UNIT GENERAL DATA

Cooling Units

Model			RAS-NP4US	RAS-NP5US	RAS-NP6US	RAS-NP8US	RAS-NP9US	RAS-NP10US	RAS-NP13US	RAS-NP15US
Cabinet Color (MUNSELL CODE)			Synthetic Resin Paint Baked on Galvanized Steel Plates Beige (2.5Y 8/2)							
Outer Dimensions	Height	mm (in.)	550 (21-21/32)	550 (21-21/32)	550 (21-21/32)	550 (21-21/32)	600 (23-5/8)	600 (23-5/8)	600 (23-5/8)	600 (23-5/8)
	Width	mm (in.)	1,130 (44-1/2)	1,130 (44-1/2)	1,130 (44-1/2)	1,130 (44-1/2)	1,130 (44-1/2)	1,130 (44-1/2)	1,530 (60-1/4)	1,530 (60-1/4)
	Depth	mm (in.)	970 (38-3/16)	970 (38-3/16)	1,150 (45-9/32)	1,430 (56-5/16)	1,530 (60-1/4)	1,530 (60-1/4)	1,560 (61-13/32)	1,560 (61-13/32)
Net Weight		kg (lbs.)	90 (198)	95 (210)	120 (265)	130 (287)	145 (320)	150 (331)	200 (441)	210 (463)
Refrigerant Flow Control Device Number of Circuits			R410A Capillary Tube 1				2			
Evaporator			Multi-Pass Cross-Finned Tube							
Fan Nominal Air Flow		m^3/min	Multi-Blade Centrifugal Fan (Double Suction) 37	46	65	69	82	90	110	130
		m^3/s	0.62	0.77	1.08	1.15	1.37	1.5	1.83	2.17
		L/s	620	770	1,080	1,150	1,370	1,500	1,830	2,170
Motor		kW (hp)	0.55 (3/4)	0.55 (3/4)	0.75 (1)	0.75 (1)	1.5 (2)	1.5 (2)	2.2 (3)	2.2 (3)
Quantity			1	1	1	1	1	1	1	1
Piping Connections Liquid Line			Brazing Connection							
Size (O.D)		mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)
Quantity			1	1	1	1	1	2	2	2
Gas Line										
Size (O.D)		mm (in.)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ22.2 (7/8)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ22.2 (7/8)
Quantity			1	1	1	1	2	2	2	2
Condensate Drain			Female Piping Thread Screw							
Size		FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Quantity			1	1	1	1	1	1	1	1
Wiring Hole Main			Knockout Hole							
		mm (in.)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ26 (1-1/32)	Φ26 (1-1/32)
Shipping Weight		kg (lbs.)	110 (243)	115 (254)	130 (287)	140 (309)	165 (364)	170 (375)	215 (474)	225 (496)
Approximate Packing List	Height	mm (in.)	660 (25-12/31)	660 (25-12/31)	690 (27-5/32)	690 (27-5/32)	705 (27-3/4)	705 (27-3/4)	740 (29-1/8)	740 (29-1/8)
	Width	mm (in.)	1,180 (46-15/32)	1,180 (46-15/32)	1,180 (46-15/32)	1,180 (46-15/32)	1,180 (46-15/32)	1,180 (46-15/32)	1,620 (65-25/32)	1,620 (65-25/32)
	Depth	mm (in.)	1,110 (40-5/32)	1,110 (40-5/32)	1,290 (50-25/32)	1,570 (61-13/16)	1,670 (65-3/4)	1,670 (65-3/4)	1,760 (69-9/32)	1,760 (69-9/32)
Measurements		m^3	0.79	0.79	1.05	1.28	1.39	1.39	2.11	2.11

Notes :

1. The capacities are gross capacities, which include the effect of evaporator fan motor heat.
2. The nominal cooling capacity is according to JIS B8616-2006, and based on the following condition.

