HITACHI

Hitachi Appliances, Inc.

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HITACHI
Inspire the Next

TWIN SCREW COMPRESSOR TYPE HITACHI AIR-COOLED CHILLERS

NEW
H Series

NEW The High-efficiency Air-cooled Chiller "H series"

The air-cooled chiller "H series" with improved efficiency and functionality by several advanced technologies.
This series with the world's best standard A-type screw compressor and newly designed shell and tube heat exchanger that have powerful cooling ability, low noise, low vibration, high efficiency and high reliability is the perfect answer to all your needs!!

Product Series

RCUG-AHYZ1
Nominal Capacity Range (50Hz)

Zero Ozone Depletion Potential R407C

181 kW to 1,089 kW
52 USRT to 310 USRT
156,000 kcal/h to 936,100 kcal/h

RCU-AHYZ1
Nominal Capacity Range (50Hz)

R22

191 kW to 1,146 kW
54 USRT to 326 USRT
164,230 kcal/h to 985,400 kcal/h

Enhanced Line-up ～up to 400 HP～

High-performance A-type Screw Compressor

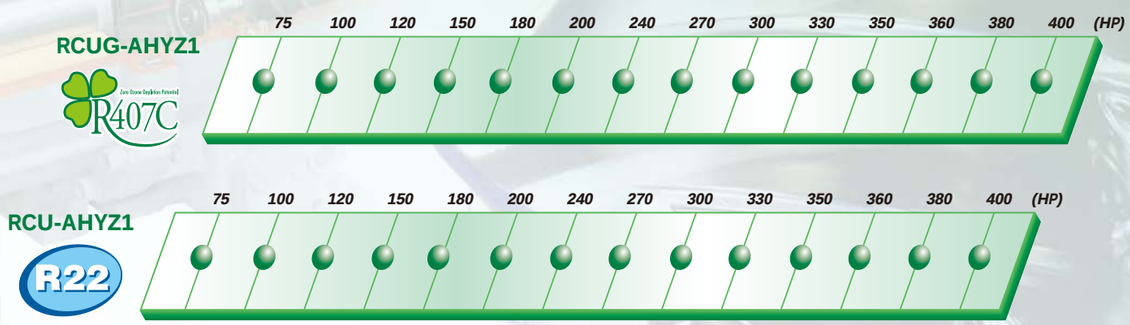
Precise Capacity Control Technology

Excellent Control Function

Highly Reliable Shell and Tube Heat Exchanger

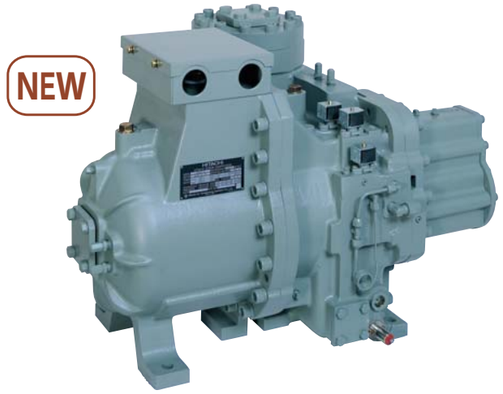
Wide Line-up

To meet the need for air conditioning systems for large facilities and the demand for higher capacity industrial cooling systems.



Technical Features

High-performance A-type Screw Compressor ～Newly Designed～



No outside pump is required due to the reliable differential-pressure oil-feeding system.

This oil-feeding system, which does not use any electrical mechanism, prevents the compressor from being damaged and maintains long-term stable operation.

