Johnson Controls - Hitachi Air Conditioning

Manufactured by:

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HITACHI

AZ(P)Y1 SERIES

AIR COOLED SCREW TYPE-WATER CHILLERS

R134a

Optionize Your Solution with Hitachi Air Cooled Chiller

Incorporating proprietary cutting edge technology, Hitachi's Air Cooled Chiller combines high efficiency performance and stable.
New model chiller lineup featuring a G-type semi-hermetic twin-screw compressor using the environmentally-friendly R134a refrigerant.

In addition to low noise,low vibration, high efficiency and high performance, the new models come with a user-friendly touch panel type liquid crystal screen display that allows you to check operation status at a glance and has a full range of control functions.
As the perfect answer to user needs, Hitachi's chillers are designed to cover a broad range of applications from air conditioning of buildings to cooling of factories.

Air Conditioning at Office Buildings

Process Cooling at Factory

R134a

Environmentally friendly HFC134a refrigerant

R134a G-type twin-screw compressor

High efficiency shell-and-tube flooded evaporator

User-friendly touch LCD Panel

Nominal capacity range:
158~1602kW
45~456RT

TWIN SCREW TYPE

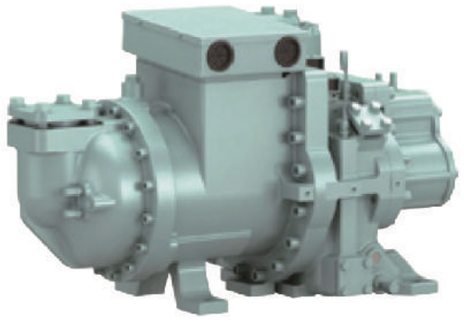
Adopting Hitachi R134a Screw Compressor

Since 1972 when we started manufacturing them, we have delivered more than 170,000 Hitachi twin-screw compressors to countries around the world where they continue to meet essential air conditioning needs.

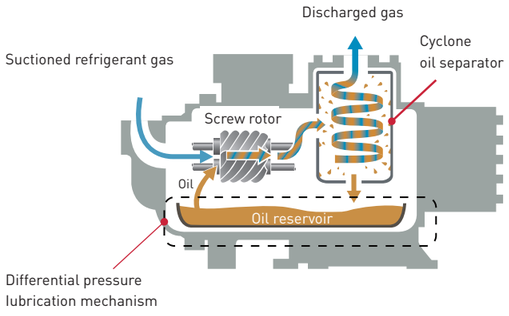
Our new air-cooled chillers adopt G-type semi-hermetic twin-screw compressors that only available to R134a refrigerant.

Powerful cooling capacity, low vibrations and low noise coupled with a simple compressor configuration have greatly enhanced reliability.

The cyclone oil separator they employ has been designed with extensive use of computer simulation.
Thanks to these efforts, oil separation efficiency is greatly increased.



Operation Image

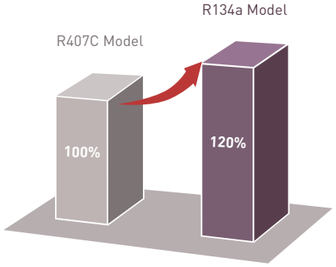


Better performance and energy saving

Hitachi's new air-cooled chiller (AZ(P)Y1 Series) adopts more efficient semi-hermetic twin-screw compressor and better shell-and-tube dry type evaporator brings you significant energy saving experience under stable and durable operation.

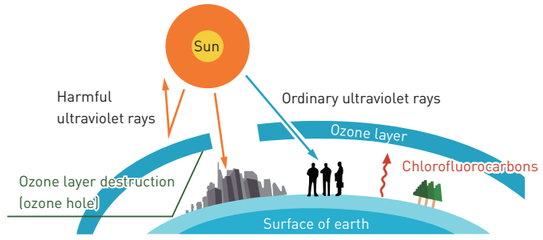
COP Comparison

100RT Chillers for example



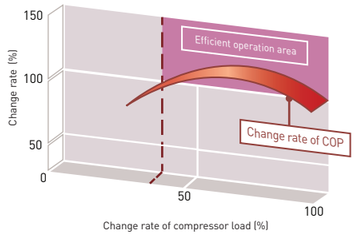
HFC134a, 0 ODP(Ozone depletion potential) refrigerant, adopted

Chlorofluorocarbons(CFCs) in stratosphere are exposed to ultraviolet rays which decomposes them, and generates chlorine atoms. It is considered that chlorine atoms combine oxygen atoms destroying the ozone.
Chlorine atoms, HFC134a does not destroy ozone in atmosphere.



