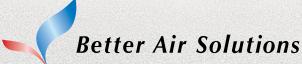
TOSHIBA

Air-cooled Inverter Modular Chiller for Diverse Customer Needs







UNIVERSAL SMART X Series EDGE

Toshiba's first air-cooled inverter modular chiller designed for Europe.

High efficiency combined with cutting-edge space-saving design.



Internal inverter pump / Pumpless / Brine								
Model	Use	Туре	Power supply					
	Cooling only	Standard						
Series EDGE (Standard Model)	Cooming only	High EER	3 phase 4 wires 50Hz/60Hz					
50HP/60HP/70HP	Heat pump	Standard	380-415V					
		High EER						
Powerful Heating Type (Apply this to all the following text.)	Ue et eume	Standard	3 phase 4 wires					
50HP/60HP	Heat pump	High EER	50Hz/60Hz 380-415V					

■ Models

3: Internal Pump (pump output 3.7kW) 5: Internal Pump (pump output 5.5kW) 7: Internal Pump (pump output 7.5kW)

Air Coold Chiller
Universal Smart X EDGE (R32)
Capacity USRT
42: 50HP / 51: 60HP / 56: 70HP
Version number
C: Cooling - only
H: Heat Pump (cooling/heating)
F: High heating Capacity Model
L: Pumpless
1: Internal Pump (pump output 1.5kW)
2: Internal Pump (pump output 2.2kW)

Operation range

Series EDGE 50HP 60HP 70HP

(Note 1)	Cooling (Note 5)		4~30
Leaving water temperature	Heating (Note 2 • 3)		25~55
tomporataro	Temperature difference (inlet/outlet)		5~10
Outside air	Cooling		-15~52 ^(Note 4)
temperature	Heating (Note 2 • 3)		-15~21DB、15.5WB

Note 1: LWT not higher than 35°C at cooling or not lower than 20°C at heating operation is allowable till 1 hour after starting up. After then, however, LWT must be within the operating range. Control it with bypass pipe if needed.

Note 2: For heat pump models only. -20°C is for 60HP powerful heating.

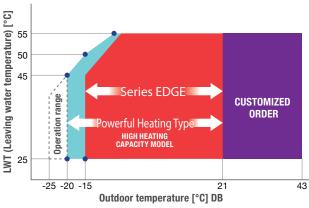
Note 3: Depending on the outdoor air temperature, leaving hot water temperature is limited as below

Powerful Heating Type 50HP 60HP

(Note 1)	Cooling (Note 5)		4~30
Leaving water temperature	Heating (Note 2 • 3)		25~55
tomporataro	Temperature difference (inlet/outlet)	℃	5~10
Outside air	Cooling		-15~52 ^(Note 4)
temperature	Heating (Note 2 • 3)		-20~21DB、15.5WB

Note 4: The range of water temperature control may become larger when the cooling operation load is low.

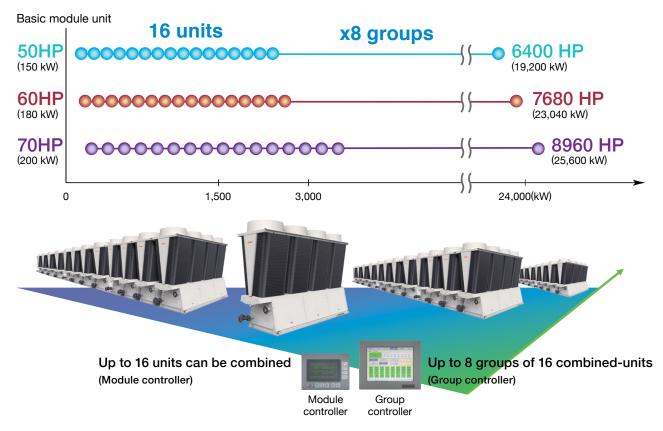
Leaving water temperature range



■ Operating range for water spray device

Water dispersing water temperature range	°C	10~30
Water dispersing preset outdoor air temperature	°C	20~40

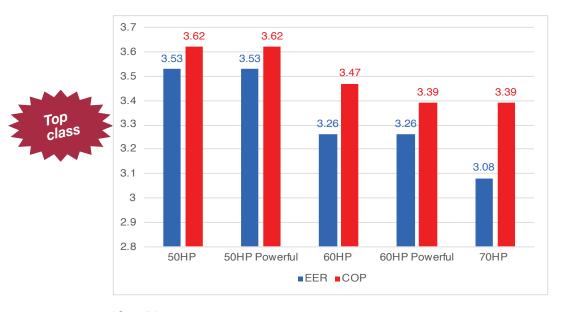
■ Capacity range



Feature

High Energy Efficiency

- Extremely high full load and part load energy efficiency as a result of the combination between low GWP refrigerant R32 and newly developed DC inverter compressor.
- 50HP model is a top class energy efficient model.
- Precise adjustment of water flow volume and water pressure based on required load by using internal pump module with variable flow bypass0 control resulting in even higher system efficiency.



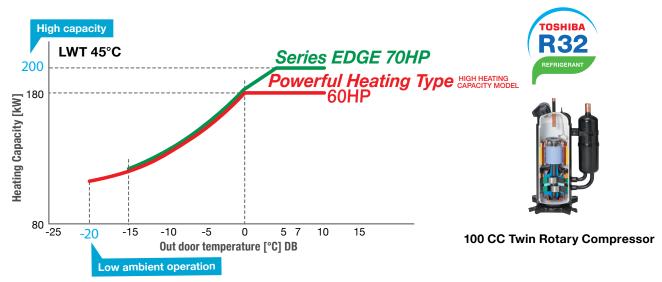
*Conditions:

Cooling EER LWT 7C, EWT 12C, OAT 35C Heating COP LWT 45C, EWT 40C, OAT 7CDB, 8CWB



Large Capacity DC Inverter Twin Rotary Compressor

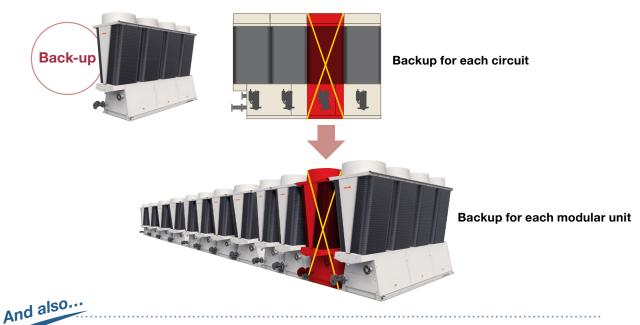
Impressive heating capacity and operation range even in low ambient temperature by using world's largest capacity DC twin rotary compressor equipped with R32 refrigerant.



Feature

Highly reliable module system

- Four independent refrigerant cycles available in each module promising excellent risk diversification.
- Economical solution with low Initial cost for backup.



Defrosting operation is performed separately for each compressor

Make use of the backup function to carry out distributed defrost in the module units to prevent a reduction in temperature for hot water.





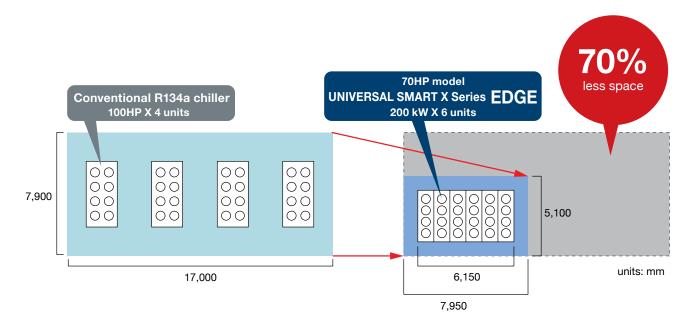
Defrosting operation

Feature

Installation Friendliness

- Optimized airflow by unique X frame design.
- Easy installation even in small spaces due to compact design.
- Easy replacement and installation in stages due to modular design.
- Installation space reduced by 70% compared to conventional R134a model*.

*Compared to the space needed to install a system for a 1200 kW cooling load. Comparison with four RUA-SA30001H units and six 200 kW module units.





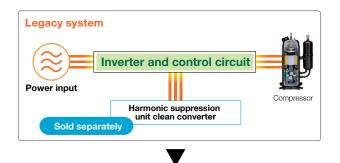
Outstanding Harmonic Suppression

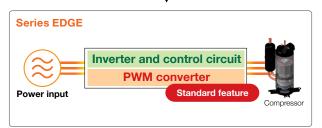


The harmonic suppression function is installed as a standard feature on all models and achieves a power factor of up to 99%. This decreases electric transformer volume as well as reducing installation costs.

PWM Converter Benefits

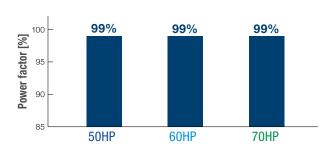
- 1 Eliminates problems caused by harmonic current
- 2 Reduces consumption volume of power generator and electrical equipment



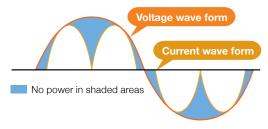


99% Power Factor Benefits

- 1 Reduction in power loss through load current
- 2 Improved efficiency of electrical equipment through reductions in current



Efficiency reduction projection





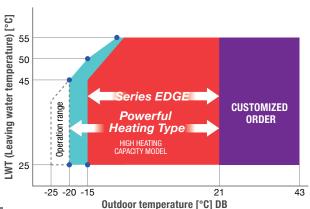
Reinforced heating capacity in low ambient temperatures

Powerful Heating Type achieves high level heating capacity, even in outdoor temperatures as low as -25°C, and minimises capacity drop during defrost operations.

Powerful Heating Type HIGH HEATING CAPACITY MODEL

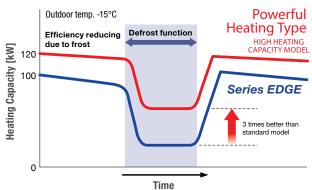
In outdoor temperatures down to -15°C, the system is still capable of producing hot water up to 50°C. At -20°C hot water produced is up to 45°C.

Performance between -20°C and -25°C is not guaranteed. Exceptional environmental factors such as blizzard conditions or ice may inhibit operation in temperatures of -20°C or lower.



Thanks to a new, advanced controller, the Powerful Heating Type model is capable of reducing capacity loss by three times during defrost than standard models.

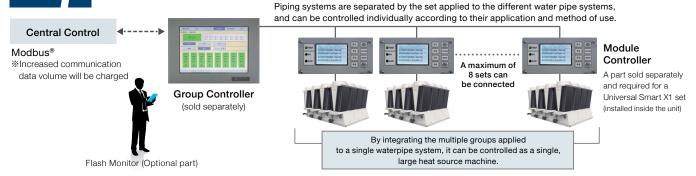
Energy Usage During Defrost (1 module)



Feature

Excellent Control System

Easy to use and collect data with several types of control available.



Group Controller

Batch control of heat source unit using the group controller

Up to eight sets, total 128 units, can be controlled at once from a single controller. Individual settings and operation states can be controlled and displayed via a touch panel, supporting customer energy management.

Function List

	Item	Notes			
	For each model	Start/Stop, Operational mode, Fault occurrence, Operational capacity, LWT/EWT, Flow rate, Simple production heat capacity, Basic integral power, Basic capabilities, Basic input, Basic COP			
Operating	For each module controller	Start/Stop, Operational mode, Error code, Operational capacity, LWT/EWT, Flow conversion volume, Basic capabilities, Basic input, Basic COP			
status display	For each module	Start/Stop, Operational mode, Error code, Operational capacity, LWT/EWT, Flow coversion volume, Basic capabilities, Outside air temperature, Basic input, Basic COP			
. ,	For each circuit	Refrigeration cycle information, Compressor operation time, Compressor startup counts			
Operation	nal state output (Total)	Start/Stop, Failure, Operational capacity, Basic capabilities, Basic input, Operational pattern			
Start/Stop)	For entire system, Each model, and Each module controller			
Pattern se	ettings (Switch)	Enables setting and switching operating pattern of group controller			
Operation	nal mode settings (Switch)	Enables setting and switching the operation mode for entire system.			
Preset ten	nperature changes	All model temperature settings can be changed.			
Current de	emand settings	Electrical current demand can be configured.			
System se	ttings	All connected modules can be systematically classified. (for each module controller system)			
Schedule	settings	Operational schedule can be configured. (monthly, weekly, daily)			
Error history display		Error history can be verified.			
Operational data savings		Displayed data can be saved to MMC.			
Trend disp	olay	Water temperature, outside air temperature, operational capacity, basic capabilities, basic input, basic COP, basic production heat capacity and basic integral power can be displayed on a graph.			
Power sav	ring	Enables switching the demand setting to validation or invalidation.			

Wifi Data Analysis

Wireless LAN-Equipped - Operating data can be obtained with tablet

The tablet improves the convenience of operation and management. Wireless LAN comes as standard in the module controller.

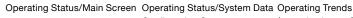
Information can be collected without opening service panel.



Supported tablets: Android 5.0 or higher 10.1" screen recommended

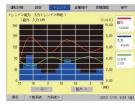
*The machine is not designed for use in all regions. Please contact a representative for details.







Confirmation Screen



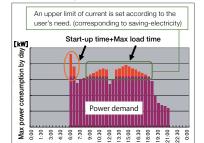
(capacity, input, COP) Confirmation Screen

Data displayed over a time frame which is easy to confirm or adjust.



Visualize the operating status of module controller and unit controller! It allows safe and quick operations even in bad weather!!

Users can set an upper limit of current (demand) using the Group Controller and peak shave. Peak Shaving Scenario



The upper limit of current (demand) can be set in units of 1 amp for each system.



UNIVERSAL SMART X Series EDGE

Series EDGE - Standard Model 50HP/60HP/70HP Powerful Heating Type - High Heating Capacity Model 50HP/60HP



50HP Series EDGE Heat pump

		_		Standard type	High-EER type
				380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modul	le unit)		RUAGP421H18	RUAGP421H1N8
	capacity	io di iiiy	(Note 1) (K		150
	capacity		(Note 1) (K		150
i leating	Unit color		(1/1	Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
p	Of the Color	Height	(m		2,350
Exterior	Dimensions	Width	(Note 2) (m		1,000
Ш	Diricioloria	Depth	(Note 2) (m		3,300
Shipping	L woight	Берит	(1,360
			(F		
	ng weight		(Note 1-3)	3-phase 4-wire 50/60Hz 380V/400V/415V	1,396 3-phase 4-wire 50/60Hz 380V/400V/415V
Power s		was augaby design		•	· · · · · · · · · · · · · · · · · · ·
Reference	e current for po	wer supply design		82.1	82.1
		Nominal current		A) 65.3	42.8
		Nominal input	(k'		27.9
ata	Cooling	EER		3.53	5.38
ğ		SEER	(Note 6)	4.88	5.06
Electrical data		Power factor		6) 99	99
Щ		Nominal current		63.6	63.6
		Nominal input	(k'		41.4
	Heating	COP		3.62	3.62
		SCOP		4.26	4.26
(Note 7)		Power factor	(Note 6)	99	99
sor	Туре			Hermetic rotary x 4	Hermetic rotary x 4
Compressor		t×number of units	(k'	*	9.0 x 4
Com	Type of start			Inverter starter	Inverter starter
	Case heater (W)		(37 x 4
Compres	ssor oil	Туре		RB74AF	RB74AF
		Charge		2.0 x 4	2.0 x 4
Condens	ser coil - air si	de		Plate fin coil	Plate fin coil
	Туре			Propeller fan	Propeller fan
Fan	Air quantity		(m³/r	1,230 (maximum)	1,230 (maximum)
ш	Type of start			Inverter starter	Inverter starter
	Motor output	t x number of units	(k'	V) 1.2 x 4	1.2 x 4
najstem	Water spray	volume	(L/m	n) -	13.6 x 1
South	Supply water	r pressure	(Note 9) (MF	a) -	0.2
(Note 8)	Control			-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
	Motor output	t	(k'	V) 1.5	1.5
Q.	Туре			Centrifugal pump	Centrifugal pump
Pump	Flow control			Inverter	Inverter
_	Maximum cu	ırrent		3.1	3.1
	Minimum inp	out	(k'	2	2
Cooler -	water side		(Note 10)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
aut	Туре			R32	R32
Refrigerant	R32 charge		(F	g) 8.8 x 4	8.8 x 4
æ	Control			Electric expansion valve	Electric expansion valve
Capacity	y control steps	3	(Note 11)	6) 0; 5~100	0; 5~100
Operation control				Microprocessor control based on leaving w	ater temperature and temperature difference
- p- or with	Defrost system			Distributed reverse cycle system	Distributed reverse cycle system
	system			High pressure quitab Outre aureast protection, laureter aureland exetaction (compressor for purple), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze
Defrost s	ve device				t protection, low pressure cutout, thermistor error, high water pressure error)
Defrost s		iter inlet			
Defrost s	ve device			protection, high water temp. cutout, low flow rate, discharge gas overheat	t protection, low pressure cutout, thermistor error, high water pressure error)
Defrost s	ve device			protection, high water temp. cutout, low flow rate, discharge gas overheal 2-1/2" flange (JIS10K)	protection, low pressure cutout, thermistor error, high water pressure error) 2-1/2" flange (JIS10K)

- (Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
 - For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT) Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.
- Design water flow rate must be within the range of 5 to 10% water temperature (only for high Ezer type) as indicated above.

 Design water flow rate must be within the range of 5 to 10% water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

 (Note 2) Dimensions do not include projections of water pipe connections.

 (Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

 (Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

 (Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

 (Note 6) Power factors may vary depending on site conditions.

- (Note 7) Electrical data does not include inbuilt pump.
 (Note 8) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
 (Note 9) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)
- (Note 10) Working pressure is below 0.7 MPa.
 (Note 11) Range of capacity control sometimes can vary depending on the unit's operating condition.

50HP Powerful Heating Type Heat pump

				Standard type	High-EER type
				380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modul	e unit)		RUAGP421F18	RUAGP421F1N8
Cooling	capacity		(Note 1) (kW)	150	150
	capacity		(Note 1) (kW)	150	150
	Unit color			Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
ī.		Height	(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2) (mm)	1,000	1,000
		Depth	(Note 2) (mm)	3,300	3,300
Shipping	y weight	1	(kg)	1,359	1,371
Operatin	ng weight		(kg)	1,395	1,407
Power s			(Note 1-3)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	ce current for p	oower supply design	(Note 4-5) (A)	82.1	82.1
		Nominal current	(A)	65.3	42.8
		Nominal input	(kW)	42.5	27.9
	Cooling	EER		3.53	5.38
data	_	SEER		4.88	5.06
Electrical data		Power factor	(Note 6) (%)	99	99
ectr		Nominal current	(A)	63.6	63.6
ш		Nominal input	(kW)	41.4	41.4
	Heating	COP	, ,	3.62	3.62
	5	SCOP		4.26	4.26
(Note 7)		Power factor	(Note 6) (%)	99	99
-	Туре		(**)	Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output×number of units (kW)			9.0 × 4	9.0 x 4
l du	Type of start			Inverter starter	Inverter starter
8	Case heater (W)			37 x 4	37 x 4
	Oddo Hodio	Туре	(**)	RB74AF	RB74AF
Com	pressor oil	Charge	(L)	2.0 × 4	2.0 x 4
	Condenser	coil - air side	(-)	Plate fin coil	Plate fin coil
	Туре			Propeller fan	Propeller fan
_	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)
Fan	Type of start		(Inverter starter	Inverter starter
		x number of units	(kW)	1.2 x 4	1.2 x 4
	Motor output		(kW)	1.5	1.5
	Туре	<u> </u>	(,	Centrifugal pump	Centrifugal pump
Pump	Flow control			Inverter	Inverter
ਕੁ	Maximum cu	rrent	(A)	3.1	3.1
	Minimum inp		(kW)	2	2
		water side	(Note 9)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
	Туре			R32	R32
Refrigerant	R32 charge		(kg)	8.8 x 4	8.8 x 4
Ref	Control		(*9)	Electric expansion valve	Electric expansion valve
Drain pa			(W)	75 x 6	75×6
	control steps		(Note 10) (%)	0; 5~100	0; 5~100
	n control	<u> </u>	(/-/		ater temperature and temperature difference
Defrost s				Distributed reverse cycle system	Distributed reverse cycle system
	ve device			High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump)	, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
8	Cold/Hot wa	ter inlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Rping dameters	Cold/Hot war		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Pping	Coil drain		(A)	PT1-1/2" external thread	PT1-1/2" external thread
	1	ower level	dB(A)	83.8	83.8
	Country p		GD(A)	55.0	1 33.0

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.
(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 5) Always install an earth leakage circuit oreaker. This fractine includes an inverter, so please use a rigin requestor-companie product to provide the conditions.
(Note 7) Electrical data does not include inbuilt pump.
(Note 8) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
(Note 9) Working pressure is below 0.7 MPa.

