



Rinnai Commercial - Heat Pumps



Rinnai

The Easy Choice for Commercial Hot water solutions

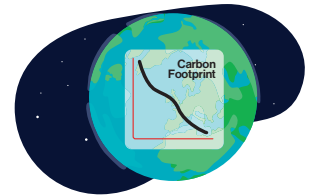
Over our 100-year history of innovation, we've proven our commitment to quality, safety, and support is behind everything we do. We make it easy to pick the right water heating solution to support the needs of your business and customers.

We are bringing the Rinnai mission of "creating a healthier way of living" to life, in the form of our H3 solutions initiative. So, whether you are looking at natural gas to Hydrogen, Hybrid gas, electric, or all-electric heating and hot water systems, we have a market-leading solution for you.



Backed with design support, extensive warranties and carbon calculation services in the form of our innovative "Greenbook" We are here to support you on our quest to "create a healthier way of living"

Creating a healthier way of living is our core mission statement, which underlines how we act and apply innovation to our products and working processes. We are striving to develop products that save energy using ecological gases. In the case of our heat pump range, we target the elimination of leakages and the use of environmentally friendly refrigerants to reduce global warming potential.



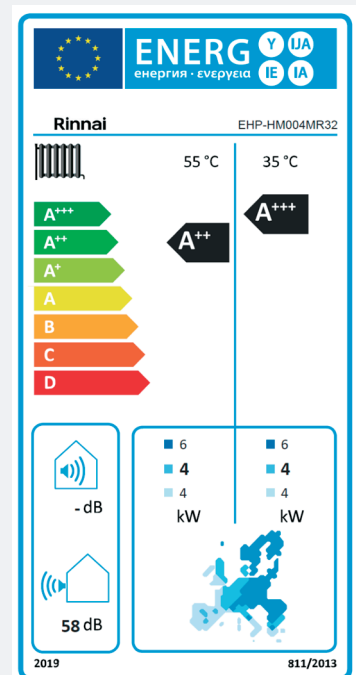
We are investing in the R&D of heating systems with heat pumps and hybrid systems so that electron-based technology can easily integrate with our extensive range of molecule-based products whilst continuing to explore new and replacement refrigerant gas.

All our **heat pumps** are accompanied by an energy label. The label describes the performance of different models within our extensive range.

These classes are represented by different colours and letters (A to D+++), the technical and energy characteristics are also covered in the label – the important area here is the SCOP (seasonal coefficient of performance) in heating mode.

This is calculated for the three main climate zones in the EU, these can be considered as "average", "warmer" and "cooler". The consumption is measured for 60 minutes of operation in each mode, along with the noise performance.

The higher the SCOP value, the greater the energy efficiency and lower the consumption. We are pleased that our range of heat pumps performs in a higher energy band than the market average.

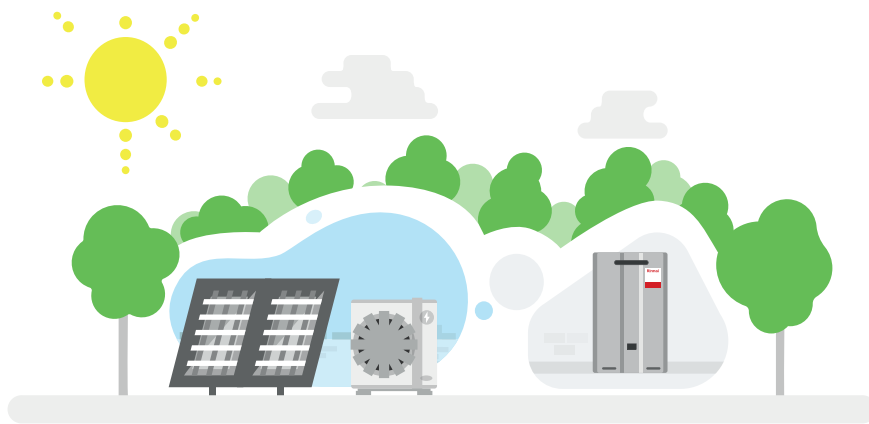


Factors driving the increasing need for renewable energy & heat

The way that energy and heat are provided to commercial buildings will change over the coming years. Increased reliance on renewable technologies combined with the greening of the electricity and gas grid will ensure that downstream products are increasingly **lower carbon**.

Factors driving this include fuel security, rising fuel costs, and the growing need to fight climate change. Commercial buildings are responsible for 18% of the total UK emissions with 51% of emissions generated by each building coming from heating and hot water generation.

Future legislation will drive new build and large-scale refurbishment to utilise renewable energy. It is expected that new laws and regulations will continue to drive greater reliance on renewable energy including green electricity and gases.



H3 – The new element in water heating





























We at **Rinnai** recognise the need to improve energy efficiency across the existing suite of UK commercial buildings along with the growing low carbon requirements of new builds. Therefore increasing efficiency, reducing carbon emissions and incorporating renewable energy are key to our continued technological advances.

The deployment of heat pump technology along with our **Hybrid** and **Hydrogen blend ready** or **BioLPG** ready solutions will serve to, improve energy efficiency, and reduce carbon.

For more details on our complete range of low carbon solutions, visit www.rinnaiuk.com

Heat Pumps at a glance...

Our heat pumps can be used as a primary heat source for high temperature domestic hot water and space heating.

	Inverter monoblock heat pump	HPI	4 kW÷18 kW	     
	Inverter monoblock chillers and heat pumps	HPIH	21 kW÷32 kW	     
	Air/water inverter heat pumps with axial fans	HPHP	48 kW÷70 kW	      
	Chillers/heat pumps with dual refrigerant circuit	HPMAX	66 kW÷115 kW	     

	Model				Remote Control	
	HPI	HPIH	HPHP	HPMAX	AHPCR	AHPTZ
						

Domestic hot water	-	-	-	•	•	○
Anti-legionella	-	-	•	•	ND	•
DHW integration resistance	-	-	•	•	ND	○
System resistance integration	-	-	•	•	ND	○
Defrost resistance integration	-	-	•	•	ND	○
Boiler enable integration	-	-	•	•	ND	○
Double set point digital contact	-	-	•	•	ND	○
Digital contact on-off	-	-	-	-	-	○
Summer-winter digital contact	-	-	-	•	•	○
Signaling functioning mode	-	•	•	•	•	○
Alarm-block signaling	-	•	•	•	•	○
Block report	-	-	•	•	•	○
Remote plant water probe	-	-	X	•	•	○
Unique pump in the network **	-	-	•	ND	ND	•
AC pump with inverter	ND	ND	-	X	-	○
Secondary circulator	•	•	•	•	ND	○
Mixing valve	•	•	ND	ND	ND	-
Solar thermal integration	•	•	-	-	-	
Recirculation management	ND	ND	ND	ND	N-	
Room chronothermostat	-	-	-	-	-	•
Room thermostat	-	-	-	-	-	•
Zone management	-	-	-	-	-	•
Machine network management *	-	-	-	-	-	•
Weekly programming	-	-	-	-	-	•
Web server	-	-	-	-	-	•
Alarm history	-	-	-	-	-	•
Economy function	-	-	-	-	-	•
Fancoil management ***	-	-	-	-	-	•
Climate compensation	-	-	-	-	-	•
Double dehumidifier set point ***	-	-	X	X	ND	•
Slab function	-	-	-	-	ND	•
Compressors ON / OFF signal		•				

Required accessory •
 Optional (remoting) ○
 No accessory required -
 Not available ND

Required for the mod. HPI4270 x

Rinnai – HPI Inverter Monobloc Heat Pumps



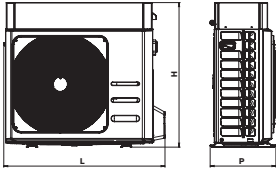
The inverter technology used within the **Rinnai** heat pumps combined with advanced DC motors ensures higher efficiency and performance. This is further supported by the effective modulating power of the system leading to greater COP performance and an increase in partial load efficiency.

