

**HITACHI**  
Inspire the Next<sup>1</sup>

***TWIN SCREW COMPRESSOR TYPE  
HITACHI WATER-COOLED CHILLERS***

**NEW**  
**H Series**



**R22**



# **NEW** *The High-efficiency Water-cooled Chiller "H series"*

The Water-cooled chiller "H series" with improved efficiency and functionality by several advanced technology.

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!!



**E**nhanced Line-up ~up to 570 HP~

**T**op Class High COP

**H**igh-performance A-type Screw Compressor

**H**ighly Reliable Shell and Tube Heat Exchanger

**P**recise Capacity Control Technology

**E**xcellent Control Function





## Products Series



### RCUG-WHYZ(-E)

Nominal Capacity Range (50Hz)

130 kW to 1,758 kW

37.0 USRT to 500.0 USRT

111,800 kcal/h to 1,512,000 kcal/h



### RCU-WHYZ(-E)

Nominal Capacity Range (50Hz)

140 kW to 1,825 kW

39.8 USRT to 519.1 USRT

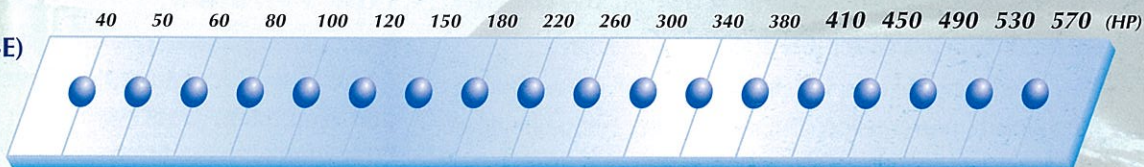
120,400 kcal/h to 1,569,500 kcal/h



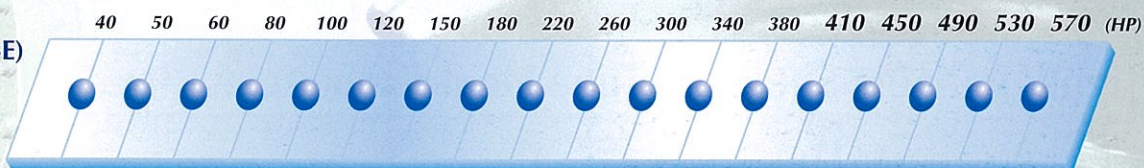
## Wide Line-up

To meet the need for air conditioning systems for large facilities and the demand for higher capacity industrial cooling systems, we have added the large screw chillers, the 410–570HP, to our product line-up.

### RCUG-WHYZ(-E)



### RCU-WHYZ(-E)



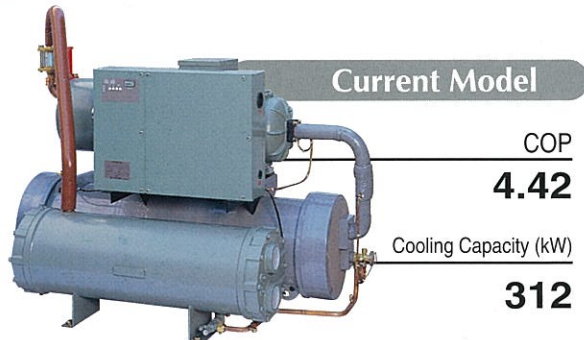


# Technical Features

## Top Class High COP

In the new model series, the power consumption is largely reduced over the current model series due to newly designed high-efficiency cooling system. Also COP is largely increased from 4.42 in the current 100HP model to 5.13 in the new 100HP model.

### ☐ COP Comparison



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

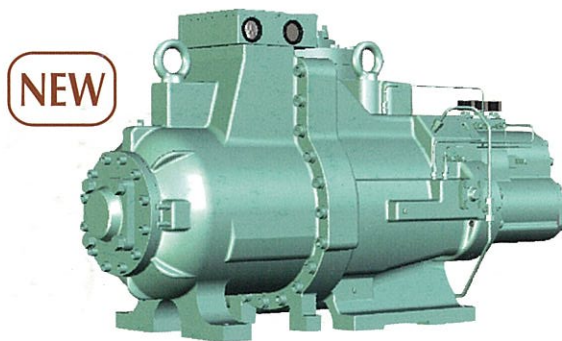
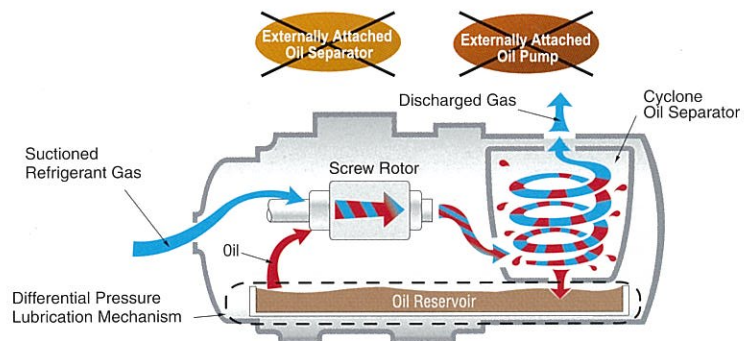


Image of Large Capacity Compressor



Operation Image

### Built-in Cyclone Oil Separator

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

### 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.

### High Technology by Internal Manufacture

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

### Low Vibration, Low Noise

Without the conventional demister chamber system, no noise is produced during oil separation of discharge gas. A vibration-proof base is not required for the chiller body thanks to the firmly-secured, low-vibration screw compressor.