(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

50HP Series EDGE Cooling-only

					Standard type	High-EER type	
					380V /400V/ 415V	380V /400V/ 415V	
Model (A	A single modul	e unit)			RUAGP421C18	RUAGP421C1N8	
Cooling	capacity		(Note 1)	(kW)	150	150	
	Unit color			, ,	Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)	
rior		Height		(mm)	2,350	2,350	
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000	
		Depth	(Note 2)	(mm)	3,300	3,300	
Shipping	weight	-1-		(kg)	1,309	1,322	
	ig weight			(kg)	1,345	1,358	
Power s			(Note 1- 3)	, 0,	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V	
		oower supply design	(Note 4-5)	(A)	82.1	82.1	
		Nominal current		(A)	66.2	44	
Electrical data		Nominal input		(kW)	43.1	28.7	
ţriç.	Cooling	EER		, ,	3.48	5.23	
Elec		SEER			4.9	5.08	
(Note 7)		Power factor	(Note 6)	(%)	99	99	
<u> </u>	Туре			, ,	Hermetic rotary x 4	Hermetic rotary x 4	
essc		×number of units		(kW)	8.7 x 4	7.2 x 4	
Compressor	Type of start			. ,	Inverter starter	Inverter starter	
ပိ	Case heater			(W)	37 x 4	37 x 4	
		Туре		. ,	RB74AF	RB74AF	
Compre	ssor oil	Charge		(L)	2.0 x 4	2.0 x 4	
Condens	ser coil - air si			(-)	Plate fin coil	Plate fin coil	
	Type				Propeller fan	Propeller fan	
_				(m³/min)	1,230 (maximum)	1,230 (maximum)	
Fan	Type of start			(,,	Inverter starter	Inverter starter	
		x number of units		(kW)	1.2 x 4	1.2 x 4	
> E	Water spray			(L/min)	-	13.6 x 1	
Spray system	Supply water		(Note 9)	(MPa)	_	0.2	
(Note 8)	Control	procedie		(1111 (4)	_	Continuous spraying when outside temperature and compressor capacity exceeds setting values	
	Motor output	-		(kW)	1.5	1.5	
	Туре			(****)	Centrifugal pump	Centrifugal pump	
Pump	Flow control				Inverter	Inverter	
ď	Maximum cu	rrent		(A)	3.1	3.1	
	Minimum inp			(kW)	2	2	
Cooler -	water side		(Note 10)	(****)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)	
	Туре				R32	R32	
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4	
Ref	Control			(5/	Electric expansion valve	Electric expansion valve	
Capacity	control steps	<u> </u>	(Note 11)	(%)	0; 5~100	0; 5~100	
	n control			(70)	*	ater temperature and temperature difference	
Defrost s					Distributed reverse cycle system	Distributed reverse cycle system	
	ve device				Distributed reverse cycle system High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, high water temp. cutout, low flow rate, discharge gas overheat protection, low pressure cutout, thermistor error, high water pressure error)		
SE SE	Cold/Hot wa	ter inlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)	
Piping diameters	Cold/Hot wa			(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)	
Piping	Coil drain	io. Gatiot		(A)	PT1-1/2" external thread	PT1-1/2" external thread	
	I Jon Gran			(1.1)			

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

Note 2) Dimensions do not include projections of water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.

(Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 10) Working pressure is below 0.7 MPa.
(Note 11) Range of capacity control sometimes can vary depending on the unit's operating condition.

60HP Series EDGE Heat pump

					Standard type	High-EER type
					380V /400V/ 415V	380V /400V/ 415V
Model //	Lainala madu	lo unit\				
	A single modu	le uriit)	(Note 1)		RUAGP511H18	RUAGP511H1N8
	capacity			(kW)	180	180
Heating	capacity		(Note 1)	(kW)	180	180
_	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
Exterior		Height		(mm)	2,350	2,350
盃	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	g weight			(kg)	1,348	1,360
Operatir	ng weight			(kg)	1,384	1,396
Power s	upply		(Note 1-3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Referenc	e current for po	wer supply design	(Note 4-5)	(A)	103	103
		Nominal current		(A)	84.8	57.3
		Nominal input		(kW)	55.2	37.3
	Cooling	EER			3.26	4.82
data		SEER			4.77	4.94
Electrical data		Power factor	(Note 6)	(%)	99	99
ectr		Nominal current		(A)	79.6	79.6
Ш		Nominal input		(kW)	51.9	51.9
	Heating	COP		(****)	3.47	3.47
	rioding	SCOP			4.35	4.35
(Note 7)			(Note 6)	(0/)	99	99
(10007)	T	Power factor	(NOIC O)	(%)		
ssor	Туре			(1140	Hermetic rotary x 4	Hermetic rotary x 4
bre		t×number of units		(kW)	11.2 x 4	11.1 x 4
Compressor	Type of start				Inverter starter	Inverter starter
	Case heater (W)			(W)	37 x 4	37 x 4
Compre	ssor oil	Туре			RB74AF	RB74AF
		Charge		(L)	2.0 x 4	2.0 x 4
Conden:	ser coil - air si	de			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
Fan	Air quantity			(m³/min)	1,230 (maximum)	1,230 (maximum)
ш.	Type of start				Inverter starter	Inverter starter
	Motor outpu	t x number of units		(kW)	1.2 x 4	1.2 x 4
magels	Water spray	volume	(L/min)	-	13.6 x 1
Spray	Supply wate	r pressure	(Note 9)	(MPa)	-	0.2
(Note 8)	Control				-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
	Motor outpu	t		(kW)	1.5	1.5
	Туре				Centrifugal pump	Centrifugal pump
Pump	Flow control				Inverter	Inverter
	Maximum cu	ırrent		(A)	3.1	3.1
	Minimum inp	out		(kW)	2	2
Cooler -	water side		(Note 10)	,,	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4
Refri	Control			(119)	Electric expansion valve	Electric expansion valve
		2	(Note 11)	(%)	0; 5~100	0; 5~100
Capacity control steps (Note 11) (%) Operation control				(/0)		ater temperature and temperature difference
						Distributed reverse cycle system
Defrost s	ve device					, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze
				/43		protection, low pressure cutout, thermistor error, high water pressure error)
meters	Cold/Hot wa			(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wa	ter outlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
200	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
Sound p	ower level			dB(A)	87.4	87.4

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

Same capacities, outdoor air temperature, and supplied water temperature (only for High Ethype) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 2) Dimensions do not include projections of water pipe connections.

(Note 2) Dimensions do not include projections or water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Aways install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.

(Note 7) Electrical data does not include inbuilt pump.

The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 9) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 10) Working pressure is below 0.7 MPa.

(Note 11) Range of capacity control sometimes can vary depending on the unit's operating condition.

60HP Powerful Heating Type Heat pump

				Standard type	High-EER type
				380V /400V/ 415V	380V /400V/ 415V
Model (A	single module	e unit)		RUAGP511F18	RUAGP511F1N8
Cooling	capacity	(Note 1)	(kW)	180	180
Heating	capacity	(Note 1)	(kW)	200	200
	Unit color			Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
irior		Height	(mm)	2,350	2,350
Exterior	Dimensions	Width (Note 2)	(mm)	1,000	1,000
		Depth (Note 2)	(mm)	3,300	3,300
Shipping	weight		(kg)	1,359	1,371
Operatin	g weight		(kg)	1,395	1,407
Power si	upply	(Note 1- 3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	e current for p	oower supply design (Note 4-5)	(A)	113	113
		Nominal current	(A)	84.8	57.3
		Nominal input	(kW)	55.2	37.4
-	Cooling	EER		3.26	4.81
data		SEER		4.77	4.94
Electrical data		Power factor (Note 6)	(%)	99	99
ectr		Nominal current	(A)	90.6	90.6
Ш		Nominal input	(kW)	59	59
	Heating	COP	, ,	3.39	3.39
		SCOP		4.23	4.23
(Note 7)		Power factor (Note 6)	(%)	99	99
>	Туре		(/	Hermetic rotary x 4	Hermetic rotary x 4
Compressor		×number of units	(kW)	12.5 x 4	12.5 x 4
ngr.	Type of start			Inverter starter	Inverter starter
Š	Case heater (W)			37 x 4	37 x 4
	Caco Hoator	Туре	(**)	RB74AF	RB74AF
Com	pressor oil	Charge	(L)	2.0 × 4	2.0 x 4
	Condenser	coil - air side	(-)	Plate fin coil	Plate fin coil
	Туре			Propeller fan	Propeller fan
_	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)
Fan	Type of start			Inverter starter	Inverter starter
		x number of units	(kW)	1.2 x 4	1.2 x 4
	Motor output		(kW)	1.5	1.5
	Туре		\ /	Centrifugal pump	Centrifugal pump
Pump	Flow control			Inverter	Inverter
<u> </u>	Maximum cu	rent	(A)	3.1	3.1
	Minimum inpi		(kW)	2	2
		vater side (Note 9)	, ,	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
=	Туре			R32	R32
Refrigerant	R32 charge		(kg)	8.8 x 4	8.8 x 4
Per l	Control		(3/	Electric expansion valve	Electric expansion valve
Drain pa			(W)	75 x 6	75 x 6
<u> </u>	control steps	(Note 10)	(%)	0; 5~100	0; 5~100
	n control		(7		ater temperature and temperature difference
Defrost s				Distributed reverse cycle system	Distributed reverse cycle system
Protective device				High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump).	Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
×	Cold/Hot wat	er inlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Rping dameters	Cold/Hot wat		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Rping	Coil drain		(A)	PT1-1/2" external thread	PT1-1/2" external thread
	Sound po	ower level	dB(A)	87.4	87.4
	Couriu pi	J. 1.01 .0101	GD(A)	O.A.	J

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.
(Note 7) Electrical data does not include inbuilt pump.
(Note 8) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally) (Note 9) Working pressure is below 0.7 MPa.

60HP Series EDGE Cooling-only

					Standard type	High-EER type
					380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modul	e unit)			RUAGP511C18	RUAGP511C1N8
	capacity		(Note 1)	(kW)	180	180
Cooming	Unit color			(ICVV)	Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
ō	OTHE COIO	Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
Ш		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	woight	Берит	, , , , ,		1,309	1,322
	ig weight			(kg)	1,345	1,358
Power s	0 0		(Note 1- 3)	(kg)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
			(Note 4-5)	(4)		3-phase 4-wire 30/00Hz 3500/4000/4150
	se current for p	Nominal current	(1010 1 0)	(A)	103 84.8	57.5
dati				(A) (kW)	55	37.4
Electrical data	0	Nominal input		(KVV)		
lect	Cooling	EER			3.27	4.81
(Note 7)		SEER	(Note 6)	(0/)	4.8 99	4.99
	_	Power factor	(NOIC O)	(%)		
Compressor	Туре			(1)40	Hermetic rotary x 4	Hermetic rotary x 4
pre		×number of units		(kW)	11.2 x 4	8.6 x 4
Som	Type of start				Inverter starter	Inverter starter
	Case heater	I_		(W)	37 x 4	37 x 4
Compre	essor oil Type				RB74AF	RB74AF
		Charge		(L)	2.0 x 4	2.0 x 4
Conden:	ser coil - air si	de			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
Fan	Air quantity (m³/min)			(m³/min)	1,230 (maximum)	1,230 (maximum)
_	Type of start				Inverter starter	Inverter starter
	· ·	x number of units		(kW)	1.2 x 4	1.2 x 4
Spray system	Water spray volume (L/min)		· /	·	13.6 x 1	
	Supply water	pressure	(Note 9)	(MPa)	·	0.2
(Note 8)	Control			-	Continuous spraying when outside temperature and compressor capacity exceeds setting values	
	Motor output			(kW)	1.5	1.5
٥	Туре				Centrifugal pump	Centrifugal pump
Pump	Flow control				Inverter	Inverter
	Maximum cu	rrent		(A)	3.1	3.1
	Minimum inp	ut		(kW)	2	2
Cooler -	water side		(Note 10)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
ant	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4
- C	Control				Electric expansion valve	Electric expansion valve
Capacity	control steps	i	(Note 11)	(%)	0; 5~100	0; 5~100
Operation	on control				Microprocessor control based on leaving wa	ater temperature and temperature difference
Defrost	system				Distributed reverse cycle system	Distributed reverse cycle system
Protective device						, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
aters	Cold/Hot wa	ter inlet		(A)	2-1/2" flange	2-1/2" flange
Piping diameters	Cold/Hot wa	ter outlet		(A)	2-1/2" flange	2-1/2" flange
Pipin	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
Cound	ower level			dB(A)	87.4	87.4

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

(Note 2) Dimensions do not include projections of water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.

The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 10) Working pressure is below 0.7 MPa.
(Note 11) Hange of capacity control sometimes can vary depending on the unit's operating condition.

70HP Series EDGE Heat pump

		_			Standard type	High-EER type
				_	380V /400V/ 415V	380V /400V/ 415V
Model (A single module unit)					RUAGP561H28	RUAGP561H2N8
Cooling	capacity		(Note 1)	(kW)	200	200
Heating	capacity		(Note 1)	(kW)	200	200
	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
rior		Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	g weight			(kg)	1,357	1,369
Operatin	ng weight			(kg)	1,393	1,405
Power s	upply		(Note 1- 3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	ce current for p	power supply design	(Note 4-5)	(A)	119	119
		Nominal current		(A)	99.7	68.9
		Nominal input		(kW)	64.9	44.8
	Cooling	EER			3.08	4.46
data		SEER			4.75	4.92
Electrical data		Power factor	(Note 6)	(%)	99	99
ectr		Nominal current		(A)	90.1	90.1
Ш		Nominal input		(kW)	59	59
	Heating	COP		` '	3.39	3.39
	_	SCOP			4.28	4.28
(Note 7)		Power factor	(Note 6)	(%)	99	99
>	Туре	·			Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output×number of units (kW)		(kW)	13.3 x 4	12.5 x 4	
m Z	Type of start				Inverter starter	Inverter starter
8				(W)	37 x 4	37 x 4
	1	Туре			RB74AF	RB74AF
Compre	ssor oil	Charge		(L)	2.0 x 4	2.0 x 4
Conden:	ser coil - air si	-			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
_	Air quantity		(r	m³/min)	1,230 (maximum)	1,230 (maximum)
Fan	Type of start		<u> </u>		Inverter starter	Inverter starter
		Motor output x number of units (kW)			1.2 x 4	1.2 x 4
<u></u>	Water spray			/min)	-	13.6 x 1
Spray	Supply water			MPa)	-	0.2
(Note 8)	Control	,	,	/		Continuous spraying when outside temperature and compressor capacity exceeds setting values
	Motor output	t		(kW)	2.2	2.2
	Туре			` /	Centrifugal pump	Centrifugal pump
Pump	Flow control				Inverter	Inverter
₫.	Maximum cu	rrent		(A)	4.3	4.3
	Minimum inp			(kW)	2.8	2.8
Cooler -	water side		(Note 10)	(,	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 × 4	8.8 × 4
Refri	Control			('''')	Electric expansion valve	Electric expansion valve
Capacity	control steps	3	(Note 11)	(%)	0; 5~100	0; 5~100
	on control			(, =)		ater temperature and temperature difference
Defrost s					Distributed reverse cycle system	Distributed reverse cycle system
	ve device				High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump)	Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
ars.	Cold/Hot wa	ter inlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
iping	Cold/Hot wa	ter outlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
Piping diameters	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
	ower level		(dB(A)	90.9	90.9
, , , , , , , ,				- (* 4)	2310	1 23.0

- (Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

 For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

 For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

 Same capacities, outdoor air temperature, and supplied water temperature (only for High Eth type) as indicated above.

 Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.
- (Note 2) Dimensions do not include projections of water pipe connections.
- (Note 2) Dimensions on not include projections or water pipe connections.

 (Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

 (Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

 (Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

 (Note 6) Power factors may vary depending on site conditions.

 (Note 7) Electrical data does not include inbuilt pump.

- (Note 8) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side, (Provided locally)
- (Note 9) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)
- (Note 10) Working pressure is below 0.7 MPa.
- (Note 11) Range of capacity control sometimes can vary depending on the unit's operating condition.

70HP Series EDGE Cooling-only

					Standard type	High-EER type
					380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modul	e unit)			RUAGP561C28	RUAGP561C2N8
	capacity		(Note 1)	(kW)	200	200
Cooming	Unit color			(1244)	Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
ō.	OTHE COIOI	Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
Ш		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	woight	Берит	, ,		1,318	1,331
	ig weight			(kg)	1,354	1,367
Power s			(Note 1-3)	(kg)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
			(Note 4-5)	(A)		3-phase 4-wire 30/00/12 3500/4000/413V
	Se current for	Nominal current	(1000 1 0)		119 99.1	68.1
dati				(A) (kW)	64.5	44.3
rical	0	Nominal input		(KVV)		44.3
Electrical data	Cooling	EER			3.1	
(Note 7)		SEER	(Note 6)	(0/)	4.75	4.92
	_	Power factor	(10.00)	(%)	99	99
Compressor	Туре				Hermetic rotary x 4	Hermetic rotary x 4
pre		xnumber of units		(kW)	13.3 x 4	9.1 x 4
Som	Type of start				Inverter starter	Inverter starter
	Case heater	I_		(W)	37 x 4	37 x 4
Compressor oil		RB74AF	RB74AF			
	Charge (L)		(L)	2.0 x 4	2.0 x 4	
Conden	Condenser coil - air side			Plate fin coil	Plate fin coil	
	Type				Propeller fan	Propeller fan
Fan	1 /			(m³/min)	1,230 (maximum)	1,230 (maximum)
_	Type of start				Inverter starter	Inverter starter
	· .	x number of units		(kW)	1.2 x 4	1.2 x 4
Spray system	Water spray			(L/min)	-	13.6 x 1
	Supply water	pressure	(Note 9)	(MPa)	-	0.2
(Note 8)	Control				•	Continuous spraying when outside temperature and compressor capacity exceeds setting values
	Motor output	<u> </u>		(kW)	2.2	2.2
٥	Туре				Centrifugal pump	Centrifugal pump
Pump	Flow control				Inverter	Inverter
	Maximum cu	rrent		(A)	4.3	4.3
	Minimum inp	ut		(kW)	2.8	2.8
Cooler -	water side		(Note 10)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
ant	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4
- C	Control				Electric expansion valve	Electric expansion valve
Capacity	control steps	S	(Note 11)	(%)	0; 5~100	0; 5~100
Operation	on control				Microprocessor control based on leaving wa	ater temperature and temperature difference
Defrost	system				Distributed reverse cycle system	Distributed reverse cycle system
Protectiv	ve device					Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
eters	Cold/Hot wa	ter inlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
Piping diameters	Cold/Hot wa	ter outlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
Pipin	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
Counds	ower level			dB(A)	90.9	90.9

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

(Note 2) Dimensions do not include projections of water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.

The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 10) Working pressure is below 0.7 MPa.
(Note 11) Hange of capacity control sometimes can vary depending on the unit's operating condition.

50HP Series EDGE Heat pump

				Standard type	High-EER type	
				380V /400V/ 415V	380V /400V/ 415V	
Model (A	single modul	le unit)		RUAGP421HL8	RUAGP421HLN8	
Cooling	capacity	(Note	1) (kW)	150	150	
Heating	capacity	(Note	1) (kW)	150	150	
	Unit color			Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)	
iņ		Height	(mm)	2,350	2,350	
Exterior	Dimensions	Width (Note:	²⁾ (mm)	1,000	1,000	
		Depth (Note:	²⁾ (mm)	3,300	3,300	
Shipping	weight		(kg)	1,290	1,302	
Operatin	g weight		(kg)	1,326	1,338	
Power s	upply	(Note 1-	3)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V	
Reference	e current for p	power supply design (Note 4	(A)	79	79	
		Nominal current	(A)	65.3	42.8	
		Nominal input	(kW)	42.5	27.9	
	Cooling	EER		3.53	5.38	
Electrical data		SEER		4.88	5.06	
ical		Power factor (Note:	(%)	99	99	
ect		Nominal current	(A)	63.6	63.6	
ш		Nominal input	(kW)	41.4	41.4	
	Heating	COP		3.62	3.62	
		SCOP		4.26	4.26	
(Note 6)		Power factor (Note:	(%)	99	99	
ō	Туре			Hermetic rotary x 4	Hermetic rotary x 4	
ress	Motor output×number of units (kW)			9.0 x 4	9.0 x 4	
Compressor	Type of start			Inverter starter	Inverter starter	
ŏ	Case heater (W			37 x 4	37 x 4	
0		Туре		RB74AF	RB74AF	
Compre	SSOF OII	Charge	(L)	2.0 x 4	2.0 x 4	
Condens	er coil - air si	de		Plate fin coil	Plate fin coil	
	Туре			Propeller fan	Propeller fan	
Fan	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)	
ů.	Type of start			Inverter starter	Inverter starter	
	Motor output	t x number of units	(kW)	1.2 x 4	1.2 x 4	
Spray	Water spray	volume	(L/min)	-	13.6 x 1	
8 8	Supply water	r pressure (Note	(MPa)	-	0.2	
(Note 7)	Control			-	Continuous spraying when outside temperature and compressor capacity exceeds setting values	
Cooler -	water side	(Note	9)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)	
aut	Туре			R32	R32	
Refrigerant	R32 charge		(kg)	8.8 x 4	8.8 × 4	
~	Control			Electric expansion valve	Electric expansion valve	
Capacity	control steps	Note 1	(%)	0; 5~100	0; 5~100	
Operatio	n control			Microprocessor control based on leaving w	ater temperature and temperature difference	
Defrost s	system			Distributed reverse cycle system	Distributed reverse cycle system	
Protectiv	Protective device			High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, high water temp. cutout, low flow rate, discharge gas overheat protection, low pressure cutout, thermistor error, high water pressure error)		
g	Cold/Hot wa	ter inlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)	
Piping diameters	Cold/Hot wa	ter outlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)	
dia F	Coil drain (A)			PT1-1/2" external thread	PT1-1/2" external thread	
Sound p	ower level		dB(A)	83.8	83.8	

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

Same capacities, outdoor air temperature, and supplied water temperature (nonly for High Ethype) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 2) Dimensions do not include projections of water pipe connections.
(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
(Note 4) Aways install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.
(Note 5) Power factors may vary depending on site conditions.
(Note 6) Electrical data does not include inbuilt pump.
(Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.