Evaporator Air Inlet Temperature	Condenser Air Inlet Temperature	Evaporator Air Flow
*27℃ DB/19℃ WB (80℉ DB/66℉ WB)	35℃ DB (95℉ DB)	Nominal Air Flow
**29℃ DB/19℃ WB (84℉ DB/66℉ WB)	46℃ DB (115℉ DB)	Nominal Air Flow
***26.6℃ DB/19.4℃ WB (80℉ DB/67℉ WB)	48℃ DB (118℉ DB)	Max. Air Flow

3. The standard combination of the HITACHI split-system air conditioners are as follows:

Cooling Unit	Condensing Unit	Standard Power Supply	
RAS-NP4US	RAS-NP4CTS	Main (AC 3Φ)	Control (AC 1Φ)
RAS-NP5US	RAS-NP5CTS	380V 50Hz	220V 50Hz
RAS-NP6US	RAS-NP6CTS	415V 50Hz	240V 50Hz
RAS-NP8US	RAS-NP8CTS		
RAS-NP9US	RAS-NP9CTS		
RAS-NP10US	RAS-NP10CTS		
RAS-NP13US	RAS-NP13CTS		
RAS-NP15US	RAS-NP15CTS		

The control circuit voltage for room thermostat is decreased to AC 1Φ 24V by the transformer provided in the unit.

Working Range

Power Supply

The applicable voltage range for each unit is given in the Electrical Data. The working voltage among the three phases must be balanced within a 3% deviation from each voltage at the compressor terminals. The starting voltage must be higher than 85% of the rated voltage.

Condenser Air Inlet Temperature and Evaporator Air Inlet Temperature

Model	Condenser Air Inlet Temperature -Dry Bulb-		Evaporator Air Inlet Temperature -Dry/ Wet Bulb-	
	Maximum	Minimum	Maximum	Minimum
All Models	52℃ DB 125℉ DB	20℃ DB 68℉ DB	35℃ DB/21.5℃WB (95℉ DB/70.7℉ WB)	19.5℃ DB/14℃WB (67℉ DB/57℉ WB)

Notes :

1. When the unit is operating at a condenser air inlet temperature of 52℃ DB (125℉ DB), the maximum evaporator air inlet temperature shall be 18℃ WB (64℉ WB).
2. The indoor temperature range is based on the following air flow.
   All models : 80% to 120% of Nominal Air Flow.

Specifications in this catalog are subject to change without notice, in order that HITACHI may bring the latest innovations to our customers.

2016 Printed in Taiwan
Catalog No. TS-PM-01(R410A)

R410A

HITACHI

HITACHI SPLIT-SYSTEM AIR CONDITIONERS

Nominal Cooling Capacity

11.7	kW	to	47.0	kW
10,100	kcal/h	to	40,400	kcal/h
39,900	Btu/h	to	160,400	Btu/h

Models

Cooling Units		Condensing Units
RAS-NP4US	+	RAS-NP4CTS
RAS-NP5US	+	RAS-NP5CTS
RAS-NP6US	+	RAS-NP6CTS
RAS-NP8US	+	RAS-NP8CTS
RAS-NP9US	+	RAS-NP9CTS
RAS-NP10US	+	RAS-NP10CTS
RAS-NP13US	+	RAS-NP13CTS
RAS-NP15US	+	RAS-NP15CTS

Optimum Designs for Individual Requirement

HITACHI proudly presents to our customers this wide range of split-system air conditioners, from 4 HP to 15 HP, which is designed for high and medium outdoor temperatures. These split-system air conditioners are composed of condensing units and cooling units.

The condensing units are composed of compressors, air-cooled condensers, condenser fans, auxiliary and control equipments compactly packed in a weather-proof cabinet.

The cooling units are designed for duct air distribution systems and composed of fan runner, fan motor, evaporator and auxiliary equipment in a cabinet.

Cooling Units

Evaporator Fan
The centrifugal fan and fan casing are optimum shaped for efficient and low noise operation.

Evaporator
The adoption of a highly efficient step fin and inner grooved tube enhance the heat exchanger more efficient and low noise operation.

Air Filter Frame
Each indoor unit has filter frame could be easy for air filter install even in the small space of ceiling.(Air filter will be field-supplied)

Condensing Units

All series is using PCB Control Circuit that can provide complete protection and qualify failure indicative function.
PCB integrates all protection devices together, so it can provide protection function immediately and completely. In case, unit is operating under abnormal condition, flicker on PCB will keep blinking to communicate failure information for service man to identify and solve problems quickly and properly.

Hitachi Scroll Compressor
All series is using Hitachi scroll compressor which can proceed suction, compensation, discharge processes at one time to provide low vibration and high efficiency performance.

Compressor Protection
This durable, dependable and efficient system comprises the following components: overcurrent protector, internal thermostat, reverse phase protection, high pressure switch, low pressure switch and delay timer. This wide variety of protection devices provides perfect compressor guarding functions, decreasing service calls from customers.