Accurate chiller control

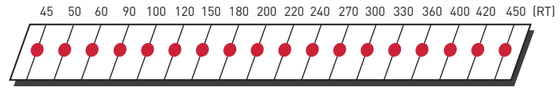
Intermediate efficiency improved



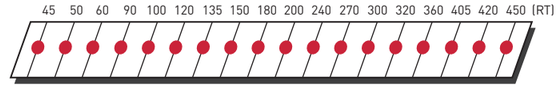
Wide Line-up

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

RCUF-AZY1



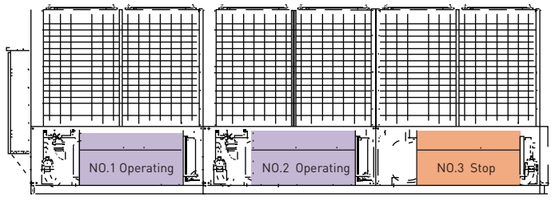
RCUF-AZPY1



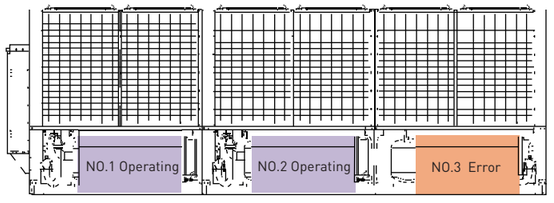
Multiple Compressors control

Hitachi air chiller units feature a modular.
8 units with the same model can be connected via H-LINK transmission, so as to realize the maximum capacity of 1464 RT.
Each module can be transported individually which enhance mobility and convenience of installation.

Besides refrigerant system of each module can operate, which makes maintenance easier.
If unexpected trouble occurs in one module, the remaining modules will operate as backup.



When maintance/sevice



When unit failure

Intelligent Control

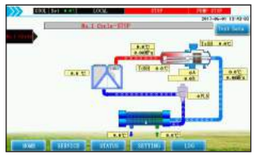
Clear User-friendly LCD touch console

The display makes it easy to view the current operating status and simplify the setting procedure.
Various parameters can be confirmed at a glance.
Regardless of operating status,the console allows you to set a variety of operation modes.
A warning log function makes it possible to recall the latest 10 recent warning events.
The user interface is provided in both English and Chinese.

Main Page

Compressor Page

Status Page

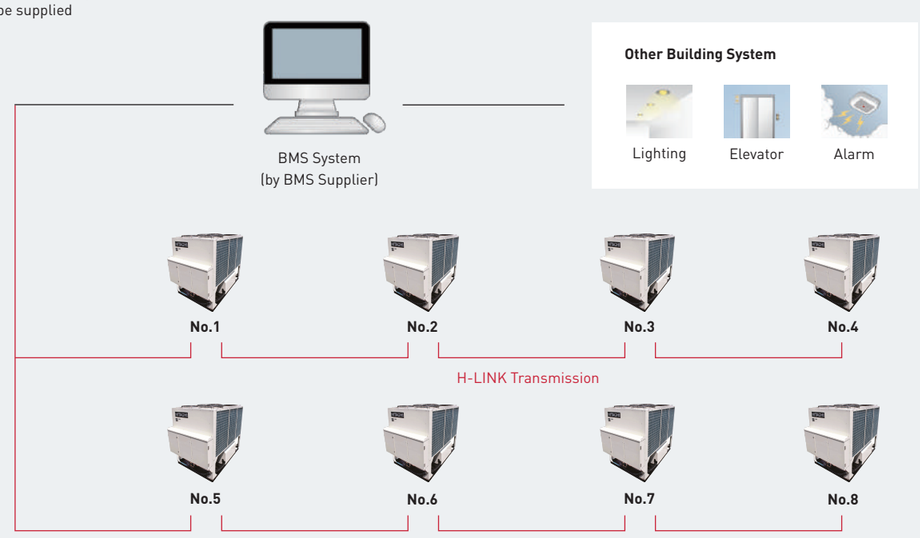


Parameter Setting Page

Setting Page

Building Management System (BMS)

A BMS-connecting interface can be supplied



Through H-LINK transmission, at most of 8 chillers of the same model can be connected to cascade a maximum volume of 1464 RT.

Specification/Parameter

AZY1 series

Model			RCUF45AZY1	RCUF50AZY1	RCUF60AZY1	RCUF90AZY1	RCUF100AZY1	RCUF120AZY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	158	175	215	316	351	440
		USRT	45	50	61	90	100	125
		kcal/h	135,880	150,500	184,900	271,760	301,860	378,400
Power input		kW	49.7	55.0	67.6	99.4	110.4	138.4
Capacity control		—	Continuous capacity control					
		%	100–25,0					
Outer dimensions	Length	mm	2,390			4,490		
	Width	mm	2,060			2,060		
	Height	mm	2,120			2,160		
Net weight		kg	1,550	1,600	1,710	2,900	3,000	3,220
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	1			2		
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW50ZG	ASCCW60ZG	ASCCW50ZG	ASCCW50ZG	ASCCW60ZG
	Quantity	Set	1			2		
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	4	4	4	8	8	8
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN80			DN125		
	Outlet	—	DN80			DN125		
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	2,410			4,510		
	Width	mm	2,080			2,080		
	Height	mm	2,150			2,190		
Shipping weight		kg	1,590	1,640	1,750	2,940	3,040	3,260