(Provided locally)
Working pressure is below 0.7 MPa.

(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

50HP Powerful Heating Type Heat pump

					Standard type	High-EER type
				_	380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modu	le unit)			RUAGP421FL8	RUAGP421FLN8
	capacity		(Note 1)	(kW)	150	150
	capacity		(Note 1)	(kW)	150	150
r routing	Unit color			(,	Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
.jo	OTHE GOIGE	Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
ш		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	a weight			(kg)	1,302	1,314
	ng weight			(kg)	1,338	1,350
Power s			(Note 1- 3)	(3)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
		power supply design	(Note 4)	(A)	82.1	82.1
		Nominal current		(A)	65.3	42.8
		Nominal input		(kW)	42.5	27.9
	Cooling	EER		()	3.53	5.38
data	00019	SEER			4.88	5.06
Electrical data		Power factor	(Note 5)	(%)	99	99
ectri		Nominal current		(A)	99	99
ũ		Nominal input		(kW)	63.6	63.6
	Heating	COP		()	41.4	41.4
		SCOP			4.26	4.26
(Note 6)		Power factor	(Note 5)	(%)	99	99
- L	Туре	i onor laotor		(70)	Hermetic rotary x 4	Hermetic rotary x 4
Compressor		t×number of units		(kW)	9.0 × 4	9.0 x 4
Th Dre	Type of start			()	Inverter starter	Inverter starter
Š	Case heater			(VV)	37 × 4	37 x 4
	Oddo Hoddor	Туре		(**)	RB74AF	RB74AF
Compre	ssor oil	Charge		(L)	2.0 × 4	2.0 x 4
Conden:	ser coil - air si				Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
_	Air quantity			(m³/min)	1,230 (maximum)	1,230 (maximum)
Fan	Type of start			,	Inverter starter	Inverter starter
		t x number of units		(kW)	1.2 x 4	1.2 x 4
<u>≽</u> ⊑	Water spray		((L/min)	-	13.6 x 1
Spray system	Supply wate		(Note 8)	(MPa)		0.2
(Note 7)	Control				-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side		(Note 9)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
	Туре				R32	R32
Refriger- ant	R32 charge			(kg)	8.8 x 4	8.8 x 4
æ	Control				Electric expansion valve	Electric expansion valve
Drain pa	n heater			(W)	75 x 6	75×6
	y control steps	s (Note 10)		(%)	0; 5~100	0; 5~100
	on control					ater temperature and temperature difference
Defrost					Distributed reverse cycle system	Distributed reverse cycle system
	ve device				High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump)	, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
grs	Cold/Hot wa	ter inlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wa	iter outlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
gi D	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
	ower level			dB(A)	83.8	83.8

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 3°C DB, 3°C DB, 24°C WB outdoor air (OAT) and 21°C feed-water temperature
For heating: 40°C entering water (EWT), 4°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)
Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.
Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 2) Dimensions do not include projections of water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) Ways install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 7) Fower factors may vary depending on site conditions.

(Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
(Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 9) Working pressure is below 0.7 MPa.
(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

50HP **Series EDGE** Cooling-only

				Standard type	High-EER type
				380V /400V/ 415V	380V /400V/ 415V
Model (A	single modul	e unit)		RUAGP421CL8	RUAGP421CLN8
Cooling	capacity	(Note	1) (kW)	150	150
	Unit color			Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
Exterior		Height		2,350	2,350
Eğ	Dimensions	Width (Note	²⁾ (mm)	1,000	1,000
		Depth (Note	²⁾ (mm)	3,300	3,300
Shipping	weight		(kg)	1,251	1,264
Operatin	g weight		(kg)	1,287	1,300
Power su	upply	(Note 1-	3)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	e current for p	oower supply design (Note	4) (A)	79	79
ata		Nominal current	(A)	66.2	44
ू ज		Nominal input	(kW)	43.1	28.7
Electrical data	Cooling	EER		3.48	5.23
Ē		SEER		4.9	5.08
(Note 6)		Power factor (Note	5) (%)	99	99
or	Туре			Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output	×number of units	(kW)	8.7 x 4	7.2 x 4
dwc	Type of start			Inverter starter	Inverter starter
ŏ	Case heater		(W)	37 x 4	37 x 4
0		Туре		RB74AF	RB74AF
Compres	SSOF OII	Charge	(L)	2.0 x 4	2.0 x 4
Condens	ser coil - air sid	de		Plate fin coil	Plate fin coil
	Туре			Propeller fan	Propeller fan
Fan	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)
ů.	Type of start			Inverter starter	Inverter starter
	Motor output	x number of units	(kW)	1.2 x 4	1.2 x 4
Spray	Water spray	volume	(L/min)	-	13.6 x 1
8 8	Supply water	pressure (Note	⁽⁶⁾ (MPa)	-	0.2
(Note 7)	Control			-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side	(Note	9)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
Ę.	Туре			R32	R32
Refriger- ant	R32 charge		(kg)	8.8 x 4	8.8 x 4
ď	Control			Electric expansion valve	Electric expansion valve
Capacity	control steps	(Note 1	^(%)	0; 5~100	0; 5~100
Operatio	n control			Microprocessor control based on leaving wa	ater temperature and temperature difference
Defrost s	system			Distributed reverse cycle system	Distributed reverse cycle system
Protectiv	e device			High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), protection, high water temp. cutout, low flow rate, discharge gas overheat	
g	Cold/Hot wat	ter inlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wat	ter outlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
giè l	Coil drain		(A)	PT1-1/2" external thread	PT1-1/2" external thread
Sound p	ower level		dB(A)	83.8	83.8

- (Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
 For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.
 Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

 (Note 2) Dimensions do not include projections of water pipe connections.

 (Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

 (Note 4) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

 (Note 5) Power factors may vary depending on site conditions.

 (Note 6) Electrical data does not include inbuilt pump.

- (Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

 (Note 8) Adjust the flow rate to become dose to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.

 (Provided locally)
- Working pressure is below 0.7 MPa.
- (Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

60HP Series EDGE Heat pump

					Standard type	High-EER type
				_	380V /400V/ 415V	380V /400V/ 415V
Model (A	single modul	le unit)			RUAGP511HL8	RUAGP511HLN8
Cooling	capacity		(Note 1)	(kW)	180	180
Heating	capacity		(Note 1)	(kW)	180	180
	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
rior		Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
		Depth (Note		(mm)	3,300	3,300
Shipping	weight			(kg)	1,290	1,302
Operatin	g weight			(kg)	1,326	1,338
Power s	upply		(Note 1-3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	e current for	power supply design	(Note 4)	(A)	99	99
		Nominal current		(A)	84.8	57.3
		Nominal input		(kW)	55.2	37.3
	Cooling	EER			3.26	4.82
Electrical data		SEER			4.77	4.94
ica		Power factor	(Note 5)	(%)	99	99
lect		Nominal current		(A)	79.6	79.6
ш		Nominal input		(kW)	51.9	51.9
	Heating	COP			3.47	3.47
		SCOP			4.35	4.35
(Note 6)		Power factor	(Note 5)	(%)	99	99
ō	Туре				Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output	t×number of units		(kW)	11.2 x 4	11.1 x 4
dwo	Type of start				Inverter starter	Inverter starter
ŏ	Case heater			(W)	37 x 4	37 x 4
0		Туре			RB74AF	RB74AF
Compre	SSOF OII	Charge		(L)	2.0 x 4	2.0 x 4
Condens	ser coil - air si	de			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
Fan	Air quantity			(m³/min)	1,230 (maximum)	1,230 (maximum)
ů.	Type of start				Inverter starter	Inverter starter
	Motor output	t x number of units		(kW)	1.2 x 4	1.2 x 4
Spray	Water spray	volume		(L/min)	-	13.6 x 1
8 8	Supply water	r pressure	(Note 8)	(MPa)	-	0.2
(Note 7)	Control				-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side		(Note 9)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
aut	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4
- 2	Control				Electric expansion valve	Electric expansion valve
Capacity	control steps	3	(Note 10)	(%)	0; 5~100	0; 5~100
Operation	n control				Microprocessor control based on leaving w	rater temperature and temperature difference
Defrost s	system				Distributed reverse cycle system	Distributed reverse cycle system
Protectiv	e device				High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump protection, high water temp. cutout, low flow rate, discharge gas overhea), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze t protection, low pressure cutout, thermistor error, high water pressure error)
g	Cold/Hot wa	ter inlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wa	ter outlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
dia F	Coil drain (A)			(A)	PT1-1/2" external thread	PT1-1/2" external thread
Sound p	ower level			dB(A)	87.4	87.4

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature
For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)
Same capacities, outdoor air temperature, and supplied water temperature (noyl for High Ethype) as indicated above.
Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 2) Dimensions do not include projections of water pipe connections.
(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
(Note 4) Aways install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.
(Note 5) Power factors may vary depending on site conditions.
(Note 6) Electrical data does not include inbuilt pump.
(Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.

(Provided locally)
Working pressure is below 0.7 MPa.

(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

60HP Powerful Heating Type Heat pump

				Standard type	High-EER type
				380V /400V/ 415V	380V /400V/ 415V
Model (A	single modul	e unit)		RUAGP511FL8	RUAGP511FLN8
Cooling	capacity		(Note 1) (kW)	180	180
Heating	capacity		(Note 1) (kW)	200	200
	Unit color			Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
in in		Height	(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2) (mm)	1,000	1,000
		Depth	(Note 2) (mm)	3,300	3,300
Shipping	weight		(kg)	1,302	1,314
Operatin	g weight		(kg)	1,338	1,350
Power si	upply	(N	Note 1- 3)	3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	e current for p	oower supply design	(Note 4) (A)	110	110
		Nominal current	(A)	84.8	57.3
		Nominal input	(kW)	55.2	37.4
m m	Cooling	EER		3.26	4.81
Electrical data		SEER		4.77	4.94
rical		Power factor	(Note 5) (%)	99	99
ect		Nominal current	(A)	90.6	90.6
		Nominal input	(kW)	59	59
	Heating	COP		3.39	3.39
		SCOP		4.23	4.23
(Note 6)		Power factor	(Note 5) (%)	99	99
Ď	Туре			Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output	×number of units	(kW)	12.5 x 4	12.5 x 4
duc	Type of start			Inverter starter	Inverter starter
ŏ	Case heater		(W)	37 x 4	37 x 4
Compro	nor oil	Туре		RB74AF	RB74AF
Compres	SSOF OII	Charge	(L)	2.0 x 4	2.0 x 4
Condens	ser coil - air sid	de		Plate fin coil	Plate fin coil
	Туре			Propeller fan	Propeller fan
Fan	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)
ш.	Type of start			Inverter starter	Inverter starter
	Motor output	x number of units	(kW)	1.2 x 4	1.2 x 4
Spray	Water spray	volume	(L/min)	-	13.6 x 1
8 8	Supply water	pressure	(Note 8) (MPa)	-	0.2
(Note 7)	Control			-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side		(Note 9)	Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
- A	Туре			R32	R32
Refriger- ant	R32 charge		(kg)	8.8 x 4	8.8 x 4
ш.	Control			Electric expansion valve	Electric expansion valve
Drain pa	n heater		(W)	75 x 6	75 x 6
	control steps	(Note 10)	(%)	0; 5~100	0; 5~100
· ·	n control				ater temperature and temperature difference
Defrost s	system			Distributed reverse cycle system	Distributed reverse cycle system
	e device				, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)
lg ters	Cold/Hot wat	ter inlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wat	ter outlet	(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
dis	Coil drain		(A)	PT1-1/2" external thread	PT1-1/2" external thread
Sound p	ower level		dB(A)	87.4	87.4

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

| Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
| For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature
| For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)
| Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.
| Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.
| (Note 2) | Dimensions do not include projections of water pipe connections.
| (Note 3) | Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
| (Note 4) | Waveys install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.
| (Note 5) | Electrical data does not include inbuilt pump.
| Note 7) | The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 7) The supply water qualify may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
(Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.

(Provided locally)

(Note 9) Working pressure is below 0.7 MPa.
(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

60HP Series EDGE Cooling-only

					Standard type	High-EER type
					380V /400V/ 415V	380V /400V/ 415V
Model (A single module unit)					RUAGP511CL8	RUAGP511CLN8
Cooling	capacity		(Note 1)	(kW)	180	180
	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
arior		Height		(mm)	2,350	2,350
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
		Depth (Note:		(mm)	3,300	3,300
Shipping	weight			(kg)	1,251	1,264
Operatin	g weight			(kg)	1,287	1,300
Power si	upply		(Note 1-3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	e current for p	ower supply design	(Note 4)	(A)	99	99
ata		Nominal current		(A)	84.8	57.5
जु ज		Nominal input		(kW)	55	37.4
Electrical data	Cooling	EER			3.27	4.81
⊞		SEER			4.8	4.99
(Note 6)		SEER Power factor (Note 5)		(%)	99	99
'n	Туре				Hermetic rotary x 4	Hermetic rotary x 4
esso	Motor output×number of units (kW)				11.2 x 4	8.6 x 4
Compressor	Type of start				Inverter starter	Inverter starter
ŏ	Case heater (W)			(W)	37 x 4	37 x 4
		Туре			RB74AF	RB74AF
Compres	SSOT OII	Charge		(L)	2.0 x 4	2.0 x 4
Condens	ser coil - air sic	de			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
Fan	Air quantity			(m³/min)	1,230 (maximum)	1,230 (maximum)
iii.	Type of start				Inverter starter	Inverter starter
	Motor output	x number of units		(kW)	1.2 x 4	1.2 x 4
ray.	Water spray v	volume		(L/min)	-	13.6 x 1
Spray	Supply water	pressure	(Note 8)	(MPa)	-	0.2
(Note 7)	Control				-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side		(Note 9)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
4	Туре				R32	R32
Refriger- ant	R32 charge			(kg)	8.8 x 4	8.8 x 4
ı ı	Control				Electric expansion valve	Electric expansion valve
Capacity	control steps		(Note 10)	(%)	0; 5~100	0; 5~100
Operatio	n control				Microprocessor control based on leaving wa	ater temperature and temperature difference
Defrost s	system				Distributed reverse cycle system	Distributed reverse cycle system
Protective device					High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), Crankcase heater, Open-phase protection, Microprocessor control (compressor tin protection, high water temp, cutout, low flow rate, discharge gas overheat protection, low gressure cutout, thermistor error, high water pressure error)	
g	Cold/Hot wat	er inlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
Piping diameters	Cold/Hot wat	er outlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange (JIS10K)
di a	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread
Sound p	ower level			dB(A)	87.4	87.4

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.
Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

(Note 2) Dimensions do not include projections of water pipe connections.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 5) Power factors may vary depending on site conditions.

(Note 5) Electrical data does not include inbuilt pump.

The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump. (Provided locally)

(Note 9) Working pressure is below 0.7 MPa.

(Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

70HP Series EDGE Heat pump

					Standard type	High-EER type	
					380V /400V/ 415V	380V /400V/ 415V	
Model (A	single modul	e unit)			RUAGP561HL8	RUAGP561HLN8	
Cooling	capacity		(Note 1)	(kW)	200	200	
	capacity		(Note 1)	(kW)	200	200	
	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)	
.jc		Height		(mm)	2,350	2,350	
Exterior	Dimensions	Width	(Note 2)	(mm)	1,000	1,000	
		Depth	(Note 2)	(mm)	3,300	3,300	
Shipping	weight			(kg)	1,296	1,308	
Operatin	g weight			(kg)	1,332	1,344	
Power su			(Note 1-3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V	
Reference	e current for p	oower supply design	(Note 4)	(A)	115	115	
		Nominal current		(A)	99.7	68.9	
		Nominal input		(kW)	64.9	44.8	
	Cooling	EER			3.08	4.46	
data		SEER			4.72	4.89	
ga		Power factor	(Note 5)	(%)	99	99	
Electrical data		Nominal current		(A)	90.1	90.1	
ш		Nominal input		(kW)	59	59	
	Heating	COP		. ,	3.39	3.39	
		SCOP			4.28	4.28	
(Note 6)		Power factor	(Note 5)	(%)	99	99	
-	Туре			()	Hermetic rotary x 4	Hermetic rotary x 4	
essc		×number of units		(kW)	13.3 x 4	12.5 x 4	
Compressor	Type of start			. ,	Inverter starter	Inverter starter	
8	Case heater			(W)	37 x 4	37 x 4	
	Type		. ,	RB74AF	RB74AF		
Compres	ssor oil	Charge		(L)	2.0 x 4	2.0 x 4	
Condens	ser coil - air sid			. ,	Plate fin coil	Plate fin coil	
	Туре				Propeller fan	Propeller fan	
_	Air quantity			(m³/min)	1,230 (maximum)	1,230 (maximum)	
Fan	Type of start			, ,	Inverter starter	Inverter starter	
		x number of units		(kW)	1.2 x 4	1.2 x 4	
	Water spray			(L/min)		13.6 x 1	
Spray	Supply water		(Note 8)	(MPa)	-	0.2	
(Note 7)	Control			(-,		Continuous spraying when outside temperature and compressor capacity exceeds setting values	
Cooler -	water side		(Note 9)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)	
	Туре				R32	R32	
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4	
Ref	Control			(3)	Electric expansion valve	Electric expansion valve	
Capacity	control steps		(Note 10)	(%)	0; 5~100	0; 5~100	
	n control			(,	·	ater temperature and temperature difference	
Defrost s					Distributed reverse cycle system	Distributed reverse cycle system	
	e device				High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump)	, Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, low pressure cutout, thermistor error, high water pressure error)	
grs	Cold/Hot wat	ter inlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)	
iping	Cold/Hot wat			(A)	3" flange (JIS10K)	3" flange (JIS10K)	
Piping diameters	Coil drain			(A)	PT1-1/2" external thread	PT1-1/2" external thread	
	ower level			dB(A)	90.9	90.9	
Journa P	OTFOI ICVCI			uD(M)	30.3	50.3	

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature

For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)

Same capacities, outdoor air temperature, and supplied water temperature (not) for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

- (Note 2) Dimensions do not include projections of water pipe connections.
 (Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
 (Note 4) Aways install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.
 (Note 5) Power factors may vary depending on site conditions.
 (Note 6) Electrical data does not include inbuilt pump.
 (Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
- (Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.
- (Provided locally)
 Working pressure is below 0.7 MPa.
- (Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

70HP Series EDGE Cooling-only

					Standard type	High-EER type
				_ [380V /400V/ 415V	380V /400V/ 415V
Model (A	A single modul	le unit)			RUAGP561CL8	RUAGP561CLN8
Cooling	capacity		(Note 1)	(kW)	200	200
	Unit color				Silky shade (Munsell 1Y8.5/0.5)	Silky shade (Munsell 1Y8.5/0.5)
Exterior	Height			(mm)	2,350	2,350
EX	Dimensions	Width	(Note 2)	(mm)	1,000	1,000
		Depth	(Note 2)	(mm)	3,300	3,300
Shipping	g weight			(kg)	1,258	1,270
Operatir	ng weight			(kg)	1,294	1,306
Power s	upply		(Note 1-3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V
Reference	ce current for	power supply design	(Note 4)	(A)	115	115
ata		Nominal current		(A)	99.1	68.1
ਲ		Nominal input		(kW)	64.5	44.3
Electrical data	Cooling	EER			3.1	4.51
음		SEER			4.75	4.92
(Note 6)		Power factor (Note 5)		(%)	99	99
ō	Туре				Hermetic rotary x 4	Hermetic rotary x 4
Compressor	Motor output	out×number of units (kW)			13.3 x 4	9.1 x 4
d WC	Type of start				Inverter starter	Inverter starter
ŏ	Case heater			(W)	37 x 4	37 x 4
_	Compressor oil Type Charge (L)			RB74AF	RB74AF	
Compre			(L)	2.0 x 4	2.0 x 4	
Conden	ser coil - air si	de			Plate fin coil	Plate fin coil
	Туре				Propeller fan	Propeller fan
Fan	Air quantity		(m³/min)	1,230 (maximum)	1,230 (maximum)
Ľ.	Type of start				Inverter starter	Inverter starter
	Motor output	t x number of units		(kW)	1.2 x 4	1.2 x 4
ray	Water spray	volume	(l	_/min)	-	13.6 x 1
Spray	Supply water	r pressure	(Note 8)	(MPa)	-	0.2
(Note 7)	Control				-	Continuous spraying when outside temperature and compressor capacity exceeds setting values
Cooler -	water side		(Note 9)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)
ant	Туре				R32	R32
Refrigerant	R32 charge			(kg)	8.8 x 4	8.8 x 4
Be	Control				Electric expansion valve	Electric expansion valve
Capacity	control steps	3	(Note 10)	(%)	0; 5~100	0; 5~100
Operation	on control				Microprocessor control based on leaving w	ater temperature and temperature difference
Defrost s	system				Distributed reverse cycle system	Distributed reverse cycle system
Protective device			High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, high water temp. cutout, low flow rate, discharge gas overheat protection, low pressure cutout, thermistor error, high water pressure error)			
g	Cold/Hot wa	ter inlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
Piping diameters	Cold/Hot wa	ter outlet		(A)	3" flange (JIS10K)	3" flange (JIS10K)
dia n	Coil drain				PT1-1/2" external thread	PT1-1/2" external thread
	ower level			dB(A)	90.9	90.9

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.

