



## CFC-free Refrigerant Air-cooled Water Chiller



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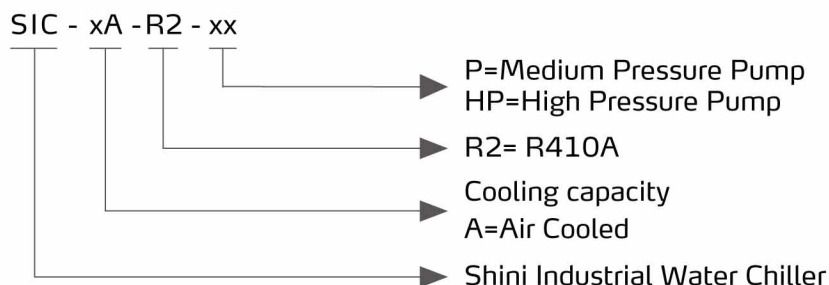
SIC-33A-R2



Refer carefully to the manual before operation.

# SIC-A-R2 Series

## ■ Coding Principle



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  $\pm 0.1^{\circ}\text{C}$
- It has a hot-gas bypass valve with a control accuracy of up to  $\pm 0.1^{\circ}\text{C}$
- RS485 communication interface to realize centralized monitoring;
- 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. (suitable for models in Spec. 1);
- Plate heat exchanger ensures efficient heat exchanging (suitable for models in Spec. 1);
- Equipped with safety valves for stable system pressure. The inlet and outlet pipe adopt an adaptive bypass valve to ensure stable outlet water pressure (suitable for models in Spec. 1).
- Equipped with a flow switch to avoid the unit from operating without water flow (suitable for models in Spec. 1);
- The standard water tank level indicator for visualizing check of the water level ;
- Compact outline and small foot (suitable for models in Spec. 1);