Model			RCUF150AZY1	RCUF180AZY1	RCUF200AZY1	RCUF220AZY1	RCUF240AZY1	RCUF270AZY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	530	645	702	791	880	970
		USRT	151	183	200	225	250	276
		kcal/h	455,800	554,700	603,720	680,260	756,800	834,200
Power input		kW	166.7	202.8	220.8	248.8	276.8	305.1
Capacity control		—	Continuous capacity control					
		%	100–25,0					
Outer dimensions	Length	mm	6,590		9,080			11,180
	Width	mm	2,060		2,060			2,060
	Height	mm	2,200		2,160			2,200
Net weight		kg	4,650	4,880	3,000×2	3,220+3,000	3,220×2	4,650+3,220
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	3	3	4	4	4	5
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW60ZG	ASCCW50ZG	ASCCW50ZG / ASCCW60ZG	ASCCW60ZG	ASCCW50ZG / ASCCW60ZG
	Quantity	Set	3	3	4	2/2	4	3/2
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	12	12	16	16	16	20
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN125					
	Outlet	—	DN125					
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	6,610		4,510×2			6,610+4,510
	Width	mm	2,080		2,080			2,080
	Height	mm	2,230		2,190			2,230
Shipping weight		kg	4,690	4,920	3,040×2	3,260+3,040	3,260×2	4,690+3,260

Specification/Parameter

AZY1 series

Model			RCUF300AZY1	RCUF330AZY1	RCUF360AZY1	RCUF400AZY1	RCUF420AZY1	RCUF450AZY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	1,060	1,175	1,290	1,411	1,500	1,590
		USRT	301	334	367	401	426	452
		kcal/h	911,600	1,010,500	1,109,400	1,213,460	1,290,000	1,367,400
Power input		kW	333.4	369.5	405.6	443.8	471.8	500.1
Capacity control		—	Continuous capacity control					
		%	100–25,0					
Outer dimensions	Length	mm	13,280			18,670		20,770
	Width	mm	2,060			2,060		2,060
	Height	mm	2,200			2,200		2,200
Net weight		kg	4,650×2	4,880+4,650	4,880×2	4,650×2+3,000	4,650×2+3,220	4,650×3
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	6	6	6	8	8	9
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW50ZG / ASCCW60ZG	ASCCW60ZG	ASCCW50ZG	ASCCW50ZG / ASCCW60ZG	ASCCW50ZG
	Quantity	Set	6	3/3	6	8	6/2	9
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	24	24	24	32	32	36
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN125					
	Outlet	—	DN125					
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	6,610×2			6,610×2+4,510		6,610×3
	Width	mm	2,080			2,080		2,080
	Height	mm	2,230			2,230		2,230
Shipping weight		kg	4,690×2	4,920+4,690	4,920×2	4,690×2+3,040	4,690×2+3,260	4,690×3

Notes:
1. The nominal cooling capacities are based on GB/T 18430.1-2015(*1)
   Chilled Water Outlet Temperature /Nominal water flow: 7 °C / 0.172 m^3 / (h•kW)
   Condenser Air Inlet Temperature:35 °C (DB)
2. The units greater than 200AZY1 including 200AZY1 consist of two or three modules and are separately shipped.
3. The common chilled water piping (Filed-Supplied) between each water cooler shall be directly connected at site.
4. Water Flow
   1) RCUF200,240,300,360,450AZY1
      It is necessary to control the common water flow volume to each cooler.
   2) RCUF220,270,330,400,420AZY1
      Because the chilled water flow rate is different between No.1 No.2 and No.3 units,it is necessary to control the water flow volume of each unit with adjusting valves (Filed-Supplied).
5. It is required to connect electrical control wires between No.1, No.2 and No.3 units for the unit greater than 200AZY1 including 200AZY1.

Working Range

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

AZPY1 series

Model			RCUF45AZPY1	RCUF50AZPY1	RCUF60AZPY1	RCUF90AZPY1	RCUF100AZPY1	RCUF120AZPY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	160	178	215	320	356	430
		USRT	45	51	61	91	101	122
		kcal/h	137,600	153,080	184,900	275,200	306,160	369,800
Power input		kW	47.3	52.7	63.6	94.7	105.3	127.2
Capacity control		—	Continuous capacity control					
		%	100–25,0					
Outer dimensions	Length	mm	2,390		3,300	4,490		6,310
	Width	mm	2,060		2,060	2,060		2,060
	Height	mm	2,120		2,120	2,160		2,200
Net weight		kg	1,600	1,700	2,000	2,950	3,150	3,750
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	1			2		
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW50ZG	ASCCW60ZG	ASCCW50ZG	ASCCW50ZG	ASCCW60ZG
	Quantity	Set	1			2		
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	4	4	6	8	8	12
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN80			DN125		
	Outlet	—	DN80			DN125		
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	2,410		3,320	4,510		6,330
	Width	mm	2,080		2,080	2,080		2,080
	Height	mm	2,150		2,150	2,190		2,230
Shipping weight		kg	1,640	1,740	2,040	2,990	3,190	3,790