For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature Same capacities, outdoor air temperature, and supplied water temperature (only for High EER type) as indicated above.

Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281.

- (Note 2) Dimensions do not include projections of water pipe connections.
 (Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.
 (Note 4) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

- (Note 5) Power factors may vary depending on site conditions.
 (Note 6) Electrical data does not include inbuilt pump.
 (Note 7) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)
- (Note 8) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.
- (Provided locally)
 (Note 9) Working pressure is below 0.7 MPa.
- (Note 10) Range of capacity control sometimes can vary depending on the unit's operating condition.

Perspective on Set Specifications (Calculation Method)

Ex.) Internal inverter pump Air-cooled heat pump [High-EER type] 16 combined module units

Made Management Machine Management Machine Management Machine Management Machine Management Machine Management Machine Management M						Ex.) 50HP x 1 (single unit)	Ex.) 50HP x 16 units	Calculation Method
Control occopy	Model (A	A single modul	e unit)				·	
Percentage Per	· ·		,	(Note 1)	(kW)			(Single unit value) x (number of module units in set)
Proceedings	_			(Note 1)	. ,			
Hargist Harg		T .						-
Depth Part	je.		Height		(mm)			
Depth Part	Exte	Dimensions		(Note 2)	(mm)	1,000	16,450	See General Charts
Specific content	_		Depth	(Note 2)	(mm)	3,300	3,300	
Special Control of C	Shipping	weight			(kg)	1,360	21,760	(Single unit value) x (number of module units in set)
Profestor cut part for power supply design	Operatin	g weight				1,396	22,336	(Single unit value) x (number of module units in set)
Nominal current (A)	Power s	upply		(Note 1- 3)		3-phase 4-wire 50/60Hz 380V/400V/415V	3-phase 4-wire 50/60Hz 380V/400V/415V	
Nominal input	Reference	ce current for p	power supply design	(Note 4-5)	(A)	82.1	82.1 x 16	(Single unit value) x (number of module units in set)-
Cooling EER			Nominal current		(A)	42.8	684.8	(Single unit value) x (number of module units in set)
SEER			Nominal input		(kW)	27.9	446.4	(Single unit value) x (number of module units in set)
Name	m m	Cooling	EER			5.38	5.38	-
Name	data		SEER			5.06	5.06	-
Name	rical		Power factor	(Note 6)	(%)	99	99	-
Name	Elect		Nominal current		(A)	63.6	1017.6	(Single unit value) x (number of module units in set)
SCOP Power factor Name 1 (%) 99 99 99 99 99 99 99			Nominal input		(kW)	41.4	662.4	(Single unit value) x (number of module units in set)
Power factor Powe		Heating	COP			3.62	3.62	-
Property			SCOP			4.26	4.26	-
Motor output *number of units (6W) 9.0 x 4 9.0 x 64 (Single unit value) x (number of module units in set Type of start Windows (Parameter Starter Mover of Mover of Starter Mover of Mover of Starter of Mover of Starter Mover of Mover of Starter Mover of Mover of Starter of Mover of Mover of Starter of Mover	(Note 7)		Power factor	(Note 6)	(%)	99	99	-
Compressor oil Type	ō	Туре				Hermet	ic rotary	-
Compressor oil Type	ress	Motor output	×number of units		(kW)	9.0 x 4	9.0 x 64	(Single unit value) x (number of module units in set)
Compressor oil Type	duc	Type of start				Inverter starter	Inverter starter	
Condensor coil - air side	ŏ	Case heater			(W)	37 x 4	37 x 64	(Single unit value) x (number of module units in set)
Condenses coil - al' side Plate fin coil Plate fin	0		Туре			RB74AF	RB74AF	
Type of start inverter starter inverter	Compre	Compressor oil Charge (L)		2.0 x 4	2.0 x 64	(Single unit value) x (number of module units in set)		
Air quantity (m/min) 1,230 (maximum) 19,680 (maximum) (Single unit value) x (number of module units in set Inverter starter Motor output x number of units (kW) 1,2 x 4 1,2 x 64 (Single unit value) x (number of module units in set Inverter starter Motor output x number of units (kW) 1,3.6 x 1 1,3.6 x 16 (Single unit value) x (number of module units in set Supply water pressure (L/min) 1,3.6 x 1 1,3.6 x 16 (Single unit value) x (number of module units in set Output (MPa) 0,2 0,2 0,2 0,2 0,2 0,2 0,2 0,2 0,2 0,2	Conden:	ser coil - air si	de			Plate fin coil	Plate fin coil	-
Type of start Type of start		Туре				Propeller fan	Propeller fan	-
Type Centrifugal pump Cent	둢	Air quantity (m³/min)			(m³/min)	1,230 (maximum)	19,680 (maximum)	(Single unit value) x (number of module units in set)
Water spray volume (L/min) 13.6 x 1 13.6 x 16 (Single unit value) x (number of module units in set	ш	Type of start	Type of start			Inverter starter	Inverter starter	
Supply water pressure Note 19 O.2 O.		Motor output	x number of units		(kW)	1.2 x 4	1.2 x 64	(Single unit value) x (number of module units in set)
Control Control Control Continuous spraying when outside temperature and compressor capacity exceeds setting values Control C	oray	Water spray	volume		(L/min)	13.6 x 1	13.6 x 16	(Single unit value) x (number of module units in set)
Motor output	S 8	Supply water	pressure	(Note 9)	(MPa)	0.2		-
Type Centrifugal pump Centrifugal pump - Centrifuga	(Note 8)	Control						-
Flow control Inverter Inver		Motor output			(kW)	1.5	1.5 x 16	(Single unit value) x (number of module units in set)
Maximum current Minimum input (kW) 2 2.0.x 16 (Single unit value) x (number of module units in set (kW) 2 2.0.x 16 (Single unit value) x (number of module units in set (Single unit value) x (Туре				Centrifugal pump	Centrifugal pump	-
Minimum input (kW) 2 2.0 x 16 (Single unit value) x (number of module units in set Cooler - water side (Note 10) Brazed plate heat exchanger (SUS316 equivalent) Fig. R32 R32 R32 R32 - R32 R32 - R32 R32	Pump	Flow control				Inverter	Inverter	-
Cooler - water side Note 10 Brazed plate heat exchanger (SUS316 equivalent) Fazed plate heat exchanger (SUS316 equivalent) -		Maximum cu	rrent		(A)	3.1	3.1 x 16	(Single unit value) x (number of module units in set)
Type R32 R32 R32 - R32 R32 R32 - R32 R32 R32 R32 - R32 charge (kg) 8.8 x 4 8.8 x 64 (Single unit value) x (number of module units in set control steps (kg) R32 ratio control steps (kg) R3		Minimum inp	ut		(kW)	2	2.0 x 16	(Single unit value) x (number of module units in set)
R32 charge (kg) 8.8 x 4 8.8 x 64 (Single unit value) x (number of module units in set Control Electric expansion valve Electric expansion valve - Capacity control steps (Note 11) (%) 0; 5~100 0; 5~100 - Coperation control Electric expansion valve Electric expansion valve - Capacity control steps (Note 11) (%) 0; 5~100 0; 5~100 - Coperation control Electric expansion valve Electric expansion valve - Capacity control steps (Note 11) (%) 0; 5~100 0; 5~100 - Coperation control Electric expansion valve Electric expansion valve - Capacity control steps (Note 11) (%) 0; 5~100 0; 5~100 - Coperation control Electric expansion valve Electric expansion valve - Coperation control to Coperation control Electric expansion valve Electric expansion valve - Coperation control (Single unit value) x (number of module units in set Electric expansion valve - Coperation control (Single unit value) x (number of module units in set Electric expansion valve - Coperation control (Single unit value) x (number of module units in set Electric expansion valve - Coperation control (Single unit value) x (number of module units in set Electric expansion valve - Coperation control (Single unit value) x (number of module unit in set Electric expansion valve - Coperation control (Single unit value) x (number of module unit in set Each module unit has one connection port Each module unit has one connecti	Cooler -	water side		(Note 10)		Brazed plate heat exchanger (SUS316 equivalent)	Brazed plate heat exchanger (SUS316 equivalent)	-
Control Electric expansion valve Electric expansion valve Capacity control steps (Note 11) (%)	aj.	Туре				R32	R32	
Capacity control steps (Mote 11) (%) (%) (%) (%) (%) (%) (%) (%) (%) (%	efriger	R32 charge			(kg)	8.8 x 4	8.8 x 64	(Single unit value) x (number of module units in set)
Operation control Microprocessor control based on leaving water temperature and temperature difference Defrost system Distributed reverse cycle system Distributed reverse cycle system Distributed reverse cycle system		Control				Electric expansion valve	Electric expansion valve	-
Defrost system Distributed reverse cycle system Distributed reverse cycle system	Capacity	control steps		(Note 11)	(%)	0; 5~100	0; 5~100	-
High-pressure switch, Over current protection, Inverter overload protection (compressor, fan, pump), Crankcase heater, Open-phase protection, Microprocessor control (compressor time guards, freeze protection, high water temp. cutout, low flow rate, discharge gas overheat protection, low pressure cutout, thermistor error, high water pressure error) Cold/Hot water inlet	Operation	n control						-
Protective device Copen-phase protection, Microprocessor control (compressor time guards, freeze protection, high water temp. cutout, low flow rate, discharge gas overheat protection, low pressure cutout, thermistor error, high water pressure error) Cold/Hot water inlet	Defrost s	system				Distributed reverse cycle system	Distributed reverse cycle system	-
		ve device				Open-phase protection, Microprocessor control (compressor	-	
	g	Cold/Hot wat	ter inlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange x 16 (JIS10K)	
	Pipin	Cold/Hot wat	ter outlet		(A)	2-1/2" flange (JIS10K)	2-1/2" flange x 16 (JIS10K)	
Sound power level dB(A) 83.8 - See General Charts	gi n	Coil drain (A)		PT1-1/2" external thread	PT1-1/2" external thread x 16	port		
	Sound p	ower level			dB(A)	83.8	-	See General Charts

(Note 1) Rated conditions, such as capacity, electrical data, and standard flow rate are as follows.
For cooling: 12°C entering water (EWT), 7°C leaving water (LWT), 35°C DB, 24°CWB outdoor air (OAT) and 21°C feed-water temperature
For heating: 40°C entering water (EWT), 45°C leaving water (LWT), 7°CDB, 6°CWB outdoor air (OAT)
Same capacities, outdoor air temperature, and supplied water temperature (not) for High EER type) as indicated above.
Design water flow rate must be within the range of 5 to 10°C water temperature differences. Capacities and performance values are based on (EU)No2016/2281 and (EU)No813/2013.

(Note 3) Even when there is a fluctuation in supply voltage, do not exceed ±10% and keep imbalances between the supply voltages within 2%.

(Note 4) The power supply differs from pump capacity. Please refer to pump information table to design power supply correctly.

(Note 5) Always install an earth leakage circuit breaker. This machine includes an inverter, so please use a high-frequency-compatible product to prevent malfunction.

(Note 6) Power factors may vary depending on site conditions.
(Note 7) Electrical data does not include inbuilt pump.
(Note 8) The supply water quality may cause scales and other matter to adhere to the coil surface. If necessary, install a water softener on the supply water side. (Provided locally)

(Note 9) Adjust the flow rate to become close to this supply water pressure with the manual flow adjustment valve on the water spray system inlet. If sufficient supply water pressure is not available, install a pressure pump.

(Note 11) Range of capacity control sometimes can vary depending on the unit's operating condition.

■ General Charts for Set of Modules : Capacity, Dimensions, and Sound Level

50HP Series EDGE Powerful Heating Type

Niverbau of mandala	Cooling capacity	Heating capacity	Dimensions (mm)		Sound Pressure Level	(Note 3)	Court Down Lovel
Number of modules	(kW)	(kW) (Note 1)	H×W×D (Note 2)	Control box side	Air heat exchanger side	Water heat exchange side	Sound Power Level
1	150	150	2,350×1,000×3,300	64.7	65.9	69.1	83.8
2	300	300	2,350×2,030×3,300	67.5	68.7	70.4	86.8
3	450	450	2,350×3,060×3,300	69.0	70.2	70.9	88.6
4	600	600	2,350×4,090×3,300	70.0	71.2	71.2	89.8
5	750	750	2,350×5,120×3,300	70.6	71.8	71.4	90.8
6	900	900	2,350×6,150×3,300	71.1	72.4	71.5	91.6
7	1050	1050	2,350×7,180×3,300	71.5	72.7	71.6	92.3
8	1200	1200	2,350×8,210×3,300	71.8	73.0	71.7	92.8
9	1350	1350	2,350×9,240×3,300	72.0	73.2	71.8	93.3
10	1500	1500	2,350×10,270×3,300	72.2	73.4	71.8	93.8
11	1650	1650	2,350×11,300×3,300	72.3	73.5	71.8	94.2
12	1800	1800	2,350×12,300×3,300	72.4	73.7	71.9	94.6
13	1950	1950	2,350×13,360×3,300	72.5	73.7	71.9	94.9
14	2100	2100	2,350×14,390×3,300	72.6	73.9	71.9	95.3
15	2250	2250	2,350×15,420×3,300	72.7	73.9	71.9	95.6
16	2400	2400	2,350×16,450×3,300	72.8	74.0	72.0	95.8

Note 1: Only for heat pump types.

Note 2: Dimensions (width, depth) do not include projections of water pipe connections and power cable kit. (when installing optional parts)

Note 3: The on-site sound level will be higher due to the effect of back noise and sound reflection.

60HP Series EDGE

	Cooling capacity	Heating capacity	Dimensions (mm)		Sound Pressure Level	(Note 3)	0 10 1 1
Number of modules	(kW)	(kW) (Note 1)	H×W×D (Note 2)	Control box side	Air heat exchanger side	Water heat exchange side	Sound Power Level
1	180	180	2,350×1,000×3,300	68.2	68.3	71.2	87.4
2	360	360	2,350×2,030×3,300	71.0	71.1	72.5	90.4
3	540	540	2,350×3,060×3,300	72.5	72.6	73.1	92.2
4	720	720	2,350×4,090×3,300	73.5	73.6	73.3	93.4
5	900	900	2,350×5,120×3,300	74.1	74.2	73.5	94.4
6	1080	1080	2,350×6,150×3,300	74.7	74.8	73.7	95.2
7	1260	1260	2,350×7,180×3,300	75.0	75.1	73.7	95.9
8	1440	1440	2,350×8,210×3,300	75.3	75.4	73.8	96.4
9	1620	1620	2,350×9,240×3,300	75.5	75.6	73.9	96.9
10	1800	1800	2,350×10,270×3,300	75.7	75.8	73.9	97.4
11	1980	1980	2,350×11,300×3,300	75.8	75.9	74.0	97.8
12	2160	2160	2,350×12,300×3,300	76.0	76.1	74.0	98.2
13	2340	2340	2,350×13,360×3,300	76.0	76.1	74.0	98.5
14	2520	2520	2,350×14,390×3,300	76.1	76.2	74.0	98.9
15	2700	2700	2,350×15,420×3,300	76.2	76.3	74.1	99.2
16	2880	2880	2,350×16,450×3,300	76.3	76.4	74.1	99.4

Note 1: Only for heat pump types.

Note 2: Dimensions (width, depth) do not include projections of water pipe connections and power cable kit. (when installing optional parts)

Note 3: The on-site sound level will be higher due to the effect of back noise and sound reflection.

■ General Charts for Set of Modules : Capacity, Dimensions, and Sound Level

60HP Powerful Heating Type

	Cooling capacity	Heating capacity	Dimensions (mm)		Sound Pressure Level	(Note 3)	
Number of modules	(kW)	(kW) (Note 1)	H×W×D (Note 2)	Control box side	Air heat exchanger side	Water heat exchange side	Sound Power Level
1	180	200	2,350×1,000×3,300	68.2	68.3	71.2	87.4
2	360	400	2,350×2,030×3,300	71.0	71.1	72.5	90.4
3	540	600	2,350×3,060×3,300	72.5	72.6	73.1	92.2
4	720	800	2,350×4,090×3,300	73.5	73.6	73.3	93.4
5	900	1000	2,350×5,120×3,300	74.1	74.2	73.5	94.4
6	1080	1200	2,350×6,150×3,300	74.7	74.8	73.7	95.2
7	1260	1400	2,350×7,180×3,300	75.0	75.1	73.7	95.9
8	1440	1600	2,350×8,210×3,300	75.3	75.4	73.8	96.4
9	1620	1800	2,350×9,240×3,300	75.5	75.6	73.9	96.9
10	1800	2000	2,350×10,270×3,300	75.7	75.8	73.9	97.4
11	1980	2200	2,350×11,300×3,300	75.8	75.9	74.0	97.8
12	2160	2400	2,350×12,300×3,300	76.0	76.1	74.0	98.2
13	2340	2600	2,350×13,360×3,300	76.0	76.1	74.0	98.5
14	2520	2800	2,350×14,390×3,300	76.1	76.2	74.0	98.9
15	2700	3000	2,350×15,420×3,300	76.2	76.3	74.1	99.2
16	2880	3200	2,350×16,450×3,300	76.3	76.4	74.1	99.4

Note 1: Only for heat pump types.

Note 2: Dimensions (width, depth) do not include projections of water pipe connections and power cable kit. (when installing optional parts)

Note 3: The on-site sound level will be higher due to the effect of back noise and sound reflection.

70HP Series EDGE

N. 1. 6. 11	Cooling capacity	Heating capacity	Dimensions (mm)		Sound Pressure Level	(Note 3)	0 10 1 1
Number of modules	(kW)	(kW) (Note 1)	H×W×D (Note 2)	Control box side	Air heat exchanger side	Water heat exchange side	Sound Power Level
1	200	200	2,350×1,000×3,300	69.7	68.6	74.0	90.9
2	400	400	2,350×2,030×3,300	72.5	71.5	75.3	93.9
3	600	600	2,350×3,060×3,300	74.0	72.9	75.9	95.7
4	800	800	2,350×4,090×3,300	75.0	74.0	76.2	96.9
5	1000	1000	2,350×5,120×3,300	75.6	74.6	76.3	97.9
6	1200	1200	2,350×6,150×3,300	76.1	75.1	76.5	98.7
7	1400	1400	2,350×7,180×3,300	76.5	75.4	76.6	99.4
8	1600	1600	2,350×8,210×3,300	76.8	75.7	76.6	99.9
9	1800	1800	2,350×9,240×3,300	77.0	75.9	76.7	100.4
10	2000	2000	2,350×10,270×3,300	77.2	76.1	76.7	100.9
11	2200	2200	2,350×11,300×3,300	77.3	76.2	76.8	101.3
12	2400	2400	2,350×12,300×3,300	77.4	76.4	76.8	101.7
13	2600	2600	2,350×13,360×3,300	77.5	76.5	76.8	102.0
14	2800	2800	2,350×14,390×3,300	77.6	76.6	76.8	102.4
15	3000	3000	2,350×15,420×3,300	77.7	76.6	76.9	102.7
16	3200	3200	2,350×16,450×3,300	77.8	76.7	76.9	102.9

Note 1: Only for heat pump types.