Condenser
The adoption of a highly efficient step fin and inner grooved tube enhance the heat exchanger more efficient and low noise operation.

Condenser Fan
This direct driven propeller fan is dynamically balanced to ensure smooth airflow.

Suction Line Accumulator
Accumulator is equipped in the suction line to prevent liquid refrigerant from flooding into the compressor.

Capacity Control (Dual Circuit Units)
Each unit is equipped with two compressors and two independent refrigeration cycles so that one compressor operation can reduce the operation cost against a partial load of one large compressor.

New RAS R410A model features

All R410A RUA/RAS models are equipped with new design high efficient Hitachi scroll compressors for high ambient environment
1. Scroll portion is using asymmetric involute scroll, suction portion can increase 20% compression space, and reduce heat loss to have better efficiency.
2. Oil supply is using Trochoid pump supplying oil volume stably to ensure fully lubrication and improve reliability.
3. Two roller bearings (Main/Sub) design is increasing the strength of bearing, and stabilize operation to reduce mechanical loss.
4. Improving the route of refrigerant to lower compressor motor coil temperature.

All inclusive protection functions, higher reliability, longer duration
Equipped with 3 phases overcurrent transformer, high/low pressure switch, and compressor internal thermostat to improve compressor reliability greatly under tough environment.

New design step fin heat exchanger
New Ø7 tubes、Step Fin and multi route design high efficient heat exchanger to have better performance.

New development PCB control to fully improve unit protection and performance
1. Multi-compressors starting sequence can be controlled automatically to avoid particular compressor starting frequently and extend compressor duration.
2. Each protection devices can be deteced independently, when abnormal condition occurs , the alarm code will be displayed.
3. PCB memory is able to save 5 failure resumes that can be retrieved to help inspection and service.

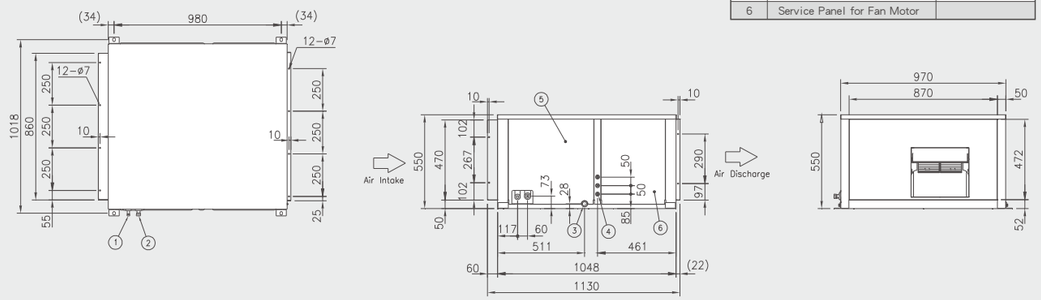
Using glavanized steel base
Improving unit structure strength and also to reduce unit damage risk during transportation and warehouse.

More optional functions and accessories can meet various demands
Optional functions items :
Air filter、Filter box、Strainer & Dryer、Sight glass、Anti-corrosion fin、Double layers insulator for indoor service cover、Condenser protected net、Soft starter for indoor motor.

More environment friendly
Using R410A refrigerant and reducing usage of woods in order to lower the impact of environment.

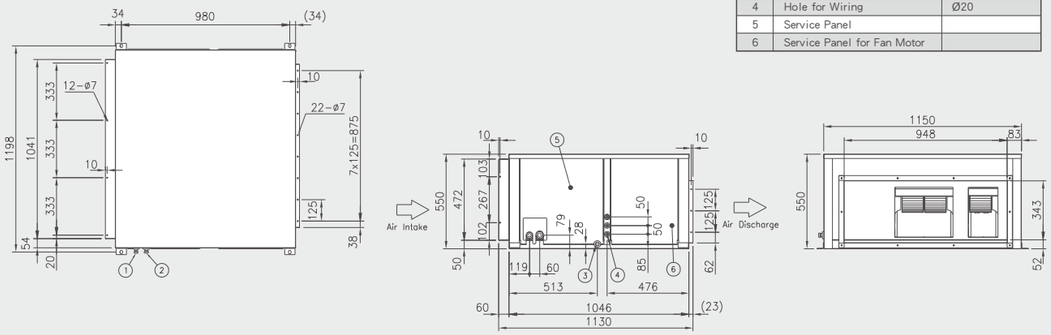
RAS-NP4US and RAS-NP5US

Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Brazing
2	Refrigerant Gas Outlet	Ø19.05 Brazing
3	Condensate Drain Connection	FPT 3/4
4	Hole for Wiring	Ø20
5	Service Panel	
6	Service Panel for Fan Motor	