Model			RCUF135AZPY1	RCUF150AZPY1	RCUF180AZPY1	RCUF200AZPY1	RCUF240AZPY1	RCUF270AZPY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	480	534	640	712	860	960
		USRT	136	152	182	202	245	273
		kcal/h	412,800	459,240	550,400	612,320	739,600	825,600
Power input		kW	142.0	158.0	189.4	210.6	254.4	284.0
Capacity control		—	Continuous capacity control					
		%	100–25,0					
Outer dimensions	Length	mm	6,590		9,080		12,720	13,280
	Width	mm	2,060		2,060		2,060	2,060
	Height	mm	2,200		2,160		2,200	2,200
Net weight		kg	4,500	4,700	2,950×2	3,150×2	3,750×2	4,500×2
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	3	3	4	4	4	6
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW50ZG	ASCCW50ZG	ASCCW50ZG	ASCCW60ZG	ASCCW50ZG
	Quantity	Set	3	3	4	4	4	6
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	12	12	16	16	24	24
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN125					
	Outlet	—	DN125					
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	6,610		4,510×2		6,330×2	6,610×2
	Width	mm	2,080		2,080		2,080	2,080
	Height	mm	2,230		2,190		2,230	2,230
Shipping weight		kg	4,540	4,740	2,990×2	3,190×2	3,790×2	4,540×2

Specification/Parameter

AZPY1 series

Model			RCUF300AZPY1	RCUF320AZPY1	RCUF360AZPY1	RCUF405AZPY1	RCUF420AZPY1	RCUF450AZPY1
Power Source			Main (AC3φ) 380,415V/50Hz, Control (AC1φ) 220,240V/50Hz					
Nominal cooling capacity		kW	1,068	1,142	1,290	1,440	1,494	1,602
		USRT	304	325	367	409	425	456
		kcal/h	918,480	982,120	1,109,400	1,238,400	1,284,840	1,377,720
Power input		kW	316.0	337.8	381.6	426.0	442.0	474.0
Capacity control		—	Continuous capacity control					
		%	100~25,0					
Outer dimensions	Length	mm	13,280	16,290	19,930	20,770		
	Width	mm	2,060	2,060	2,060	2,060		
	Height	mm	2,200	2,200	2,200	2,200		
Net weight		kg	4,700×2	3,150×2+3,750	3,750×3	4,500×3	4,700+4,500×2	4,700×3
Refrigerant	Type	—	R134a (charged)					
	Flow control	—	Electronic expansive valve					
	Number of circuits	—	6	6	6	9	9	9
Compressor	Type	—	Semi-Hermetic Screw Type(R134a only)					
	Model	—	ASCCW50ZG	ASCCW50ZG / ASCCW60ZG	ASCCW60ZG	ASCCW50ZG	ASCCW50ZG	ASCCW50ZG
	Quantity	Set	6	4/2	6	9	9	9
Condenser		—	Cross fin type					
Fan motor	Condenser fan	—	Direct drive propeller fan					
	Power Input	KW	1.1	1.1	1.1	1.1	1.1	1.1
	Quantity	—	24	28	36	36	36	36
Evaporator		—	Shell-and-Tube type					
Piping connections for water side heat exchanger	Inlet	—	DN125					
	Outlet	—	DN125					
Safety devices		—	Three-Phase Over current Relay, High-Pressure Switch, High and Low-Pressure Control, Oil Heater, Internal Thermostat for Compressor Motor, Freeze Protection Control, Reverse Phase Protection Control, Discharge Gas Overheat Protection, Compressor frequent ON/OFF control and Pressure Relief Valve.					
Shipping Dimensions	Length	mm	6,610×2	4,510×2+6,330	6,330×3	6,610×3		
	Width	mm	2,080	2,080	2,080	2,080		
	Height	mm	2,230	2,230	2,230	2,230		
Shipping weight		kg	4,740×2	3,190×2+3,790	3,790×3	4,540×3	4,740+4,540×2	4,740×3

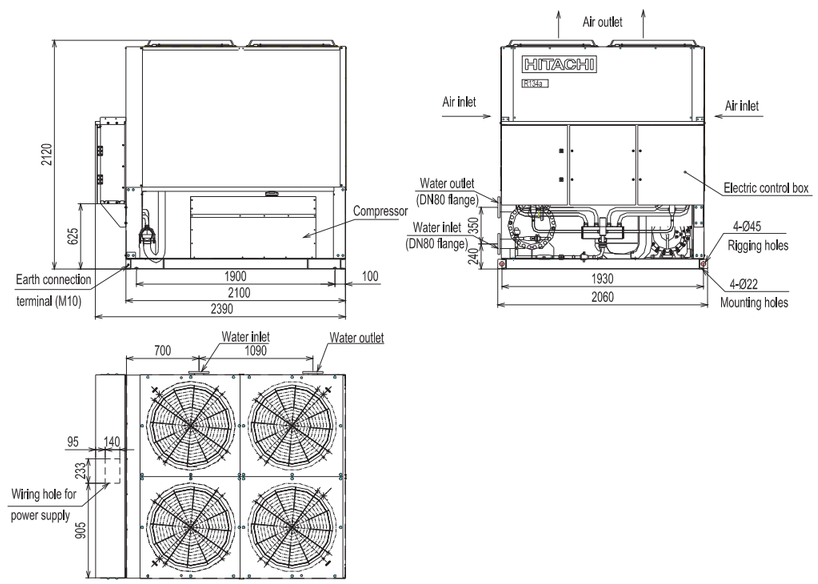
Notes:
1.The nominal cooling capacities are based on GB/T 18430.1-2015(*1)
Chilled Water Outlet Temperature /Nominal water flow: 7 °C / 0.172 m³ / (h•kW)
Condenser Air Inlet Temperature:35 °C (DB)
2.The units greater than 180AZPY1 including 180AZPY1 consist of two or three modules and are separately shipped.
3.The common chilled water piping (Filed-Supplied) between each water cooler shall be directly connected at site.
4.Water Flow
1) RCUF180,200,240,270,300,360,405,450AZPY1
It is necessary to control the common water flow volume to each cooler.
2) RCUF320,420AZPY1
Because the chilled water flow rate is different between No.1 No.2 and No.3 units,it is necessary to control the water flow volume of each unit with adjusting valves (Filed-Supplied).
5.It is required to connect electrical control wires between No.1, No.2 and No.3 units for the unit greater than 180AZPY1 including 180AZPY1.