Note 2: Dimensions (width, depth) do not include projections of water pipe connections and power cable kit. (when installing optional parts)

Note 3: The on-site sound level will be higher due to the effect of back noise and sound reflection.

Standard & Powerful Heating Type (Leaving (LVG) / Entering (ETG) water temperature difference = 7°C)

50HP Series EDGE

Heat pump

List of cooling capacities RUA-GP421H(L)

Chilled water outlet	Item				Outsid:	e air te	mpera	ture (°	C) (DB))	
temperature (°C)	item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	168	163	154	145	136	127	121	106	95.0
4	Power consumption	(kW)	25.5	29.2	32.9	36.8	40.8	44.9	47.1	46.9	48.0
4	Chilled water flow rate	(L/min)	344	335	316	297	278	259	248	217	195
	Operation current	(A)	37.6	42.5	48.0	53.7	59.5	65.4	68.6	68.4	70.0
	Cooling capacity	(kW)	186	181	171	160	150	140	132	114	97.3
7	Power consumption	(kW)	25.4	29.5	33.5	37.5	41.7	45.9	47.5	46.9	45.5
· ·	Chilled water flow rate	(L/min)	382	370	350	328	307	286	269	233	199
	Operation current	(A)	37.4	43.0	48.9	54.6	60.8	66.9	69.2	68.4	66.3
	Cooling capacity	(kW)	199	193	182	171	160	149	138	120	98.8
9	Power consumption	(kW)	25.4	29.6	33.8	38.0	42.3	46.6	47.1	47.1	43.9
9	Chilled water flow rate	(L/min)	408	396	374	350	327	305	283	245	202
	Operation current	(A)	37.3	43.2	49.2	55.4	61.7	67.9	68.7	68.6	64.0
	Cooling capacity	(kW)	219	211	200	189	176	164	150	131	100
12	Power consumption	(kW)	25.4	29.9	34.3	38.8	43.1	47.7	47.3	47.5	41.2
12	Chilled water flow rate	(L/min)	*430	*430	410	387	361	335	306	267	206
	Operation current	(A)	37.4	43.6	50.0	56.6	62.9	69.5	69.0	69.2	60.0
	Cooling capacity	(kW)	230	222	210	198	187	174	159	141	101
15	Power consumption	(kW)	25.2	30.1	34.6	39.1	43.9	47.8	47.5	48.0	38.3
15	Chilled water flow rate	(L/min)	*430	*430	*430	406	382	356	325	289	207
	Operation current	(A)	37.1	43.9	50.4	57.1	64.0	69.7	69.2	69.9	55.8
	Cooling capacity	(kW)	230	221	211	201	191	178	162	146	102
20	Power consumption	(kW)	25.2	30.0	34.6	39.3	44.1	47.8	47.2	48.3	36.6
20	Chilled water flow rate	(L/min)	*430	*430	*430	411	390	363	332	299	209
	Operation current	(A)	37.1	43.7	50.4	57.4	64.3	69.8	68.9	70.5	53.3
	Cooling capacity	(kW)	230	221	211	201	190	178	162	146	102
25	Power consumption	(kW)	25.2	30.0	34.6	39.3	43.9	47.8	47.2	48.3	36.4
25	Chilled water flow rate	(L/min)	*430	*430	*430	411	390	364	332	299	209
	Operation current	(A)	37.1	43.8	50.4	57.4	64.0	69.8	68.9	70.5	53.1
	Cooling capacity	(kW)	230	221	211	201	191	178	162	102	102
30	Power consumption	(kW)	29.2	30.0	34.6	39.3	44.1	47.8	47.2	36.6	36.6
30	Chilled water flow rate	(L/min)	*430	*430	430	411	391	364	332	208	208
	Operation current	(A)	37.1	43.8	50.5	57.4	64.3	69.8	68.9	53.3	53.3

List of heating capacities RUA-GP421H(L)

Warm water outlet	ltem		(Outside	e air te	mpera	ture (°	C) (DB)
temperature (°C)	item		-15	-10	-5	0	4	7	15
	Heating capacity	(kW)	103	118	134	151	166	153	182
25	Power consumption	(kW)	30.4	31.1	31.2	31.4	31.9	26.0	25.0
25	Warm water flow rate	(L/min)	212	242	275	310	339	314	373
	Operation current	(A)	44.8	45.7	46.0	46.2	47.0	37.9	36.5
	Heating capacity	(kW)	103	118	134	150	165	152	181
30	Power consumption	(kW)	33.3	34.4	34.9	35.0	35.9	29.3	29.0
30	Warm water flow rate	(L/min)	211	241	274	308	337	312	371
	Operation current	(A)	49.1	51	51	52	52	42.7	42.3
	Heating capacity	(kW)	103	117	133	150	164	151	180
35	Power consumption	(kW)	36.4	37.4	38.2	39.0	39.8	32.9	33.2
35	Warm water flow rate	(L/min)	210	240	273	307	336	310	368
	Operation current	(A)	54	55	56	57	58	48.0	48.4
	Heating capacity	(kW)	102	116	132	149	163	151	178
40	Power consumption	(kW)	39.2	40.4	41.6	42.8	43.9	36.8	37.3
40	Warm water flow rate	(L/min)	209	239	271	305	334	308	365
	Operation current	(A)	58	60	61	62	64	54	54
	Heating capacity	(kW)	102	116	131	148	163	150	177
45	Power consumption	(kW)	42.1	43.9	45.2	46.7	48.4	40.8	41.7
45	Warm water flow rate	(L/min)	209	237	269	304	334	307	363
	Operation current	(A)	62	65	66	68	71	59	61
	Heating capacity	(kW)		115	130	144	154	149	176
50	Power consumption	(kW)		47.1	48.7	49.5	49.5	44.9	46.3
50	Warm water flow rate	(L/min)		236	267	295	316	305	360
	Operation current	(A)		69	71	72	72	65	68
	Heating capacity	(kW)			123	134	141	148	169
55	Power consumption	(kW)			49.8	49.6	49.1	49.2	49.0
55	Warm water flow rate	(L/min)			251	273	289	304	346
	Operation current	(A)			73	72	72	72	71

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C, RH 87%

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: are displaying maximum capacities. Other values indicate performance when operating at rated frequency.

* indicates maximum flow rate. ∠t is larger than 7°C.

Note 4: This table is subject to change without notice.

50HP Series EDGE Cooling-only

List of cooling capacities RUA-GP421C(L)

Chilled water outlet	Item			1	Outsid	e air te	mpera	ture (°	C) (DB)	
temperature (°C)	item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	168	163	154	145	136	127	120	104	94.6
	Power consumption	(kW)	24.9	28.6	32.5	36.8	41.1	45.2	46.9	46.6	48.5
4	Chilled water flow rate	(L/min)	344	334	316	297	278	259	246	213	194
	Operation current	(A)	36.3	41.8	47.4	53.7	59.9	65.9	68.3	68.0	70.7
	Cooling capacity	(kW)	186	180	170	160	150	140	129	111	97.2
7	Power consumption	(kW)	24.7	28.8	32.9	37.5	42.0	46.4	46.7	46.3	46.1
7	Chilled water flow rate	(L/min)	381	369	349	328	307	286	265	228	199
	Operation current	(A)	36.4	42.0	48.0	54.6	61.3	67.6	68.1	67.4	67.2
	Cooling capacity	(kW)	199	193	182	171	160	149	136	117	98.7
9	Power consumption	(kW)	24.6	29.0	33.3	38.0	42.7	47.0	46.9	46.2	44.5
9	Chilled water flow rate	(L/min)	408	395	373	350	327	305	279	240	202
	Operation current	(A)	36.3	42.3	48.6	55.4	62.2	68.5	68.4	67.4	64.8
	Cooling capacity	(kW)	219	210	199	189	176	162	147	128	100
12	Power consumption	(kW)	24.6	29.2	33.7	38.8	43.6	47.2	46.8	46.7	41.5
12	Chilled water flow rate	(L/min)	*430	*430	408	386	361	332	301	263	206
	Operation current	(A)	36.2	42.5	49.2	56.6	63.5	68.9	68.3	68.1	60.5
	Cooling capacity	(kW)	227	220	210	198	186	171	155	138	101
15	Power consumption	(kW)	24.6	29.3	34.1	39.1	44.1	47.4	46.8	47.6	38.7
15	Chilled water flow rate	(L/min)	*430	*430	429	405	381	349	318	282	208
	Operation current	(A)	35.8	42.7	49.7	57.1	64.3	69.1	68.3	69.4	56.4
	Cooling capacity	(kW)	228	220	210	200	189	174	159	142	102
20	Power consumption	(kW)	24.6	29.3	34.0	39.2	44.2	47.4	47.0	47.7	37.2
20	Chilled water flow rate	(L/min)	*430	*430	*430	409	388	356	325	292	209
	Operation current	(A)	35.9	42.7	49.6	57.2	64.4	69.1	68.6	69.5	54.3
	Cooling capacity	(kW)	228	220	210	200	189	174	159	142	102
25	Power consumption	(kW)	24.6	29.3	34.0	39.2	44.3	47.4	47.0	47.7	37.2
25	Chilled water flow rate	(L/min)	*430	*430	*430	409	388	356	325	292	209
	Operation current	(A)	35.9	42.7	49.6	57.2	64.5	69.1	68.6	69.5	54.3
	Cooling capacity	(kW)	228	220	210	200	189	174	159	102	102
30	Power consumption	(kW)	28.6	29.3	34.1	39.2	44.2	47.3	47.0	37.4	37.4
30	Chilled water flow rate	(L/min)	*430	*430	*430	409	388	356	325	208	208
	Operation current	(A)	35.9	42.7	49.7	57.2	64.4	68.9	68.6	54.5	54.5

50HP Powerful Heating Type Heat pump

List of heating capacities RUA-GP421F(L)

Warm water outlet	Item		Outside air temperature (°C							
temperature (°C)	item		-20	-15	-10	-5	0	4	7	15
	Heating capacity	(kW)	80.2	89.9	103	117	132	144	153	182
25	Power consumption	(kW)	25.7	26.1	26.5	26.7	26.8	26.8	26.0	25.0
25	Warm water flow rate	(L/min)	164	184	211	240	269	296	314	373
	Operation current	(A)	38.3	38.5	39.1	39.3	39.5	39.5	19.0	18.2
	Heating capacity	(kW)	80.1	89.8	103	117	131	143	152	18
30	Power consumption	(kW)	28.2	28.8	29.5	29.9	29.9	30.0	29.3	29.
30	Warm water flow rate	(L/min)	164	184	210	239	268	294	312	37
	Operation current	(A)	41.5	42.4	43.5	44.1	44.1	43.8	21.4	21.
	Heating capacity	(kW)	79.8	89.7	102	116	130	143	151	18
35	Power consumption	(kW)	30.7	31.5	32.3	32.9	33.1	33.6	32.9	33.:
33	Warm water flow rate	(L/min)	163	184	209	238	266	292	310	36
	Operation current	(A)	45.2	46.4	47.5	48.4	48.2	49.1	24.0	24.
	Heating capacity	(kW)	79.6	89.5	102	115	129	142	151	17
40	Power consumption	(kW)	33.2	34.2	35.3	35.8	36.4	37.3	36.8	37.
40	Warm water flow rate	(L/min)	163	183	208	236	265	290	308	36
	Operation current	(A)	48.9	50.3	52.0	52.8	53.1	54.3	26.8	27.
	Heating capacity	(kW)	79.2	89.2	101	115	129	141	150	17
45	Power consumption	(kW)	35.7	36.9	38.0	39.2	40.2	41.1	40.8	41.
45	Warm water flow rate	(L/min)	162	183	207	235	264	289	307	36
	Operation current	(A)	52.5	54.3	55.9	57.2	58.6	59.9	29.7	30.
	Heating capacity	(kW)		88.9	101	111	122	131	149	17
50	Power consumption	(kW)		39.7	41.2	41.3	41.4	41.6	44.9	46.
50	Warm water flow rate	(L/min)		182	206	228	250	267	305	36
	Operation current	(A)		58.5	60.7	60.2	60.3	60.6	32.7	33.
	Heating capacity	(kW)				103	112	119	148	16
	Power consumption	(kW)				41.4	41.3	41.2	49.2	49.
55	Warm water flow rate	(L/min)				211	229	243	304	34
	Operation current	(A)				60.3	60.3	60.0	35.8	35.

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature

differential of 7° C, RH 87% Note 2: The cooling capacity has been measured when the module was operating at the

Note 3: _____ are displaying maximum capacities. Other values indicate performance

when operating at rated frequency.

* indicates maximum flow rate. ⊿t is larger than 7°C.

* indicates maximum flow rate. Δ t is larger than Note 4: This table is subject to change without notice.

Standard & Powerful Heating Type (Leaving (LVG) / Entering (ETG) water temperature difference = 7°C)

60HP Series EDGE

Heat pump

List of cooling capacities RUA-GP511H(L)

Chilled water outlet	h	Outside air temperature (°C) (DB)									
temperature (°C)	item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	204	196	185	174	164	153	146	130	95.0
4	Power consumption	(kW)	34.1	39.1	43.6	48.1	52.7	57.3	59.3	59.1	47.7
4	Chilled water flow rate	(L/min)	417	401	380	357	335	313	300	266	194
	Operation current	(A)	49.7	57.0	63.6	70.1	76.9	83.5	86.5	86.2	69.6
	Cooling capacity	(kW)	219	216	204	192	180	168	157	141	97.6
7	Power consumption	(kW)	34.6	39.6	44.4	49.2	53.9	58.7	59.2	60.0	45.4
· '	Chilled water flow rate	(L/min)	449	442	417	393	369	344	322	288	200
	Operation current	(A)	50.4	57.8	64.8	71.8	78.6	85.6	86.4	87.5	66.2
	Cooling capacity	(kW)	230	228	217	204	191	179	165	149	99
9	Power consumption	(kW)	35.8	39.6	44.8	49.8	54.6	59.7	59.4	60.6	43.8
9	Chilled water flow rate	(L/min)	471	467	445	418	392	366	337	305	203
	Operation current	(A)	52.2	57.7	65.4	72.5	79.6	87.0	86.5	88.3	63.9
	Cooling capacity	(kW)	244	245	238	224	210	194	178	155	101
12	Power consumption	(kW)	37.7	39.9	45.6	50.7	55.9	59.9	59.3	58.3	41.4
12	Chilled water flow rate	(L/min)	500	502	487	460	430	397	364	317	206
	Operation current	(A)	54.9	58.2	66.5	73.9	81.4	87.3	86.5	85.0	60.4
	Cooling capacity	(kW)	252	252	248	236	223	205	189	158	101
15	Power consumption	(kW)	38.9	40.6	45.8	51.3	56.7	59.9	59.2	55.2	38.0
15	Chilled water flow rate	(L/min)	*516	*516	508	483	457	420	387	324	208
	Operation current	(A)	56.8	59.2	66.8	74.8	82.7	87.4	86.4	80.5	55.4
	Cooling capacity	(kW)	252	252	248	237	226	210	194	159	102
20	Power consumption	(kW)	39.1	40.5	45.8	51.4	56.9	60.0	59.1	53.5	36.4
20	Chilled water flow rate	(L/min)	*516	*516	508	485	462	431	398	326	209
	Operation current	(A)	57.0	59.1	66.8	75.0	83.0	87.5	86.2	78.1	53.1
	Cooling capacity	(kW)	252	252	248	237	226	210	194	160	102
25	Power consumption	(kW)	39.0	40.6	45.8	51.3	56.9	60.0	59.1	54.1	36.4
25	Chilled water flow rate	(L/min)	*516	*516	508	485	462	431	398	327	209
	Operation current	(A)	56.9	59.2	66.8	74.8	83.0	87.5	86.2	78.8	53.1
	Cooling capacity	(kW)	245	245	243	232	220	209	195	102	102
30	Power consumption	(kW)	39.1	38.7	43.5	48.8	54.1	59.5	59.5	36.3	36.3
30	Chilled water flow rate	(L/min)	502	502	498	474	450	428	398	209	209
	Operation current	(A)	54.7	56.4	63.4	71.2	78.8	86.8	86.7	52.9	52.9

List of heating capacities RUA-GP511H(L)

				S				O) (DD)	
Warm water outlet	Item			Outsid	_				
temperature (°C)			-15	-10	-5	0	4	7	15
	Heating capacity	(kW)	122	139	158	177	194	183	215
25	Power consumption	(kW)	37.2	38.0	38.5	38.7	39.7	33.2	32.6
20	Warm water flow rate	(L/min)	249	285	323	363	396	375	440
	Operation current	(A)	55	55.9	56.8	57.0	58.4	48.3	47.5
	Heating capacity	(kW)	122	139	157	176	193	182	214
30	Power consumption	(kW)	40.7	41.7	42.5	43.2	44.6	37.5	37.3
30	Warm water flow rate	(L/min)	249	284	322	361	394	373	438
	Operation current	(A)	61	61	63	64	66	55	54
	Heating capacity	(kW)	121	138	156	176	192	181	213
05	Power consumption	(kW)	43.7	45.4	46.4	47.8	49.2	41.9	42.3
35	Warm water flow rate	(L/min)	248	283	320	360	393	371	436
	Operation current	(A)	64	67	68	70	72	61	62
	Heating capacity	(kW)	120	137	156	175	191	181	212
40	Power consumption	(kW)	46.9	48.9	50.6	52.1	53.8	46.4	47.3
40	Warm water flow rate	(L/min)	246	281	319	359	392	370	434
	Operation current	(A)	69	72	75	77	78	68	69
	Heating capacity	(kW)	119	136	155	175	189	180	211
45	Power consumption	(kW)	50.0	52.5	54.6	56.8	58.0	51.0	52.5
45	Warm water flow rate	(L/min)	244	279	317	358	386	369	431
	Operation current	(A)	74	77	80	83	85	74	77
	Heating capacity	(kW)		135	152	167	177	179	209
	Power consumption	(kW)		56.3	57.8	58.2	58.2	55.6	57.4
50	Warm water flow rate	(L/min)		277	311	342	363	367	429
	Operation current	(A)		83	85	85	85	81	84
	Heating capacity	(kW)			143	155	164	172	194
	Power consumption	(kW)			58.4	58.1	58.0	57.9	57.4
55	Warm water flow rate	(L/min)			292	318	335	351	397
	Operation current	(A)			85	85	84	84	84

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C, RH 87%

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: are displaying maximum capacities. Other values indicate performance when operating at rated frequency.

* indicates maximum flow rate. ⊿t is larger than 7°C.

Note 4: This table is subject to change without notice.