## Highly Reliable Shell and Tube Heat Exchanger ~ Newly Designed ~

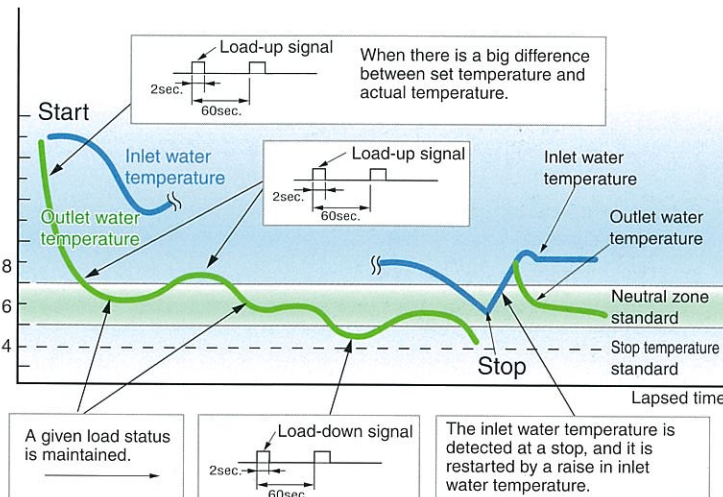
- Simple structure and easy for maintenance
- Reduced cost and adapted to satisfy various demands
- Freeze protection thermostat and other safety devices
- Integral and reliable performance



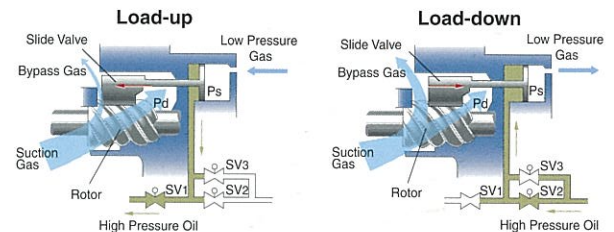
# Precise Capacity Control Technology

## Continuous Capacity Control

The temperature of the chilled water outlet can be kept at the set temperature  $\pm 1^\circ\text{C}$  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

### Liquid Crystal Screen Display (Optional Accessory)

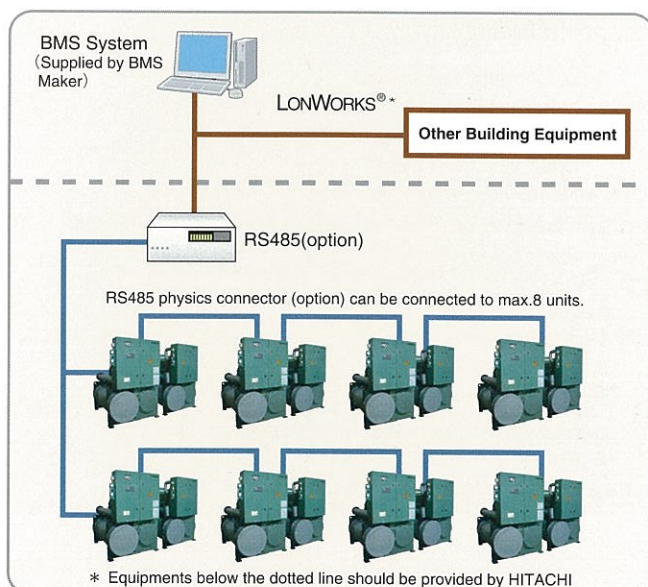
- Big colorful liquid crystal display
- Man-machine conversation screen, display content completely.
- Show data at real time
- Time starting function
- Leave message board (for shift)
- Communication adapter provides Communication with RS485 physics connection to BMS.



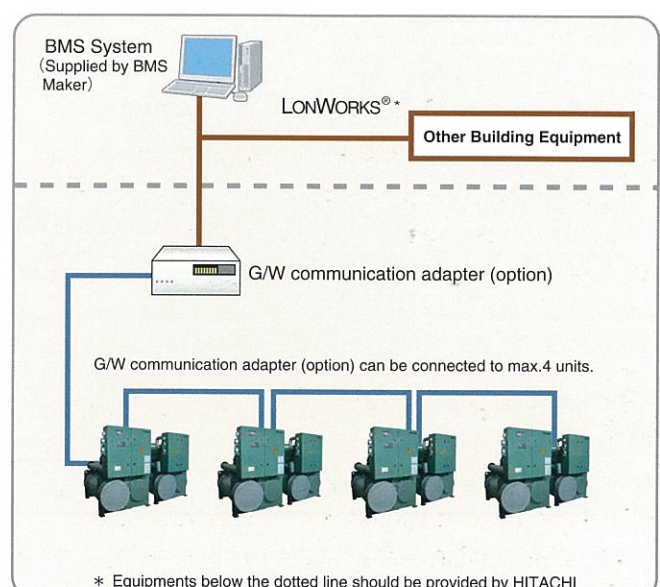
Image of Display

### 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.



\* Equipments below the dotted line should be provided by HITACHI



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\* : "LONWORKS®" are trademarks of Echelon Corporation registered in the United States and other countries.