Features

- Customised control system with microcontroller regulation, overheating control logic with electronic expansion valve.
- DC inverter compressors: twin-rotary DC inverter.
- Source exchanger: optimised circuit with a finned coil, copper pipes, and hydrophilic aluminum fins.
- Integral hydraulic system: pump with high efficiency brushless circulator, flow switch, air valve, pressure relief valve (6bar), pressure gauge, water valve for system charge and discharge.
- All units operate in three different modes, heating, cooling, and DHW with specific programs that enhance the performance in all modes.
- Brazed stainless steel plate AISI 304 with reduced pressure drop on the water-side.
- The HPI range can handle mixing valves, diverter, and secondary systems along with integration with external heat sources and third-party automation systems.
- Browser connectivity is also available for remote monitoring – Modbus RS485 communication protocol comes as standard.
- High-temperature hot water.

Rinnai – HPI Inverter Monobloc Heat Pumps

COP=
A+++



Dimensions		04	06	08	10	10T	12
L	mm	924	924	924	1.047	1.047	1.047
P	mm	379	377	377	456	456	456
H	mm	828	828	828	936	936	936

Mod. 4-6-8

HPI32 Heating

		04	06	08	10	10T	12
Power Thermal (3)	kW	4,76	6,08	7,81	10,1	10,1	11,8
Power input (3)	kW	1,00	1,35	1,78	2,28	2,28	2,73
C.O.P. (3)	W/W	4,76	4,51	4,38	4,43	4,43	4,32
Power Thermal (4)	kW	4,75	5,88	7,58	9,76	9,76	11,47
Power input (4)	kW	1,30	1,66	2,17	2,80	2,80	3,33
C.O.P. (4)	W/W	3,65	3,54	3,50	3,48	3,48	3,44
SCOP (6)	W/W	4,56	4,46	4,46	4,53	4,53	4,47
Water flow (4)	L/s	0,23	0,28	0,37	0,47	0,47	0,55
Available pressure (4)	kPa	79,6	75,8	66,3	55,2	55,2	43,4
Energy efficiency (Water 35°C-55°C)		A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++

Compressor

Type		Twin Rotary DC Inverter					
Compressors	n°	1	1	1	1	1	1
Refrigerant circuits	n°	1	1	1	1	1	1
Refrigerant charge (7)	kg	1,5	1,5	1,5	2,5	2,5	2,5

Hydraulic circuit

Water connections	inch	1" M	1" M	1" M	1" M	1" M	1" M
Min. water volume (8)	L	35	40	40	50	50	60

Sound level

Sound power Lw (9)	dB(A)	58	64	64	64	64	65
Sound pressure at 1m distance Lp1 (10)	dB(A)	43,8	49,8	49,8	49,4	49,4	50,4

Electrical data

Power supply		230V/1/50Hz				400V/3P+N+T/50Hz	230V/1/50Hz
Max. power input	kW	2,1	3,5	3,9	4,6	4,6	5,1
Max. current input	A	10,6	15,1	17,0	20,2	6,6	22,1

Weight

Gross weight	kg	73	84	84	110	110	110
Operation weight	kg	61	72	72	96	96	96

ACCESSORIES

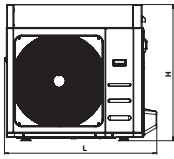
AWHP-AG	Vibration damper kit
AWHP-KA	Antifreeze kit
AWHP-Hi-T2	Multifunctioning touch screen remote control
AWHP-VDIS2	Diverter valve (1" 1/4) Kvs 19,2
AWHP-SAS	DHW probe / Sanitary water probe
AWHP-EXOGEL	Frost protection
AWHP-RFC	Remote fancoil control (Hi-T2 control required)
AWHP-i-CR	Remote wall controller
AWHP-GI	Plant management module

Operating conditions:

- (3) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet water temperature 30/35°C.
 (4) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 40/45°C.
 (6) Heating: in average climate condition; T_{db} = -7°C; water temperature inlet/outlet 30/35°C.
 (7) The data are only indicative and subject to change. For the correct data, refer to the technical label on the unit.
 (8) Calculated for a decrease of the water temperature of the plant with 10°C with a defrosting cycle of 6 minutes.
 (9) Sound power heating mode condition (3); the value is determined respecting the measurements taken in accordance with the regulations UNI EN ISO 9614-2, in compliance with the Eurovent certification.
 (10) Sound pressure level obtained with internal measurements made in accordance with ISO 3744, at 1m distance.
 (*) activating the Max Hz function.

Rinnai – HPI Inverter Monobloc Heat Pumps

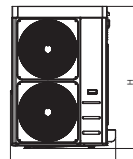
COP=
A+++



Mod. 10-12



Mod. 14-14T-16-16T-18T



Dimensions		12T	14	14T	16	16T	18T
L	mm	1.047	1.044	1.044	1.044	1.044	1.044
P	mm	456	455	455	455	455	455
H	mm	936	1.409	1.409	1.409	1.409	1.409

HPI32

Heating

		12T	14	14T	16	16T	18T
Power Thermal (3)	kW	11,8	14,1	14,1	16,3	16,3	17,9
Power input (3)	kW	2,73	2,91	2,91	3,49	3,49	4,07
C.O.P. (3)	W/W	4,32	4,85	4,85	4,67	4,67	4,40
Power kw (4)	kW	11,47	13,56	13,56	15,77	15,77	17,32
Power input (4)	kW	3,33	3,55	3,55	4,24	4,24	4,92
C.O.P. (4)	W/W	3,44	3,82	3,82	3,72	3,72	3,52
SCOP (6)	W/W	4,47	4,48	4,48	4,49	4,49	4,46
Water flow (4)	L/s	0,55	0,65	0,65	0,76	0,76	0,83
Available pressure (4)	kPa	43,4	63,6	63,6	48,5	48,5	37,3
Energy efficiency (Water 35°C-55°C)		A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++

Compressor

Type	Twin Rotary DC Inverter						
Compressors	n°	1	1	1	1	1	1
Refrigerant circuits	n°	1	1	1	1	1	1
Refrigerant charge (7)	kg	2,5	3,6	3,6	4	4	4

Hydraulic circuit

Water connections	inch	1" M	1" M	1" M	1" M	1" M	1" M
Min. water volume (8)	L	60	60	60	70	70	70

Sound level

Sound power Lw (9)	dB(A)	65	68	68	68	68	68
Sound pressure at 1m distance Lp1 (10)	dB(A)	50,4	52,7	52,7	52,7	52,7	52,7

Electrical data

Power supply		400V/3P+N+T/50Hz	230V/1/50Hz	400V/3P+N+T/50Hz	230V/1/50Hz	400V/3P+N+T/50Hz	400V/3P+N+T/50Hz
Max. power input	kW	5,1	6,6	6,6	7,0	7,0	8,3
Max. current input	A	7,3	28,6	9,5	30,4	10,1	12,0

Peso / Weight

Gross weight	kg	110	134	148	140	154	154
Operation weight	kg	96	121	136	126	141	141

ACCESSORIES

AWHP-AG	Vibration damper kit
AWHP-KA	Antifreeze kit
AWHP-Hi-T2	Multifunctioning touch screen remote control
AWHP-VDIS2	Diverter valve (1" 1/4) Kvs 19,2
AWHP-SAS	DHW probe / Sanitary water probe
AWHP-EXOGEL	Frost protection
AWHP-RFC	Remote fancoil control (Hi-T control required)
AWHP-i-CR	Remote wall controller
AWHP-GI	Plant management module
AWHP-TR2	Anti-corrosion treatment

Operating conditions:

- (3) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet water temperature 30/35°C.
 (4) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 40/45°C.
 (6) Heating: in average climate condition; T_{db}=-7°C; water temperature inlet/outlet 30/35°C.
 (7) The data are only indicative and subject to change. For the correct data, refer to the technical label on the unit.
 (8) Calculated for a decrease of the water temperature of the plant with 10°C with a defrosting cycle of 6 minutes.
 (9) Sound power heating mode condition (3); the value is determined respecting the measurements taken in accordance with the regulations UNI EN ISO 9614-2, in compliance with the Eurovent certification.
 (10) Sound pressure level obtained with internal measurements made in accordance with ISO 3744, at 1m distance.
 (*) activating the Max Hz function.