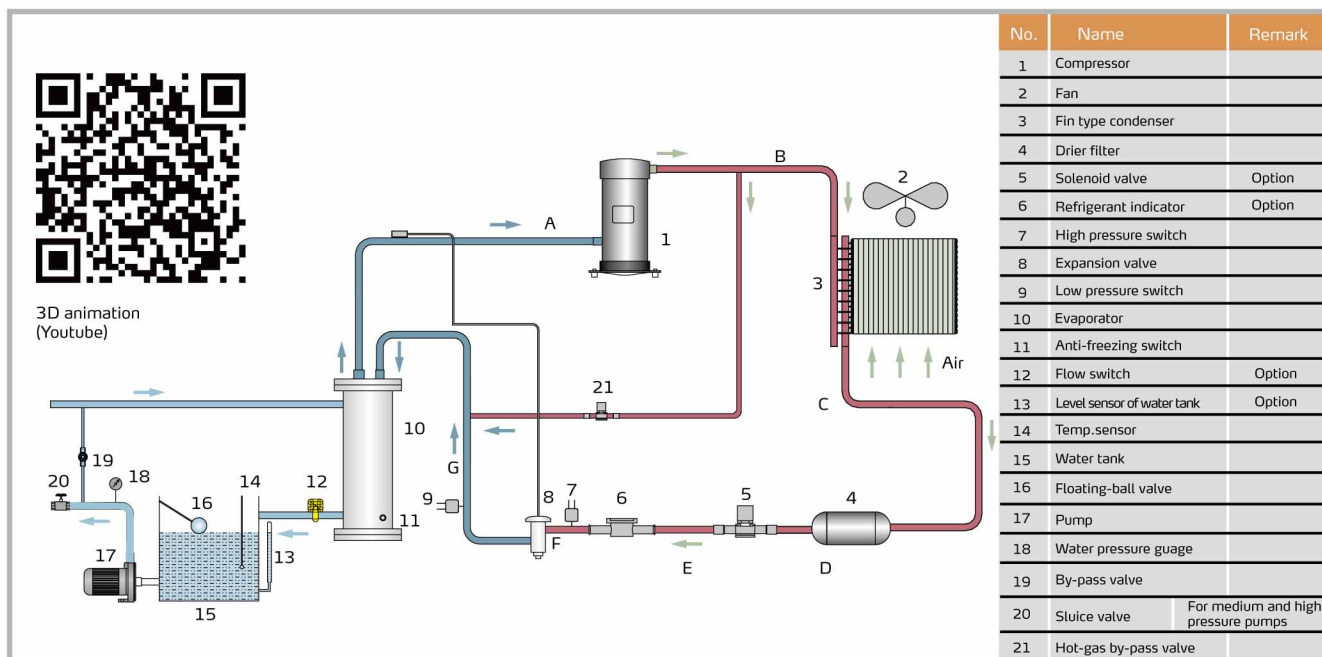
## ■ Options

- For models with a medium-pressure pump, add "P" at the end of the model code (suitable for models in Spec. 2), 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. (suitable for models in Spec. 2)
- 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 (suitable for models in Spec.2);
- 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 (suitable for models in Spec.1);
- 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.

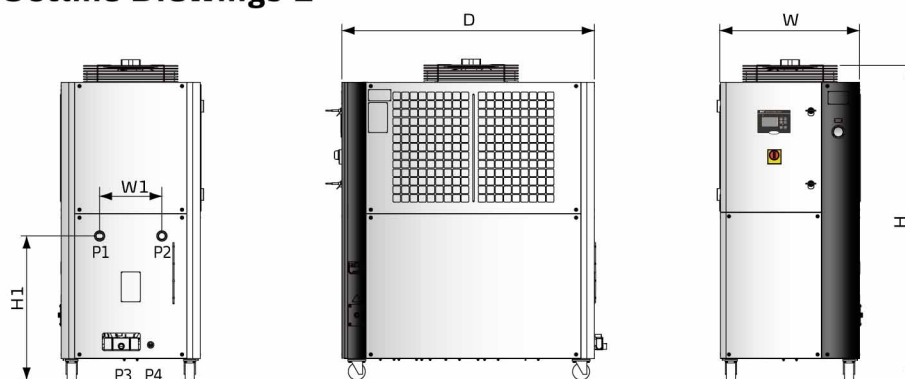
## Application

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



## Outline Drawings 1



| Model      | H (mm) | H1 (mm) | W (mm) | W1 (mm) | D (mm) | P1 (inch)<br>Cooling Water Inlet | P2 (inch)<br>Cooling Water Outlet | P3 (inch)<br>Water Tank Outlet Port | P4 (inch)<br>Water Tank Overflow Port | Weight (kg) |
|------------|--------|---------|--------|---------|--------|----------------------------------|-----------------------------------|-------------------------------------|---------------------------------------|-------------|
| SIC-15A-R2 | 1659   | 760     | 735    | 333     | 1333   | Rc1.25                           | Rc1.25                            | Rc1/2                               | Rc1/2                                 | 350         |
| SIC-25A-R2 | 1659   | 760     | 735    | 333     | 1333   | Rc1.25                           | Rc1.25                            | Rc1/2                               | Rc1/2                                 | 366         |
| SIC-33A-R2 | 1881   | 757     | 950    | 483     | 1210   | Rc1.5                            | Rc1.5                             | Rc1/2                               | Rc1/2                                 | 421         |
| SIC-49A-R2 | 1581   | 753     | 956    | 506     | 1512   | Rc1.5                            | Rc1.5                             | Rc1/2                               | Rc1/2                                 | 520         |
| SIC-66A-R2 | 1808   | 698     | 1053   | 435     | 2920   | Rc2                              | Rc2                               | Rc1/2                               | Rc1/2                                 | 910         |
| SIC-98A-R2 | 1868   | 701     | 1053   | 435     | 3102   | Rc2                              | Rc2                               | Rc1/2                               | Rc1/2                                 | 1100        |