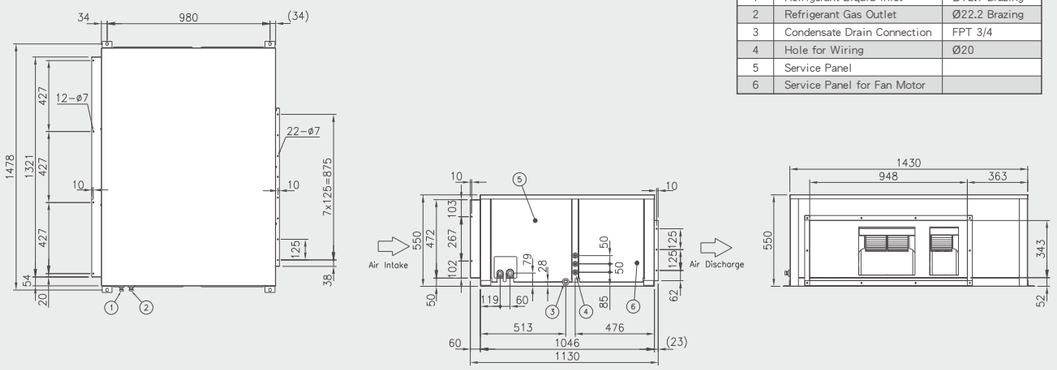
RAS-NP6US

Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Brazing
2	Refrigerant Gas Outlet	Ø19.05 Brazing
3	Condensate Drain Connection	FPT 3/4
4	Hole for Wiring	Ø20
5	Service Panel	
6	Service Panel for Fan Motor	

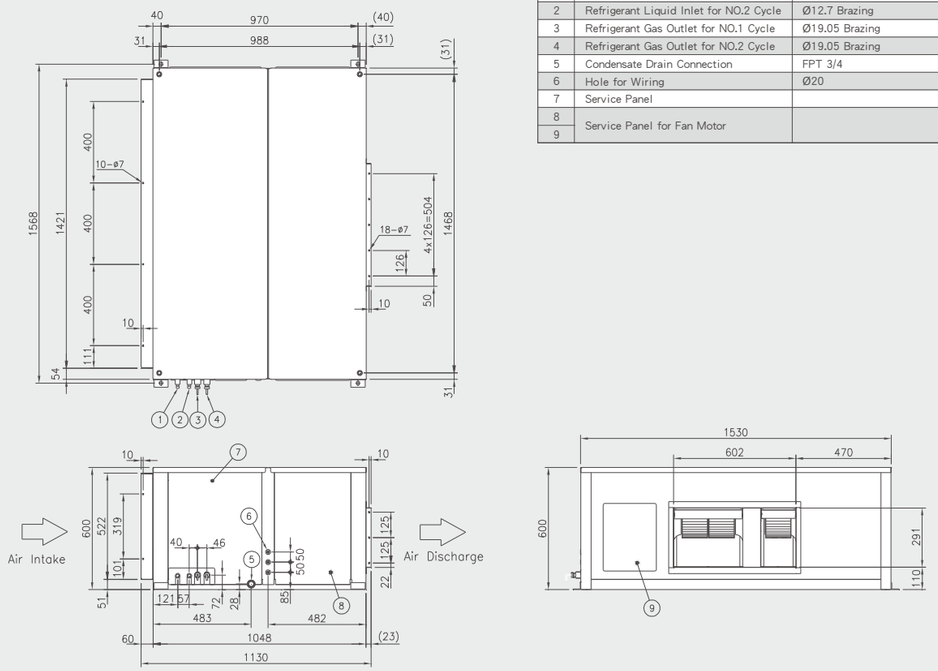


RAS-NP8US

Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Brazing
2	Refrigerant Gas Outlet	Ø22.2 Brazing
3	Condensate Drain Connection	FPT 3/4
4	Hole for Wiring	Ø20
5	Service Panel	
6	Service Panel for Fan Motor	