Rinnai – HPI Inverter Monobloc Heat Pumps

The range of Rinnai HPI Monobloc air source heat pumps come in variants ranging from 4-18kW. The heat pump technology allows up to 7 units to be cascaded together.

The heat pump technology is designed to satisfy the heating and hot water demand of a wide range of applications, from domestic to commercial. The innovative ability of the system to switch between heating, hot water and cooling mode ensures that the HPI has flexibility and durability as standard.



Key features

- Small footprint
- Fully self-contained unit requiring electrical and hot water connections only.
- Low maintenance and quiet operation with super silenced variants available.
- Operates on low outside temperatures -25 °C
- Full Hybrid systems available
- Smart controls available
- Highly durable even in coastal areas

Ideal applications

- Domestic properties
- Public sector buildings – schools
- Commercial outlets – restaurants
- Small retail outlets

The HPI use R32 refrigerant and has an ERP rating of A+++ making this range of heat pumps an economical and environmentally sound choice for future and refurbishment projects.

Rinnai – HPI SL Inverter Silenced Monobloc Heat Pumps

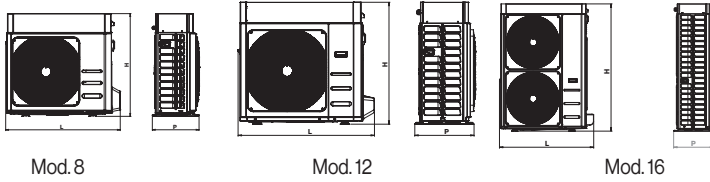


These models have **ultra-low sound** capability making them suitable for areas with prohibitive sound legislation. The HPI SL range creates the ideal blend of efficiency and low sound levels ensuring compliance with the most stringent sound standards.

Features

- Sound power rating of 53 DB
- Customised control system with microcontroller regulation, overheating control logic with electronic expansion valve.
- DC inverter compressors: twin-rotary DC inverter
- Source exchanger: optimised circuit with finned coil, copper pipes and hydrophilic aluminum fins.
- Brazed stainless steel plate AISI 304 with reduced pressure drop on the water side
- Integral hydraulic system: pump with high efficiency brushless circulator, flow switch, air valve, pressure relief valve (6bar), pressure gauge, water valve for system charge and discharge.
- All units operate in three different modes, heating, cooling and DHW with specific programs that enhance the performance in all modes.
- The HPI range can handle mixing valves, diverter, and secondary systems along with integration with external heat sources and third-party automation systems.
- Browser connectivity is also available for remote monitoring – Modbus RS485 communication protocol comes as standard.

Rinnai – HPI SL Silenced Inverter Monobloc Heat Pump



Dimensions		08	12	12T	16	16T
L	mm	924	1047	1047	1044	1044
P	mm	379	466	466	448	448
H	mm	828	936	936	1409	1409

HPI32SL

08

12

12T

16

16T

Heating

Power Thermal (3)	kW	4,58	7,35	7,35	8,65	8,65
Power input (3)	kW	0,98	1,52	1,52	1,68	1,68
C.O.P. (3)	W/W	4,67	4,84	4,84	5,15	5,15
Power Thermal (4)	kW	4,45	7,14	7,14	8,37	8,37
Power input (4)	kW	1,19	1,85	1,85	2,04	2,04
C.O.P. (4)	W/W	3,72	3,85	3,85	4,10	4,10
SCOP (6)	W/W	4,58	4,58	4,58	4,72	4,72
Water flow (4)	L/s	0,21	0,34	0,34	0,40	0,40
Available pressure (4)	kPa	80,5	70,9	70,9	87,4	87,4
Energy efficiency (Water 35°C-55°C)		A+++/A++	A+++/A++	A+++/A++	A+++/A++	A+++/A++

Compressor

Type	Twin Rotary DC Inverter					
Compressors	n°	1	1	1	1	1
Refrigerant circuits	n°	1	1	1	1	1
Refrigerant charge (7)	kg	1,5	2,5	2,5	3,5	3,5

Hydraulic circuit

Water connections	inch	1" M	1" M	1" M	1" M	1" M
Min. water volume (8)	L	40	60	60	70	70

Sound level

Sound power Lw (9)	dB(A)	53	53	53	53	53
Sound pressure at 1m distance Lp1 (10)	dB(A)	38,8	38,4	38,4	37,7	37,7

Electrical data

Power supply		230V/1/50Hz	230V/1/50Hz	400V/3P+N+T/50Hz	230V/1/50Hz	400V/3P+N+T/50Hz
Max. power input	kW	3,9	5,1	5,1	7,0	7,0
Max. current input	A	17,0	22,1	7,3	30,4	10,1

Weight

Gross weight	kg	84	110	110	140	154
Operation weight	kg	72	96	96	126	141

ACCESSORIES

AWHP-AG	Vibration damper kit
AWHP-KA	Antifreeze kit
AWHP-Hi-T2	Multifunctioning touch screen remote control
AWHP-VDIS2	Diverter valve (1" 1/4) Kvs 19,2
AWHP-SAS	DHW probe / Sanitary water probe
AWHP-EXOGEL	Frost protection
AWHP-RFC	Remote fancoil control (Hi-T2 control required)
AWHP-i-CR	Remote wall controller
AWHP-GI	Plant management module
AWHP-TR2	Anti-corrosion treatment

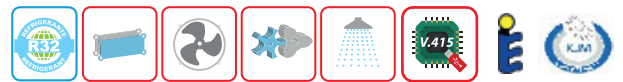
Operating conditions:

- (3) Heating- Outdoor air temperature 7°C DB 6°C WB; inlet/outlet water temperature 30/35°C.
- (4) Heating- Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 40/45°C.
- (6) Heating- in average climate condition; T_{db}=-7°C; water temperature inlet/outlet 30/35°C.
- (7) The data are only indicative and subject to change. For the correct data, refer to the technical label on the unit.
- (8) Calculated for a decrease of the water temperature of the plant with 10°C with a defrosting cycle of 6 minutes.
- (9) Sound power heating mode condition (3); the value is determined respecting the measurements taken in accordance with the regulations UNI EN ISO 9614-2, in compliance with the Eurovent certification.
- (10) Sound pressure level obtained with internal measurements made in accordance with ISO 3744, at 1 m distance.
- (*) activating the Max Hz function.

Rinnai – HPIH Inverter Monobloc Heat Pumps



21kW-32kW R32 Refrigerant Heat Pumps



The HPIH range deploys low GWP refrigerant. This combined with state of the art components ensures an efficient and robust commercial system.

Compressor

DC inverter compressor is designed for operation with R32 and is equipped with thermal protection and mounted on rubber vibration dampers to reduce noise.