# R407C General Data

Model	Standard		RCUG40WHYZ	RCUG50WHYZ	RCUG60WHYZ	RCUG80WHYZ
	Liquid Crystal Display		RCUG40WHYZ-E	RCUG50WHYZ-E	RCUG60WHYZ-E	RCUG80WHYZ-E
Power Source			Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
Nominal Cooling Capacity	kW		130	162	197	260
	USRT		37.0	46.1	56.0	74.4
	kcal/h		111,800	139,320	169,420	223,600
Condenser Water Flow Rate	m <sup>3</sup> /h		27.5	34.2	41.5	54.9
Chilled Water Flow Rate	m <sup>3</sup> /h		22.4	27.9	33.9	44.7
Capacity Control			Continuous Capacity Control			
	%		100～15, 0			100～7.5, 0
Outer Dimensions	Height		1,506			1,495
	Width	mm	1,764			2,759
	Depth		910			1,070
Net Weight	kg		878	1,000	1,032	1,798
Refrigerant	Type		R407C			
	Flow Control		Electronic Expansion Valve			
	Number of Circuits		1			2
Compressor	Type		Semi-Hermetic Screw Type			
	Model		40ASCCW-Z	50ASCCW-Z	60ASCCW-Z	40ASCCW-Z
	Quantity		1			2
Condenser			Shell-and-Tube Type			
Water Cooler			Shell-and-Tube, Dry Expansion Type			
Safety Devices			Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
Shipping Dimensions	Height		1,747			1,765
	Width	mm	1,898			2,960
	Depth		1,106			1,250
Shipping Weight	kg		999	1,121	1,153	1,978
Piping Connections for Condenser	Inlet	Rc	With $\phi$ 78 Inner Diametre Companion Flange			4
	Outlet					4
Piping Connections for Water Cooler	Inlet	R	3	3	3	With $\phi$ 142 Inner Diametre Companion Flange
	Outlet		3	3	3	

Model	Standard		RCUG300WHYZ	RCUG340WHYZ	RCUG380WHYZ	RCUG410WHYZ
	Liquid Crystal Display		RCUG300WHYZ-E	RCUG340WHYZ-E	RCUG380WHYZ-E	RCUG410WHYZ-E
Power Source			Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
Nominal Cooling Capacity	kW		952	1,061	1,170	1,296
	USRT		270.7	301.7	332.7	368.5
	kcal/h		818,720	912,460	1,006,200	1,114,560
Condenser Water Flow Rate	m <sup>3</sup> /h		198.4	221.0	243.6	270.2
Chilled Water Flow Rate	m <sup>3</sup> /h		163.7	182.5	201.2	222.9
Capacity Control			Continuous Capacity Control			
		%	100 ~ 7.5, 0			100 ~ 5, 0
Outer Dimensions	Height		1,879			1,879
	Width	mm	2,622			3,983
	Depth		1,922			1,922
Net Weight	kg		5,638	5,851	6,064	8,239
Refrigerant	Type		R407C			
	Flow Control		Electronic Expansion Valve			
	Number of Circuits		2			3
Compressor	Type		Semi-Hermetic Screw Type			
	Model		130ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	170ASCCW-Z	100ASCCW-Z, 130ASCCW-Z
	Quantity		2			3
Condenser			Shell-and-Tube Type			
Water Cooler			Shell-and-Tube, Dry Expansion Type			
Safety Devices			Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
Shipping Dimensions	Height		2,239			2,239
	Width	mm	1,464 x 2 Modules			1,464 x 3 Modules
	Depth		2,247			2,247
Shipping Weight	kg		6,310	6,523	6,736	9,247
Piping Connections for Condenser	Inlet		With $\phi$ 116 Inner Diametre Companion Flange			
	Outlet	Rc				
Piping Connections for Water Cooler	Inlet		With $\phi$ 142 Inner Diametre Companion Flange			
	Outlet	R				