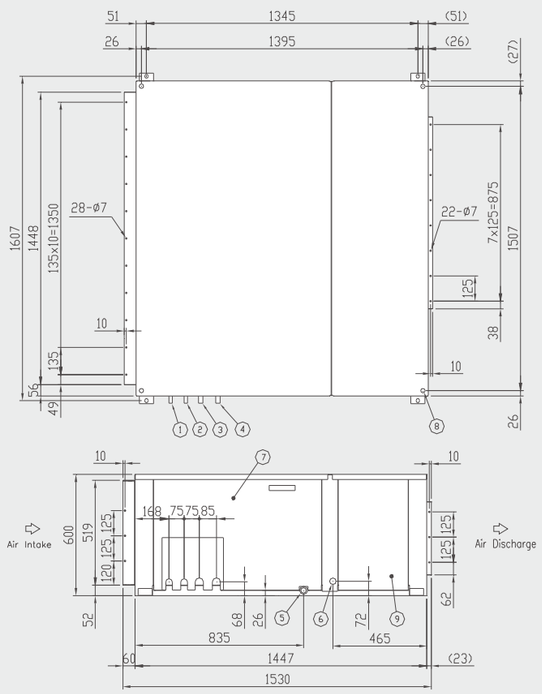


RAS-NP9US and RAS-NP10US



Mark	Name	Summary
1	Refrigerant Liquid Inlet for NO.1 Cycle	Ø12.7 Brazing
2	Refrigerant Liquid Inlet for NO.2 Cycle	Ø12.7 Brazing
3	Refrigerant Gas Outlet for NO.1 Cycle	Ø19.05 Brazing
4	Refrigerant Gas Outlet for NO.2 Cycle	Ø19.05 Brazing
5	Condensate Drain Connection	FPT 3/4
6	Hole for Wiring	Ø20
7	Service Panel	
8 9	Service Panel for Fan Motor	

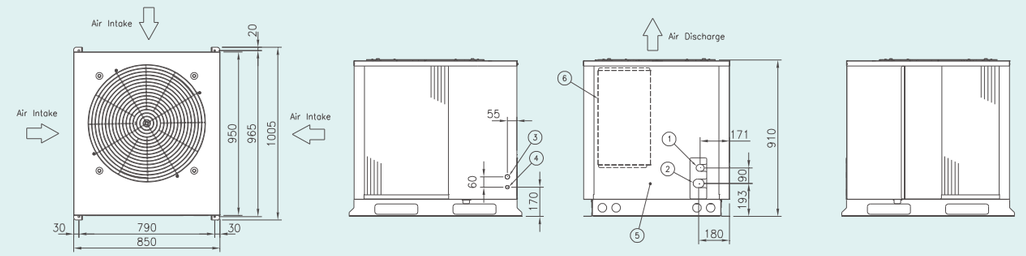
RAS-NP13US and RAS-NP15US



Mark	Name	Summary
1	Refrigerant Liquid Inlet for NO.1 Cycle	Ø12.7 Brazing
2	Refrigerant Liquid Inlet for NO.2 Cycle	Ø12.7 Brazing
3	Refrigerant Gas Outlet for NO.1 Cycle	Ø19.05 Brazing for RAS-NP13US Ø22.2 Brazing for RAS-NP15US
4	Refrigerant Gas Outlet for NO.2 Cycle	Ø19.05 Brazing for RAS-NP13US Ø22.2 Brazing for RAS-NP15US
5	Condensate Drain Connection	FPT 3/4
6	Hole for Power Supply Wiring	Ø20
7	Service Panel	
8	Screw Holes for Suspension Bolt	4-M16
9 10	Service Panel for Fan Motor	

