

Quantum Series



Technical Catalogue

AR C (R22	185KW~1700KW)
AR D (R407C	176KW~1680KW)
AR E (R134a	180KW~1700KW)

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1.1 General notes

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Check and make sure that the explanations of each part of this document correspond to your model. Refer to the models codification to confirm the main characteristics of your system.

It is assumed that this unit will be operated and serviced by English speaking people. If this is not the case, the customer should add safety, caution and operating signs in the native language of the personal.

This water chiller has been designed for the working range described in the corresponding chapter.

1.2 Safety and applied symbols

During normal system design work or unit installation, greater attention must be paid in certain situations requiring particular care in order to avoid damage to the unit, the installation or the building or property.

Situations that jeopardize the safety of those in the surrounding area or that put the unit itself at risk will be clearly indicated in this manual.

To indicate these situations, a series of special symbols will be used to clearly identify these situations.

Pay close attention to these symbols and to the messages following them, as your safety and that of others depends on it.



DANGER

- The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.
- Not taking these instructions into account could lead to serious, very serious or even fatal injuries to you and others in the proximity of the unit.
- Hazards or unsafe practices which could result severe personal injury or death.

In the texts following the danger symbol you can also find information on safe procedures during unit installation.



CAUTION

- The text following this symbol contains information and instructions relating directly to your safety and physical wellbeing.
- Not taking these instructions into account could lead to minor injuries to you and others in the proximities of the unit.
- Not taking these instructions into account could lead to unit damage.

In the texts following the caution symbol you can also find information on safe procedures during unit installation.



NOTE

- The text following this symbol contains information or instructions that may be of use or that require a more thorough explanation.
- Instructions regarding inspections to be made on unit parts or systems may also be included.

1. General Information

1.3 Product guide

Unit type (Air Cooled Packaged water chiller):

C = R22 refrigerant
D = R407C refrigerant

Capacity (Usrt): 50, 55, 100, 110, 150, 180, 215, 225, 250, 280, 325, 355, 430, 500

A = One of Compressor
B = Two of Compressors
C = Three of Compressor
D = Four of Compressors

Number of Condensers

AR

D

XX

B

X 2V

Unit type (Air Cooled Packaged water chiller):

E = R134a refrigerant

Capacity (Usrt): 50, 60, 100, 125, 140, 190, 215, 240, 260, 300, 340, 380, 435, 490

A = One of Compressor
B = Two of Compressors
C = Three of Compressor
D = Four of Compressors

Number of Condensers

AR

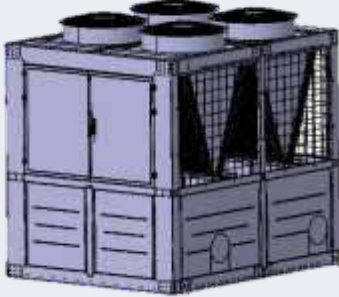
E

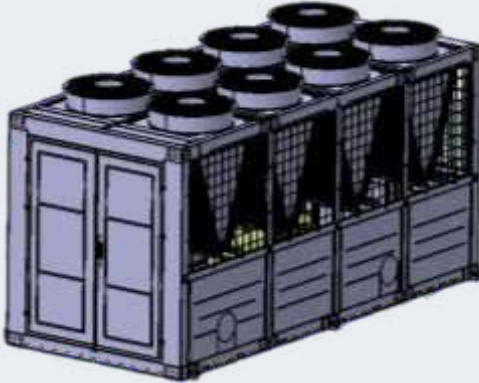
XX

B

X 2V


1.3.2 Product guide: Air cooled water chillers (AR C/D/E)


❄️	
3N~ 400V 50Hz	
	
Unit	
AR C 50 A 2V 4 48	
AR C 55 A 2V 4 48	
AR D 50 A 2V 4 48	
AR D 55 A 2V 4 48	
AR E 50 A 2V 4 48	
AR E 60 A 2V 4 48	

❄️	
3N~ 400V 50Hz	
	
Unit	
AR C 100 B 2 2V 4 48	
AR C 110 B 2 2V 4 48	
AR D 100 B 2 2V 4 48	
AR D 120 B 2 2V 4 48	
AR E 100 B 2 2V 4 48	
AR E 125 B 2 2V 4 48	