	RCUG100WHYZ RCUG100WHYZ-E	RCUG120WHYZ RCUG120WHYZ-E	RCUG150WHYZ RCUG150WHYZ-E	RCUG180WHYZ RCUG180WHYZ-E	RCUG220WHYZ RCUG220WHYZ-E	RCUG260WHYZ RCUG260WHYZ-E
	Main (AC 3 ϕ ) 380, 415V / 50Hz, Control (AC 1 ϕ ) 220, 240V / 50Hz					
	323	392	485	589	688	820
	91.8	111.5	137.9	167.5	195.6	233.2
	277,780	337,120	417,100	506,540	591,680	705,200
	68.1	82.6	102.3	124.1	143.4	171.0
	55.6	67.4	83.4	101.3	118.3	141.0
	Continuous Capacity Control					
	100～7.5, 0		100～5, 0		100～7.5, 0	
	1,495		1,685		1,810	1,879
	2,759		3,170		2,622	2,622
	1,070		1,220		1,922	1,922
	2,053	2,165	3,570	3,748	5,204	5,420
	R407C					
	Electronic Expansion Valve					
	2		3		2	
	Semi-Hermetic Screw Type					
	50ASCCW-Z	60ASCCW-Z	50ASCCW-Z	60ASCCW-Z	100ASCCW-Z	100ASCCW-Z, 130ASCCW-Z
	2		3		2	
	Shell-and-Tube Type					
	Shell-and-Tube, Dry Expansion Type					
	Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve					
	1,765		1,998		2,239	
	2,960		3,320		1,464 x 2 Modules	
	1,250		1,358		2,247	
	2,233	2,345	3,851	4,029	5,876	6,092
	4	4	With ϕ 142 Inner Diametre Companion Flange		With ϕ 116 Inner Diametre Companion Flange	
	4	4				
	With ϕ 142 Inner Diametre Companion Flange					

RCUG450WHYZ RCUG450WHYZ-E	RCUG490WHYZ RCUG490WHYZ-E	RCUG530WHYZ RCUG530WHYZ-E	RCUG570WHYZ RCUG570WHYZ-E
Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
1,428	1,537	1,646	1,758
406.0	437.0	468.0	500.0
1,228,080	1,321,820	1,415,560	1,512,000
297.6	320.2	342.9	366.0
245.6	264.3	283.1	302.4
Continuous Capacity Control			
100~5, 0			
1,879			
3,983			
1,922			
8,457	8,670	8,883	9,096
R407C			
Electronic Expansion Valve			
3			
Semi-Hermetic Screw Type			
130ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	170ASCCW-Z
3			
Shell-and-Tube Type			
Shell-and-Tube, Dry Expansion Type			
Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
2,239			
1,464 x 3 Modules			
2,247			
9,465	9,678	9,891	10,104
With $\phi$ 116 Inner Diametre Companion Flange			
With $\phi$ 142 Inner Diametre Companion Flange			

#### NOTES:

- The nominal cooling capacities are based on the following conditions.  
Chilled Water Inlet / Outlet Temperature: 12°C / 7°C  
Condenser Water Inlet / Outlet Temperature: 30°C / 35°C
- Working Range  
Condenser Water Outlet Temperature: 22°C to 37°C  
Condenser Water Temperature Difference: 3.5°C to 10°C  
Chilled Water Outlet Temperature: 5°C to 20°C  
Chilled Water Temperature Difference: 2.5°C to 10°C
- Communication adapter connecting the unit to BMS (Building Management System) is an optional accessory, please contact with HITACHI or HITACHI distributor if required.
- The unit with liquid crystal display differs from the unit with segment code display in electric box, however, both have the same outer dimensions.



# R22 General Data

Model	Standard	RCU40WHYZ	RCU50WHYZ	RCU60WHYZ	RCU80WHYZ
	Liquid Crystal Display	RCU40WHYZ-E	RCU50WHYZ-E	RCU60WHYZ-E	RCU80WHYZ-E
Power Source		Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
Nominal Cooling Capacity	kW	140	172	213	279
	USRT	39.8	48.9	60.6	79.3
	kcal/h	120,400	147,920	183,180	239,940
Condenser Water Flow Rate	m <sup>3</sup> /h	28.6	35.3	44.0	57.3
Chilled Water Flow Rate	m <sup>3</sup> /h	24.0	59.2	37.0	48.0
Capacity Control		Continuous Capacity Control			
	%	100 ~ 15, 0			
Outer Dimensions	Height	1,506			
	Width	1,764			
	Depth	910			
Net Weight	kg	878	1,000	1,032	1,798
Refrigerant	Type	R22			
	Flow Control	Electronic Expansion Valve			
	Number of Circuits	1			
Compressor	Type	Semi-Hermetic Screw Type			
	Model	40ASCCW-Z	50ASCCW-Z	60ASCCW-Z	40ASCCW-Z
	Quantity	1			
Condenser		Shell-and-Tube Type			
Water Cooler		Shell-and-Tube, Dry Expansion Type			
Safety Devices		Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
Shipping Dimensions	Height	1,747			
	Width	1,898			
	Depth	1,106			
Shipping Weight	kg	999	1,121	1,153	1,978
Piping Connections for Condenser	Inlet	With $\phi$ 78 Inner Diameter Companion Flange			
	Outlet				
Piping Connections for Water Cooler	Inlet	3	3	3	With $\phi$ 142 Inner Diameter Companion Flange
	Outlet	3	3	3	