60HP Series EDGE Cooling-only

List of cooling capacities RUA-GP511C(L)

Chilled water outlet	Item				Outsid	e air te	mpera	ture (°	C) (DB)	
temperature (°C)	item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	204	196	185	174	164	153	145	127	94.6
4	Power consumption	(kW)	33.4	38.0	42.5	47.5	52.7	57.1	58.7	58.0	48.5
4	Chilled water flow rate	(L/min)	418	402	379	357	335	313	296	260	194
	Operation current	(A)	48.8	55.4	62.0	69.3	76.9	83.2	85.6	84.6	70.7
	Cooling capacity	(kW)	219	216	204	192	180	168	155	137	96.8
7	Power consumption	(kW)	34.2	38.4	43.3	48.6	53.9	58.7	58.5	58.5	45.9
′	Chilled water flow rate	(L/min)	448	443	418	393	369	344	317	281	198
	Operation current	(A)	49.9	56.0	63.1	70.9	78.6	85.6	85.3	85.4	66.9
	Cooling capacity	(kW)	230	229	217	204	191	178	162	146	98.6
9	Power consumption	(kW)	35.6	38.9	43.7	49.2	54.6	59.1	58.3	59.6	44.4
9	Chilled water flow rate	(L/min)	471	468	445	418	392	364	332	298	202
	Operation current	(A)	51.9	56.7	63.7	71.7	79.6	86.2	85.0	86.9	64.8
	Cooling capacity	(kW)	244	244	239	225	210	192	175	155	100
12	Power consumption	(kW)	37.7	39.5	44.4	50.2	55.9	59.1	58.3	59.2	41.7
12	Chilled water flow rate	(L/min)	501	501	490	460	430	393	358	318	206
	Operation current	(A)	54.9	57.7	64.8	73.2	81.4	86.1	85.0	86.3	60.8
	Cooling capacity	(kW)	252	252	249	237	223	203	185	158	101
15	Power consumption	(kW)	38.9	40.2	44.7	50.7	56.6	59.0	58.2	56.2	38.7
15	Chilled water flow rate	(L/min)	*516	*516	510	485	457	416	379	323	207
	Operation current	(A)	56.8	58.6	65.2	74.0	82.5	86.0	84.8	82.0	56.4
	Cooling capacity	(kW)	252	253	249	238	226	208	191	159	102
20	Power consumption	(kW)	39.1	40.3	44.7	50.9	56.8	59.1	58.4	54.6	37.2
20	Chilled water flow rate	(L/min)	*516	*516	511	487	463	427	391	326	209
	Operation current	(A)	57.0	58.7	65.2	74.1	82.8	86.2	85.2	79.7	54.3
	Cooling capacity	(kW)	252	252	249	238	226	208	191	159	102
25	Power consumption	(kW)	39.0	40.2	44.7	50.9	56.8	59.1	58.4	54.6	37.1
20	Chilled water flow rate	(L/min)	*516	*517	510	487	463	427	391	326	209
	Operation current	(A)	56.9	58.6	65.2	74.1	82.8	86.2	85.2	79.7	54.1
	Cooling capacity	(kW)	245	246	244	232	221	209	191	102	102
30	Power consumption	(kW)	38.0	38.7	42.5	48.3	54.3	59.2	58.4	37.1	37.1
30	Chilled water flow rate	(L/min)	502	503	499	476	452	427	391	209	209
	Operation current	(A)	55.0	56.5	62.0	70.5	79.2	86.3	85.2	54.1	54.1

60HP Powerful Heating Type Heat pump

List of heating capacities RUA-GP511F(L)

Warm water outlet	Item							temperature (°C) (DB)					
temperature (°C)	item		-20	-15	-10	-5	0	4	7	15			
	Heating capacity	(kW)	137	153	174	196	214	231	203	237			
25	Power consumption	(kW)	48.8	49.7	50.9	51.4	51.3	52.4	38.5	37.9			
20	Warm water flow rate	(L/min)	280	314	356	401	437	473	415	485			
	Operation current	(A)	73	74	76	76	76	77	57	55			
	Heating capacity	(kW)	137	154	175	196	213	230	202	235			
30	Power consumption	(kW)	52.9	54.6	56.1	56.8	56.8	58.2	43.4	43.2			
30	Warm water flow rate	(L/min)	280	315	357	402	436	471	414	482			
	Operation current	(A)	79	81	83	84	84	86	63	63			
	Heating capacity	(kW)	136	153	175	197	213	229	201	235			
35	Power consumption	(kW)	56.7	58.8	61.2	62.5	62.3	63.6	48.2	48.9			
33	Warm water flow rate	(L/min)	279	314	357	402	436	469	412	481			
	Operation current	(A)	85	88	90	92	92	94	70	71			
	Heating capacity	(kW)	135	153	174	196	212	229	200	234			
40	Power consumption	(kW)	60.5	63.5	65.9	67.8	67.3	69.2	53.1	54.3			
40	Warm water flow rate	(L/min)	276	312	356	402	434	468	410	479			
	Operation current	(A)	91	94	97	100	99	102	77	79			
	Heating capacity	(kW)	132	151	173	192	208	221	200	233			
45	Power consumption	(kW)	63.5	67.4	70.6	71.4	71.0	71.3	58.1	59.9			
45	Warm water flow rate	(L/min)	270	309	354	392	426	453	410	477			
	Operation current	(A)	95	99	104	105	105	104	85	87			
	Heating capacity	(kW)		148	164	180	196	208	200	232			
50	Power consumption	(kW)		70.8	71.3	70.9	70.8	71.0	63.3	65.7			
50	Warm water flow rate	(L/min)		304	336	369	401	425	410	474			
	Operation current	(A)		104	105	104	103	104	92	96			
	Heating capacity	(kW)				159	181	193	196	222			
55	Power consumption	(kW)				65.7	69.1	69.9	67.4	67.1			
55	Warm water flow rate	(L/min)				327	371	396	401	454			
	Operation current	(A)				97	101	102	98	98			

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C, RH 87%

Note 2: The cooling capacity has been measured when the module was operating at the

rated frequency. Note 3: are displaying maximum capacities. Other values indicate performance when operating at rated frequency.

* indicates maximum flow rate. ⊿t is larger than 7°C.

Note 4: This table is subject to change without notice.

Standard Type (Leaving (LVG) / Entering (ETG) water temperature difference = 7°C)

70HP Series EDGE Heat pump

List of cooling capacities RUA-GP561H(L)

Chilled water outlet	16		Outside air temperature (°C) (DB)								
temperature (°C)	Item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	226	217	205	194	182	171	163	144	95.6
4	Power consumption	(kW)	40.9	46.6	51.6	56.7	61.5	66.8	68.5	67.0	47.8
4	Chilled water flow rate	(L/min)	463	444	420	397	374	350	334	294	196
	Operation current	(A)	59.7	67.9	75.3	82.7	89.6	97.4	99.9	97.7	69.7
	Cooling capacity	(kW)	244	237	225	212	200	187	174	150	97.6
7	Power consumption	(kW)	42.1	47.0	52.6	57.8	63.3	68.5	68.0	64.7	45.0
, , , , , , , , , , , , , , , , , , ,	Chilled water flow rate	(L/min)	500	486	461	435	410	383	357	307	200
	Operation current	(A)	61.3	68.6	76.6	84.2	92.3	99.9	99.1	94.3	65.6
	Cooling capacity	(kW)	256	250	239	226	212	198	183	152	99.1
9	Power consumption	(kW)	43.0	47.2	53.1	58.7	64.0	68.8	68.0	61.8	43.5
9	Chilled water flow rate	(L/min)	523	512	489	462	435	405	375	311	203
	Operation current	(A)	62.6	68.8	77.4	85.6	93.4	100.2	99.2	90.1	63.4
	Cooling capacity	(kW)	270	267	258	245	232	214	197	156	101
12	Power consumption	(kW)	44.6	47.8	53.6	59.5	65.4	69.0	68.2	58.2	41.1
12	Chilled water flow rate	(L/min)	552	548	528	502	475	438	403	319	206
	Operation current	(A)	65.1	69.8	78.2	86.7	95.3	100.6	99.4	84.9	59.9
	Cooling capacity	(kW)	274	273	265	254	242	224	208	158	101
15	Power consumption	(kW)	45.0	48.0	53.9	59.9	65.9	68.9	68.2	54.9	37.7
15	Chilled water flow rate	(L/min)	561	559	542	520	497	458	426	325	208
	Operation current	(A)	65.6	70.0	78.5	87.3	96.1	100.5	99.4	80.0	54.9
	Cooling capacity	(kW)	274	273	264	253	243	227	213	160	102
20	Power consumption	(kW)	45.1	48.0	53.8	59.8	66.2	69.0	68.3	53.7	36.2
20	Chilled water flow rate	(L/min)	561	559	541	519	497	465	436	328	209
	Operation current	(A)	65.7	70.0	78.4	87.2	96.5	100.6	99.5	78.3	52.7
	Cooling capacity	(kW)	266	266	260	249	238	226	213	160	102
25	Power consumption	(kW)	42.8	44.9	50.7	56.6	62.5	68.3	68.3	53.7	36.2
25	Chilled water flow rate	(L/min)	545	545	532	509	487	463	436	327	209
	Operation current	(A)	62.5	65.4	78.4	82.5	91.1	99.5	99.5	78.3	52.7
	Cooling capacity	(kW)	249	250	248	237	225	214	207	102	102
30	Power consumption	(kW)	46.6	40.5	44.9	50.4	55.6	61.3	64.7	36.3	36.3
30	Chilled water flow rate	(L/min)	510	511	508	485	462	437	423	209	209
	Operation current	(A)	57.3	59.1	65.5	73.5	81.0	89.4	94.3	52.9	52.9

List of heating capacities RUA-GP561H(L)

Warm water outlet	Item		(Outsid	e air te	mpera	ture (°	C) (DB)
temperature (°C)	item		-15	-10	-5	0	4	7	15
	Heating capacity	(kW)	153	174	196	214	231	203	237
25	Power consumption	(kW)	49.7	50.9	51.4	51.3	52.4	38.5	37.9
25	Warm water flow rate	(L/min)	314	356	401	437	473	415	485
	Operation current	(A)	74	76	76	76	77	57	55
	Heating capacity	(kW)	154	175	196	213	230	202	235
30	Power consumption	(kW)	54.6	56.1	56.8	56.8	58.2	43.4	43.2
30	Warm water flow rate	(L/min)	315	357	402	436	471	414	482
	Operation current	(A)	81	83	84	84	86	63	63
	Heating capacity	(kW)	153	175	197	213	229	201	235
05	Power consumption	(kW)	58.8	61.2	62.5	62.3	63.6	48.2	48.9
35	Warm water flow rate	(L/min)	314	357	402	436	469	412	481
	Operation current	(A)	88	90	92	92	94	70	71
	Heating capacity	(kW)	153	174	196	212	229	200	234
40	Power consumption	(kW)	63.5	65.9	67.8	67.3	69.2	53.1	54.3
40	Warm water flow rate	(L/min)	312	356	402	434	468	410	479
	Operation current	(A)	94	97	100	99	102	77	79
	Heating capacity	(kW)	151	173	192	208	221	200	233
45	Power consumption	(kW)	67.4	70.6	71.4	71.0	71.3	58.1	59.9
45	Warm water flow rate	(L/min)	309	354	392	426	453	410	477
	Operation current	(A)	99	104	105	105	104	85	87
	Heating capacity	(kW)		164	180	196	208	200	232
50	Power consumption	(kW)		71.3	70.9	70.8	71.0	63.3	65.7
50	Warm water flow rate	(L/min)		336	369	401	425	410	474
	Operation current	(A)		105	104	103	104	92	96
	Heating capacity	(kW)			159	181	193	199	227
	Power consumption	(kW)			65.7	69.1	69.9	68.9	69.8
55	Warm water flow rate	(L/min)			327	371	396	408	464
	Operation current	(A)			97	101	102	100	102

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C, RH 87%

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: are displaying maximum capacities. Other values indicate performance when operating at rated frequency.

* indicates maximum flow rate. ⊿t is larger than 7°C.

Note 4: This table is subject to change without notice.

70HP **Series EDGE** Cooling-only

List of cooling capacities RUA-GP561C(L)

Chilled water outlet	ltem			(Outsid	e air te	mpera	ture (°	C) (DB)	
temperature (°C)	item		15	20	25	30	35	40	43	48	52
	Cooling capacity	(kW)	225	217	206	194	182	171	163	144	94.8
4	Power consumption	(kW)	40.1	45.5	50.1	55.9	61.1	66.0	67.6	66.7	48.1
4	Chilled water flow rate	(L/min)	462	445	422	397	374	350	333	295	194
	Operation current	(A)	58.5	66.3	73.1	81.5	89.0	96.3	98.6	97.2	70.2
	Cooling capacity	(kW)	244	238	225	212	200	187	174	149	97.1
7	Power consumption	(kW)	40.9	46.1	51.4	57.0	62.5	67.5	67.2	64.2	45.6
/	Chilled water flow rate	(L/min)	500	486	461	435	410	383	356	306	199
	Operation current	(A)	59.6	67.2	74.9	83.1	91.1	98.4	98.0	93.6	66.5
	Cooling capacity	(kW)	255	250	239	226	212	198	182	152	98.9
9	Power consumption	(kW)	41.9	46.3	51.8	57.8	63.5	68.0	67.2	62.3	44.2
9	Chilled water flow rate	(L/min)	522	512	490	462	434	405	373	311	202
	Operation current	(A)	61.2	67.5	75.6	84.3	92.5	99.2	97.9	90.8	64.4
	Cooling capacity	(kW)	269	267	259	246	232	214	196	155	100
12	Power consumption	(kW)	43.7	47.1	52.6	58.9	64.8	68.2	67.1	58.5	41.2
12	Chilled water flow rate	(L/min)	551	547	530	503	476	437	401	318	205
	Operation current	(A)	63.8	68.7	76.8	85.8	94.5	99.4	97.9	85.3	60.0
	Cooling capacity	(kW)	274	274	266	254	243	224	207	158	101
15	Power consumption	(kW)	44.4	46.7	52.8	59.1	65.5	68.3	67.2	55.8	38.4
15	Chilled water flow rate	(L/min)	561	561	545	521	497	458	424	323	208
	Operation current	(A)	64.7	68.1	77.0	86.1	95.5	99.6	98.0	81.4	56.0
	Cooling capacity	(kW)	274	274	266	254	243	227	212	159	102
20	Power consumption	(kW)	44.4	46.7	52.9	59.1	65.5	68.2	67.3	54.3	37.0
20	Chilled water flow rate	(L/min)	561	561	544	521	497	465	434	326	209
	Operation current	(A)	64.7	68.1	77.1	86.1	95.5	99.4	98.1	79.1	53.9
	Cooling capacity	(kW)	267	267	262	250	238	227	212	159	102
05	Power consumption	(kW)	42.4	44.1	50.1	56.2	62.3	68.2	67.3	54.3	37.0
25	Chilled water flow rate	(L/min)	547	547	536	512	488	465	434	326	209
	Operation current	(A)	61.9	64.3	77.1	81.9	90.8	99.4	98.1	79.1	53.9
	Cooling capacity	(kW)	250	250	249	238	226	214	207	102	102
30	Power consumption	(kW)	45.5	40.3	43.9	50.0	55.9	61.3	64.7	37.0	37.0
30	Chilled water flow rate	(L/min)	512	512	510	486	462	439	424	208	208
	Operation current	(A)	57.3	58.7	64.0	72.9	81.6	89.4	94.3	53.9	53.9

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C.

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: This table is subject to change without notice.

High EER Type (Leaving (LVG) / Entering (ETG) water temperature difference = 7°C)

50HP Series EDGE Heat pump

List of cooling capacities RUA-GP421HN(L)

Chilled water outlet		ing capacity (kW) 143 136 129 1 er consumption (kW) 23.2 26.2 29.1 3	erature	(°C) (D)B)			
temperature (°C)	Item		30	35	40	43	48	52
	Cooling capacity	(kW)	143	136	129	125	118	112
	Power consumption	(kW)	23.2	26.2	29.1	30.8	34.2	36.8
4	Chilled water flow rate	(L/min)	293	279	265	256	242	229
	Operation current	(A)	33.8	38.2	42.4	44.9	49.9	53.7
	Cooling capacity	(kW)	158	150	143	138	130	124
7	Power consumption	(kW)	23.6	26.8	29.8	31.4	34.9	37.7
/	Chilled water flow rate	(L/min)	323	307	292	283	267	254
	Operation current	(A)	34.4	39.1	43.4	45.7	50.8	55.0
	Cooling capacity	(kW)	168	160	152	147	139	132
9	Power consumption	(kW)	23.6	27.3	30.2	31.7	35.5	38.2
9	Chilled water flow rate	(L/min)	344	327	312	302	285	271
	Operation current	(A)	34.4	39.8	44.0	46.3	51.8	55.6
	Cooling capacity	(kW)	182	174	166	162	153	146
12	Power consumption	(kW)	23.8	27.6	30.9	32.7	36.4	39.1
	Chilled water flow rate	(L/min)	373	356	341	332	314	299
	Operation current	(A)	34.7	40.3	45.1	47.7	53.1	57.1
	Cooling capacity	(kW)	190	183	175	170	161	155
15	Power consumption	(kW)	24.0	28.0	31.5	33.3	36.9	39.8
15	Chilled water flow rate	(L/min)	389	374	358	348	331	317
	Operation current	(A)	35.0	40.9	46.0	48.6	53.8	58.1
	Cooling capacity	(kW)	190	183	175	171	164	158
20	Power consumption	(kW)	24.0	28.0	31.4	33.3	37.2	40.1
20	Chilled water flow rate	(L/min)	390	374	359	351	336	324
	Operation current	(A)	35.0	40.9	45.8	48.5	54.2	58.5
	Cooling capacity	(kW)	190	182	175	171	164	158
25	Power consumption	(kW)	24.0	27.9	31.4	33.3	37.2	40.0
25	Chilled water flow rate	(L/min)	389	373	359	350	336	324
	Operation current	(A)	35.0	40.7	45.8	48.6	54.2	58.3
	Cooling capacity	(kW)	190	182	175	171	158	158
30	Power consumption	(kW)	26.2	27.9	31.4	33.3	40.0	40.0
30	Chilled water flow rate	(L/min)	389	373	359	350	324	324
	Operation current	(A)	35.0	40.7	45.8	48.6	58.3	58.3

60HP Series EDGE Heat pump

List of cooling capacities RUA-GP511HN(L)

Chilled water outlet	la		Ou	ıtside a	ir temp	erature	(°C) (D)B)
temperature (°C)	Item		30	35	40	43	48	52
	Cooling capacity	(kW)	172	164	156	152	144	137
4	Power consumption	(kW)	31.1	35.0	38.4	40.5	44.3	47.1
4	Chilled water flow rate	(L/min)	353	336	320	310	294	280
	Operation current	(A)	45.3	51.1	56.0	59.1	64.6	68.6
	Cooling capacity	(kW)	189	180	171	166	158	151
7	Power consumption	(kW)	31.9	35.9	39.5	41.3	45.5	48.6
/	Chilled water flow rate	(L/min)	387	369	351	341	323	308
	Operation current	(A)	46.5	52.4	57.6	60.2	66.4	70.8
	Cooling capacity	(kW)	201	191	182	177	168	160
9	Power consumption	(kW)	32.4	36.5	40.4	42.4	46.4	49.2
9	Chilled water flow rate	(L/min)	412	392	373	362	343	328
	Operation current	(A)	47.2	53.2	58.8	61.9	67.7	71.8
	Cooling capacity	(kW)	219	209	200	194	184	176
12	Power consumption	(kW)	32.9	37.5	41.6	43.8	47.8	50.9
12	Chilled water flow rate	(L/min)	448	428	409	396	376	360
	Operation current	(A)	48.0	54.6	60.6	63.8	69.7	74.2
	Cooling capacity	(kW)	230	219	209	204	194	187
15	Power consumption	(kW)	33.0	37.8	42.1	44.5	48.6	51.9
15	Chilled water flow rate	(L/min)	471	449	428	417	398	382
	Operation current	(A)	48.2	55.1	61.3	64.9	70.9	75.7
	Cooling capacity	(kW)	230	220	212	207	199	192
20	Power consumption	(kW)	33.0	37.8	42.3	44.6	49.0	52.3
20	Chilled water flow rate	(L/min)	471	451	434	423	407	393
	Operation current	(A)	48.2	55.1	61.7	65.0	71.5	76.3
	Cooling capacity	(kW)	230	220	212	207	199	192
25	Power consumption	(kW)	33.1	37.8	42.3	44.6	49.0	52.2
20	Chilled water flow rate	(L/min)	471	451	434	423	407	393
	Operation current	(A)	48.3	55.1	61.7	65.0	71.5	76.1
	Cooling capacity	(kW)	229	220	212	207	192	192
30	Power consumption	(kW)	35.0	37.8	42.3	44.6	52.3	52.3
30	Chilled water flow rate	(L/min)	469	451	434	423	393	393
	Operation current	(A)	48.2	55.1	61.7	65.0	76.3	76.3

50HP Series EDGE Cooling-only

List of cooling capacities RUA-GP421CN(L)

Chilled water outlet	Item		Οι	ıtside a	ir temp	erature	(°C) (D	B)
temperature (°C)	nem		30	35	40	43	48	52
	Cooling capacity	(kW)	143	136	129	125	118	112
	Power consumption	(kW)	23.8	26.9	29.8	31.4	35.0	37.6
4	Chilled water flow rate	(L/min)	293	279	265	256	242	230
	Operation current	(A)	34.8	39.2	43.4	45.8	51.1	54.8
	Cooling capacity	(kW)	157	150	143	138	130	124
7	Power consumption	(kW)	24.2	27.6	30.6	32.2	35.7	38.5
· · · · · · · · · · · · · · · · · · ·	Chilled water flow rate	(L/min)	322	307	292	283	267	254
	Operation current	(A)	35.2	40.2	44.6	46.9	52.1	56.1
	Cooling capacity	(kW)	168	160	152	147	139	133
9	Power consumption	(kW)	24.3	28.1	31.1	32.6	36.4	39.3
9	Chilled water flow rate	(L/min)	344	327	312	302	285	271
	Operation current	(A)	35.4	40.9	45.3	47.5	53.1	57.4
	Cooling capacity	(kW)	182	174	166	162	153	146
12	Power consumption	(kW)	24.5	28.4	31.8	33.5	37.3	40.1
12	Chilled water flow rate	(L/min)	373	356	341	332	314	299
	Operation current	(A)	35.8	41.5	46.4	48.9	54.4	58.5
	Cooling capacity	(kW)	190	183	174	170	161	155
15	Power consumption	(kW)	24.7	28.8	32.2	34.3	37.9	40.9
15	Chilled water flow rate	(L/min)	390	374	357	347	331	317
	Operation current	(A)	36.0	42.0	47.0	50.0	55.2	59.6
	Cooling capacity	(kW)	190	182	175	171	164	158
20	Power consumption	(kW)	24.7	28.7	32.3	34.2	38.1	41.0
20	Chilled water flow rate	(L/min)	389	373	359	350	336	324
	Operation current	(A)	36.0	41.9	47.1	49.9	55.6	59.8
	Cooling capacity	(kW)	190	182	175	171	164	158
25	Power consumption	(kW)	24.7	28.8	32.3	34.2	38.1	41.0
23	Chilled water flow rate	(L/min)	389	373	359	350	336	324
	Operation current	(A)	36.1	41.9	47.1	49.9	55.6	59.8
	Cooling capacity	(kW)	190	182	175	171	158	158
20	Power consumption	(kW)	26.9	28.7	32.3	34.2	41.0	41.0
30	Chilled water flow rate	(L/min)	389	373	359	350	324	324
	Operation current	(A)	36.1	41.9	47.2	49.9	59.8	59.8

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C.