User-Side Heat Exchanger

Grade AISI 304 stainless steel brazed plate heat exchanger coated with black closed-cell flexible elastomeric foam; 9 mm thickness thermal conductivity (λ) \leq 0.036 W/mK (with air +20°C). A flow switch fitted on the water side guarantees the water flow and prevents ice from building up inside with the protection probe.

Structure

Suitable for outdoor installation in difficult conditions because the body is made of high-thickness profiles made of galvanised steel sheets coated with polyester powder, ensuring weather resistance.

Source-Side Heat Exchanger

The air-cooled heat exchangers are made with copper pipes and aluminum fins. The pipes are mechanically expanded in the aluminum fins to increase the thermal exchange factor.

Fan

Axial-type fans featuring aerofoil blades. They are statically and dynamically balanced and supplied with a protective grille and air inlet and outlet nozzle with a double-flared profile, specially shaped to boost efficiency and reduce noise. The electric motor is modulated with EC brushless motor, directly coupled, and equipped with an integrated thermal protection device. The motor has an IP 54 protection rating in accordance with the CEI EN 60529 standard.

- Management module (optional)
- Visualisation of settings, analogue inputs, fault codes, alarm log and parameter index;
- On/off and alarm reset buttons;
- Unit switch-on management from local or remote source;
- Configuration for ModBus connectivity (optional);
- BMS connectivity (Configuration for BMS connectivity (Modbus/BACnet/Knx/Lonworks); (optional)

Electrical Panel and Control

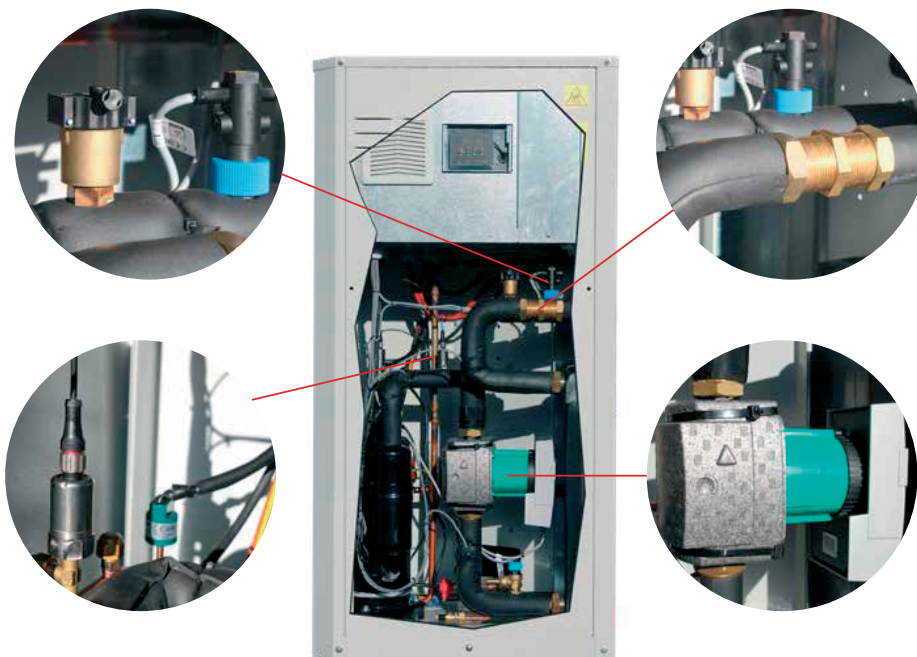
Entirely made and wired in conformity to the IEC 60335-2-40

The power section includes:

- Isolation transformer for powering the control devices;
- Thermal protection fuses for compressor drivers, EC fan and pump driver;
- Automatic switch for protecting the compressors (optional);
- Drivers for modulating compressor control;
- Phase sequence control relay;
- Thermostatic ventilation inside electrical cabinet;

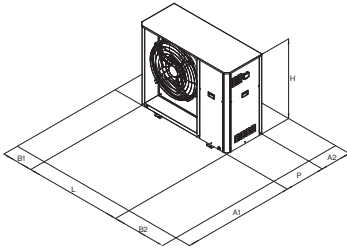
Standard Components

- Electronic circulator
- EEV - electronic valve
- Liquid indicator
- Water side safety valve
- Drain cock
- Flow switch (flow presence signal)
- Remote on / off clean contact
- Dynamic set point
- Three-phase relay for sequence / lack monitoring
- Fan speed regulator (ECM fans)
- 2nd set point



Rinnai – HPIH Monobloc Heat Pumps

COP=
A+++



Required/minimum distance **0121-0126** **0128-0132**

		0121-0126	0128-0132
A1	mm	1500	1500
A2	mm	400	400
B1	mm	400	400
B2	mm	700	700

Dimensions		0121	0126	0128	0132
L	mm	1600	1600	1600	1600
P	mm	640	640	640	640
H	mm	1315	1315	1315	1315

HPIH

0121

0126

0128

0132

Heating

Heating capacity (3)	kW	21,3	26,0	28,0	32,1
Power input (3)	kW	4,92	6,44	6,35	7,84
C.O.P. (3)	W/W	4,33	4,04	4,41	4,09
Heating capacity (4)	kW	21,3	25,8	28,3	32,7
Power input (4)	kW	6,58	7,86	8,21	9,90
C.O.P. (4)	W/W	3,24	3,28	3,45	3,30
SCOP (6)	W/W	4,20	3,95	4,29	4,02
Water flow (1)	L/s	1,0	1,2	1,4	1,6
Available Pressure (4)	kPa	37,9	53,1	41,4	50,6
Energy efficiency (Water 35°C-55°C)	Class	A++/A+	A++/A+	A++/A++	A++/A+

Compressor

Type	Twin Rotary DC Inverter				
Compressors	n°	1	1	1	1
Refrigerant circuits	n°	1	1	1	1
Refrigerant R32	kg	4,3	4,3	5,1	5,1
CO2 equivalent	ton	2,90	2,90	3,44	3,44

Fan

Type	Motore DC Brushless				
Number		1	1	1	1
Nominal air flow	m³/h	10769	10847	12209	13202

Hydronic heat exchanger

Type		A piastre	A piastre	A piastre	A piastre
Number		1	1	1	1

Hydraulic circuit

Water connections	inch	1"	1"	1 1/4"	1 1/4"
Water quantity	L	2,4	2,4	3,4	3,4

Sound level

Sound power Lw	dB(A)	71	73	75	77
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Electrical data

Power supply	400V/3P+N+T/50Hz				
Max. power input	kW	15,0	15,0	17,6	17,6
Max. current input	A	21,7	21,7	25,4	25,4

Weight

Net weight (*)	kg	250	250	265	265
Net weight (*)	kg	240	240	255	255

Rinnai – HPIH Monobloc Heat Pumps

The range of Rinnai HPIH Monobloc air source heat pumps come in 21-32kw variants. The heat pump technology allows up to 7 units to be cascaded together.

The HPIH range can operate as a standalone heat pump or in sequence supplying larger heating and hot water demands. The HPIH has a range of controls and system peripherals to ensure that the system can be monitored, and maximum efficiencies can be visualised.



Key features

- Cascade capability leads to 224kW system capacity
- Hermetically-sealed design and low maintenance
- Fully self-contained unit requiring electrical and hot water connections only.
- Operates on low outside temperatures -25 °C
- Full Hybrid systems available
- Smart controls available
- Highly durable even in coastal areas
- R32 Refrigerant for low GWP
- 60 °C hot water

Ideal applications

- Public sector buildings – schools
- Commercial outlets – restaurants
- Small retail outlets
- UK domestic properties

The HPIH use R32 refrigerant and has an ERP rating of A++ making this range of heat pumps an economical and environmentally sound choice for future and refurbishment projects.