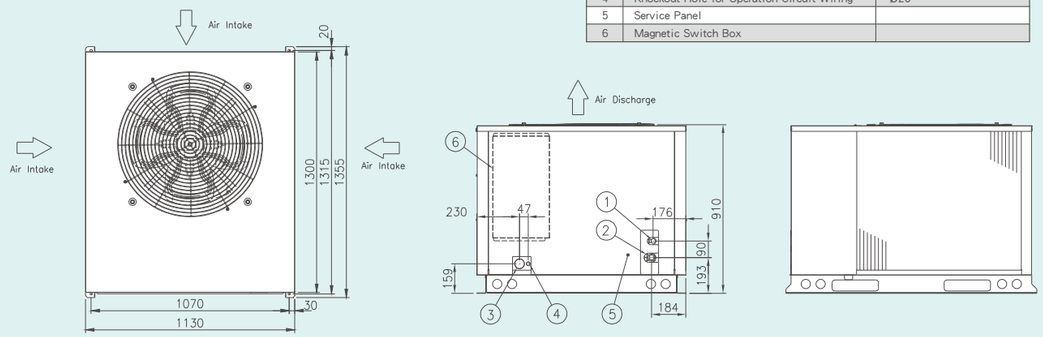
RAS-NP4CTS and RAS-NP5CTS

Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Flare Connection
2	Refrigerant Gas Outlet	Ø19.05 Flare Connection
3	Connecting Hole for Power Supply Wiring	Ø26
4	Connecting Hole for Operation Circuit Wiring	Ø20
5	Service Panel	
6	Magnetic Switch Box	



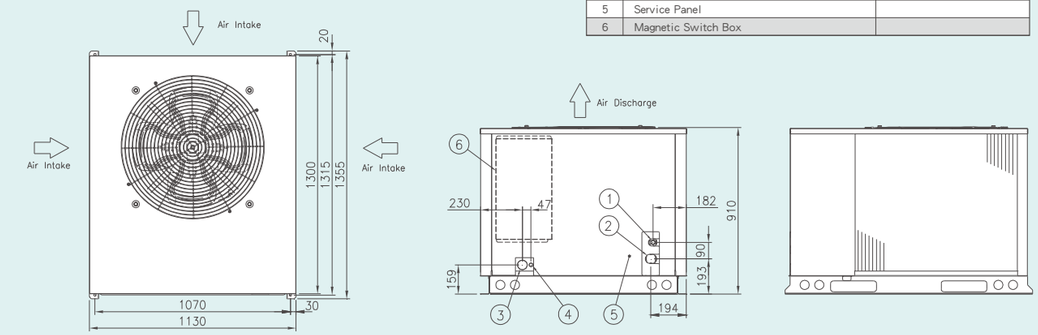
RAS-NP6CTS

Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Flare Connection
2	Refrigerant Gas Outlet	Ø19.05 Flare Connection
3	Knockout Hole for Power Supply Wiring	Ø52
4	Knockout Hole for Operation Circuit Wiring	Ø20
5	Service Panel	
6	Magnetic Switch Box	

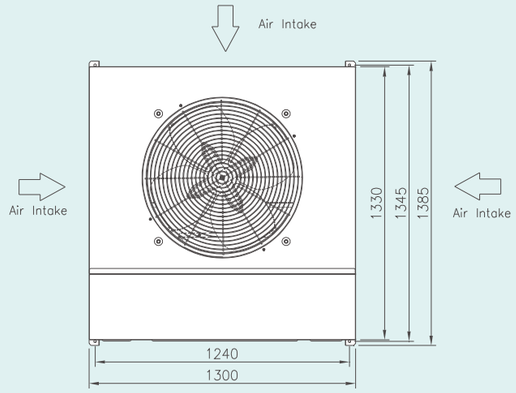


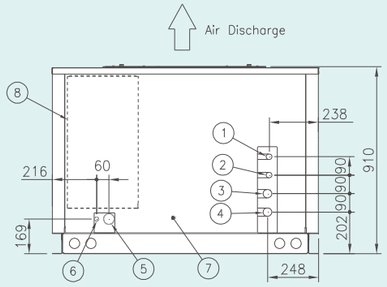
RAS-NP8CTS

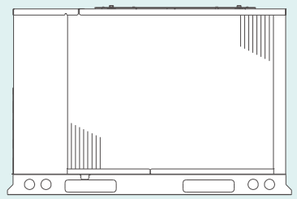
Mark	Name	Summary
1	Refrigerant Liquid Inlet	Ø12.7 Flare Connection
2	Refrigerant Gas Outlet	Ø22.2 Flange Connection
3	Connecting Hole for Power Supply Wiring	Ø52
4	Connecting Hole for Operation Circuit Wiring	Ø20
5	Service Panel	
6	Magnetic Switch Box	