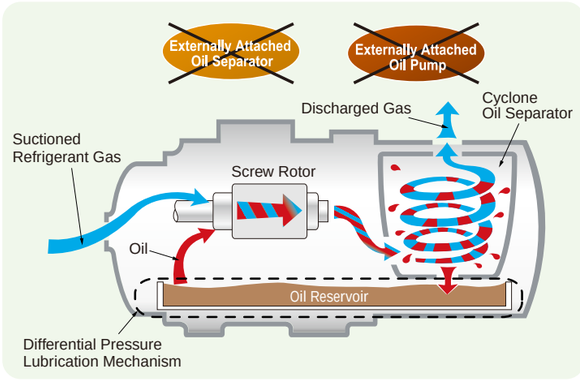
Built-in Cyclone Oil Separator

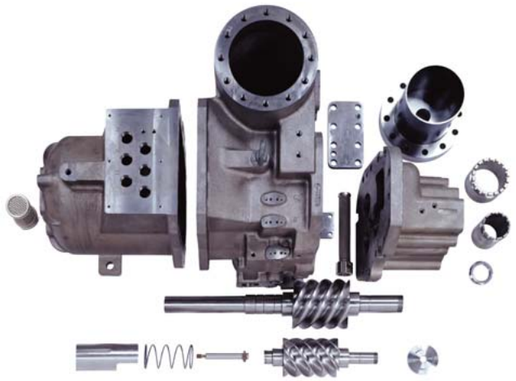
Low oil carrying-out is realized and reduction of heat transfer efficiency is minimized.

High Technology by Internal Manufacture

Because all manufacturing processes, from rotor manufacturing to unit assembly, are done internally, exceptional reliability is achieved.

☐ New Screw Compressor Operation Image





Low Vibration Level

No exclusive vibration control equipment is necessary by using low-vibration screw compressor.

Simple Structure with a Small Number of Parts

Whereas the number of main parts for the casing, compression mechanism and capacity control mechanism of a reciprocating compressor is **268**, that of a screw compressor is only **27**, just one tenth of the number ! A structure with so few parts offers high reliability and easy maintenance.

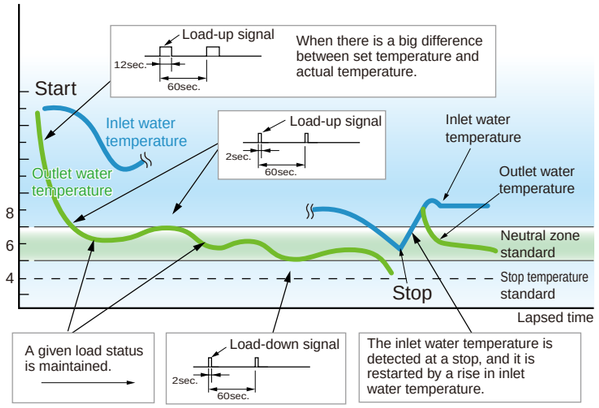
☐ Vibration Comparison

Type		Reciprocating	Screw
Comp. speed (rpm) 50/60Hz		1,430 / 1,720	**2,880 / 3,470**
Full amplitude	At leg of comp.	20−30	**5−8**
	At base frame	20	**Less than 10**
Vib. frequecy	At leg of comp.	23.8 / 28.7	**48.5 / 57.8**
	At base frame	23.8 / 28.7	**48 / 57.8**
Acceleration energy		Screw: 1/5 of reciprocating type	

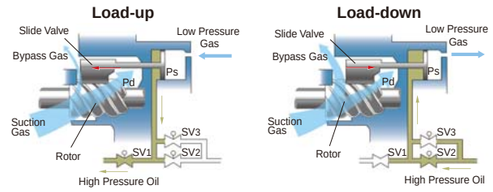
Precise Capacity Control Technology

Continuous Capacity Control

The temperature of the chilled water outlet can be kept at the set temperature ±1°C by continuous capacity control, so it is suitable for industrial use.



☐ Capacity Controller Structural Outline
(HITACHI Patented System)



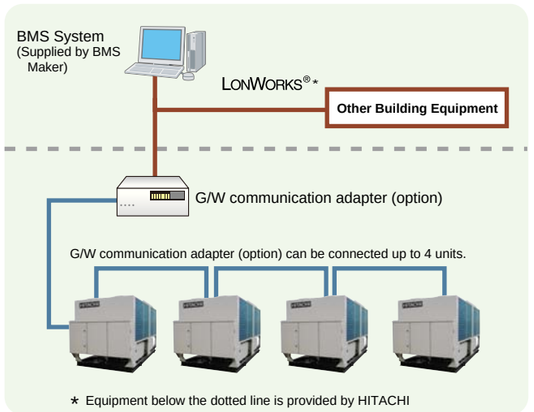
Pd: Discharge pressure, Ps: Suction pressure,
SV1,2,3 : Solenoid valve ⋈: Valve open ⋈: Valve close

Excellent Control Function

Building Management System (BMS)

Hitachi uses Building Management System through LONWORKS®. For chiller air-conditioning, Hitachi provides its own central station system. No complicated work is necessary.