1. General Information


AR
CCL

	
3N~ 400V 50Hz	
Unit	
AR C 150 B 3 2V 4 48	
AR C 180 B 3 2V 4 48	
AR D 150 B 3 2V 4 48	
AR D 180 B 3 2V 4 48	
AR E 140 B 3 2V 4 48	
AR E 190 B 3 2V 4 48	

	
3N~ 400V 50Hz	
Unit	
AR C 215 B 4 2V 4 48	
AR C 225 B 4 2V 4 48	
AR D 215 B 4 2V 4 48	
AR D 225 B 4 2V 4 48	
AR E 215 B 4 2V 4 48	
AR E 240 B 4 2V 4 48	

1. General Information

	
3N~ 400V 50Hz	
Unit	
AR C 250 B 5 2V 4 48	
AR C 280 B 5 2V 4 48	
AR D 250 B 5 2V 4 48	
AR D 280 B 5 2V 4 48	
AR E 260 B 5 2V 4 48	
AR E 300 B 5 2V 4 48	

	
3N~ 400V 50Hz	
Unit	
AR C 325 B 6 2V 4 48	
AR C 355 B 6 2V 4 48	
AR D 325 B 6 2V 4 48	
AR D 355 B 6 2V 4 48	
AR E 340 B 6 2V 4 48	
AR E 380 B 6 2V 4 48	

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2. Features and benefits

2.1 Air Cooled Water Chiller

ARAL Company is able to manufacture air condition system with different technical specifications.

We offer the screw type Air Cooled Chillers Quantum series, from 186 kW to 1720 kW in cooling operation.

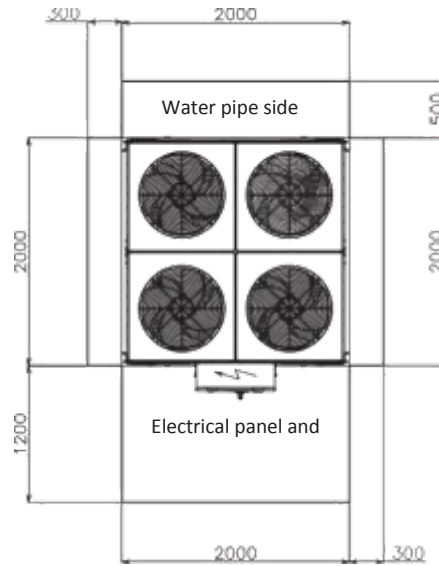
We are flexible for design and manufacture if it can be customized according to the requirement.



2. Features and benefits

2.4 Small service space

The compressor and the electrical panel are located at the same side of the unit and therefore the service space is reduced as follows:



2. Features and benefits

2.5 Control

ARAL Controls have been developed to achieve the best performance of the units and the interaction with the user.

Many functions

Current limiter


Forced compressor load control


2 different temperatures setting

Various fan speed control

Memory data in alarm

Automatic restart after power failure

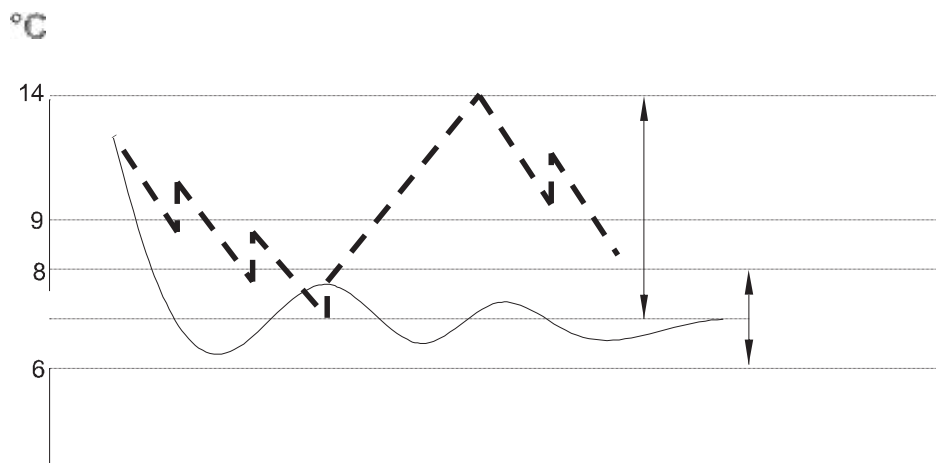
 Output signal for free cooling application

 External thermostat operation, etc...

