throttled and depressurized by heat expansion valve and temperature will go down. In the process from G to A, chilled water absorbs the heat of process water in the evaporator and returns back to compressor. This heat exchange process repeats until process water is cooled down to required temperature.

Hot-air bypass function: the compressor continues working when process water is cooled down to required temperature, then the hot-air bypass valve opens as the temperature drops to its set value. A part of the refrigerant from the compressor passes through the by-pass valve and then reaches evaporator, balancing out part of the machine refrigerating capacity and then goes back to compressor without passing through the condenser. With the help of hot-air bypass valve, the system can stay in an balanced condition and meanwhile can keep control accuracy within $\pm 1^{\circ}\text{C}$.



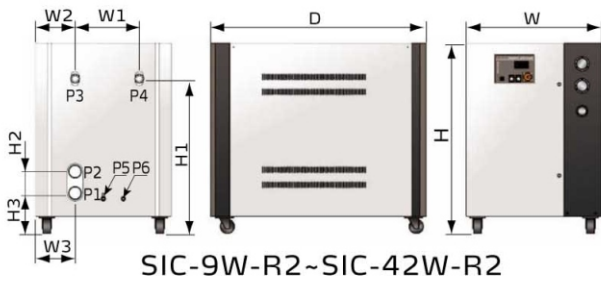
Structure of SIC-W



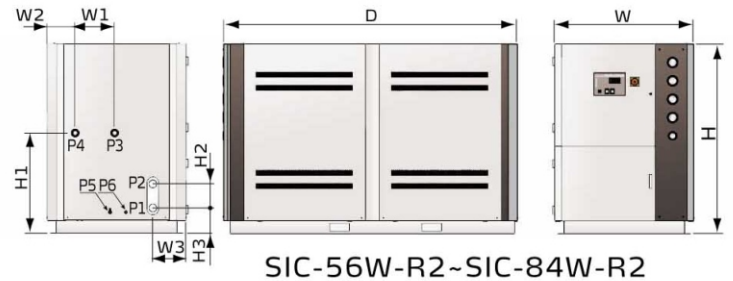
- ① Stainless steel water tank for storage of circulation water.
- ② Heavy-duty 3-phase pump ensures no blockages and high torque.
- ③ Scroll compressor(s) for super high efficiency and low noise.
- ④ Drier filter(behind compressor).
- ⑤ Main switch.
- ⑥ High/low pressure gauges.
- ⑦ Pump pressure gauge.
- 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-R2 Series

Outline Drawings



SIC-9W-R2~SIC-42W-R2



SIC-56W-R2~SIC-84W-R2



SIC-112W-R2~SIC-132W-R2

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) Chilled Water Inlet	P4 (inch) Chilled Water Outlet	P5 (inch) Water Tank Drainage Port	P6 (inch) Water Tank Overflow Port	Weight (kg)
SIC-9W-R2	970	790	91	207	605	273	164	164	1080	1½	1½	1	1	1/2	1/2	210
SIC-14W-R2	970	790	91	207	605	273	164	164	1080	1½	1½	1	1	1/2	1/2	240
SIC-21W-R2	1050	910	140	225	830	370	230	230	1200	1½	1½	1½	1½	1/2	1/2	330
SIC-28W-R2	1050	910	140	225	830	370	230	230	1200	2	2	1½	1½	1/2	1/2	340
SIC-33W-R2	1200	1078	140	308	865	459	202	162	1470	2	2	2	2	1/2	1/2	430
SIC-42W-R2	1200	1078	140	308	865	459	202	162	1470	2	2	2	2	1/2	1/2	495
SIC-56W-R2	1450	765	200	190	1055	300	295	205	2235	2½	2½	2	2	1/2	1/2	750
SIC-66W-R2	1450	765	200	190	1055	300	295	205	2235	2½	2½	2	2	1/2	1/2	760
SIC-84W-R2	1450	765	200	200	1055	300	215	205	2235	2½	2½	2½	2½	1/2	1/2	800
SIC-112W-R2	1760	750	140	190	1100	300	260	267	2870	2½	2½	2½	2½	1	1	1200
SIC-126W-R2	1760	490	140	190	1100	300	230	250	3085	2½	2½	2½	2½	1	1	1450
SIC-132W-R2	1760	520	140	190	1100	205	325	505	3285	2×2½	2×2½	2½	2½	1	1	1750