Model	Standard	RCU300WHYZ	RCU340WHYZ	RCU380WHYZ	RCU410WHYZ
	Liquid Crystal Display	RCU300WHYZ-E	RCU340WHYZ-E	RCU380WHYZ-E	RCU410WHYZ-E
Power Source		Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
Nominal Cooling Capacity	kW	971	1,094	1,217	1,328
	USRT	276.1	311.1	346.0	377.7
	kcal/h	835,060	940,840	1,046,620	1,141,650
Condenser Water Flow Rate	m <sup>3</sup> /h	199.1	224.4	249.5	272.4
Chilled Water Flow Rate	m <sup>3</sup> /h	167.0	188.1	209.3	228.4
Capacity Control		Continuous Capacity Control			
	%	100 ~ 7.5, 0			
Outer Dimensions	Height	1,879			
	Width	2,622			
	Depth	1,922			
Net Weight	kg	5,638	5,851	6,064	8,239
Refrigerant	Type	R22			
	Flow Control	Electronic Expansion Valve			
	Number of Circuits	2			
Compressor	Type	Semi-Hermetic Screw Type			
	Model	130ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	170ASCCW-Z	100ASCCW-Z, 130ASCCW-Z
	Quantity	2			
Condenser		Shell-and-Tube Type			
Water Cooler		Shell-and-Tube, Dry Expansion Type			
Safety Devices		Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
Shipping Dimensions	Height	2,239			
	Width	1,464 x 2 Modules			
	Depth	2,247			
Shipping Weight	kg	6,310	6,523	6,736	9,247
Piping Connections for Condenser	Inlet	With $\phi$ 116 Inner Diameter Companion Flange			
	Outlet				
Piping Connections for Water Cooler	Inlet	With $\phi$ 142 Inner Diameter Companion Flange			
	Outlet				



	RCU100WHYZ	RCU120WHYZ	RCU150WHYZ	RCU180WHYZ	RCU220WHYZ	RCU260WHYZ
	RCU100WHYZ-E	RCU120WHYZ-E	RCU150WHYZ-E	RCU180WHYZ-E	RCU220WHYZ-E	RCU260WHYZ-E
	Main (AC 3 ϕ ) 380, 415V / 50Hz, Control (AC 1 ϕ ) 220, 240V / 50Hz					
	344	425	516	637	713	842
	97.8	120.8	146.7	181.1	202.7	239.5
	295,840	365,500	443,760	547,820	613,180	724,120
	70.7	87.4	106.1	130.9	146.2	172.7
	59.2	73.1	88.7	109.5	122.6	144.8
	Continuous Capacity Control					
	100~7.5, 0		100~5, 0		100~7.5, 0	
	1,495		1,685		1,810	1,879
	2,759		3,170		2,622	2,622
	1,070		1,220		1,922	1,922
	2,053	2,165	3,570	3,748	5,204	5,420
	R22					
	Electronic Expansion Valve					
	2		3		2	
	Semi-Hermetic Screw Type					
	50ASCCW-Z	60ASCCW-Z	50ASCCW-Z	60ASCCW-Z	100ASCCW-Z	100ASCCW-Z, 130ASCCW-Z
	2		3		2	
	Shell-and-Tube Type					
	Shell-and-Tube, Dry Expansion Type					
	Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve					
	1,765		1,998		2,239	
	2,960		3,320		1,464 x 2 Modules	
	1,250		1,358		2,247	
	2,233	2,345	3,851	4,029	5,874	6,092
	4	4	With ϕ 142 Inner Diametre Companion Flange		With ϕ 116 Inner Diametre Companion Flange	
	4	4				
	With ϕ 142 Inner Diametre Companion Flange					

RCU450WHYZ	RCU490WHYZ	RCU530WHYZ	RCU570WHYZ
RCU450WHYZ-E	RCU490WHYZ-E	RCU530WHYZ-E	RCU570WHYZ-E
Main (AC 3 $\phi$ ) 380, 415V / 50Hz, Control (AC 1 $\phi$ ) 220, 240V / 50Hz			
1,457	1,579	1,703	1,825
414.2	449.0	484.0	519.1
1,253,020	1,357,940	1,464,580	1,569,500
298.7	323.8	349.3	374.2
250.6	271.5	292.9	313.8
Continuous Capacity Control			
100~5, 0			
1,879			
3,983			
1,922			
8,457	8,670	8,883	9,096
R22			
Electronic Expansion Valve			
3			
Semi-Hermetic Screw Type			
130ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	130ASCCW-Z, 170ASCCW-Z	170ASCCW-Z
3			
Shell-and-Tube Type			
Shell-and-Tube, Dry Expansion Type			
Three-Phase Overcurrent Relay, High-Pressure Switch, Low-Pressure Switch, Oil Heater, Internal Thermostat for Compressor Motor, Fusible Plug, Freeze Protection Thermostat, Reverse Phase Protection Relay, Discharge Gas Thermostat, Operation Hour-Meter and Pressure Relief Valve			
2,239			
1,464 x 3 Modules			
2,247			
9,465	9,678	9,891	10,104
With $\phi$ 116 Inner Diametre Companion Flange			
With $\phi$ 142 Inner Diametre Companion Flange			

