

## Outdoor Units - DC Inverter

### General Data

Models (RAS)	RAS-3HRNE	RAS-4HRNE	RAS-5HRNE	RAS-4HRNE	RAS-5HRNE
<b>Power Supply</b>	1-230V / 50Hz		3-400V / 50Hz		
<b>Colour (Munsell Code)</b>	Natural Grey (1.0Y8.5/0.5)				
<b>Sound Pressure Level</b>					
Night Mode	dB (A)	43 / (41)	45 / (41)	47 / (43)	45 / (41)
<b>Sound Pressure Level</b>	dB (A)	64	66	69	66
<b>Outer Dimension</b>					
Height	mm	800	1240	1240	1240
Width	mm	850	950	950	950
Depth	mm	315	315	315	315
<b>Net Weight</b>	kg	60	95	97	100
<b>Refrigerant Type</b>	R410A				
<b>Flow Control</b>	Micro Processor Controlled Expansion Valve				
<b>Type Compressor</b>	Hermetic (Rotary)	Hermetic (Scroll)	Hermetic (Scroll)	Hermetic (Scroll)	Hermetic (Scroll)
Quantity	1	1	1	1	1
Power	mm	0.98	1.38	1.38	2.2
<b>Heat Exchanger</b>	Multi-Pass Cross-Finned Tube				
<b>Condenser Fan (Type)</b>	Propeller Fan	Propeller Fan	Propeller Fan	Propeller Fan	Propeller Fan
Quantity	1	2	2	2	2
Air Flow Rate	m <sup>3</sup> /min	45	80	90	80
Power	W	50	30 + 50	50 + 70	30 + 50
<b>Refrigeration Piping</b>	Connection with nuts				
<b>Connections Size</b>					
Gas	mm (inches)	Ø9.53 (3/8")			
Liquid	mm (inches)	Ø15.88 (5/8")			
<b>Refrigerant Charge</b>	kg	2.4	3.6	3.6	3.6
<b>Maximum Current</b>	A	25	32	32	11
<b>Packaging Dimensions</b>	m <sup>3</sup>	0.34	0.55	0.55	0.55

### NOTES:

The nominal cooling and heating capacity is the combined capacity of HITACHI's AquaFree system, and it based with the following standards:

**Cooling capacity EN 12055**

**Heating capacity reverse cycle units EN 255**

Operation conditions	Cooling	Heating
Water Temperature	Inlet 23.0°C Outlet 18.0°C	36.0°C 30.0°C
Outdoor Air inlet Temperature	DB 35.0°C WB -	7.0°C 6.0°C

**Piping Length:** 7.5 metres / **Piping lift:** 0 meters

**DB:** dry bulb / **WB:** wet bulb

The Sound Pressure Level is based on the following conditions:

**1 meter from unit's front surface**  
**Voltage of the power source is 230V**

The above data was measured in an anaechoic chamber so that reflected sound should be taken into consideration when installing the unit.

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**AquaFREE**



# AquaFREE System

Hitachi's AquaFREE system is a Heat Pump heating system for winter, and a partial cooling system for summer. The system consists of an Inverter Heat Pump outdoor unit and a hydraulic module indoor unit. The heat pump absorbs or sends the heat to the outside, and transfers it to the water circuit by means of the AquaFREE module.

The AquaFREE air conditioning system incorporates a set of technical benefits that make it one of the most attractive on the market. Right from selection of the ideal type of equipment in each case, up to its maintenance, and through installation, start up and operation. AquaFREE always provides the best solution for every user and greatly simplifies and eases the user's selection process.

AquaFREE systems provide great comfort, high reliability, rigorous design, low electrical consumption and require less installation space than a conventional boiler.