RAS-NP9CTS and RAS-NP10CTS

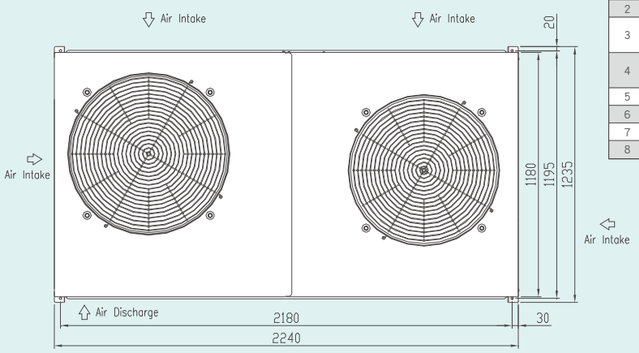


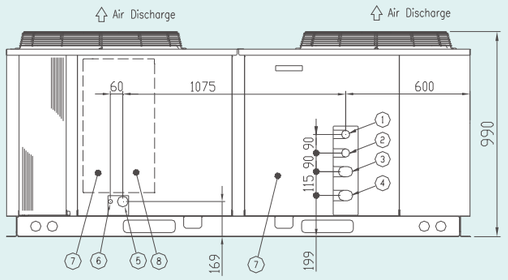


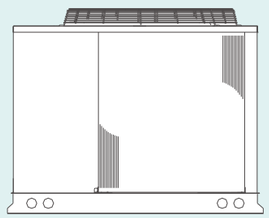


Mark	Name	Summary
1	Refrigerant Liquid Inlet for NO.1 Cycle	Ø12.7 Flare Connection
2	Refrigerant Liquid Inlet for NO.2 Cycle	Ø12.7 Flare Connection
3	Refrigerant Gas Outlet for NO.1 Cycle	Ø19.05 Flare Connection
4	Refrigerant Gas Outlet for NO.2 Cycle	Ø19.05 Flare Connection
5	Connecting Hole for Power Supply Wiring	Ø52
6	Connecting Hole for Operation Circuit Wiring	Ø20
7	Service Panel	
8	Magnetic Switch Box	

RAS-NP13CTS and RAS-NP15CTS







Mark	Name	Summary
1	Refrigerant Liquid Inlet for NO.1 Cycle	Ø12.7 Flare Connection
2	Refrigerant Liquid Inlet for NO.2 Cycle	Ø12.7 Flare Connection
3	Refrigerant Gas Outlet for NO.1 Cycle	Ø19.05 Flare for RAS-NP13CTS Ø22.2 Flange for RAS-NP15CTS
4	Refrigerant Gas Outlet for NO.2 Cycle	Ø19.05 Flare for RAS-NP13CTS Ø22.2 Flange for RAS-NP15CTS
5	Knockout Hole for Power Supply Wiring	Ø52
6	Knockout Hole for Operation Circuit Wiring	Ø20
7	Service Panel	
8	Magnetic Switch Box	

Cooling Capacity According to Unit Combination

Model Ccooling Unit Condensing Unit		RAS-NP4US RAS-NP4CTS	RAS-NP5US RAS-NP5CTS	RAS-NP6US RAS-NP6CTS	RAS-NP8US RAS-NP8CTS	RAS-NP9US RAS-NP9CTS	RAS-NP10US RAS-NP10CTS	RAS-NP13US RAS-NP13CTS	RAS-NP15US RAS-NP15CTS
Nominal Cooling Capacity at 35℃ outdoor temperature*	kW	11.7	14.7	18.7	22.6	26.5	29.4	36.9	47.0
	kcal/h	10,100	12,600	16,100	19,400	22,800	25,300	31,700	40,400
	Btu/h	39,900	50,200	63,800	77,100	90,400	100,300	125,900	160,400
Nominal Cooling Capacity at 46℃ outdoor temperature**	kW	10.2	12.6	16.2	19.7	22.8	25.1	32.7	41.6
	kcal/h	8,800	10,800	13,900	16,900	19,600	21,600	28,100	35,800
	Btu/h	34,800	43,000	55,300	67,200	77,800	85,600	111,500	141,900
Nominal Cooling Capacity at 48℃ outdoor temperature***	kW	10.1	12.5	16.1	19.6	22.6	24.6	32.5	41.4
	kcal/h	8,700	10,700	13,800	16,800	19,400	21,200	28,000	35,600
	Btu/h	34,500	42,700	54,900	66,900	77,100	83,900	110,900	141,300