Rinnai – HPHP Inverter Heat Pumps



48kW-70kW R32 Refrigerant Heat Pumps

The HPHP series reaches high values of SEER and SCOP thanks to DC inverter scroll compressors. The DC Inverter compressor can save up to 25% of power input, adding to heat pump efficiency and performance.

The efficient DC inverter scroll compressors are optimized for working under heavy-duty commercial conditions, meaning that the heat pump can perform well in the coldest of conditions (temperature of -25°C).

The state-of-the-art injection process involves injecting the refrigerant, in a vapour form, at strategic times during the compression process, improving overall system efficiency and performance when compared to conventional gas compression technologies. With the HPHP range, it is possible to produce high temperature hot water.

System features and benefits

V.415 control board

New control logic and display interface installed on all new Rinnai 45kW-70kW HPHP heat pumps, enables rapid maintenance response with parameter and firmware visualisation updates.



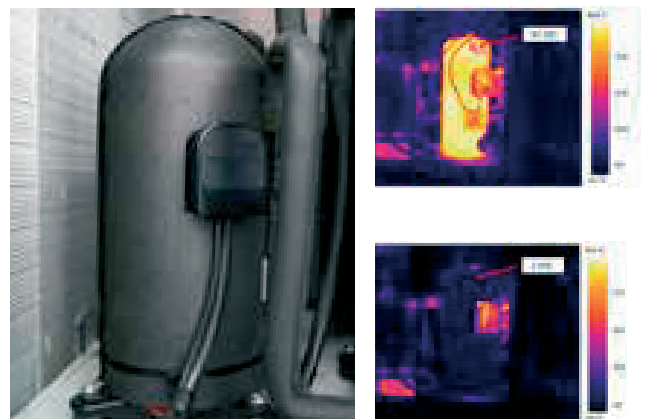
The EC technology

The EC technology at the core of our most efficient motors and fans allows efficiency of up to 90%, saving energy and significantly extending service life. These values guarantee that a Rinnai heat pump is an environmentally friendly and economic option.



Thermoacoustic insulation (SL version)

The innovative thermo-acoustic shell allows a noise reduction of up to 10% at specific compressor rotation frequencies.

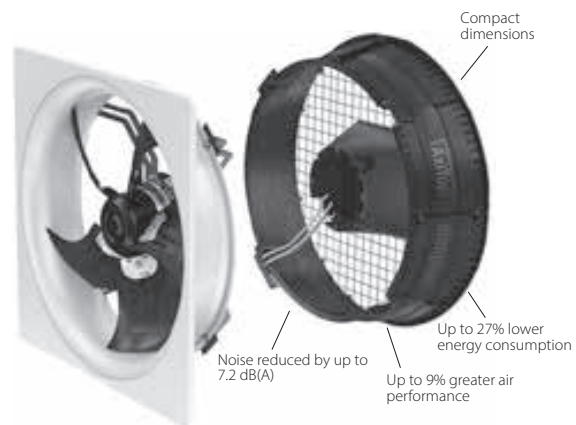


System features and benefits

Diffuser (SSL version) - super silenced version

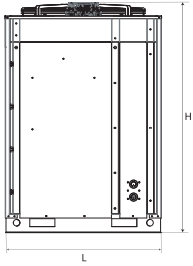
The diffuser structure improves the airflow efficiency and allows a fan speed reduction, lowering the acoustic pressure by up to 7.2 dB(A) and energy consumption by up to 27% with unchanged airflow.

Some of the HPHP range has on-off 50 Hz fixed compressor and an inverter with 20% higher capacity, with a working range of 36 to 96 Hz (20% more than 30 and 80 Hz). This involves a minimum of 36Hz (1 inverter compressor at idle) up to a maximum of 146 Hz = 50Hz + 96Hz (on-off compressor and inverter compressor at most). Depending on the outside temperature, the maximum capacity is modulated appropriately to increase efficiency.



Rinnai – HPHP Monobloc Heat Pumps

COP=
A+++



Dimensions		0250F	0250	026	0270
L	mm	1198	1198	1198	1198
P	mm	1198	1198	1198	1198
H	mm	1745	1745	1745	1745
H (SSL)	mm	1920	1920	1920	1920

HPHP

025

0260

0270

Heating capacity (3)	kW	48,70	52,00	65,10
Power input (3)	kW	12,02	12,84	16,07
C.O.P. (3)	W/	4,05	4,05	4,05
Heating capacity (4)	kW	41,40	48,60	60,30
Power input (4)	kW	12,40	15,14	18,84
C.O.P. (4)	W/	3,34	3,21	3,20
SCOP (6)	W/	3,79	4,01	3,80
Water flow (4)	L/s	1,98	2,33	2,89
Available pressure (4)	kPa	28	74	25
Energy efficiency (Water 35°C-55°C)	Class	A+ / A+	A++ / A+	A+ / A+

Compressor

Type		ScrollDC Inverter	ScrollDC Inverter	ScrollDC Inverter
Compressors	n°	2	2	2
Refrigerant circuits	n°	1	1	1
Refrigerant charge (7)	kg	15,5	16,1	15

Fan

Nominal air flow	m³/s	6,9	7,72	8,28
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Hydraulic circuit

Water flow (1)	L/s	1,73	1,97	2,55
Water connections	inch	2"F	2"F	2"F
Min. water volume (8)	L	145	173	214

Sound level

Sound power Lw (9)	dB(A)	78 / SL 76,2 / SSL 75,3	83 / SL 81,2 / SSL 80,3	83 / SL 81,2 / SSL 80,3
Sound pressure Lp1 (10)	dB(A)	46,4 / SL 44,6 / SSL 43,7	51,4 / SL 49,6 / SSL 48,7	51,4 / SL 49,6 / SSL 48,7

Electrical data

Power supply		00V/3P+N+T/50Hz	400V/3P+N+T/50Hz	400V/3P+N+T/50Hz
Max. power input	kW	28,62	31,19	34,12
Max. current input	A	41,4	45,1	48,2

Weight

Gross weight	kg	434	430/450	441/461
Operation weight	kg	422	438	449

Operating conditions:

- (3) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 30/35°C.
 (4) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 40/45°C.
 (6) Heating: normal climatic condition; T_{db}=7°C; water temperature inlet/outlet 30/35°C.
 (7) Indicative data and subject to change. For the correct data, always refer to the technical label on the unit.
 (8) Calculated in the case of the plant water temperature decreased by 10°C for 6 minutes of defrosting.
 (9) Condition (3); the value is determined on the basis of measurements taken in accordance with the UNI EN ISO 9614-2 in compliance with the requirements of Eurovent certification.
 (10) Sound pressure level measured at 10 m from the unit, in free field, according to ISO 3744:2010.
 (*) The prevalence data and characteristics of the pump refer to kit C11 for all sizes except 0270 for which the data are expressed for kit C16.
 N.B. The performance data are indicative and could be subject to change. In addition, the performances declared in apex (1), (2), (3) and (4) refer to the instantaneous power according to EN 14511. The declared data stated in the apex (5) and (6) is determined according to the UNI EN 14825.