Working Range

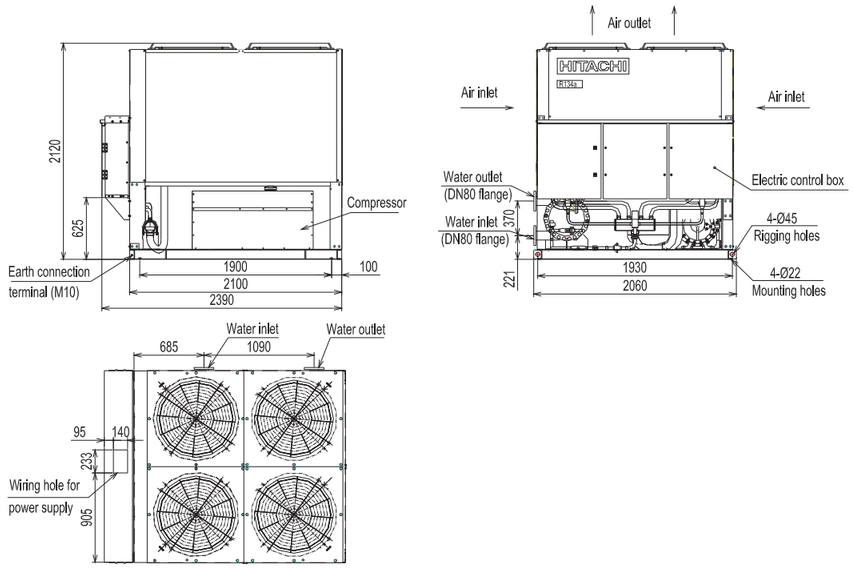
Item	Standard
Chilled Water Outlet Temperature	5~15 °C
Condenser Air Inlet Temperature(DB)	5~43 °C

Dimensional Data

RCUF45AZY1 / RCUF50AZY1



RCUF45AZPY1 / RCUF50AZPY1 / RCUF60AZY1



Dimensional Data

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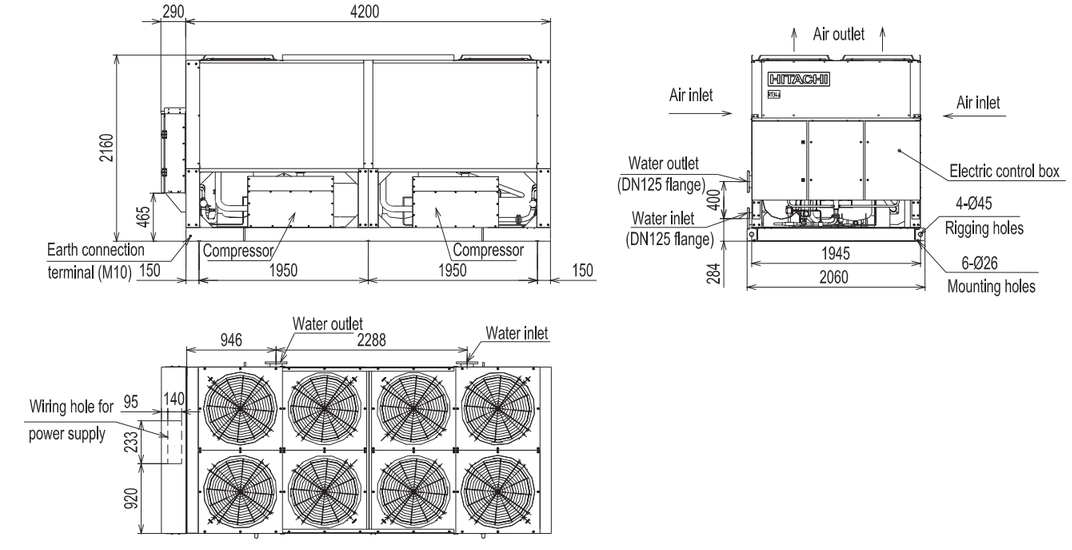