* : "LONWORKS®" is a trademark of Echelon Corporation registered in the United States and other countries.



☐ List of Functions

Remote Setting

- ON / OFF Operation
- Chilled Water Temperature (Inlet or Outlet)

Remote Monitor

- ON / OFF Status
- Setting Chilled Water Temperature (Inlet or Outlet)
- Current Water Temperature of Inlet and Outlet
- Alarm Code

* In addition, up to 8 units can be connected using the G/W communication adapter for the Hitachi Chiller Unit signal (RS485).

Highly Reliable Shell and Tube Heat Exchanger ～Newly Designed～

- Dry expansion cooler system
- Low environmental impact: refrigerant quantity reduced by 60% from the current unit
- Perfect matching with the chiller unit due to our own design
  - Downsized by redesigned heat-transfer tube
  - Improved efficiency by optimized refrigerant distribution

R407C General Data

Model			RCUG75AHYZ1	RCUG100AHYZ1	RCUG120AHYZ1	RCUG150AHYZ1
Power Source			Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz			
Nominal Cooling Capacity*1		kW	181	272	340	363
		USRT	51.6	77.3	96.7	103.2
		kcal/h	156,019	233,620	292,433	312,038
Capacity Control			Continuous Capacity Control			
		%	100—15, 0	100—15(7.5)*2, 0		
Outer Dimensions	Width	mm	2,390	4,490	4,490	4,490
	Depth		1,940	1,940	1,940	1,940
	Height		2,170	2,170	2,170	2,170
Net Weight		kg	2,057	3,822	4,017	4,103
Refrigerant	Type		R407C			
	Flow Control		Thermal Expansion Valve			
	Number of Circuits		1	2		
Compressor	Type		Semi-Hermetic Screw Type			
	Model		60ASCC-Z	50ASCC-Z	60ASCC-Z	60ASCC-Z
	Quantity		1	2		
Heat Exchanger	Condenser		Cross Fin Type			
	Fan Motor Condenser Fan		Direct Drive Propeller Fan			
	Fan Motor Power Output	kW	1.1	1.1	1.1	1.1
	Fan Motor Quantity		4	8	8	8
	Evaporator		Shell-and-Tube Type			
Safety Devices			Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve			
Shipping Dimensions	Width	mm	2,600	4,700	4,700	4,700
	Depth		2,190	2,190	2,190	2,190
	Height		2,510	2,510	2,510	2,510
Shipping Weight		kg	2,524	4,442	4,635	4,745
Piping Connections for Water Side Heat Exchanger	Inlet		With φ90 Inner Diameter Companion Flange	With φ142 Inner Diameter Companion Flange		
	Outlet					
Connection Hole	Main Power (square orifice)	mm	500 x 200			
	Circuit		2 xφ64.5; φ102; φ52	3 xφ64.5; φ102; φ52		

Model			RCUG180AHYZ1	RCUG200AHYZ1	RCUG240AHYZ1	RCUG270AHYZ1	RCUG300AHYZ1	RCUG330AHYZ1
Power Source			Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz					
Nominal Cooling Capacity*1		kW	510	544	680	703	726	873
		USRT	145.1	154.8	193.4	199.9	206.4	248.2
		kcal/h	438,650	468,057	584,867	604,471	624,076	750,688
Capacity Control			Continuous Capacity Control					
		%	100—15(5)*2, 0		100—15(7.5)*2, 0			100—15(6)*2, 0
Outer Dimensions	Width	mm	6,590	6,590	9,080(min.)	9,080(min.)	9,080(min.)	11,180(min.)
	Depth		1,940	1,940	1,940	1,940	1,940	1,940
	Height		2,170	2,170	2,170	2,170	2,170	2,170
Net Weight		kg	5,688	5,827	2 x 4,017	4,103 + 4,017	2 x 4,103	5,688 + 4,103
Refrigerant	Type		R407C					
	Flow Control		Thermal Expansion Valve					
	Number of Circuits		3		4			5
Compressor	Type		Semi-Hermetic Screw Type					
	Model		60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z
	Quantity		3		4			5
Heat Exchanger	Condenser		Cross Fin Type					
	Fan Motor Condenser Fan		Direct Drive Propeller Fan					
	Fan Motor Power Output	kW	1.1	1.1	1.1	1.1	1.1	1.1
	Fan Motor Quantity		12	12	2 x 8	8 + 8	2 x 8	12 + 8
	Evaporator		Shell-and-Tube Type					
Safety Devices			Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve					
Shipping Dimensions	Width	mm	6,800	6,800	2 x 4,700	2 x 4,700	2 x 4,700	6,800 + 4,700
	Depth		2,190	2,190	2,190	2,190	2,190	2,190
	Height		2,510	2,510	2,510	2,510	2,510	2,510
Shipping Weight		kg	6,813	6,956	2 x 4,635	4,745 + 4,635	2 x 4,745	6,813 + 4,745
Piping Connections for Water Side Heat Exchanger	Inlet		With φ142 Inner Diameter Companion Flange					
	Outlet							
Connection Hole	Main Power (square orifice)	mm	500 x 200		2 x 500 x 200			
	Circuit		4 xφ64.5; φ102; φ52		6 xφ64.5; 2 xφ102; 2 xφ52			7 xφ64.5; 2 xφ102; 2 xφ52