Model Selection Reference

Mould Clamping Force (T)	Moulding Capacity (kg/hr)	Model (kW)
≤250	≤25	6
≤450	≤45	11
≤650	≤65	14
≤850	≤85	18
≤1300	≤130	27
≤1800	≤180	38

Mould Clamping Force (T)	Moulding Capacity (kg/hr)	Model (kW)
≤2500	≤250	52
≤3000	≤300	62
≤4000	≤400	84
≤5000	≤500	104
≤6000	≤600	126



Specifications

Item	Model Parameter	SIC-9W	SIC-14W	SIC-21W	SIC-28W	SIC-33W	SIC-42W	SIC-56W	SIC-66W	SIC-84W	SIC-112W	SIC-126W	SIC-132W							
		-R2	-R2	-R2	-R2	-R2	-R2	-R2	-R2	-R2	-R2	-R2	-R2							
Refrigeration Capacity ¹⁾	kW	50Hz	9.0	14	21	28	33	42	56	66	84	112	126	132						
		60Hz	10.8	16.8	25.2	33.6	39.6	50.4	67.2	79.2	100.8	134.4	151.2	158.4						
	kcal/hr	50Hz	7,740	12,040	18,060	24,080	28,380	36,120	48,160	56,760	72,240	94,320	108,360	113,520						
		60Hz	9,288	14,448	21,672	28,896	34,056	43,344	57,792	68,112	86,688	115,584	130,032	136,224						
Compressor	Type	Scroll																		
	Power (kW)	50Hz	2.5	3.55	5.5	7.35	8.35	10.5	14.7	16.7	21	28.35	31.5	33.4						
		60Hz	3.2	4.5	6.4	8.5	9.75	12.5	17	19.5	25	33.5	37.5	39						
Refrigerant	Weight (kg)	2.5	3.6	5.1	5.4	8	8.7	10.8	16	17.4	21.4	26.1	32							
	Control Mode	Thermostatic expansion valve																		
	Type	R410																		
Evaporator	Type	Tube-in-shell style																		
Condenser	Type	Tube-in-shell style																		
	In/out Pipe (inch)	1½			2				2½				2×2½							
	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			400			
Pump ²⁾	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					
	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 ³⁾ (kW)	50Hz	3.25	4.3	6.61	8.45	9.45	11.6	16.9	18.9	25	32.35	34.5	37.4							
	60Hz	3.15	5.6	7.22	9.21	11.39	14.6	19.22	21.38	30.3	38.41	42.7	42.26							
Pipe Coupling (inch)	Chilled Water Outlet	1×1			1½×1			2×1			2½×1			2½×1						
	Chilled Water Inlet	1×1			1½×1			2×1			2½×1			2½×1						
	Drainage Port Of Water Tank					1/2								1						
	Overflow Port Of Water Tank					1/2								1						
Protective Device	Compressor	Overload relay																		
	Pump	Overload relay																		
	Refrigerant Circuit	High and low pressure switches/Anti-freezing switch																		
	Cooling water Circuit	By-pass valve/Water level switch (Option)																		
Operation Noise dB(A)		69	70.5	70.4	72.5	71.4	74	75.5	73.3	78.5	81.4	79.6	86.5							
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										

- Notes: 1) Refrigeration capacity is measured based on the flow 0.172 m³ / (h·k W) and the outlet temperature (7°C) of chilled water under the environment temperature of 35°C.
- 2) This pump is used as standard either for domestic or Southeast Asia; medium (Model denotes "P", such as SIC-9W-R2-P) or high pressure pump (Model denotes "HP", such as SIC-9W-R2-P) are optional for installation on customer's demands.
- 3) Pump power is included in total power.
- 4) Demands on special voltage of power supply could be satisfied.

We reserve the right to change specifications without prior notice.

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