#### NOTES:

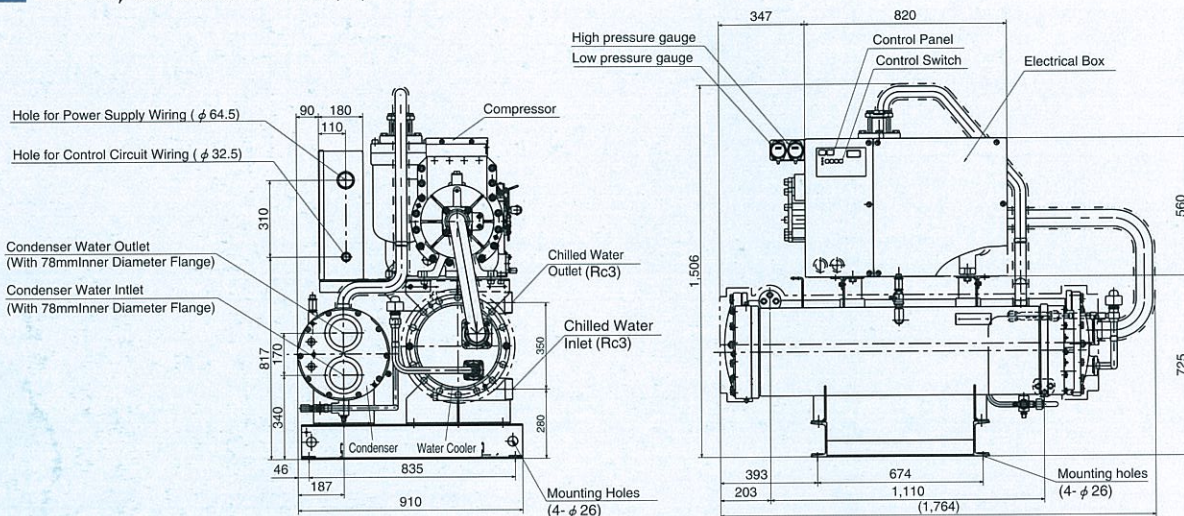
- The nominal cooling capacities are based on the following conditions.  
Chilled Water Inlet / Outlet Temperature: 12°C / 7°C  
Condenser Water Inlet / Outlet Temperature: 30°C / 35°C
- Working Range  
Condenser Water Outlet Temperature: 22°C to 40°C  
Condenser Water Temperature Difference: 3.5°C to 10°C  
Chilled Water Outlet Temperature: 5°C to 20°C  
Chilled Water Temperature Difference: 2.5°C to 10°C
- Communication adapter connecting the unit to BMS (Building Management System) is an optional accessory, please contact with HITACHI or HITACHI distributor if required.
- The unit with liquid crystal display differs from the unit with segment code display in electric box, however, both have the same outer dimensions.



# Dimensional Data

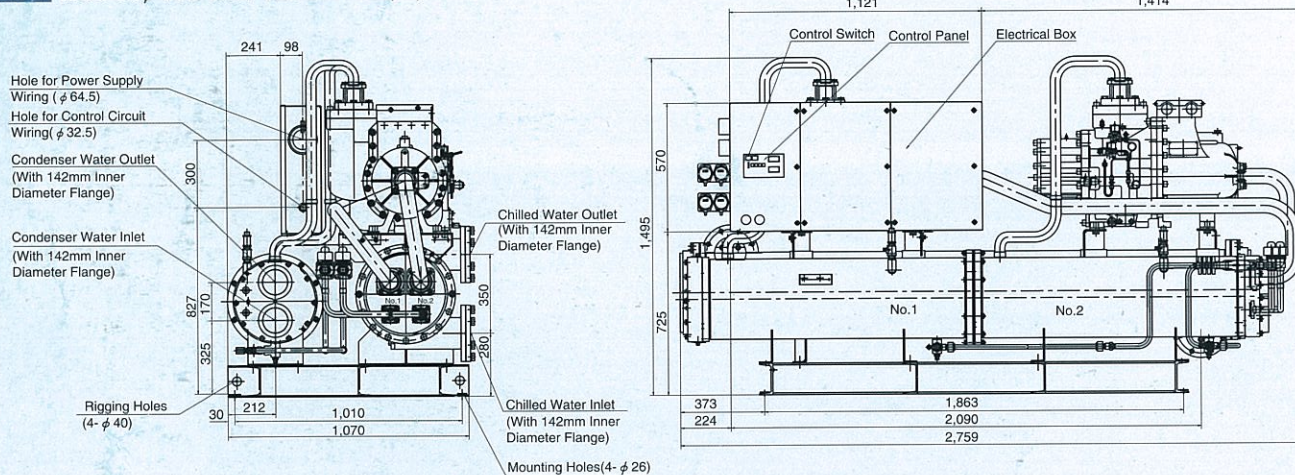
## R407C RCUG40, 50 and 60WHYZ(-E)