Precise temperature control

Combinations of “Continuous Capacity Control Compressor” and “ARAL’s unique electronic controls” enable the Chiller to control outlet water temperature precisely, independent of cooling load.

This control benefits not only Air-conditioning but also industrial process use.



2. Features and benefits

2.6 LCD Touch Panel

Each HITACHI module of RCME-AH1 and RHME-AH1 series are equipped with a user-friendly colour touch panel which allows:

- a. Visualize the unit parameters like unit status, cycle temperatures and pressures, compressor running hours, alarm codes and descriptions, etc...
- b. Set the unit configuration: water outlet temperature, high efficiency mode, etc... for adapting the unit to each specific application and thus optimizing the performance of the unit.

Main specifications

- 3.5" display size
- TFT display type
- 320 x 240 pixels (QVGA)
- 65.536 colours
- 8-level brightness
- Available in several languages



Main functions

1 Display status of the unit, pump, fan, alarm, warnings		
2 Display unit conditions: temperature, pressure, etc...	⇒	
3 Adjust settings using up/down arrow keys	⇒	
4 Display up to 10 recent alarms and store detailed condition for the last 3 ones	⇒	

2. Features and benefits

2.7 R134a Refrigerant

The unit will be charged with R134a refrigerant.

Main advantages against R407C:

This refrigerant has no fractionation (change in composition of a refrigerant mixture by e.g. evaporation of the more volatile component(s) or condensation of the less volatile component(s)).

Lower Global Warming Power (GWP):

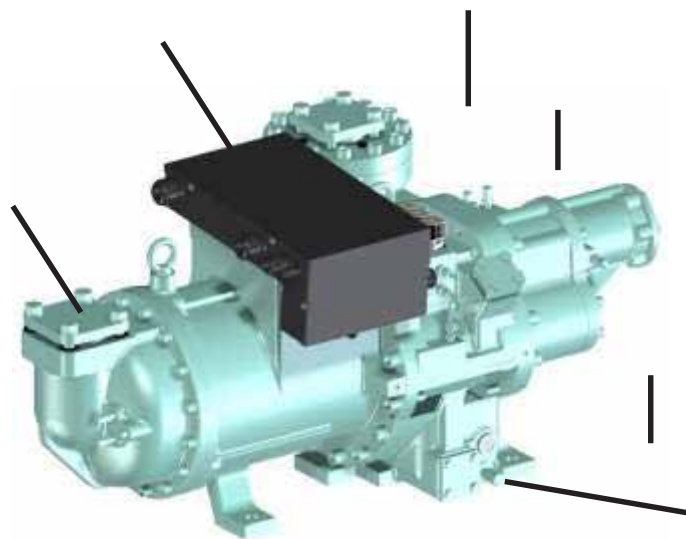
R22	R407C	R134a



2.8 New Compressor

The ARAL Samurai range incorporates a new twin screw compressor optimized for R134a refrigerant and the latest development of ARAL's screw compressor technology with the ARAL's Infinity Capacity Control from 25% to 100%. Thanks to this modulation the compressor load is always matching with the requested load, and thus accurate chilled water temperature is achieved without expensive inverter devices.

- Cyclonic oil separator to reduce oil carry over and increase efficiency
- The bearing has been improved and the recommended overhaul timing is now expanded from 24.000h to 40.000h.
- Additional oil port.
- New rotor
- Light casing



Infinity capacity control

ARAL's Infinity Capacity Control system uses advanced electronic controls to position the infinitely variable slide valve within each compressor.

This modulation allows exact load control and accurate chilled water temperature without the need for expensive inverters.