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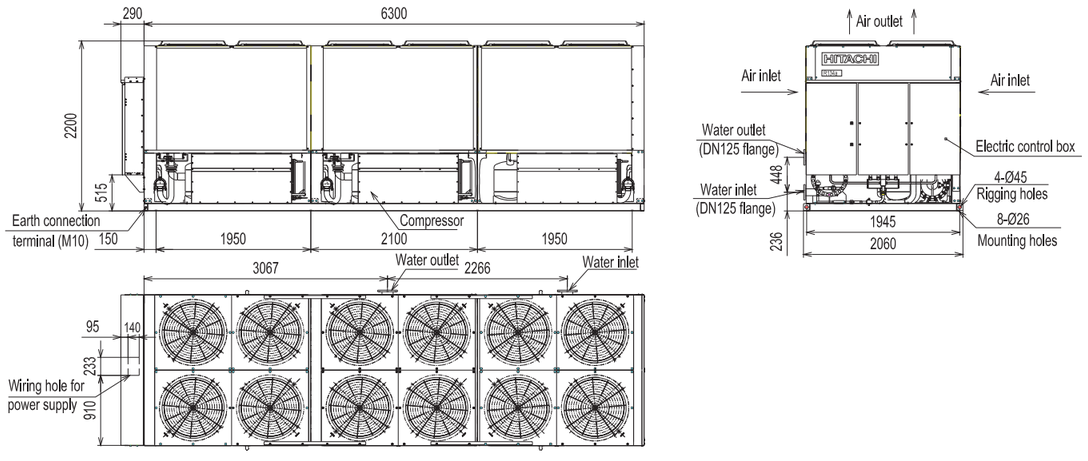

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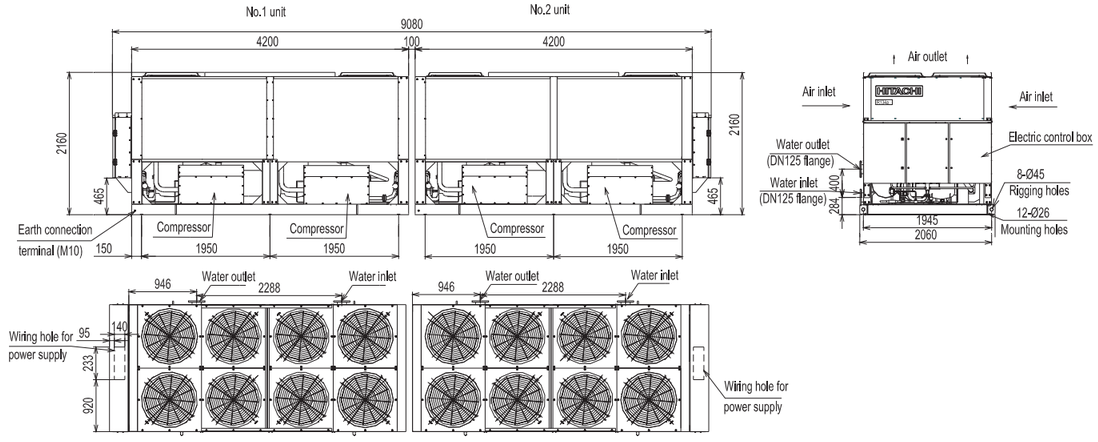

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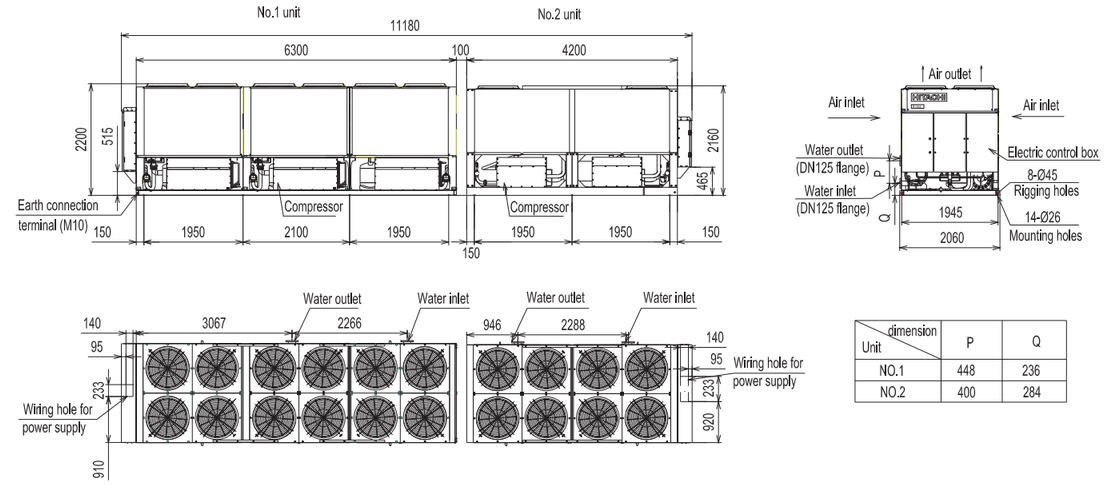