## R22 RCU40, 50 and 60WHYZ(-E)



## R407C RCUG80, 100 and 120WHYZ(-E)

## R22 RCU80, 100 and 120WHYZ(-E)

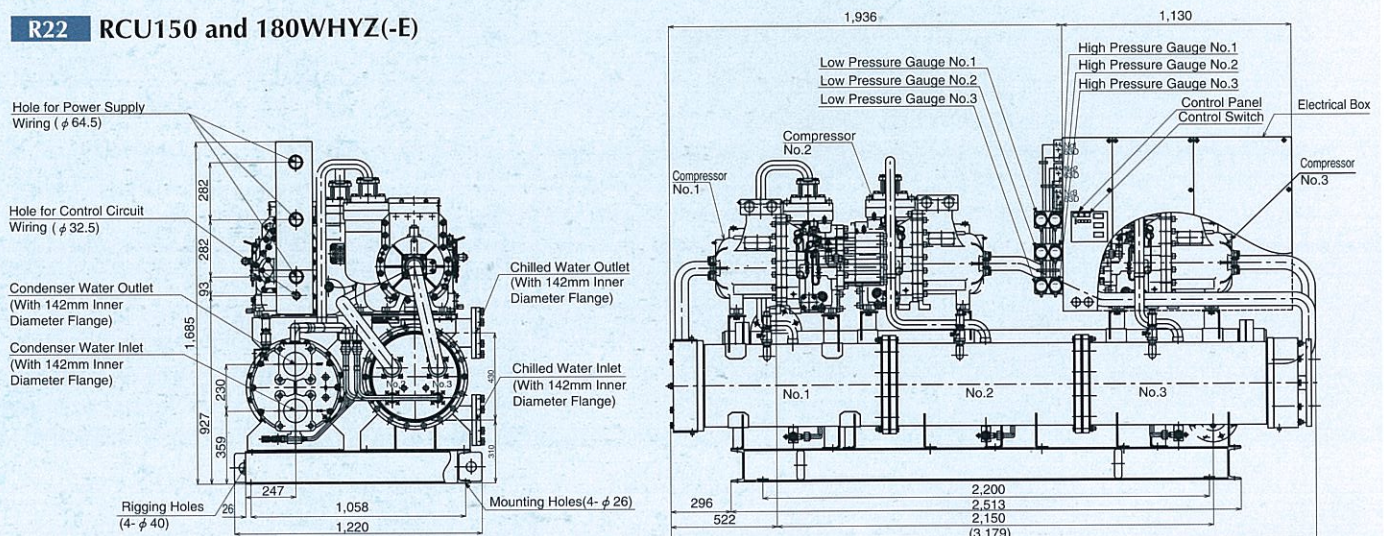


### NOTE:

The unit with the refrigerant R22 differs from the unit with refrigerant R407C in the location of the discharged tube, however, both have the same outer dimensions.

## R407C RCUG150 and 180WHYZ(-E)

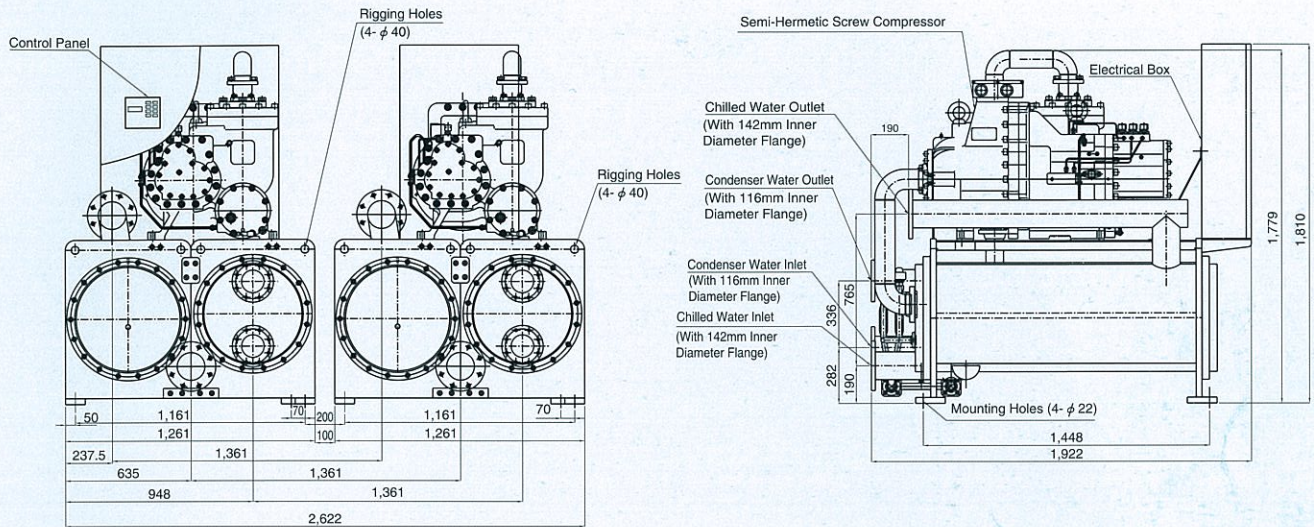
## R22 RCU150 and 180WHYZ(-E)