Model			RCUG350AHYZ1	RCUG360AHYZ1	RCUG380AHYZ1	RCUG400AHYZ1
Power Source			Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz			
Nominal Cooling Capacity*1		kW	907	1,020	1,055	1,089
		USRT	258.0	290.1	299.8	309.6
		kcal/h	780,095	877,300	906,707	936,113
Capacity Control			Continuous Capacity Control			
		%	100—15(6)*2, 0	100—15(7.5)*2, 0		
Outer Dimensions	Width	mm	11,180(min.)	13,280(min.)	13,280(min.)	13,280(min.)
	Depth		1,940	1,940	1,940	1,940
	Height		2,170	2,170	2,170	2,170
Net Weight		kg	5,827 + 4,103	2 x 5,688	5,827 + 5,688	2 x 5,827
Refrigerant	Type		R407C			
	Flow Control		Thermal Expansion Valve			
	Number of Circuits		5	6		
Compressor	Type		Semi-Hermetic Screw Type			
	Model		60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z
	Quantity		5	6		
Heat Exchanger	Condenser		Cross Fin Type			
	Fan Motor Condenser Fan		Direct Drive Propeller Fan			
	Fan Motor Power Output	kW	1.1	1.1	1.1	1.1
	Fan Motor Quantity		12 + 8	2 x 12	12 + 12	2 x 12
	Evaporator		Shell-and-Tube Type			
Safety Devices			Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve			
Shipping Dimensions	Width	mm	6,800 + 4,700	2 x 6,800	2 x 6,800	2 x 6,800
	Depth		2,190	2,190	2,190	2,190
	Height		2,510	2,510	2,510	2,510
Shipping Weight		kg	6,956 + 4,745	2 x 6,813	6,956 + 6,813	2 x 6,956
Piping Connections for Water Side Heat Exchanger	Inlet		With φ142 Inner Diameter Companion Flange			
	Outlet					
Connection Hole	Main Power (square orifice)	mm	2 x 500 x 200			
	Circuit		7 xφ64.5; 2 xφ102; 2 xφ52	8 xφ64.5; 2 xφ102; 2 xφ52		

NOTES:

1. The nominal cooling capacities are based on the following conditions. (*1)
   Chilled Water Inlet / Outlet Temperature: 12˚C / 7˚C
   Condenser Air Inlet Temperature: 35˚C(DB)

2. The units greater than 240AHYZ1 including 240AHYZ1consist of two modules and are separately shipped.
   The common chilled water piping (Filed-Supplied) between each water cooler shall be directry connected at site.

3. Water Flow
   1) RCUG240, 300, 360, 400AHYZ1
      It is necessary to control the same water quantity to each cooler.
   2) RCUG270, 330, 350, 380AHYZ1
      The chilled water flow rate is different between No.1 & No.2 units.
      It is necessary to control the water quantity of each unit with adjusting valves (Filed-Supplied).

4. It is required to connect electrical control wires between No.1 & No.2 units for the unit greater than 240AHYZ1 including 240AHYZ1.

5. ( ) marked with *2 is available by selection switch.