Rinnai – HPMAX Inverter Heat Pumps 66kW-115kW



HPMAX 66kW-115kW robust commercial heat pumps for large commercial systems

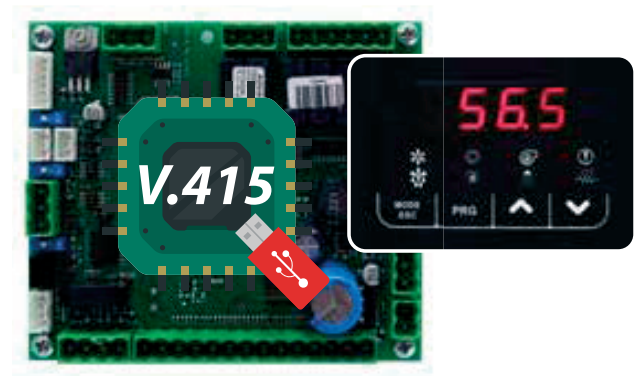
The HPMAX series of reverse cycle heat pumps are designed for applications in commercial and industrial sectors. The HPMAX is versatile and can operate in DHW mode with the possibility of producing hot water at a temperature up to 60°C.

Build

The HPMAX heat pump units are made up of galvanized sheet metal, painted with high quality powder enamels in order to ensure the best resistance against atmospheric conditions.

V.415 Control Board

New control logic and display interface installed on all new Rinnai HPMAX units offer simple and quick maintenance checks.



HPMAX Heat Pump Components and Construction

Refrigerant Circuit

The refrigerant circuit has been manufactured according to EN 13134. The refrigerant gas used in the HPMAX range is R410A. Each refrigerant circuit includes 4 way reverse cycle valve, electronic expansion valve, liquid separator, liquid receivers, auxiliary circuit to reduce the defrosting time, oil recovery circuit, non-return valves, valves of inspection for maintenance and control, safety device (high pressure switch).

Compressors Technology

The compressors are a scroll type, mounted on a rubber material acting as a shock absorber. Each one of the two circuits is equipped with a DC inverter compressor. This ensures that the capacity of each circuit can be modulated continuously between the minimum capacity of a single inverter compressor and the sum of the maximum capacities of the compressor system. This means that all units in this series, can modulate to 9% of the maximum capacity.



Installer Side Heat Exchanger

The heat exchanger is made up of AISI 304 stainless steel braze-welded plates. The heat exchanger is factory insulated with flexible close cell material and can be equipped with an antifreeze heater (KA optional accessory). The evaporator is provided with an immersion temperature sensor, used for antifreeze protection which activates the circulator.



HPMAX Heat Pump Components and Construction

Air Side Heat Exchangers

The heat exchanger is made up of copper pipes and aluminum fins. The geometry of these condensers guarantees a low air side pressure drop and the possibility of using low rotational fan speed.

Control System

The HPMAX units are all supplied with a central control unit with a microprocessor for overheating control logic. The CPU manages the regulation of the water temperature, antifreeze protection, time setting, compressors startup sequence, reset and management of alarms, fan modulation, and pump modulation. Upon request, it is possible to connect the microprocessor to a BMS system with Modbus protocol. The control system combined with the INVERTER and sensors continuously monitors and adapts the performance of the inverter compressor, circulating pump, and fan, providing economic system performance.



Protection And Control Devices

The units are all supplied with the following protection and control devices: return water temperature sensor, operating and antifreeze sensor, high and low-pressure transducers, compressor inlet and outlet temperature sensors, thermal protection device, water flow switch installed on the water side, high-pressure HP flow switch.

Hydraulic Circuit

The HPMAX series are supplied with an integrated hydronic kit which includes: a dual refrigerant circuit plate heat exchanger and a single hydraulic circuit, a pressure gauge at the inlet and a fitting on the heat exchanger outlet for evaluating the load losses, service valve and flow switch for protection, automatic air release valve and safety valve (6 bar).

Rinnai - HPMAX Inverter Heat Pump System

The range of Rinnai HPMAX inverter air source heat pumps come in 68kW - 112kW variants. The heat pump technology allows up to 7 units to be cascaded together.

The HPMAX range can operate as a standalone heat pump or in sequence supplying larger heating and hot water demands. The HPMAX is a robust large commercial model designed for heavy commercial / industrial usage.



Key features

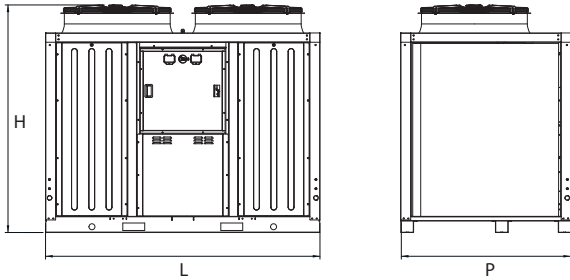
- Cascade capability leads to 780kW system capacity
- Fully self-contained unit requiring electrical and hot water connections only.
- Operates on low outside temperatures -25 °C
- Full Hybrid systems available
- Smart controls available
- Highly durable even in coastal areas
- 60 °C hot water

Ideal applications

- Large public sector buildings
- Large Commercial and retail outlets

The HPMAX uses R410A refrigerant and has an ERP rating of A++ making this range of heat pumps an economical and environmentally sound choice for future and refurbishment projects.

Rinnai – HPMAX Inverter Heat Pumps



Dimensions		0466	0475	0485
L	mm	2.250	2.250	2.250
P	mm	1.170	1.170	1.170
H	mm	1.985	1.985	1.985

HPMAX

0466

0475

0485

Heating

Heating capacity (3)	kW	68,4	74,7	85,6
Power input (3)	kW	16,85	18,44	21,14
C.O.P. (3)	W/W	4,06	4,05	4,05
Heating capacity (4)	kW	65,86	71,0	82,12
Power input (4)	kW	20,52	22,19	25,66
C.O.P. (4)	W/W	3,21	3,20	3,20
SCOP (6)	W/W	3,58	3,55	3,53
Water flow (4)	L/s	3,15	3,40	3,93
Available pressure (4)	kPa	30	31	31
Energy efficiency (Water 35°C-55°C)	Classe	A+/A+	A+/A+	A+/A+

Compressor

Type		Scroll	Scroll	Scroll
Compressors	n°	4	4	4
Refrigerant circuits	n°	2	2	2
Refrigerant charge (7)	kg	13,4	14,2	14,3

Fan

Nominal air flow	m³/s	6,5x2	7x2	7,5x2
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Hydraulic circuit

Max pressure hydronic kit	bar	6	6	6
Water connections	inch	2" 1/2	2" 1/2	2" 1/2
Min. water volume (8)	L	200	200	200

Sound level

Sound power (9)	dB(A)	82,5/ SL 81/ SSL 80,2	83/ SL 81,5/ SSL 80,7	83,5/ SL 82/ SSL 81,2
Sound pressure (10)	dB(A)	50,7/ SL 49,2/ SSL 48,4	51,2/ SL 49,7/ SSL 48,9	51,7/ SL 50,2/ SSL 49,4

Electrical data

Power supply		400V/3P+N+T/50Hz	400V/3P+N+T/50Hz	400V/3P+N+T/50Hz
Max. power input	kW	39,9	42,3	46,7
Max. current input	A	60,1	63,5	70,3

Weight

Gross weight	kg	943	955	1011
Operation weight	kg	923	946	996

Operating conditions:

(1) Cooling: Outdoor air temperature 35°C; inlet/outlet temperature 12/7°C.

(2) Cooling: Outdoor air temperature 35°C; inlet/outlet temperature 23/18°C.

(3) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 30/35°C.

(4) Heating: Outdoor air temperature 7°C DB 6°C WB; inlet/outlet temperature 40/45°C.

(5) Cooling: water temperature inlet/outlet 12/7°C.

(6) Heating: normal climatic condition; T_{biv}=-7°C; water temperature inlet/outlet 30/35°C.

(7) Indicative data and subject to change. For the correct data, always refer to the technical label on the unit.

(8) Calculated in the case of the plant water temperature decreased by 10°C for 6 minutes of defrosting.

