



HEAT PUMP

- ***High efficiency***
- ***Eco Friendly***
- ***Energy saving***



Air source
Water source
Combine cooling and heating

UNIT OPERATING PRINCIPLE

1. The gaseous low-temperature low-pressure refrigerant becomes high- temperature high-pressure gas, functioned by the compressor, Q_2 represents the quantity of heat transformed by the compressor.
2. The gaseous high-temperature high- pressure refrigerant exchanges heat with water, which is cooled and condensed to high- pressure liquid refrigerant in normal temperature. In the process, the chilled water turned hot water by absorbing the heat gave out by the refrigerant, Q_3 represents the quantity of heat absorbed by the water.
3. The high- pressure liquid refrigerant is decompressed to temperature that lower than the outside through the expanding valve, and thus capable of absorbing heat.
4. Through the air heat exchanger, the low-temperature low-pressure liquid refrigerant evaporates by absorbing the heat in the air. Q_1 represents the heat absorbed from the air by the refrigerant.
5. The compressor again compresses the gaseous low-temperature low-pressure refrigerant, which has absorbed the heat, In such circulation, heat is constantly absorbed from the air and released to the water heat exchanger, producing hot water. The heat pump hot water unit accomplishes the process.
6. As a highly efficient device for absorbing and transforming heat, the heat pump transform the electric power consumed by the compressor into 3.5 times, or even 4 times above of the heat energy.
7. As for air-conditioning ; $Q_1=Q_3-Q_2$; Q_1 is the quantity of heat absorbed from the air by the refrigerant, It reduces the temperature of the room by absorbing heat constantly. According to provision of national criterion, under normal condition, the refrigeration efficiency and value of COP ratio (the quantity and power ratio, that is Q_1/Q_2) shall not be lower than 2.4 Normally, the COP value of air-condition refrigeration is above 2.6
8. As for heat pump : $Q_3=Q_2+Q_1$; Q_3 is the quantity of heat absorbed from the refrigerant by the water, which is Q_2 Greater than the quantity of heat absorbed from the air by the refrigerant, while Q_2 is the quantity of heat produced by compressing the refrigerant. Therefore. Under the some condition, the COP value (the quantity and power ratio, that is, Q_3/Q_2) of the heat pump hot water unit is always 1.0 greater than the air-conditions. According to test result, the COP value of Realm heat pump hot water unit is above 4.0

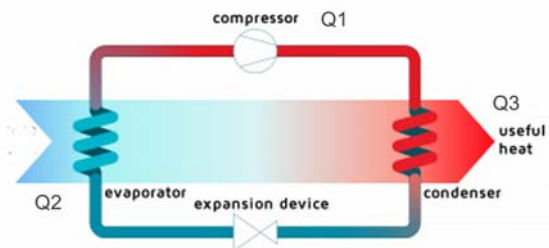
$$Q_1 + Q_2 = Q_3$$

Where :

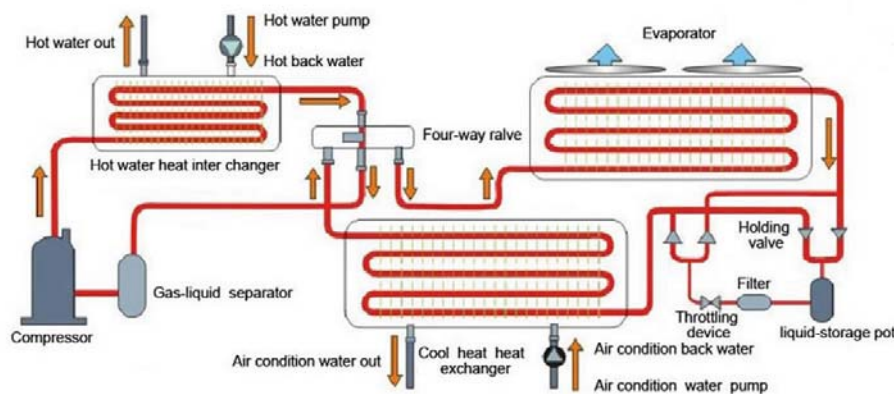
Q_1 is Electric Energy from Compressor

Q_2 is Heat Absorb from the Air

Q_3 is Heat Energy of Water



Combine Cooling and Heating



COMPARATION COST every 100.000 Kcal HEAT CAPACITY

Hot Water Equipment	Heat Value	Efficiency - %	Energy Price	Tot . COST
Electric Water Heater	860 Kcal/KWH	90	Rp. 2,200 / KWH	Rp. 220,271,-
Gas Hot Water Boiler	8,915 Kcal/m3	90	Rp. 3,100 / m3	Rp. 38,637,-
Fuel Hot Water Boiler	9,063 Kcal/Ltr	87	Rp. 9,500 / Ltr	Rp. 120,487,-
Heat Pump		400	Rp. 2,200 / KWH	Rp. 64,032,-