Condensing Units

Model			RAS-NP4CTS	RAS-NP5CTS	RAS-NP6CTS	RAS-NP8CTS	RAS-NP9CTS	RAS-NP10CTS	RAS-NP13CTS	RAS-NP15CTS
Capacity Control		%	100,0	100,0	100,0	100,0	100,55,0	100,50,0	100,60,0	100,50,0
Cabinet Color (MUNSELL CODE)			Synthetic Resin Paint Baked on Galvanized Steel Plates Beige (2.5Y 8/2)							
Outer Dimensions	Height	mm (in.)	910 (35-13/16)	910 (35-13/16)	910 (35-13/16)	910 (35-13/16)	910 (35-13/16)	910 (35-13/16)	990 (38-31/32)	990 (38-31/32)
	Width	mm (in.)	850 (33-15/32)	850 (33-15/32)	1,130 (44-1/2)	1,130 (44-1/2)	1,300 (51-3/16)	1,300 (51-3/16)	2,240 (88-6/32)	2,240 (88-6/32)
	Depth	mm (in.)	950 (37-13/32)	950 (37-13/32)	1,300 (51-3/16)	1,300 (51-3/16)	1,330 (52-3/8)	1,330 (52-3/8)	1,180 (46-15/32)	1,180 (46-15/32)
Net Weight		kg (lbs.)	145 (320)	150 (332)	190 (419)	200 (441)	265 (584)	265 (584)	370 (816)	390 (860)
Refrigerant Number of Circuits			R410A 1				R410A 2			
Compressor			Hermelic Scroll							
Model			E406DH	E506DH	E626DH	E856DH	E506DH / E406DH	E506DH*2	E856DH / E506DH	E856DH*2
Model		kW (hp)	3.0 (4)	3.75 (5)	4.5 (6)	6.4 (8.5)	3.75/3.0 (5)/(4)	3.75 (5)	6.4/3.75 (8.5)/(5)	6.4 (8.5)
Quantity			1	1	1	1	1/1	2	1/1	2
Condenser			Multi-Pass Cross-Finned Tube							
Fan			Direct Driven Propeller Fan							
Air Flow		m³/min	130	130	150	150	176	176	345	365
Motor		kW (hp)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)	0.3 (2/5)
Quantity			1	1	1	1	1	1	2	2
Piping Connections			With Flare Nut or Companion Flange for Field Piping							
Liquid Line Size(O.D.)		mm (in.)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)	Φ12.7 (1/2)
Type			Flare	Flare	Flare	Flare	Flare	Flare	Flare	Flare
Quantity			1	1	1	1	2	2	2	2
Gas Line Size(O.D.)		mm (in.)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ22.2 (7/8)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ19.05 (3/4)	Φ22.2 (7/8)
Type			Flare	Flare	Flare	Flange	Flare	Flare	Flare	Flange
Quantity			1	1	1	1	2	2	2	2
Wiring Hole			Knockout Hole							
Main Power		mm (in.)	Φ26 (1-1/32)	Φ26 (1-1/32)	Φ52 (2-1/16)	Φ52 (2-1/16)	Φ52 (2-1/16)	Φ52 (2-1/16)	Φ52 (2-1/16)	Φ52 (2-1/16)
Control		mm (in.)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)	Φ20 (25/32)
Shipping Weight		kg (lbs.)	155 (343)	160 (355)	200 (441)	210 (463)	275 (606)	275 (606)	395 (871)	415 (915)
Approximate Packing List	Height	mm (in.)	935 (36-13/16)	935 (36-13/16)	950 (37-13/32)	950 (37-13/32)	935 (36-13/16)	935 (36-13/16)	1,025 (40-11/32)	1,025 (40-11/32)
	Width	mm (in.)	900 (35-7/16)	900 (35-7/16)	1,180 (46-15/32)	1,180 (46-15/32)	1,350 (53-5/32)	1,350 (53-5/32)	2,320 (91-11/32)	2,320 (91-11/32)
	Depth	mm (in.)	1,010 (39-4/3)	1,010 (39-4/3)	1,360 (53-17/32)	1,360 (53-17/32)	1,390 (54-12/23)	1,390 (54-12/23)	1,240 (48-13/16)	1,240 (48-13/16)
Measurements		m³	0.85	0.85	1.53	1.53	1.76	1.76	2.95	2.95