Unit \ dimension	P	Q
NO.1	448	236
NO.2	400	284

Dimensional Data

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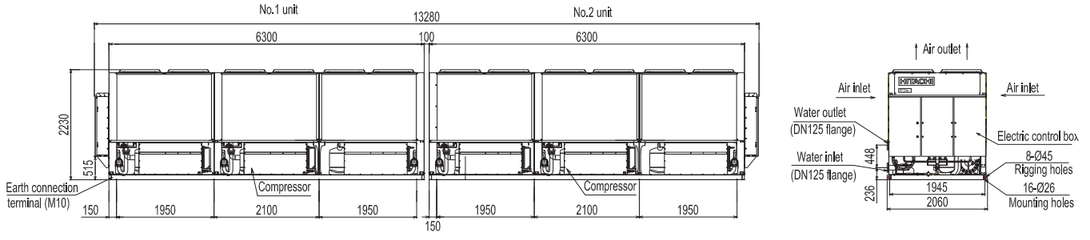
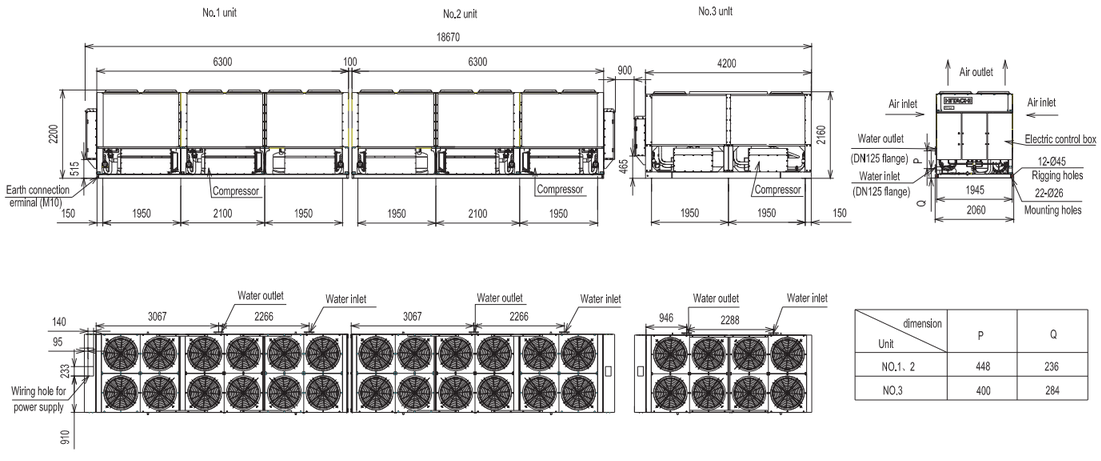
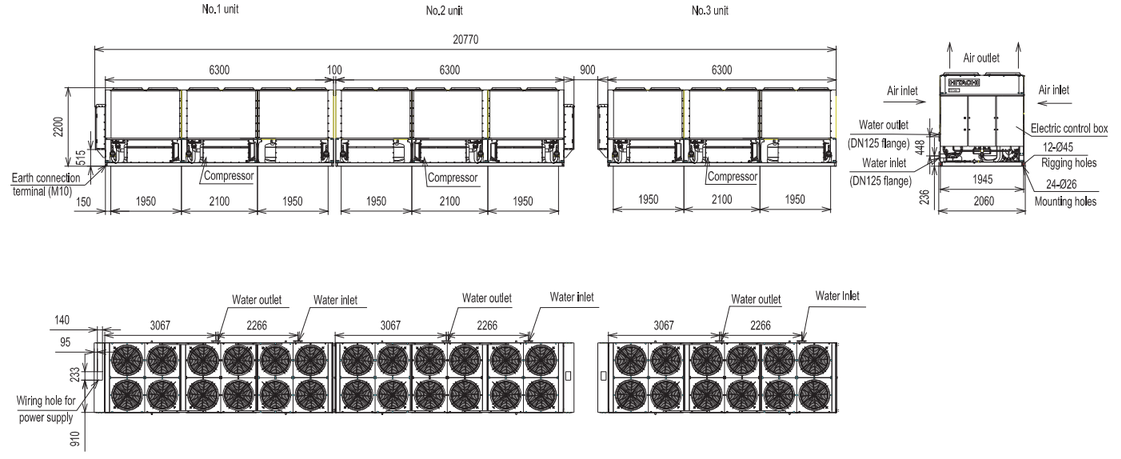


RCUF400AZY1 / RCUF420AZY1



Unit \ dimension	P	Q
NO.1、2	448	236
NO.3	400	284

RCUF450AZY1 / RCUF405AZPY1 / RCUF420AZPY1 / RCUF450AZPY1



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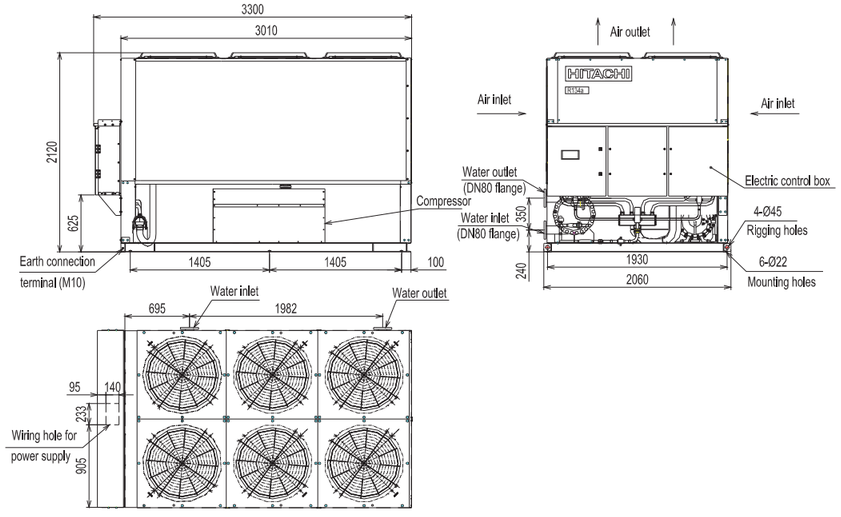