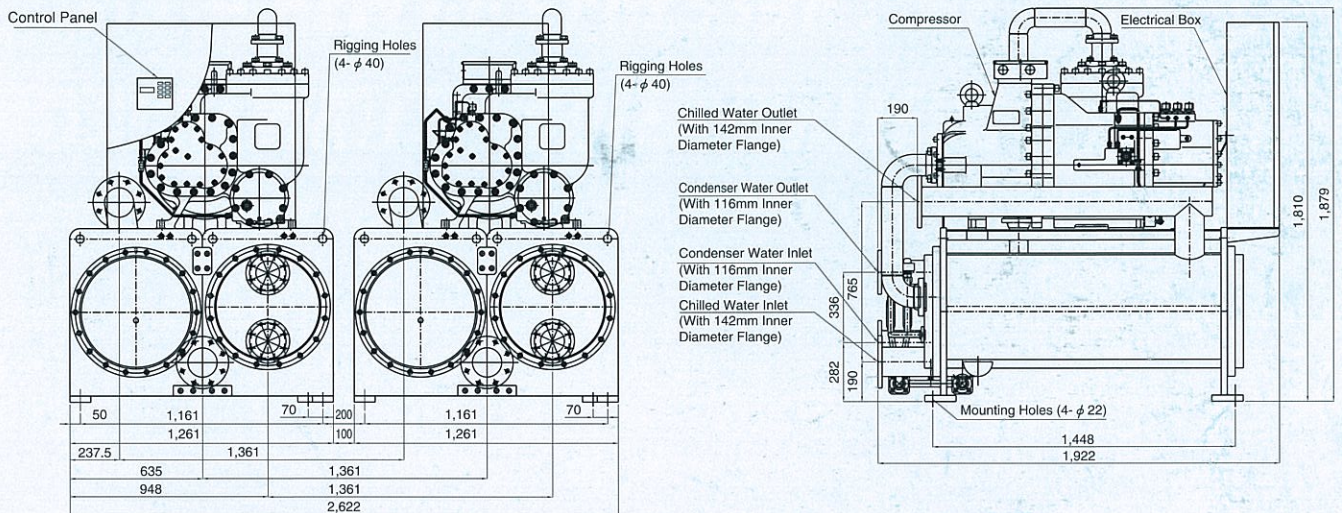
**R407C RCUG220WHYZ(-E)**

**R22 RCU220WHYZ(-E)**



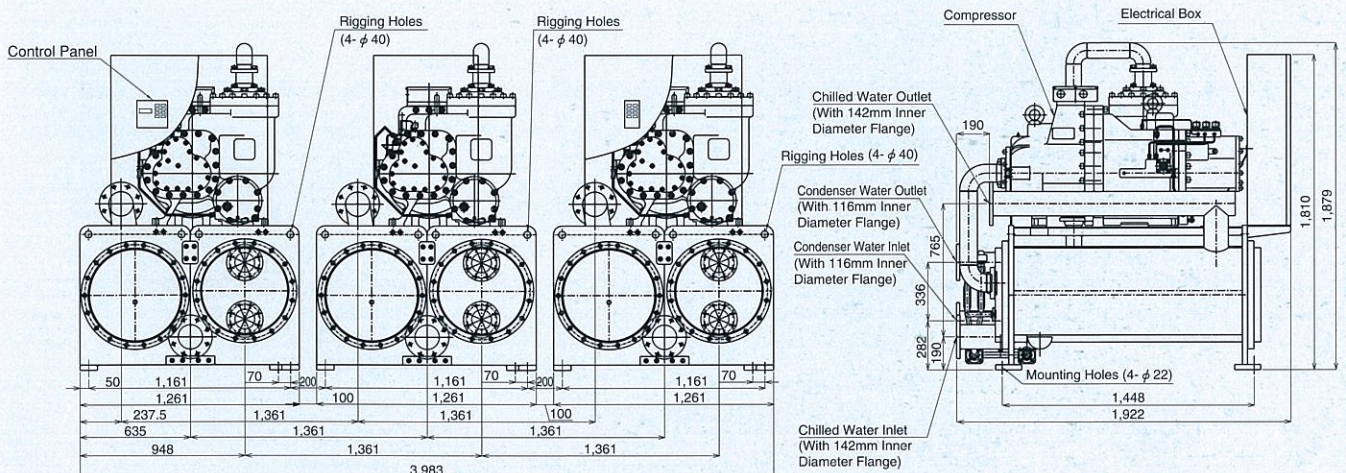
**R407C RCUG260, 300, 340 and 380WHYZ(-E)**

**R22 RCU260, 300, 340 and 380WHYZ(-E)**



**R407C RCUG410, 450, 490, 530 and 570WHYZ(-E)**

**R22 RCU410, 450, 490, 530 and 570WHYZ(-E)**





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