Working Range

Item	Standard
Chilled Water Outlet Temperature	5—15˚C
Condenser Air Inlet Temperature (DB)	5—43˚C

R22 General Data

Model				RCU75AHYZ1	RCU100AHYZ1	RCU120AHYZ1	RCU150AHYZ1	RCU180AHYZ1	RCU200AHYZ1	RCU240AHYZ1	RCU270AHYZ1	RCU300AHYZ1	RCU330AHYZ1
Power Source				Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz				Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz					
Nominal Cooling Capacity*1			kW	191	286	358	382	537	573	716	740	764	919
			USRT	54.3	81.3	101.8	108.6	152.7	163.0	203.6	210.5	217.3	261.4
			kcal/h	164,230	245,916	307,825	328,461	461,737	492,691	615,649	636,285	656,922	790,198
Capacity Control				Continuous Capacity Control				Continuous Capacity Control					
			%	100—15, 0	100—15(7.5)*2, 0			100—15(5)*2, 0		100—15(7.5)*2, 0			100—15(6)*2, 0
Outer Dimensions	Width		mm	2,390	4,490	4,490	4,490	6,590	6,590	9,080(min.)	9,080(min.)	9,080(min.)	11,180(min.)
	Depth			1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940
	Height			2,170	2,170	2,170	2,170	2,170	2,170	2,170	2,170	2,170	2,170
Net Weight			kg	2,057	3,822	4,017	4,103	5,688	5,827	2 x 4,017	4,103 + 4,017	2 x 4,103	5,688 + 4,103
Refrigerant	Type			R22				R22					
	Flow Control			Thermal Expansion Valve				Thermal Expansion Valve					
	Number of Circuits			1	2			3		4			5
Compressor	Type			Semi-Hermetic Screw Type				Semi-Hermetic Screw Type					
	Model			60ASCC-Z	50ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z
	Quantity			1	2			3		4			5
Heat Exchanger	Condenser			Cross Fin Type				Cross Fin Type					
	Fan Motor	Condenser Fan		Direct Drive Propeller Fan				Direct Drive Propeller Fan					
		Power Output	kW	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
		Quantity		4	8	8	8	12	12	2 x 8	8 + 8	2 x 8	12 + 8
	Evaporator			Shell-and-Tube Type				Shell-and-Tube Type					
Safety Devices				Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve				Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve					
Shipping Dimensions	Width		mm	2,600	4,700	4,700	4,700	6,800	6,800	2 x 4,700	2 x 4,700	2 x 4,700	6,800 + 4,700
	Depth			2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190
	Height			2,510	2,510	2,510	2,510	2,510	2,510	2,510	2,510	2,510	2,510
Shipping Weight			kg	2,524	4,442	4,635	4,745	6,813	6,956	2 x 4,635	4,745 + 4,635	2 x 4,745	6,813 + 4,745
Piping Connections for Water Side Heat Exchanger	Inlet			With φ90 Inner Diameter Companion Flange	With φ142 Inner Diameter Companion Flange			With φ142 Inner Diameter Companion Flange					
	Outlet												
Connection Hole	Main Power (square orifice)		mm	500 x 200				500 x 200		2 x 500 x 200			
	Circuit			2 xφ64.5; φ102; φ52	3 xφ64.5; φ102; φ52			4 xφ64.5; φ102; φ52		6 xφ64.5; 2 xφ102; 2 xφ52			7 xφ64.5; 2 xφ102; 2 xφ52