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: This table is subject to change without notice.

60HP Series EDGE Cooling-only

List of cooling capacities RUA-GP511CN(L)

Chilled water outlet	Item		Οι	ıtside a	ir temp	erature	(°C) (D	B)
temperature (°C)	item		30	35	40	43	48	52
	Cooling capacity	(kW)	172	164	157	152	144	137
4	Power consumption	(kW)	31.2	35.0	38.7	40.5	44.2	47.
4	Chilled water flow rate	(L/min)	353	336	320	311	294	28
	Operation current	(A)	45.4	51.1	56.4	59.1	64.4	68.6
	Cooling capacity	(kW)	189	180	172	167	158	15
7	Power consumption	(kW)	31.9	35.9	39.7	41.8	45.5	48.6
1	Chilled water flow rate	(L/min)	387	369	352	341	323	309
	Operation current	(A)	46.5	52.4	57.9	60.9	66.4	70.8
	Cooling capacity	(kW)	201	191	183	177	168	16
9	Power consumption	(kW)	32.4	36.5	40.7	42.3	46.4	49.5
9	Chilled water flow rate	(L/min)	412	392	374	363	344	329
	Operation current	(A)	47.2	53.2	59.3	61.7	67.7	72.
	Cooling capacity	(kW)	219	208	200	194	184	170
10	Power consumption	(kW)	32.9	37.3	41.6	43.7	47.8	50.
12	Chilled water flow rate	(L/min)	447	427	409	397	377	360
	Operation current	(A)	48.0	54.4	60.6	63.7	69.7	74.
	Cooling capacity	(kW)	230	219	209	203	194	18
15	Power consumption	(kW)	33.0	37.9	42.1	44.1	48.6	51.
15	Chilled water flow rate	(L/min)	470	448	428	416	397	38:
	Operation current	(A)	48.2	55.2	61.4	64.3	70.9	75.
	Cooling capacity	(kW)	229	219	211	206	198	19
20	Power consumption	(kW)	33.0	37.8	42.2	44.5	49.0	52.
20	Chilled water flow rate	(L/min)	469	449	432	421	405	39
	Operation current	(A)	48.1	55.1	61.5	64.9	71.5	76.
	Cooling capacity	(kW)	229	219	211	206	198	19
05	Power consumption	(kW)	33.0	37.8	42.2	44.5	49.0	52.
25	Chilled water flow rate	(L/min)	469	449	432	421	405	39
	Operation current	(A)	48.2	55.1	61.5	64.9	71.5	76.
	Cooling capacity	(kW)	228	219	211	206	191	19
30	Power consumption	(kW)	35.0	37.8	42.2	44.5	52.2	52.
	Chilled water flow rate	(L/min)	467	449	432	421	391	39
	Operation current	(A)	48.1	55.1	61.5	64.9	76.1	76.

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C.

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

High EER Type (Leaving (LVG) / Entering (ETG) water temperature difference = 7°C)

70HP Series EDGE Heat pump

70HP Series EDGE

Cooling-only

List of cooling capacities RUA-GP561HN(L)

Chilled water outlet	Item		Οι	ıtside a	ir temp	erature	e (°C) (DB)		
temperature (°C)	item		30	35	40	43	48	52	
	Cooling capacity	(kW)	192	183	174	169	161	154	
4	Power consumption	(kW)	37.9	42.2	45.8	47.6	51.9	55.0	
4	Chilled water flow rate	(L/min)	393	374	357	346	329	315	
	Operation current	(A)	55.2	61.5	66.8	69.4	75.7	80.2	
	Cooling capacity	(kW)	210	200	190	185	176	168	
7	Power consumption	(kW)	38.7	43.3	47.1	49.2	53.5	56.6	
,	Chilled water flow rate	(L/min)	430	410	390	379	360	345	
	Operation current	(A)	56.5	63.1	68.7	71.7	78.0	82.5	
	Cooling capacity	(kW)	223	212	202	196	187	179	
9	Power consumption	(kW)	39.2	44.1	48.2	50.1	54.7	57.9	
9	Chilled water flow rate	(L/min)	457	434	414	402	382	366	
	Operation current	(A)	57.1	64.3	70.3	73.1	79.7	84.5	
	Cooling capacity	(kW)	244	232	221	214	204	195	
12	Power consumption	(kW)	39.7	44.8	49.6	51.4	56.4	59.6	
12	Chilled water flow rate	(L/min)	499	476	452	439	417	399	
	Operation current	(A)	57.8	65.3	72.2	75.0	82.2	86.9	
	Cooling capacity	(kW)	254	243	233	226	216	208	
15	Power consumption	(kW)	39.7	45.1	50.2	52.3	57.3	60.8	
15	Chilled water flow rate	(L/min)	520	498	476	463	442	426	
	Operation current	(A)	57.9	65.7	73.2	76.3	83.5	88.7	
	Cooling capacity	(kW)	254	243	234	228	219	212	
20	Power consumption	(kW)	39.7	45.1	50.2	52.5	57.5	61.1	
20	Chilled water flow rate	(L/min)	519	498	478	467	448	435	
	Operation current	(A)	57.9	65.7	73.2	76.6	83.8	89.1	
	Cooling capacity	(kW)	253	243	234	228	219	212	
25	Power consumption	(kW)	39.7	45.1	50.2	52.5	57.5	61.1	
	Chilled water flow rate	(L/min)	519	497	478	467	449	435	
	Operation current	(A)	57.8	65.7	73.2	76.6	83.8	89.1	
	Cooling capacity	(kW)	246	238	229	223	208	208	
30	Power consumption	(kW)	42.2	43.0	47.9	50.1	58.8	58.8	
30	Chilled water flow rate	(L/min)	504	487	468	457	425	425	
	Operation current	(A)	55.7	62.7	69.9	73.1	85.7	85.7	

List of cooling capacities RUA-GP561CN(L)

Chilled water outlet	Itom	Item				erature	(°C) (D	B)
temperature (°C)	item			35	40	43	48	52
	Cooling capacity	(kW)	192	183	174	169	161	154
4	Power consumption	(kW)	37.4	41.6	45.2	46.8	51.3	54.4
4	Chilled water flow rate	(L/min)	393	374	357	347	330	316
	Operation current	(A)	54.6	60.6	65.9	68.3	74.8	79.3
	Cooling capacity	(kW)	210	200	191	185	176	169
7	Power consumption	(kW)	38.2	42.7	46.8	48.6	52.9	56.1
1	Chilled water flow rate	(L/min)	430	410	391	379	361	346
	Operation current	(A)	55.7	62.3	68.3	70.8	77.1	81.9
	Cooling capacity	(kW)	223	212	202	197	187	179
9	Power consumption	(kW)	38.6	43.4	47.5	49.9	54.0	57.2
9	Chilled water flow rate	(L/min)	458	435	415	403	383	367
	Operation current	(A)	56.3	63.3	69.3	72.7	78.8	83.4
	Cooling capacity	(kW)	244	232	221	215	204	196
10	Power consumption	(kW)	39.2	44.4	48.8	51.1	55.6	59.0
12	Chilled water flow rate	(L/min)	499	475	453	440	418	40
	Operation current	(A)	57.1	64.7	71.1	74.5	81.0	86.
	Cooling capacity	(kW)	253	243	232	226	216	208
45	Power consumption	(kW)	39.2	44.6	49.4	51.8	56.7	60.
15	Chilled water flow rate	(L/min)	518	497	476	463	442	426
	Operation current	(A)	57.1	65.0	72.0	75.6	82.7	87.6
	Cooling capacity	(kW)	253	242	233	228	219	212
20	Power consumption	(kW)	39.2	44.4	49.5	52.1	56.9	60.6
20	Chilled water flow rate	(L/min)	518	496	477	466	448	434
	Operation current	(A)	57.2	64.7	72.1	75.9	82.9	88.3
	Cooling capacity	(kW)	253	242	233	228	219	212
25	Power consumption	(kW)	39.3	44.5	49.5	52.1	56.9	60.6
	Chilled water flow rate	(L/min)	517	496	477	466	448	434
	Operation current	(A)	57.3	64.9	72.1	75.9	82.9	88.0
	Cooling capacity	(kW)	246	238	229	223	208	208
00	Power consumption	(kW)	41.6	43.0	47.8	49.9	58.6	58.6
30	Chilled water flow rate	(L/min)	505	487	468	457	425	42
	Operation current	(A)	55.6	62.6	69.7	72.7	85.4	85.4

Note 1: The values shown in the table above are for an inlet / outlet chilled water temperature differential of 7°C.

Note 2: The cooling capacity has been measured when the module was operating at the rated frequency.

Note 3: This table is subject to change without notice.

Water Volume for set of modules

Standard Water Flow Rate / Water Volume Range (Leaving (LVG)/Entering (ETG) water temperature difference = 7°C)

50HP Series EDGE Powerful Heating Type

(Internal inverter pump)

Number of modules	Standard flow rate (L/min) (Note 2)	Flow rate range (L/min) (Note 3 · 6)	Minimum water loop volume (L) (Note 4 • 5 • 6)	In-unit water volume (L)
1	307	150~600		36
2	614	150~1200		72
3	921	150~1800		108
4	1,229	150~2400		144
5	1,536	150~3000		180
6	1,843	150~3600		216
7	2,150	150~4200		252
8	2,457	150~4800]	288
9	2,764	150~5400	717	324
10	3,071	150~6000		360
11	3,379	150~6600		396
12	3,686	150~7200		432
13	3,993	150~7800		468
14	4,300	150~8400		504
15	4,607	150~9000		540
16	4,914	150~9600		576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models)

60HP Series EDGE

Number of modules	Standard flow rate (L/min) (Note 2)	Flow rate range (L/min) (Note 3 · 6)	Minimum water loop volume (L) (Note 4 • 5 • 6)	In-unit water volume (L)
1	369	150~600		36
2	737	150~1200		72
3	1,106	150~1800		108
4	1,474	150~2400		144
5	1,843	150~3000		180
6	2,211	150~3600		216
7	2,580	150~4200		252
8	2,949	150~4800	0.0	288
9	3,317	150~5400	860	324
10	3,686	150~6000		360
11	4,054	150~6600		396
12	4,423	150~7200		432
13	4,791	150~7800		468
14	5,160	150~8400		504
15	5,529	150~9000		540
16	5,897	150~9600		576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models)

Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C) When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

Note 5: When operating at the rated flow capacity, even with internal inverter pump models, set the flow amount range and system retained water amount to the same value as the pumpless model.

Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C) When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

Note 5: When operating at the rated flow capacity, even with internal inverter pump models, set the flow amount range and system retained water amount to the same value as the pumpless model.

Water Volume for set of modules

60HP Powerful Heating Type

Internal inverter pump

Number of modules	Standard flow	. (14010-1)	Flow rate range	Minimum water loop volume	In-unit water volume
Trainbor of modulos	Cooling	Heating	(L/min) (Note 4)	(L) (Note 2 · 3 · 4)	(L)
1	369	410	150~600		36
2	737	819	150~1200		72
3	1,106	1,229	150~1800		108
4	1,474	1,638	150~2400		144
5	1,843	2,048	150~3000		180
6	2,211	2,457	150~3600		216
7	2,580	2,867	150~4200		252
8	2,949	3,276	150~4800	050	288
9	3,317	3,686	150~5400	956	324
10	3,686	4,095	150~6000		360
11	4,054	4,505	150~6600		396
12	4,423	4,914	150~7200		432
13	4,791	5,324	150~7800		468
14	5,160	5,733	150~8400		504
15	5,529	6,143	150~9000		540
16	5,897	6,552	150~9600		576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models)

Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C)
When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

Note 5: When operating at the rated flow capacity, even with internal inverter pump models, set the flow amount range and system retained water amount to the same value as the pumpless model.

70HP Series EDGE

Number of modules	Standard flow rate (L/min) (Note 2)	Flow rate range (L/min) (Note 3 · 6)	Minimum water loop volume (L) (Note 4 • 5 • 6)	In-unit water volume (L)
1	410	150~650		36
2	819	150~1300		72
3	1,229	150~1950		108
4	1,638	150~2600		144
5	2,048	150~3250		180
6	2,457	150~3900		216
7	2,867	150~4550		252
8	3,276	150~5200	050	288
9	3,686	150~5850	956	324
10	4,095	150~6500		360
11	4,505	150~7150		396
12	4,914	150~7800		432
13	5,324	150~8450		468
14	5,733	150~9100		504
15	6,143	150~9750		540
16	6,552	150~10400		576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models)

Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C)
When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

Note 5. When operating at the rated flow capacity, even with internal inverter pump models, set the flow amount range and system retained water amount to the same value as the pumpless model.

■ Water Volume for set of modules

50HP Series EDGE Powerful Heating Type

Pumpless

Number of modules	Standard flow rate (L/min) (Note 2)	Water pressure loss (kPa) (Note 1)	Flow rate range (L/min) (Note 4)	Minimum water loop volume (L) (Note 2 • 3 • 4)	In-unit water volume (L)
1	307		150~600	717	36
2	614		300~1,200	1,434	72
3	921		450~1,800	2,150	108
4	1,229		600~2,400	2,867	144
5	1,536		750~3,000	3,584	180
6	1,843		900~3,600	4,301	216
7	2,150		1,050~4,200	5,017	252
8	2,457	29.9	1,200~4,800	5,734	288
9	2,764	20.0	1,350~5,400	6,451	324
10	3,071		1,500~6,000	7,168	360
11	3,379		1,650~6,600	7,884	396
12	3,686		1,800~7,200	8,601	432
13	3,993		1,950~7,800	9,318	468
14	4,300		2,100~8,400	10,035	504
15	4,607		2,250~9,000	10,751	540
16	4,914		2,400~9,600	11,468	576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models) Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump model Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C)

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

60HP Series EDGE

Number of modules	Standard flow rate (L/min) (Note 2)	Water pressure loss (kPa) (Note 1)	Flow rate range (L/min) (Note 4)	Minimum water loop volume (L) (Note 2 • 3 • 4)	In-unit water volume (L)
1	369		150~600	860	36
2	737		300~1,200	1,720	72
3	1,106		450~1,800	2,580	108
4	1,474		600~2,400	3,440	144
5	1,843		750~3,000	4,301	180
6	2,211		900~3,600	5,161	216
7	2,580		1,050~4,200	6,021	252
8	2,949	42.1	1,200~4,800	6,881	288
9	3,317		1,350~5,400	7,741	324
10	3,686		1,500~6,000	8,601	360
11	4,054		1,650~6,600	9,461	396
12	4,423		1,800~7,200	10,321	432
13	4,791		1,950~7,800	11,181	468
14	5,160		2,100~8,400	12,041	504
15	5,529		2,250~9,000	12,902	540
16	5,897		2,400~9,600	13,762	576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models) Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference $= 7^{\circ}\text{C}$)

Water Volume for set of modules

60HP Powerful Heating Type

Pumpless

Number of modules	Standard flow r	rate (L/min) _(Note 1)	Water pressure	e loss (kPa) _(Note 1)	Flow rate range	Minimum water loop volume	In-unit water volume
Number of modules	Cooling	Heating	Cooling	Heating	(L/min) (Note 4)	(L) (Note 2 · 3 · 4)	(L)
1	369	410			150~600	956	36
2	737	819			300~1,200	1,911	72
3	1,106	1,229			450~1,800	2,867	108
4	1,474	1,638			600~2,400	3,823	144
5	1,843	2,048			750~3,000	4,778	180
6	2,211	2,457			900~3,600	5,734	216
7	2,580	2,867			1,050~4,200	6,690	252
8	2,949	3,276	42.1	51.2	1,200~4,800	7,645	288
9	3,317	3,686			1,350~5,400	8,601	324
10	3,686	4,095			1,500~6,000	9,557	360
11	4,054	4,505			1,650~6,600	10,512	396
12	4,423	4,914			1,800~7,200	11,468	432
13	4,791	5,324			1,950~7,800	12,424	468
14	5,160	5,733			2,100~8,400	13,379	504
15	5,529	6,143			2,250~9,000	14,335	540
16	5,897	6,552			2,400~9,600	15,291	576

Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models) Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module. (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C)

When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc.

Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

70HP Series EDGE

Number of modules	Standard flow rate (L/min) (Note 1)	Water pressure loss (kPa) (Note 1)	Flow rate range (L/min) (Note 4)	Minimum water loop volume (L) (Note 2 • 3 • 4)	In-unit water volume (L)
1	410		150~650	956	36
2	819		300~1300	1,911	72
3	1,229		450~1950	2,867	108
4	1,638		600~2600	3,823	144
5	2,048		750~3250	4,778	180
6	2,457		900~3900	5,734	216
7	2,867		1,050~4550	6,690	252
8	3,276	51.2	1,200~5200	7,645	288
9	3,686	0.1.2	1,350~5850	8,601	324
10	4,095		1,500~6500	9,557	360
11	4,505		1,650~7150	10,512	396
12	4,914		1,800~7800	11,468	432
13	5,324		1,950~8450	12,424	468
14	5,733		2,100~9100	13,379	504
15	6,143		2,250~9750	14,335	540
16	6,552		2,400~10400	15,291	576

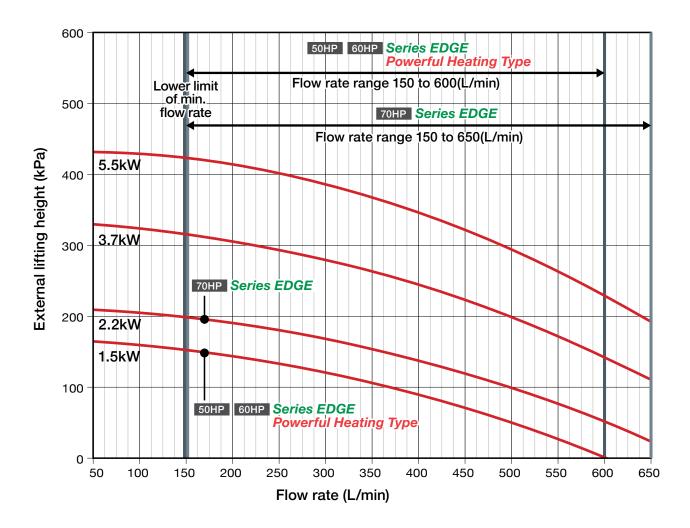
Note 1: For both at cooling/heating. Indicates the flow rate and water pressure loss when leaving/entering water temperature difference is 7°C at rated capacity. (water pressure loss is only for pumpless models) Note 2: Within the indicated flow rate range, the flow rate automatically changes from the pump integrated into each module, (only for internal inverter pump models)

Note 3: Value indicated for retained water amount is with a standard flow amount. (Rated capacity, change in water outlet/inlet temperature difference = 7°C)

When calculating the retained water amount, calculate the greatest water loss in the piping flow channel, giving consideration to the bypass channel etc. Note 4: Please make a separate inquiry if you would like to control the effect of a temperature reduction in the water supply due to the defrost operation.

■ Pump Characteristics / Internal Inverter Pump

50HP, 60HP Series EDGE and Powerful Heating Type, 70HP Series EDGE internal pump 60Hz performance curve



Pump specification values

			50HP, 60I	HP model		70HP model			
Pump output		1.5	2.2	3.7	5.5	2.2	3.7	5.5	
Flow rate range (*1)	(L/min)		150	0∼600		150~650			
External lifting height (*2)	(kPa)	43~151	92~198	190~315	284~422	64~198	158~315	247~422	
Max. operation current (13)	(A)	3.3	4.5	7.3	10.5	4.5	7.3	10.5	
Max. power consumption (*3)	(kW)	2.0	2.8	4.5	6.4	2.8	4.5	6.4	
Max. allowable boost pressure	(MPa)	0.52	0.47	0.36	0.25	0.47	0.36	0.25	
Max. suction head (water temp. 60°C or le	ss) (kPa)	40	40	40	40	40	40	40	

Note 1: Flow rate range (upper limit), max. current and max. power consumption in the table above are values for a single pump. Multiply the number of pumps (modules) by these values depending on the unit size. When selecting anything other than rated output, you can also use values outside of the flow amount range shown in the graph. Use the formula below to find the flow amount range outside of the rated capacity.