## ■ Specifications 1(50Hz)

| Item\Parameter                             | Model                                                 | SIC-15A-R2                                                                                          | SIC-25A-R2 | SIC-33A-R2           | SIC-49A-R2                    | SIC-66A-R2 | SIC-98A-R2 |
|--------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------|----------------------|-------------------------------|------------|------------|
| Cooling Capacity <sup>1)</sup>             | kW                                                    | 15                                                                                                  | 25         | 33                   | 49                            | 66         | 98         |
| Cooling Capacity <sup>2)</sup>             | kW                                                    | 13                                                                                                  | 21         | 30                   | 44                            | 56         | 87         |
| Cooling Capacity <sup>3)</sup>             | kW                                                    | 12                                                                                                  | 19         | 27                   | 40                            | 52         | 77         |
| Compressor                                 | Type                                                  | Scroll                                                                                              |            |                      |                               |            |            |
|                                            | Power(kW)                                             | 3.8                                                                                                 | 6.18       | 8.5                  | 12.35                         | 8.5×2      | 12.35×2    |
| Refrigerant                                | Filling volume(kg)                                    | 6.5                                                                                                 | 5.8        | 7.6                  | 11                            | 7.5×2      | 11×2       |
|                                            | Control Mode                                          | Thermostatic expansion valve                                                                        |            |                      |                               |            |            |
|                                            | Type                                                  | R410A                                                                                               |            |                      |                               |            |            |
| Evaporator                                 | Type                                                  | Plate style                                                                                         |            |                      |                               |            |            |
|                                            | Chilled water flow (L/min)                            | 43                                                                                                  | 71.7       | 94.6                 | 140.5                         | 189.2      | 281        |
| Condenser                                  | Type                                                  | Fin style                                                                                           |            |                      |                               |            |            |
|                                            | Blower (kW)                                           | 0.42                                                                                                | 0.42×2     | 0.7                  | 0.7                           | 0.7×2      | 0.7×2      |
| Water Tank Capacity(L)                     |                                                       | 76                                                                                                  | 76         | 90                   | 137                           | 137        | 137        |
| Pump <sup>4)</sup><br>(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    |
|                                            | Working Pressure (kgf/cm <sup>2</sup> ) <sup>5)</sup> | Medium pressure ≥3, High pressure≥4                                                                 |            |                      |                               |            |            |
| Total Power (kW) <sup>6)</sup>             |                                                       | 4.95/5.32                                                                                           | 8.12       | 10.7/11.4            | 14.55/15.25                   | 20.8/21.4  | 29.1/30.1  |
| Pipe Coupling<br>(female thread)<br>(inch) | Chilled Water Outlet                                  | Rc1.25"                                                                                             |            | Rc1.5"               |                               | Rc2"       |            |
|                                            | Chilled Water Inlet                                   | Rc1.25"                                                                                             |            | Rc1.5"               |                               | Rc2"       |            |
|                                            | Water Tank Drainage Port                              | Rc1/2"                                                                                              |            |                      |                               |            |            |
|                                            | Water Tank Overflow Port                              | Rc1/2"                                                                                              |            |                      |                               |            |            |
| 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                                                                                                  |            |                      |                               |            |            |
| Use environment <sup>7)</sup>              |                                                       | Under the condition with good ventilation or ambient temperature not exceeding the service pressure |            |                      |                               |            |            |
| Power{VAC} <sup>8)</sup>                   |                                                       | 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 0.172m<sup>3</sup>/(h.kW) and the outlet temperature of 15°C/59°F of chilled water under the environmental temperature of 35°C/95°F.
- 2) Cooling capacity is measured based on the flow of 0.172m<sup>3</sup>/(h.kW) and the outlet temperature 10°C/50°F of chilled water under the environmental temperature of 35°C/95°F.
- 3) Cooling capacity is measured based on the flow of 0.172m<sup>3</sup>/(h.kW) and the outlet temperature 7°C/44.6°F of chilled water under the environmental temperature of 35°C/95°F.
- 4) Pump pressure of 3kgf/cm<sup>2</sup> 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°C or below.
- 8) Special orders of machine voltage are available according to the request.