Model				RCU350AHYZ1	RCU360AHYZ1	RCU380AHYZ1	RCU400AHYZ1
Power Source				Main (AC 3φ) 380V / 50Hz, Control (AC 1φ) 220V / 50Hz			
Nominal Cooling Capacity*1			kW	955	1,074	1,110	1,146
			USRT	271.6	305.5	315.7	325.9
			kcal/h	821,152	923,474	954,428	985,383
Capacity Control				Continuous Capacity Control			
			%	100—15(6)*2, 0	100—15(7.5)*2, 0		
Outer Dimensions	Width		mm	11,180(min.)	13,280(min.)	13,280(min.)	13,280(min.)
	Depth			1,940	1,940	1,940	1,940
	Height			2,170	2,170	2,170	2,170
Net Weight			kg	5,827 + 4,103	2 x 5,688	5,827 + 5,688	2 x 5,827
Refrigerant	Type			R22			
	Flow Control			Thermal Expansion Valve			
	Number of Circuits			5	6		
Compressor	Type			Semi-Hermetic Screw Type			
	Model			60ASCC-Z	60ASCC-Z	60ASCC-Z	60ASCC-Z
	Quantity			5	6		
Heat Exchanger	Condenser			Cross Fin Type			
	Fan Motor	Condenser Fan		Direct Drive Propeller Fan			
		Power Output	kW	1.1	1.1	1.1	1.1
		Quantity		12 + 8	2 x 12	12 + 12	2 x 12
	Evaporator			Shell-and-Tube Type			
Safety Devices				Overcurrent Relay for Compressor, Internal Thermostat for Compressor, Reverse Phase Protection Device for Compressor, Thermal Overcurrent Relay for Fan Motor, High-Pressure Switch, Low-Pressure Control, Suction Gas Temperature Control, Freeze Protection Thermistor Control, Oil Heater, Discharge Gas Thermistor, Fusible Plug, Fuse for Control Circuit and Pressure Relief Valve			
Shipping Dimensions	Width		mm	6,800 + 4,700	2 x 6,800	2 x 6,800	2 x 6,800
	Depth			2,190	2,190	2,190	2,190
	Height			2,510	2,510	2,510	2,510
Shipping Weight			kg	6,956 + 4,745	2 x 6,813	6,956 + 6,813	2 x 6,956
Piping Connections for Water Side Heat Exchanger	Inlet			With φ142 Inner Diameter Companion Flange			
	Outlet						
Connection Hole	Main Power (square orifice)		mm	2 x 500 x 200			
	Circuit			7 xφ64.5; 2 xφ102; 2 xφ52	8 xφ64.5; 2 xφ102; 2 xφ52		

NOTES:

1. The nominal cooling capacities are based on the following conditions. (*1)
   Chilled Water Inlet / Outlet Temperature: 12˚C / 7˚C
   Condenser Air Inlet Temperature: 35˚C(DB)

2. The units greater than 240AHYZ1 including 240AHYZ1consist of two modules and are separately shipped.
   The common chilled water piping (Filed-Supplied) between each water cooler shall be directry connected at site.

3. Water Flow
   1) RCU240, 300, 360, 400AHYZ1
      It is necessary to control the same water quantity to each cooler.
   2) RCU270, 330, 350, 380AHYZ1
      The chilled water flow rate is different between No.1 & No.2 units.
      It is necessary to control the water quantity of each unit with adjusting valves (Filed-Supplied).

4. It is required to connect electrical control wires between No.1 & No.2 units for the unit greater than 240AHYZ1 including 240AHYZ1.

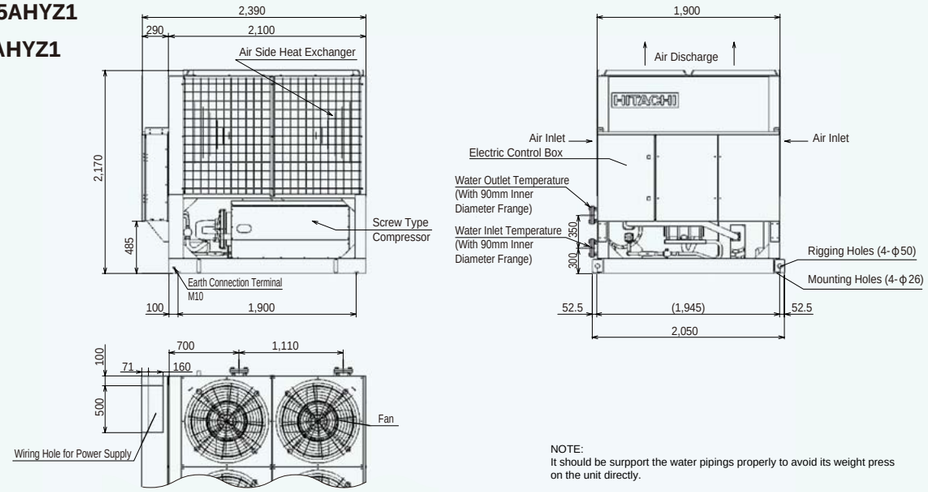
5. ( ) marked with *2 is available by selection switch.