Minimum flow rate=capacity x 860/60/10 (maximum temperature difference)

*However, minimum flow amount must be at or above 75L/min

Maximum flow amount=capacity x 860/60/5 (minimum temperature difference)

*However, maximum flow amount must be at or below 600L/min for the 60HP model, and at or below 650L/min for the 70HP model

Note 2: Lifting height outside of the unit shown in the table is the value when the pump frequency is 60Hz at the flow rate range above.

The pump lift outside of the machine is the value reached when subtracting the resistance inside the machine from the total pump lift.

Note 3: Max. current and max. power consumption are the max. values when the pump operation frequency is 60Hz.

Note 4: 60Hz pumps are commonly used in the 50Hz area.

Note 5: Select a pump that can handle the needed lift and flow amount.

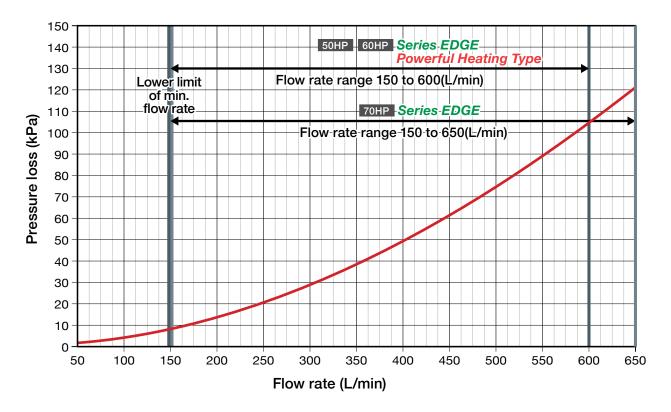
Note 6: In case the nominal current is 380V.

Note 7: Check databook for 7.5kW pump information.

■ Pump Characteristics / Internal Resistance Curve (For pumpless)

Internal resistance curve (For pumpless) 50HP, 60HP Series EDGE and Powerful Heating Type, 70HP Series EDGE

Note: For a unit without a pump, select a pump outside of the heat pump unit considering internal resistance below



Power Supply Design

Displayed below are the electrical power design specifications for each module unit.

Power supply design (380V/400V/415V specifications) (Internal inverter pump/Pumpless) (Heat pump/Cooling-only) (Standard type and High-EER type in common)

				50H	Serie Powe	es EDG erful He	E eating 1	уре		60HP	Series	EDGE			
	Power supply				50/60	Hz 380V/400V	//415V			50/60	Hz 380V/400\	//415V			
				Dumplood		Internal inv	erter pump		Dumplood		Internal inv	erter pump			
Pump	Motor Output		(kW)	Pumpless	1.5	2.2	3.7	5.5	Pumpless	1.5	2.2	3.7	5.5		
<u> </u>	Туре			-		Centrifuç	gal pump		_		Centrifugal pump Inverter start Inverter 4.3 6.9 10				
Internal	Type of start			1		Inverte	er start		_		Inverte	er start			
l te	Control			_		Inve	erter		_		Inve	erter			
	Max. Current		(A)	_	3.1	4.3	6.9	10	_	3.1	4.3	6.9	10		
	Max. Input		(kW)	_	2.0	2.8	4.5	6.4	_	2.0	2.8	4.5	6.4		
	No. of primary connecting parts for power supply wiring			No. of po	wer connecti	on terminals ir	nside each mo	odule(M10)	No. of po	wer connecti	on terminals in	erminals inside each module(M10)			
	Standard Curre	nt	(A)	79.0	82.1	83.3	85.9	89.0	99.0	103	104	106	109		
_	Power Source (Capacity	(kVA)	54.8	56.9	57.8	59.6	61.7	68.6	70.8	71.6	73.4	75.5		
Design	Power	IV: Power Supply ≤ 20m	(mm²)			38			3	B 60					
å	Supply	IV: Power Supply ≤ 50m	(mm²)			38			3	8 60					
Supply	Wiring	CV: Power Supply ≤ 20m	(mm²)			22					38				
Sup	(mm2)	CV: Power Supply ≤ 50m	(mm²)			22					38				
ē	Ground					22			22		3	18			
Power	Switch		100					100		12	25				
	Fuse (A			100					100		12	25			
	Earth Leakage Circuit Breaker (Capacity) (A)			A) 100					100		12	25	6.9 10 4.5 6.4 e each module(M10) 106 109 73.4 75.5 60		
	Earth Leakage	Circuit Breaker (Sensibility)	(mA)			100			100		20	00			

				60HP Powerful Heating Type						70HP S 6	eries EDG	E		
	Power supply				50/60	Hz 380V/400\	//415V			50/60Hz 3	80V/400V/415V			
				Pumpless		Internal inv	erter pump		Pumpless	Ir	nternal inverter pun	np		
dwn	Motor Output	Output (kW			1.5	2.2	3.7	5.5	Fullipless	2.2	3.7	5.5		
	Туре			_		Centrifuç	gal pump		_		Centrifugal pump	Inverter start		
Internal	Type of start			_		Inverte	er start		_		Inverter start			
l fe	Control			_		Inve	erter		_		Inverter			
	Max. Current		(A)	_	3.1	4.3	6.9	10	_	4.3	6.9	10		
	Max. Input		(kW)	_	2.0	2.8	4.5	6.4	_	2.8 4.5 6.4				
	No. of primary con	necting parts for power supply w	riring	No. of po	wer connecti	on terminals i	nside each mo	odule(M10)	No. of po	wer connection to	erminals inside eac	h module(M10)		
	Standard Currer	nt	(A)	110	113	114	117	120	115	119	122	125		
_	Power Source C	apacity	(kVA)	75.9	78.1	78.9	80.7	82.8	79.4	82.4	84.2	86.3		
esign	Power	IV: Power Supply ≤ 20m	(mm²)			60				60				
	Supply	IV: Power Supply ≤ 50m	(mm²)			60					60			
flddn	Wiring	CV: Power Supply ≤ 20m	(mm²)			38					38			
l dns	(mm2)	CV: Power Supply ≤ 50m	(mm²)			38					38			
	Ground					38					38			
Power	Switch		(A)			125					125			
	Fuse (125					125			
	Earth Leakage Circuit Breaker (Capacity) (125							125			
	Earth Leakage (Circuit Breaker (Sensibility)	(mA)			200				·	200			

^{*1.} The internal pump can be replaced with another pump with appropriate output according to the lifting height outside of the unit required by a custom option. Since power supply design is different depending on the pump output, be sure to see the values in the corresponding field.
*2. The pump operates at a maximum frequency of 60 Hz at the maximum flow rate (per module).

Note.1: The thickness of the ground lead is the value for when using IV wire shown in the table for power supply wire. Refer to IEC60204-15.2 depending on the thickness of the wire used. Table 1-Minimum cross-sectional area of the external protective copper conductor

Cross-sectional area of copper phase conductors supplying the equipment S mm²	Minimum cross-sectional area of the external protective copper conductor Sp mm²
S≤16	S
16 <s≤35< th=""><th>16</th></s≤35<>	16
S>35	S/2

[•] Fuse capacities in the tables are for B class fuses.

Select a power supply transformer that can support values greater than those shown in the tables.

Note 2: Check databook for 7.5kW pump and Module controller power supply information.

^{*3.}A leakage breaker must be installed. Use one that conforms to higher harmonics to prevent malfunction since this unit includes an inverter.
*4. Standard Current is the value considering the imbalance of 2% between power supply voltages.

[•] Power supply line thickness values are for metal conduits with three or fewer wires inside a single conduit. (or six or fewer wires when two wires are used for one pole)
• Selected based on Japanese regulations. Select the appropriate unit based on the laws and regulations of the location where the unit is to be installed.

Outline Drawing

50, 60HP Series EDGE / Powerful Heating Type, 70HP Series EDGE With Pump/Pumpless

*Pumpless model does not include check valve

9 pump

Water drain por

Front View

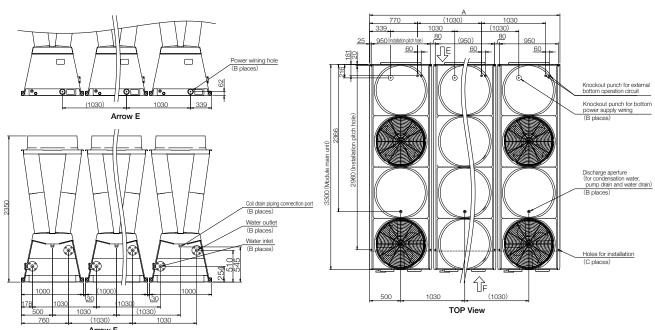
Hole of connection between module

Combined installation

Left Side

Water pip
 (inlet)
 G Check valve

③ Coil drain piping connection port



€ 339

Right Side

The number of modules	А	В	С	The number of modules	Α	В	С	The number of modules	Α	В	С	The number of modules	Α	В	С
1 module	1000	1	4	5 module	5120	5	20	9 module	9240	9	36	13 module	13360	13	52
2 modules	2030	2	8	6 modules	6150	6	24	10 modules	10270	10	40	14 modules	14390	14	56
3 modules	3060	3	12	7 modules	7180	7	28	11 modules	11300	11	44	15 modules	15420	15	60
4 modules	4090	4	16	8 modules	8210	8	32	12 modules	12330	12	48	16 modules	16450	16	64

Note 1: The values indicated above are applied to A through C.

Note 2: When the power supply wiring kit (optional) is not used. Regarding the dimensions when the power supply wiring kit is installed, refer to the document of consent for power supply wiring kit.

Note 3: 30mm clearance space between modules is only minimum requirement for Japanese service man. Please consider larger space for European service man.

Outline Drawing

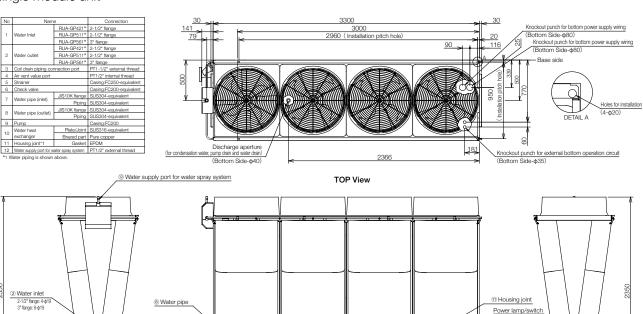
50, 60HP Series EDGE / Powerful Heating Type, 70HP Series EDGE

4 Air vent valve port

- High EER - With Pump/Pumpless

*Pumpless model does not include check valve

A single module unit



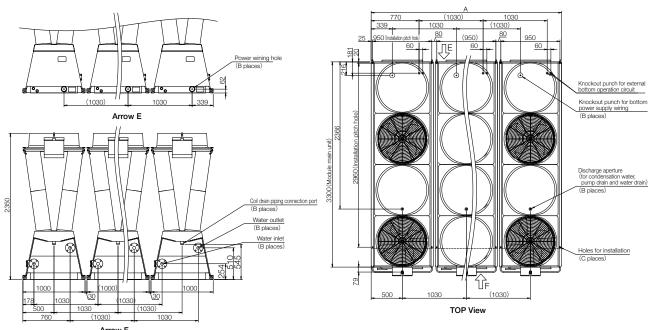
Power lamp/switch Serial plate

Power wining hole (Φ80)

Right Side

Combined installation

Left Side



Hole of connection between modules

Front View

The number of modules	Α	В	С	The number of modules	А	В	С	The number of modules	А	В	С	The number of modules	А	В	С
1 module	1000	1	4	5 module	5120	5	20	9 module	9240	9	36	13 module	13360	13	52
2 modules	2030	2	8	6 modules	6150	6	24	10 modules	10270	10	40	14 modules	14390	14	56
3 modules	3060	3	12	7 modules	7180	7	28	11 modules	11300	11	44	15 modules	15420	15	60
4 modules	4090	4	16	8 modules	8210	8	32	12 modules	12330	12	48	16 modules	16450	16	64

Note 1: The values indicated above are applied to A through C.

Note 2: When the power supply wiring kit (optional) is not used. Regarding the dimensions when the power supply wiring kit is installed, refer to the document of consent for power supply wiring kit.

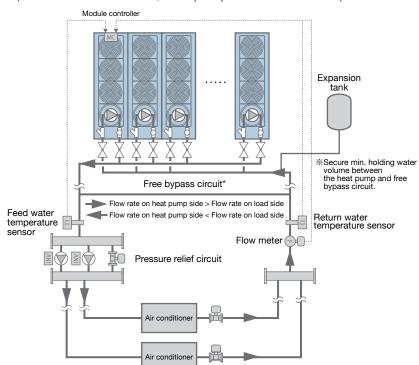
Note 3: 30mm clearance space between modules is only minimum requirement for Japanese service man. Please consider larger space for European service man.

System Examples for Internal Inverter Pump Units

- As a cold (hot) water circulation pump is built in, test run adjustment which includes the whole piping system is necessary. (Forced open/close of auto control valve in A/C is required.)
- The system detects the required flow rate on load side, and automatically fluctuates the number of internal cold (hot) water circulating pumps and the operating frequency. Refer to "Pump Characteristics" and select an internal pump by considering the required max. flow rate and max. lift for the system.
- Also consider construction on the suction side of internal pumps (boost pressure/pipe resistance). While internal pumps are stopped, ensure that the pressure on the suction side is not negative to prevent the air from entering the pumps from mechanical seals. Ensure that the suction side main water pipes are higher than the heat pump cold (hot) water inlet piping to prevent the air from accumulating in the heat pump. Closer attention is required when an open-type tank is set up as an expansion tank on the heat pump inlet side.
- To improve energy saving abilities, we recommend that you make a variable flow system using 2 way valves on the secondary side etc.
- If the heat pump is located at the highest point in the system, install an automatic air vent valve (with a check valve function) at the inlet pipe for each module
- Secure a sufficient holding water volume between the heat pump and the bypass circuit to ensure water temperature controllability. The water volume described in the specifications table is required to operate a module for two minutes, the minimum running time. The values in the table show the minimum holding water volume required to protect the unit. Ensure as much holding water volume as possible to minimize the variation of supply water temperature.
- Differential pressure regulating valves or flow meters may be required depending on the system. In that case, use different power supply from that of the heat pump. Follow instructions by the manufacturer for how to wire the valves or flow meters.
- For any system not listed below, please contact us.

Example of duplex pump system

(load side: variable flow, heat pump side: variable flow)



- As there may be an unbalance in the load side pump flow rate and the heat pump flow rate, construct a normally open free bypass circuit.
- 2. LWT/EWT sensor in heat pump and water temperature sensor on feed/return water pipes detect the temperature balance inside the system, and control the number of internal pump for cold/hot-water circulation and the frequency to minimize the imbalance between estimated load side flow rate and heat pump side flow rate. Mount the external sensors attached to the module controller on feed water pipes and return water pipes, and connect the sensors to the module controller.
- If there is a flow meter F (provided locally) in the system, connect its output to the module controller. This enables control which directly detects flow rate on the load side (mounting of external sensors on the feed/return water pipes is required even when using a flow meter).
- 4. The module compressor with internal pump for cold/hot-water circulation controls the number of compressors and frequency so that the leaving water temperature approaches the set temperature.

List of equipment for control

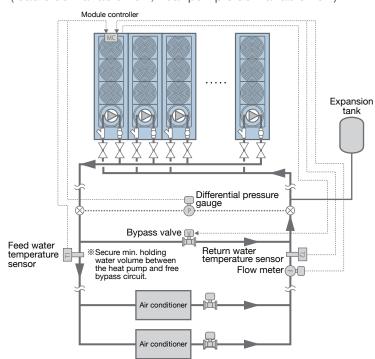
Part name	Specifications	Quantity	Provided locally	Constructed locally
Water temperature sensor (mandatory)	10k Ω external sensor	2	Attached to module controller	0
Flow meter	Able to measure instantaneous value support voltage/current output* (Able to adjust input range span: DC 0 to 5V)	1	0	0

^{*} Attach $250\Omega\pm1\%$ metal film resistor (provided locally) when the signal has current 4-20mA. (In that case, input range span is DC 1 to 5 V)

■ System Examples for Internal Inverter Pump Units

2. Single Pump: Example of standard system

(load side: variable flow, heat pump side: variable flow)



- LWT/EWT sensor in heat pump and water temperature sensor on feed/return water pipes detect the temperature balance inside the system, and control the number of internal pumps for cold/hot-water circulation and the frequency to minimize the imbalance between the estimated load side flow rate and the heat pump side flow rate.
- 2. If there is a flow meter F (provided locally) in the system, connect its output to the module controller. This enables control which directly detects flow rate on the load side (mounting of external sensors on feed/return water pipes is required even when using a flow meter).
- The module compressor with internal pump for cold/hot-water circulation controls the number of compressors and frequency so that the leaving water temperature approaches the set temperature.
- 4. As there may be an imbalance in the load side required flow rate and the heat pump flow rate, construct a bypass valve V (provided locally) which is operated according to detection of differential pressure between the feed/return water pipes. The bypass valve V is controlled by a module controller.
- 5. While the operation is stopped, the freeze protection control may automatically operate the internal pump. The bypass valve may be forcibly opened to secure the flow path. In this case, water may not be supplied to equipment on the load side (to feed water to the equipment on the load side, be sure to open the 2-way valve on the load side in accordance with freeze protection control of the heat pump, instead of configuring settings not to open the bypass valve).

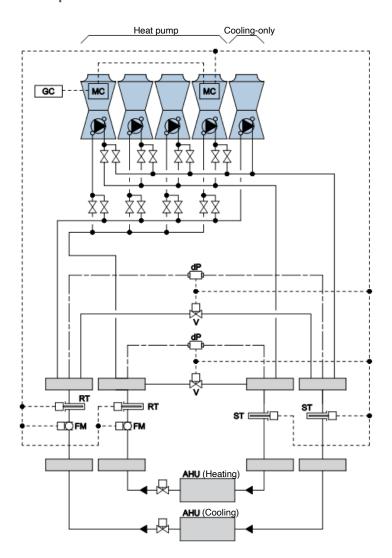
List of equipment for control

Part name	Specifications	Quantity	Provided locally	Constructed locally
Water temperature sensor (mandatory)	10kΩ external sensor	2	Attached to module controller	0
Flow meter	Able to measure instantaneous value support voltage/current output* (Able to adjust input range span: DC 0 to 5V)	1	0	0
Differential pressure gauge (mandatory)	Pressure gauge (mandatory). Able to measure instantaneous value support voltage/current output* (Able to adjust input range span: DC 0 to 5V)	1	0	0
Bypass valve (mandatory)	Globe valve which can perform proportional control at current input DC 4 to 20mA (Able to adjust span)	1	0	0

^{*} Attach 150 Ω ±1% metal film resistor (provided locally) when the signal has current 4-20mA. (In that case, input range span is DC 0.6 to 3 V)

■ System Examples for Internal Inverter Pump Units

3. Example of Chilled/Warm Water Simultaneous Use System



- Install a valve for switching between the inlet and outlet of heat pumps that switch between chilled and warm water. (If it is a motor-operated valve, ensure it works with the local instrumentation panel.)
- 2. Connect each cooling and heating component (FM, ST, RT, dP, V) to the module controller (MC).

Option List

Option	n Parts	Locally constructed (*Note2)	Factory assembly
Madda Oartallas (MO)	For Standard model	Required	Available
Module Controller (MC)	For Powerful Heating type	Required	Available
Group Controller (GC)		Required	n/a
Connect fitting Kit		Required	n/a
Fin Guard Kit		Required	Available
External sensor (*note1)		Required	n/a
SD card for Flash Monitor		Required	n/a
Flange kit for hood and net installtion		Required	Available

Note 1: Module controller with internal inverter pump contains external sensor (2 sensors for feed/return water temperature) for controlling one system of the water pipe systems. If an external sensor to control a secondary circuit of water pipes is required, an additional order must be placed. You also need to place an order for an external sensor for monitoring the temperature of return and condensation water for module controllers in pumpless models, which do not have external sensors.

Note 2: On-site installation work is needed. (Not included in seller's work description.)

Installation and the use of refrigerants not specified by Toshiba Carrier Corporation

Toshiba refrigeration and air-conditioning units are designed and manufactured on the assumption that the product is used with a specific refrigerant suitable for each unit.

The type of refrigerant used for each of our products is shown in the accompanying owners manual, or on the product label attached to the product itself.

Toshiba Carrier corporation shall not assume any liability for failures, malfunctions or safety in its products if the refrigerant used is different from the one specified.



Please see the technical Document for details.

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