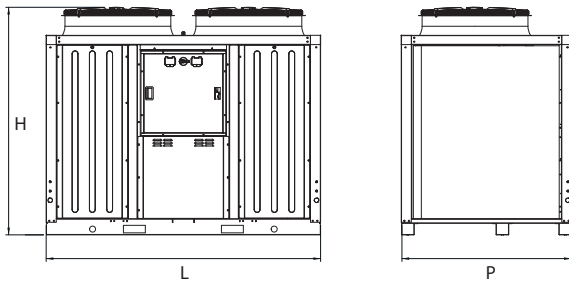
(9) Condition (3); the value is determined on the basis of measurements taken in accordance with the UNI EN ISO 9614-2, in compliance with the requirements of Eurovent certification.

(10) Sound pressure level measured at 10 m from the unit, in free field, according to ISO 3744:2010.

(*) The prevalence data and characteristics of the pump refer to kit C11 for all sizes except 02/70 for which the data are expressed for kit C16.

N.B. The performance data are indicative and could be subject to change. In addition, the performances declared in apex (1), (2), (3) and (4) refer to the instantaneous power according to EN 14511. The declared data stated in the apex (5) and (6) is determined according to the UNI EN 14825.

Rinnai – HPMAX Inverter Heat Pumps



Dimensions		0695	06105	06115
L	mm	2.250	2.250	2.250
P	mm	1.170	1.450	1.450
H	mm	1.985	2.010	2.010

HPMAX

0695

06105

06115

Heating

Heating capacity (3)	kW	93,34	102,47	111,47
Power input (3)	kW	23,87	25,3	28,58
C.O.P. (3)	W/W	3,91	4,05	3,90
Heating capacity (4)	kW	88,57	97,13	108,28
Power input (4)	kW	27,68	30,35	36,09
C.O.P. (4)	W/W	3,20	3,20	3,00
SCOP (6)	W/W	3,54	3,57	3,50
Water flow (4)	L/s	4,24	4,65	5,18
Available pressure (4)	kPa	32	27	27
Energy efficiency (Water 35°C-55°C)	Classe	A+/A+	A+/A+	A++/A+

Compressor

Type		Scroll	Scroll	Scroll
Compressors	n°	6	6	6
Refrigerant circuits	n°	2	2	2
Refrigerant charge (7)	kg	13,4	14,2	14,3

Fan

Nominal air flow	m³/s	8x2	8,5x2	9x2
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Hydraulic circuit

Max pressure hydronic kit	bar	6	6	6
Water connections	inch	2" 1/2	2" 1/2	2" 1/2
Min. water volume (8)	L	260	260	260

Sound level

Sound power (9)	dB(A)	84/ SL 82,2/ SSL 81,7	84/ SL 82,2/ SSL 81,7	84,5/ SL 82,7/ SSL 82,2
Sound pressure (10)	dB(A)	52,2/ SL 50,4/ SSL 49,9	52,5/ SL 50,4/ SSL 49,9	52,7/ SL 50,9/ SSL 50,4

Electrical data

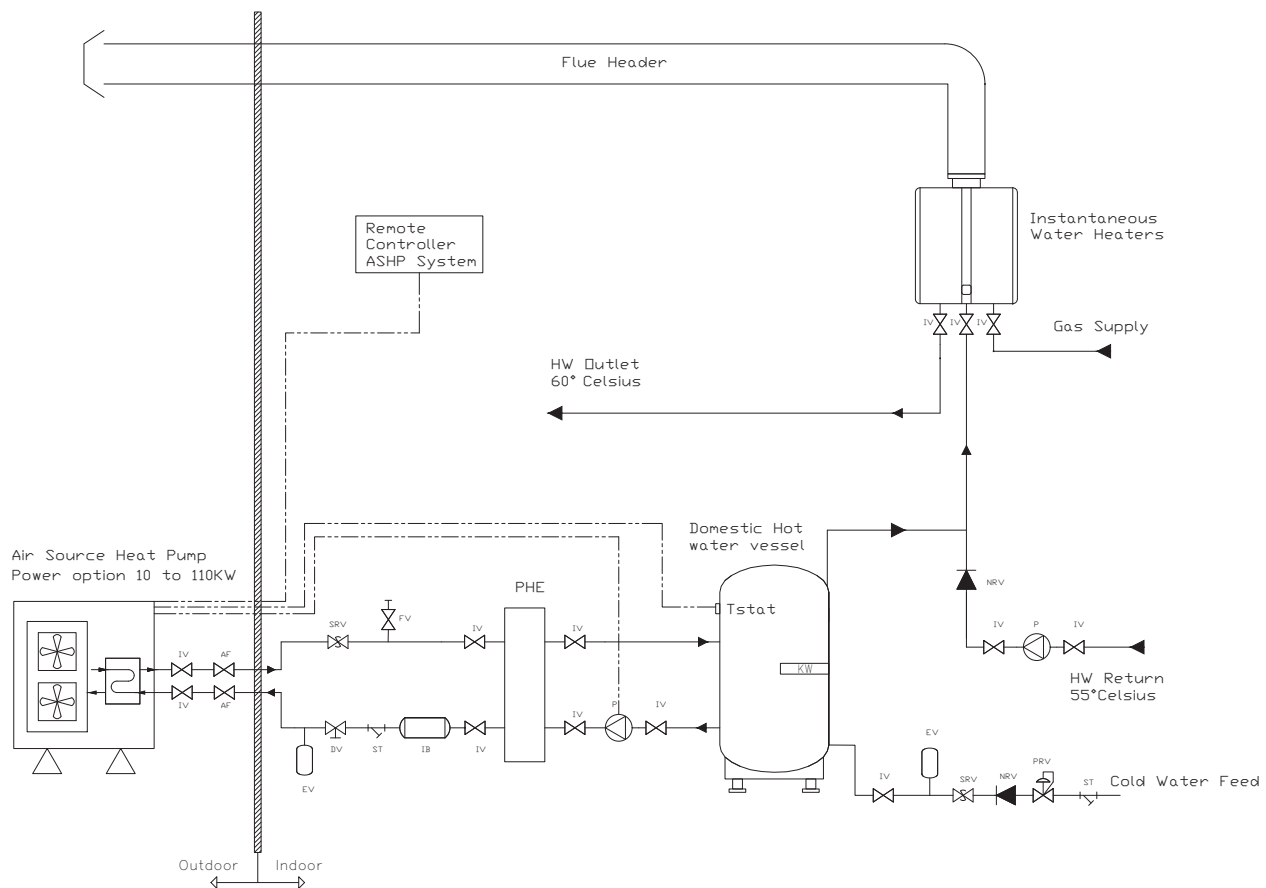
Power supply		400V/3P+N+T/50Hz	400V/3P+N+T/50Hz	400V/3P+N+T/50Hz
Max. power input	kW	52,3	55,8	63,0
Max. current input	A	78,7	83,9	94,7