Dimensional Data

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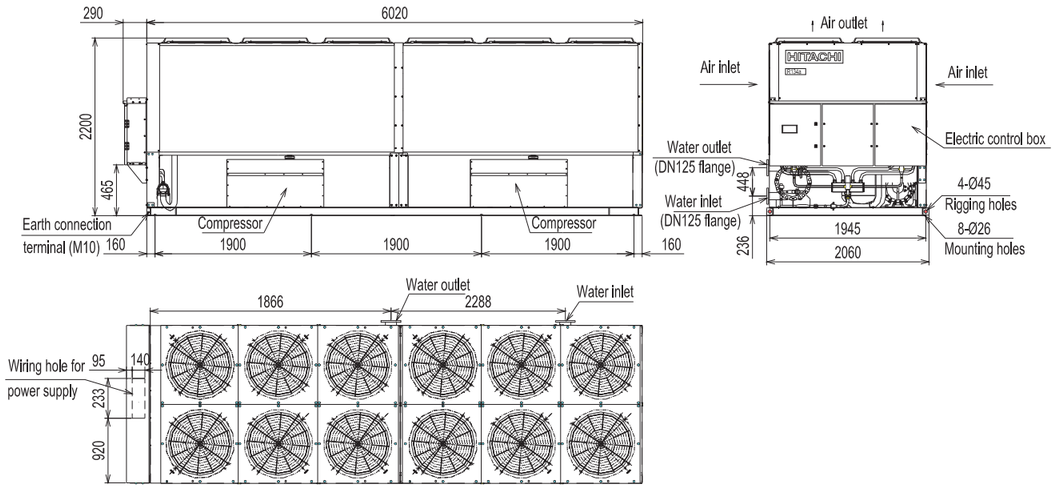

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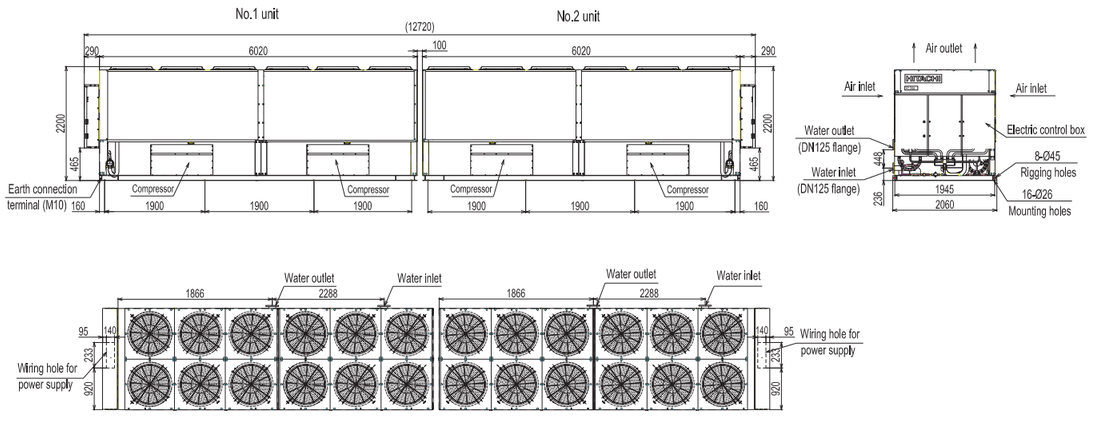

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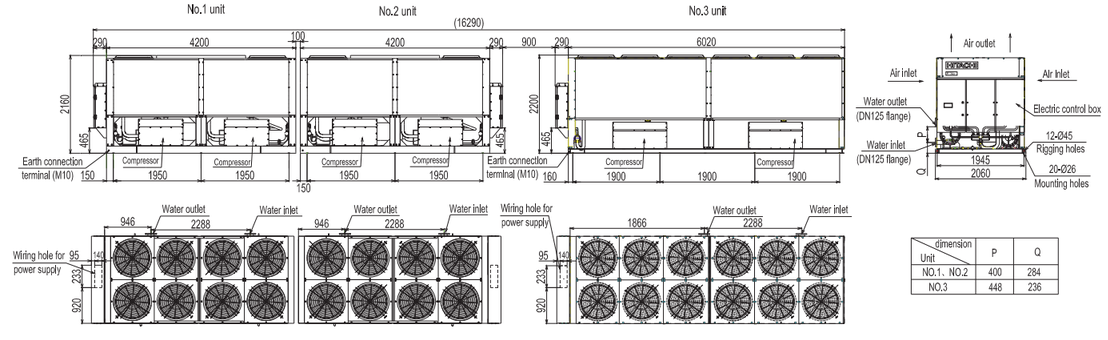

RCUF360AZPY1