### Applications

- Under floor heating and cooling
- Low temperature radiators
- Swimming pool heater

### Savings and Ecology

- Use of highly efficient Hitachi DC Inverter technology
- Estimated savings of approx. 60% over traditional heating methods
- Manufactured to RoHS Environmental Directive



## AquaFREE Standard Models (Swimming Pool models also available)

### General Data

Models (RWM)		RWM-3FSN1E	RWM-4FSN1E	RWM-5FSN1E
<b>Power Supply</b>	–	1-230V / 50Hz		
<b>Cooling for Radiant Floor</b>				
Min	kW	3.9	4.9	6.7
Norm	kW	7.1	10.0	12.5
Max	kW	8.0	11.2	14.0
<b>EER</b>	–	3.51	3.22	3.54
<b>Heating for Radiant Floor</b>				
Min	kW	4.0	5.7	7.0
Norm	kW	8.0	11.2	14.0
Max	kW	10	14.6	16.7
<b>COP</b>	–	4.05	3.46	3.47
<b>Pump Input Power</b>	W	93	93	132
<b>Sound Pressure Level</b>	dB (A)	27	28	28
<b>Outer Dimension</b>				
Height	mm	900		
Width	mm	526		
Depth	mm	372		
<b>Net Weight</b>	kg	38	39	40
<b>Refrigerant Type</b>	–	R410A		
<b>Refrigerant Piping Connections</b>	–	Connection with nuts		
<b>Connections Size</b>				
Gas	mm (inches)	Ø9.53 (3/8")		
Liquid	mm (inches)	Ø15.88 (5/8")		
<b>Water Pipe Connection</b>	–	Connection with nuts		
<b>Connections Size</b>				
Circuit	mm (inches)	Ø25.4 (1")		
Supply	mm (inches)	Ø19.05 (3/4")		
<b>Water Working Pressure (Nom)</b>	mAq	3.5	2.5	2.3
<b>Expansion Vessel Volume</b>	–	5		
<b>Maximum Current</b>	A	0.5	0.5	0.6
<b>Packaging Dimensions</b>	m <sup>3</sup>	0.2		
<b>Cabinet Colour</b>	–	Aluminium Grey		
<b>Remote Control SW</b>	–	CTA-IMH RF A		

## AquaFREE Models with Electric Heaters (Swimming Pool models also available)

### General Data

Models (RWM)		RWM-3FSN1E / 4.5H1	RWM-4FSN1E / 6H1	RWM-5FSN1E / 6H1	RWM-4FSN1E / 6H3	RWM-5FSN1E / 6H3
<b>Power Supply</b>	–	1-230V / 50Hz			3-400V / 50Hz	
<b>Cooling for Radiant Floor</b>						
Min	kW	3.9	4.9	6.7	4.9	6.7
Norm	kW	7.1	10.0	12.5	10.0	12.5
Max	kW	8.0	11.2	14.0	11.2	14.0
<b>EER</b>	–	3.51	3.22	3.54	3.22	3.54
<b>Heating for Radiant Floor</b>						
Min	kW	4.0	5.7	7.0	5.7	7.0
Norm	kW	8.0	11.2	14.0	11.2	14.0
Max	kW	11.5	14.6	16.7	14.6	16.7
<b>COP</b>	–	4.05	3.46	3.47	3.46	3.47
<b>Auxiliary Heating</b>						
Min / Med / Max	kW	1.50/3.00/4.50	2.00/4.00/6.00	2.00/4.00/6.00	2.00/4.00/6.00	2.00/4.00/6.00
<b>Pump Input Power</b>	W	93	93	132	93	132
<b>Sound Pressure Level</b>	dB (A)	27	28	28	28	28
<b>Outer Dimension</b>						
Height	mm	900				
Width	mm	526				
Depth	mm	372				
<b>Net Weight</b>	kg	42	44	45	44	45
<b>Refrigerant Type</b>	–	R410A				
<b>Refrigerant Piping Connections</b>	–	Connection with nuts				
<b>Connections Size</b>						
Gas	mm (inches)	Ø9.53 (3/8")				
Liquid	mm (inches)	Ø15.88 (5/8")				
<b>Water Pipe Connection</b>	–	Connection with nuts				
<b>Connections Size</b>						
Circuit	mm (inches)	Ø25.4 (1")				
Supply	mm (inches)	Ø19.05 (3/4")				
<b>Water Working Pressure (Nom)</b>	mAq	3.5	2.5	2.3	2.5	2.3
<b>Expansion Vessel Volume</b>	–	5				
<b>Maximum Current</b>	A	20.1	26.5	26.6	26.5	26.
<b>Packaging Dimensions</b>	m <sup>3</sup>	0.2				
<b>Cabinet Colour</b>	–	Aluminium Grey				
<b>Remote Control SW</b>	–	CTA-IMH RF A				