# SIC-A-R2 Series

## Specifications 1(60Hz)

| Item\Parameter                                   | Model                                                 | SIC-15A-R2                                                                                          | SIC-25A-R2 | SIC-33A-R2           | SIC-49A-R2  | SIC-66A-R2                    | SIC-98A-R2  |
|--------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------|----------------------|-------------|-------------------------------|-------------|
| Cooling Capacity <sup>1)</sup>                   | kW                                                    | 18                                                                                                  | 29         | 38                   | 56          | 76                            | 109         |
| Cooling Capacity <sup>2)</sup>                   | kW                                                    | 15                                                                                                  | 24         | 35                   | 50          | 65                            | 93          |
| Cooling Capacity <sup>3)</sup>                   | kW                                                    | 14                                                                                                  | 22         | 31                   | 46          | 60                            | 88          |
| Compressor                                       | Type                                                  | Scroll                                                                                              |            |                      |             |                               |             |
|                                                  | Power(kW)                                             | 4.56                                                                                                | 7.42       | 10.2                 | 14.82       | 10.2×2                        | 14.82×2     |
| Refrigerant                                      | Filling volume(kg)                                    | 6.5                                                                                                 | 5.8        | 7.6                  | 11          | 7.5×2                         | 11×2        |
|                                                  | Control Mode                                          | Thermostatic expansion valve                                                                        |            |                      |             |                               |             |
|                                                  | Type                                                  | R410A                                                                                               |            |                      |             |                               |             |
| Evaporator                                       | Type                                                  | Plate style                                                                                         |            |                      |             |                               |             |
|                                                  | Chilled water flow (L/min)                            | 49.5                                                                                                | 82.5       | 109                  | 161.6       | 217.6                         | 323.2       |
| Condenser                                        | Type                                                  | Fin style                                                                                           |            |                      |             |                               |             |
|                                                  | Blower (kW)                                           | 0.5                                                                                                 | 0.5×2      | 1.2                  | 1.2         | 1.2×2                         | 1.2×2       |
| Water Tank Capacity(L)                           |                                                       | 76                                                                                                  | 76         | 90                   | 157         | 137                           | 137         |
| Pump <sup>4)</sup><br>(50Hz)                     | 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     |
|                                                  | Working Pressure (kgf/cm <sup>2</sup> ) <sup>5)</sup> | Medium pressure ≥3, High pressure≥4                                                                 |            |                      |             |                               |             |
| Total Power (kW) <sup>6)</sup>                   |                                                       | 6.16/6.56                                                                                           | 9.52/9.92  | 12.9/13.6            | 18.22/19.02 | 25/25.8                       | 36.04/37.54 |
| Pipe<br>Coupling<br>(female<br>thread)<br>(inch) | Chilled Water<br>Outlet                               | Rc1.25"                                                                                             |            | Rc1.5"               |             | Rc2"                          |             |
|                                                  | Chilled Water<br>Inlet                                | Rc1.25"                                                                                             |            | Rc1.5"               |             | Rc2"                          |             |
|                                                  | Water Tank<br>Drainage Port                           | Rc1/2"                                                                                              |            |                      |             |                               |             |
|                                                  | Water Tank<br>Overflow Port                           | Rc1/2"                                                                                              |            |                      |             |                               |             |
| Protective<br>Devices                            | Compressor                                            | Overload relay                                                                                      |            |                      |             |                               |             |
|                                                  | Pump                                                  | Overload relay                                                                                      |            |                      |             |                               |             |
|                                                  | Cooling Water<br>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                                                                                                  |            |                      |             |                               |             |
| Use environment <sup>7)</sup>                    |                                                       | Under the condition with good ventilation or ambient temperature not exceeding the service pressure |            |                      |             |                               |             |
| Power(VAC) <sup>8)</sup>                         |                                                       | 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:

- Cooling capacity is measured based on the flow of 0.172m<sup>3</sup>/(h.kW) and the outlet temperature of 15°C/59°F of chilled water under the environmental temperature of 35°C/95°F.
- Cooling capacity is measured based on the flow of 0.172m<sup>3</sup>/(h.kW) and the outlet temperature 10°C/50°F of chilled water under the environmental temperature of 35°C/95°F.
- Cooling capacity is measured based on the flow of 0.172m<sup>3</sup>/(h.kW) and the outlet temperature 7°C/44.6°F of chilled water under the environmental temperature of 35°C/95°F.
- Pump pressure of 3kgf/cm<sup>2</sup> 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.
- The pressure value is the state when the pump inlet negative pressure is 0;
- Pump power, fan power, and compressor power are included in total power.
- The air-cooled water chiller applies to the environment temperature of 45°C or below.
- Special orders of machine voltage are available according to the request.

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