UNIT SPECIFICATION



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AIR SOURCE HEAT PUMP

Item	Model	RMRB-020YR RMRB-025YR	RMRB-03YR RMRB-05YR	RMRB-10YR RMRB-15YR	RMRB-20YR RMRB-25YR
Rated heating output	KW	8/9.8	13/22	44/60	90/125
Input power	KW	1.6/1.95	2.6/4.4	8.8/12	18/21
Voltage	V	220V-50HZ		380V-50HZ	
Freon Feed		1.8	2.1/3.0	6.2/8.2	12/14.8
Compressor	Form	Rotation Type		Scroll Type	
	Quantity	1	1	2	2
	Brand	Panasonic		Copeland / Hitachi	
Condenser	Form	Titanium Pipe / Nickel- Copper Pipe			
	Pressure loss	10Kpa	10Kpa	13Kpa	14Kpa
	Circulation water Pipe Diameter	32	40/50	75	90
	Flow Rate M ³	3.2	4.8/8	16	38
Weight		90	100/180	280/400	630/780
Control Mode		Microcomputer central processor(linear control)			
Protection Function		High pressure , Low pressure , Overload , water switch , Freeze			
Heating work conditions; environment temperature 20 °C, cold water temperature 27 °C. Specifications are subject to change without prior notice. The appearance is only for reference, please see the real product for detailed information					

COMBINE COOLING and HEATING

Item	Model	RMRB-05S	RMRB-10S	RMRB-20S	RMRB-25S
Rated heating output	KW	14	27	54	68
Rated heating input power	KW	4.4	8.8	18	21
Rated refrigeration quantity	KW	13	26	52	66
Refrigeration input power	KW	4.3	8.7	17.6	20.5
Voltage	V	220V/380V-50HZ		380V-50HZ	
Rated output water quantity		370	740	1500	1800
Freon feed	KG	3	6.2	12	14.8
Compressor	Form	Rotation type		Scroll Type	
	Quantity	1 & 2	2	2	2
	Brand	Copeland / Panasonic		Copeland	
Heat Recovery System	Form	Effective finned heat exchanger			
	Diameter DN	32	40	65	65
	Flow Rate M ³	3.8	7.8	15.6	17.3
Evaporator	Form	Panel or Spiral pipe			
	Diameter DN	32	40	65	65
	Flow Rate M ³	3.8	7.8	15.6	17.3
Weight		160	250	580	620
Control Mode		Microcomputer central processor(linear control)			
Protection Function		High pressure , Low pressure , phase failure, reserve phase , overload, water switch , Freeze			
Refrigerating work Conditions frozen water input temperature 12 °C, frozen water output temperature 7 °C. environment temperature 35 °C. Heating Works Conditions hot water input temperature 40 °C, hot water output temperature 45 °C, environment temperature 7 °C. Hot Water Work Conditions cold temperature 15 °C, hot water temperature 55 °C, environment temperature 20 °C. Specifications are subject to change without prior notice. The appearance is only for reference, please see the real product for detailed information					

WATER SOURCE HEAT PUMP

Item	Model	RMRB-02SSR	RMRB-03SSR	RMRB-05SSR	RMRB-10SSR	RMRB-12SSR	RMRB-20SSR	RMRB-25SSR
Rated heating output KW		7.6	11.5	19.8	39.6	48.8	81	94.5
Rated heating input KW		1.7	2.6	4.4	8.8	10.5	18	21
Rated refrigeration quantity KW		6	9	16	31	40	68	80
Refrigeration input power KW		1.6	2.5	4.3	8.7	10.2	17.6	20.5
Voltage V		220V/380V-50HZ			380V-50HZ			
Hot water temperature		55-60 °C						
Cold water/return water temperature		7-12 °C						
Rated output water quantity		160	230	400	800	1020	1600	2000
Freon feed KG		1.5	2.1	3	6	6.8	12	14.8
Compressor	Form	Rotation Type			Scroll Type			
	Quantity	1&2	1&2	1&2	2	2	2	2
	Brand	Panasonic		Copeland-panasonic	Copeland			
Working pressure		2.8Mpa						
Condenser	Form	Panel or spiral pipe						
	Pressure loss	50Kpa						
	Diameter DN	25	25	32	32	40	65	65
	Flow Rate M ³	1.5	1.8	3.8	3.8	9.6	15.6	17.3
Evaporator	Form	Panel or spiral pipe						
	Pressure loss	50Kpa						
	Diameter DN	25	25	32	32	40	65	65
	Flow Rate M ³	1.5	1.8	3.8	3.8	9.6	15.6	17.3
Weight KG		60	86	160	250	260	580	620
Protection Function		High pressure , Low pressure , phase failure, reserve phase , overload, water switch , Freeze						
Refrigerating work Conditions freezing water input temperature 12 °C, output temperature 7 °C; cooling water input 15 °C, output temperature 20 °C. Heating Works Conditions heating water input temperature 40 °C. output temperature 45 °C. cooling water input 15 °C, output temperature 10 °C. Hot water work conditions; cold water temperature 15 °C, hot water temperature 55 °C. water source temperature 20 °C. If the temperature of water source or fed water changes, then relative parameter will also change. Specifications are subject to change without prior notice. The appearance is only for reference, please see the real product for detailed information								

Manufacturing :



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