Weight

Gross weight	kg	1026	1128	1142
Operation weight	kg	1011	1105	1120

Hybrid Heat Pump Solutions

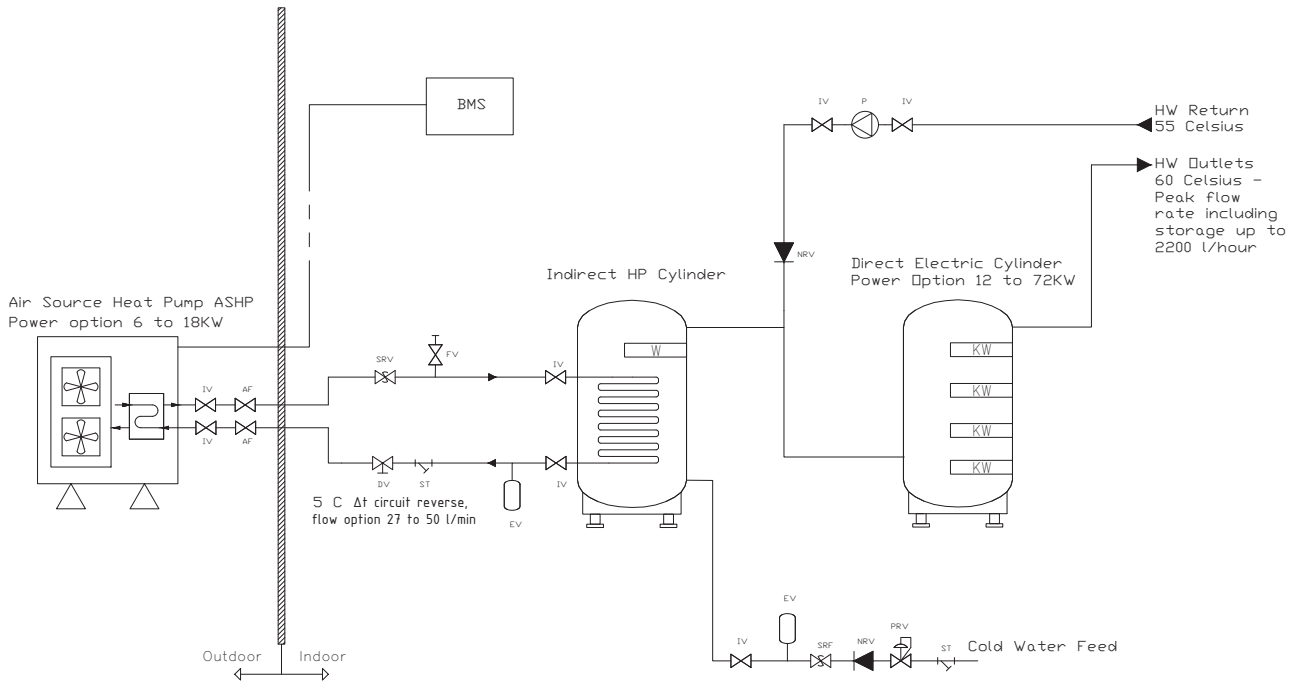
Rinnai can offer a wide range of **Hybrid hot water** and heating solutions, our heat pump and electric or gas secondary heat sources can be configured to suit any project need. The Rinnai all electric solution offers a **market-leading** heat pump and cylinder option, as all our state-of-the-art heat pumps have enviable SCOPs. The hybrid gas option brings together hydrogen blend-ready water heaters with heat pump technology. Creating an innovative first for commercial hot water.



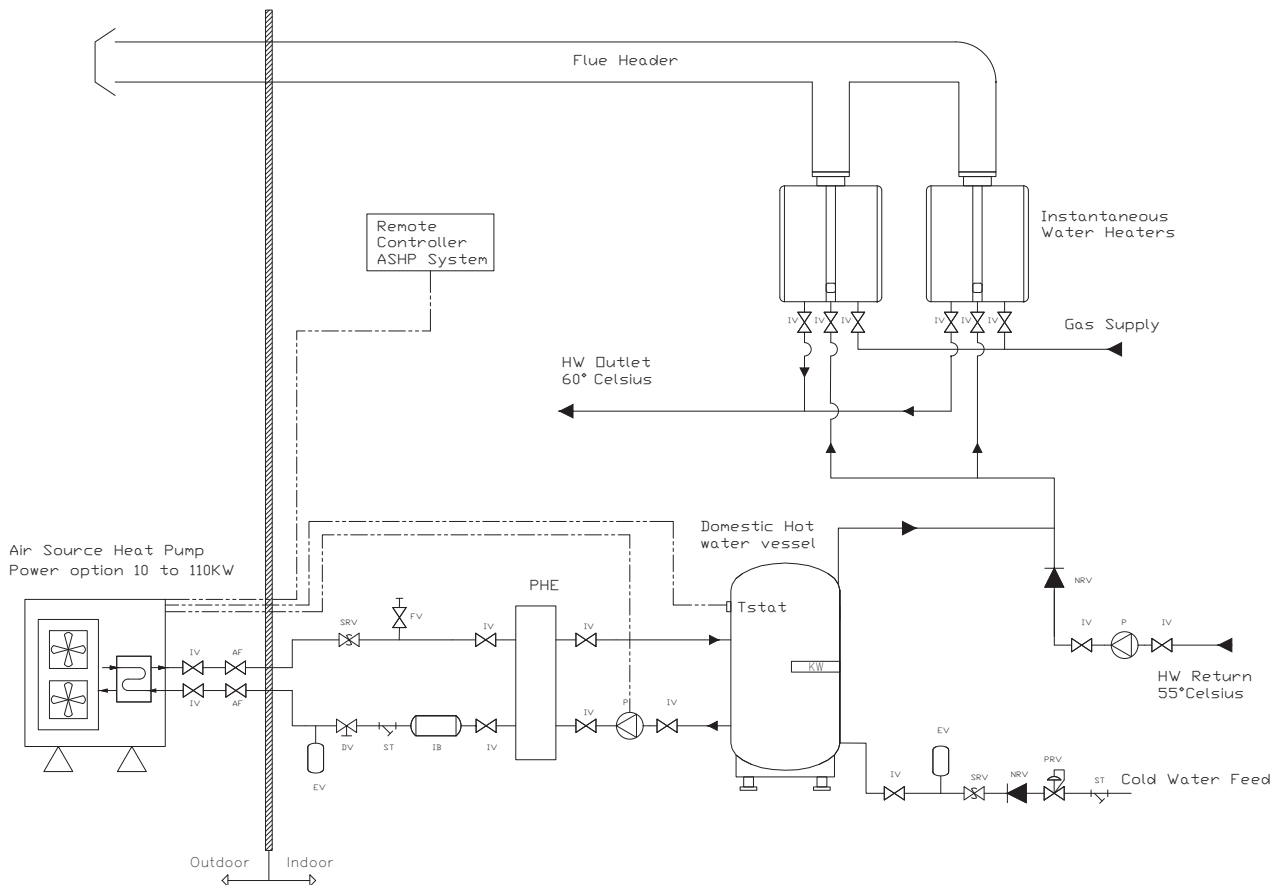
The combination of heat pump technology utilising R32 refrigerant combined with market-leading Hydrogen blend or Bio-LPG ready water heaters offers an economical, technical, and environmentally friendly solution to your project needs. This system is especially popular in high-demand commercial hot water scenarios. The water is preheated by the ASHP and the smart hydrogen blend ready water heater reads the incoming water temperatures and applies the precise value of gas to top up water temperatures if required (modulating 58kW-4.4kW), harnessing primary heat source gains.

Schematics

Heat pump all electric solution

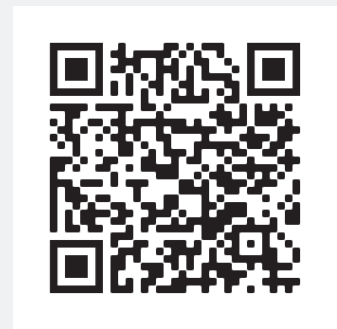


Heat pump, plate heat exchanger hydrogen blend-ready hybrid





To see how these combinations can impact your projects carbon footprint contact us today on **0300 373 0660** or scan the QR code.



Rinnai can offer the complete package, designed with capital expenditure, operational expenditure and carbon reductions in mind. We can supply the complete solution.

Simply scan the QR code and ask us a question!

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