Working Range

Item	Standard
Chilled Water Outlet Temperature	5—15˚C
Condenser Air Inlet Temperature (DB)	5—43˚C

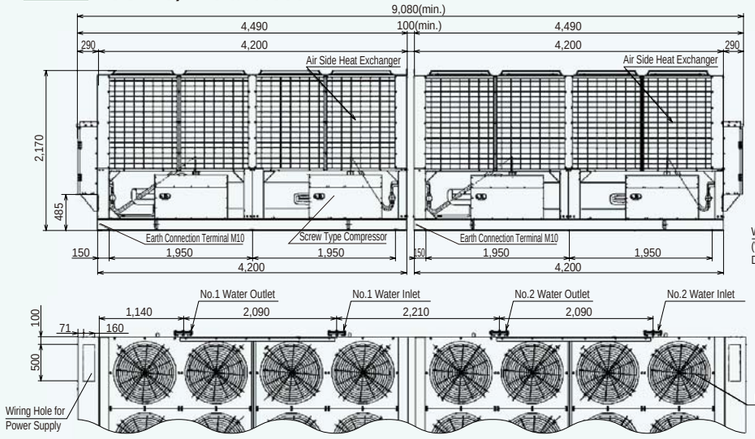
Dimensional Data

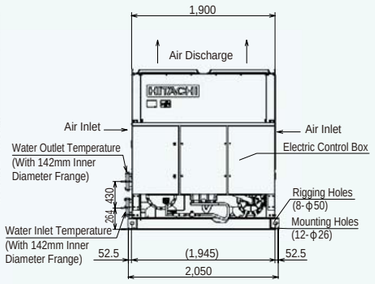
R407C RCUG75AHYZ1
R22 RCU75AHYZ1



NOTE:
It should be surpport the water pipings properly to avoid its weight press on the unit directly.

R407C RCUG240, 270 and 300AHYZ1
R22 RCU240, 270 and 300AHYZ1





NOTES:
1. It should be surpport the water pipings properly to avoid its weight press on the unit directly.
2. These chillers consist of unit No.1 & No.2 and they are supplied separately when dispatched.
3. Water Flow
   For RCU(G)240,300AHYZ1: It is necessary to control the same water quantity to each cooler. For RCU(G)270AHYZ1: The chilled water flow rate is different between No.1 & No.2 unit...
   It is necessary to control the water quantity of each unit with adjusting valves (Field-Supplied).
4. It needs to field connect the control wiring between the No.1 & No.2.

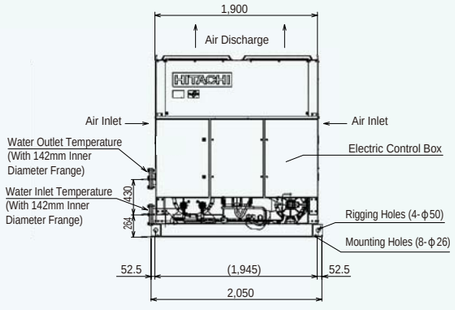
R407C RCUG100, 120 and 150AHYZ1
R22 RCU100, 120 and 150AHYZ1

NOTE:
It should be surpport the water pipings properly to avoid its weight press on the unit directly.

R407C RCUG330 and 350AHYZ1
R22 RCU330 and 350AHYZ1

NOTES:
1. It should be surpport the water pipings properly to avoid its weight press on the unit directly.
2. These chillers consist of unit No.1 & No.2 and they are supplied separately when dispatched.
3. Water Flow
   For RCU(G)330,350AHYZ1: The chilled water flow rate is different between No.1 & No.2 unit. It is necessary to control the water quantity of each unit with adjusting valves (Field-Supplied).
4. It needs to field connect the control wiring between the No.1 & No.2.
5. In the No.2 unit, the data with the Ⓟ mark is 300mm.

R407C RCUG180 and 200AHYZ1
R22 RCU180 and 200AHYZ1



NOTES:
1. It should be surpport the water pipings properly to avoid its weight press on the unit directly.
2. Water connection flange (142mm) are supplied by factory with the unit.

R407C RCUG360, 380 and 400AHYZ1
R22 RCU360, 380 and 400AHYZ1

NOTES:
1. It should be surpport the water pipings properly to avoid its weight press on the unit directly.
2. These chillers consist of unit No.1 & No.2 and they are supplied separately when dispatched.
3. Water Flow
   For RCU(G)360,400AHYZ1: It is necessary to control the same water quantity to each cooler. For RCU(G)380AHYZ1: The chilled water flow rate is different between No.1 & No.2 unit.
   It is necessary to control the water quantity of each unit with adjusting valves (Field-Supplied).
4. It needs to field connect the control wiring between the No.1 & No.2.