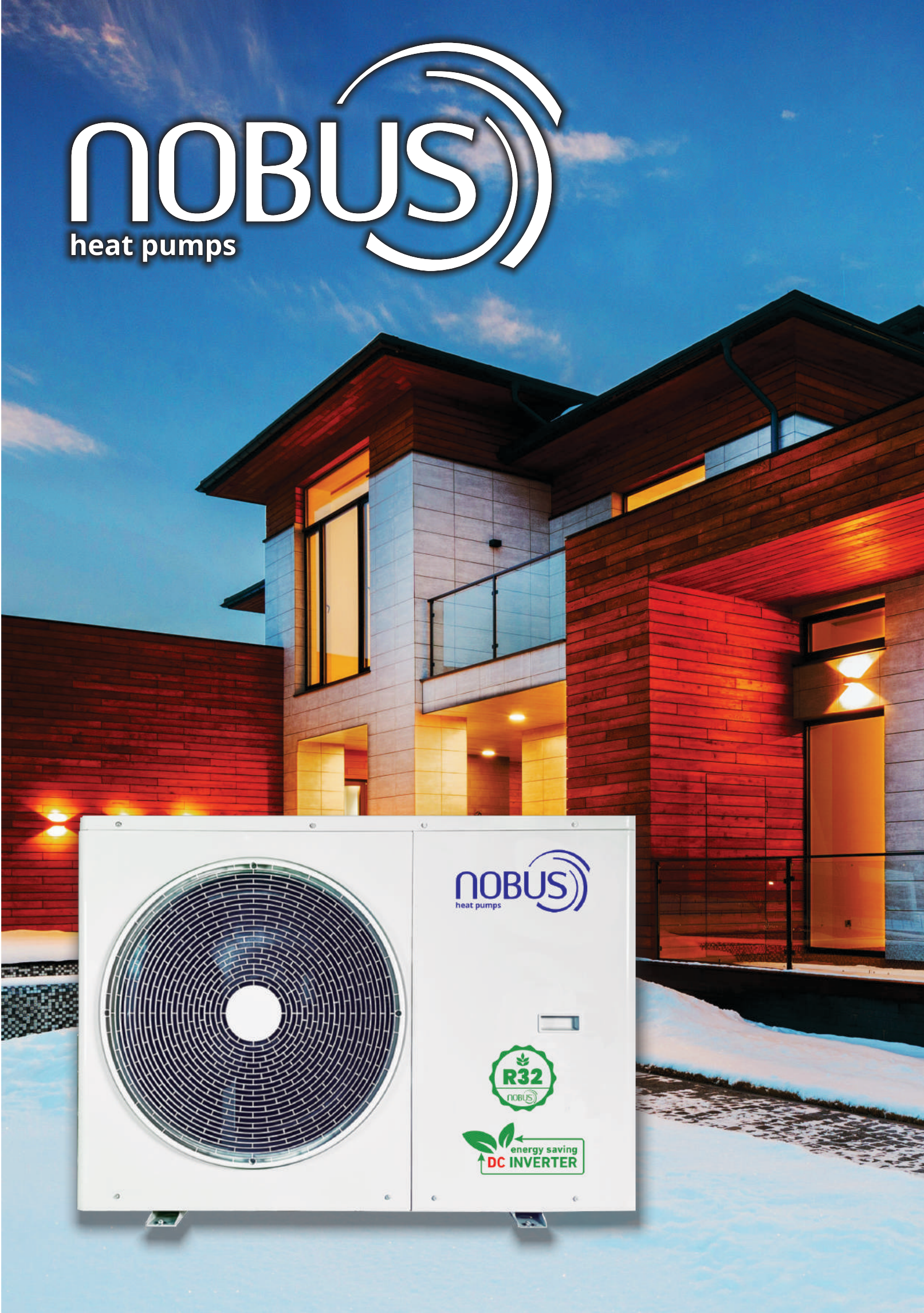
NOBUS

heat pumps

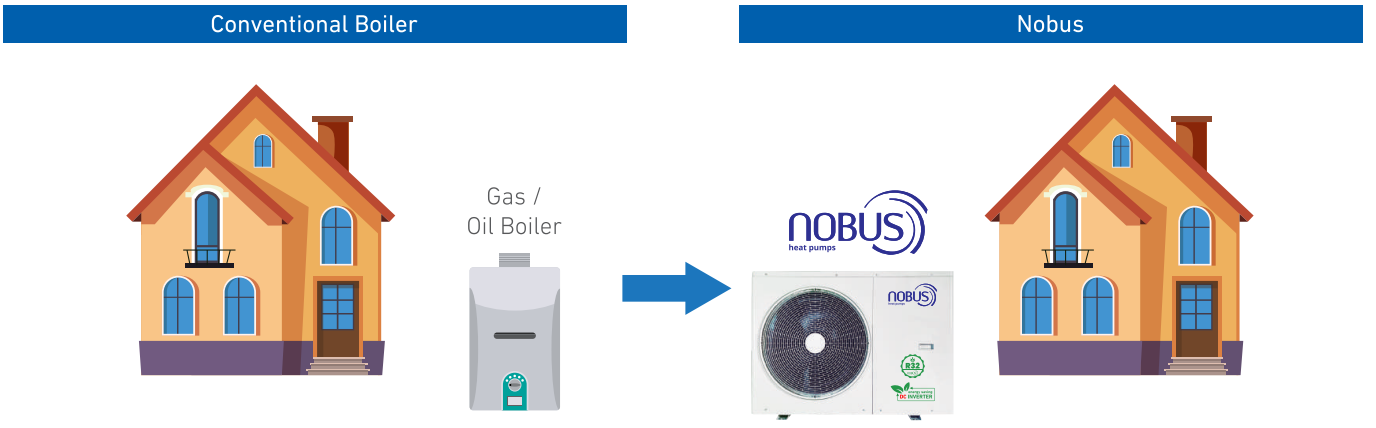


HEAT PUMP TECHNOLOGY

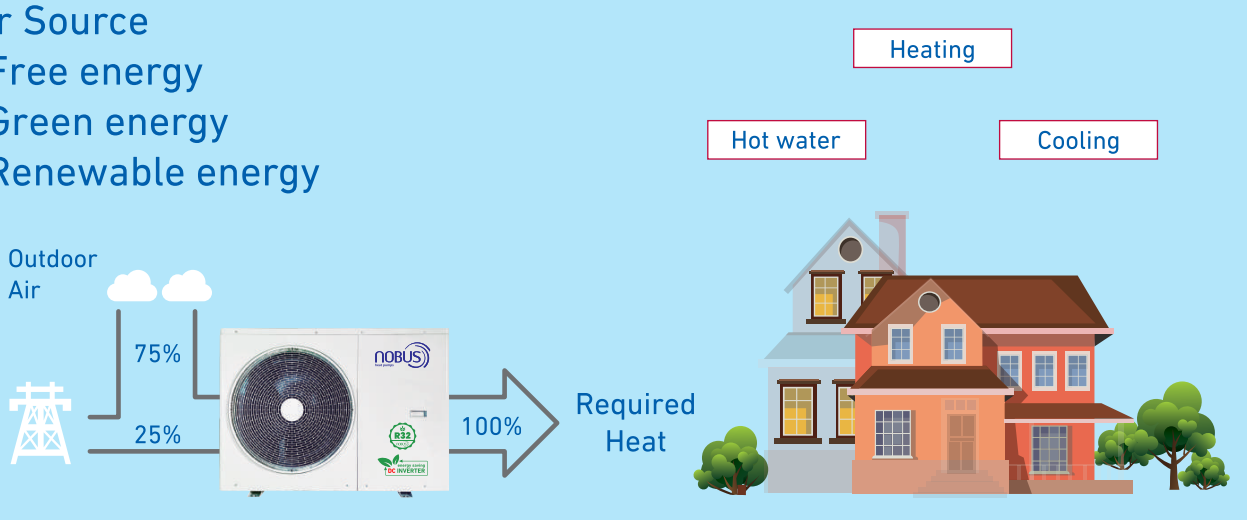
What is A Heat Pump System?

Modern Technology to Replace Conventional Boilers

Historically, conventional heating systems have used either oil or gas or have been direct electric heaters. In such conventional heating systems, environmental aspects such as fossil fuel use and environmental pollution have been overlooked. In recent years, interest in these environmentally friendly devices has been increasing and in order to meet these market demands, Nobus has further developed the heat pump technology to produce the most efficient, environmentally friendly products in the industry.



Air Source
- Free energy
- Green energy
- Renewable energy



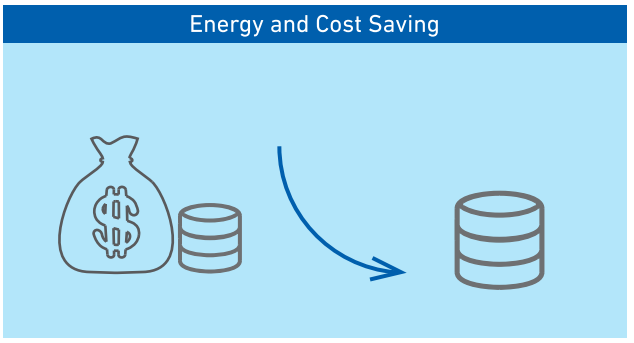
Why Choose An Air to Water Heat Pump?

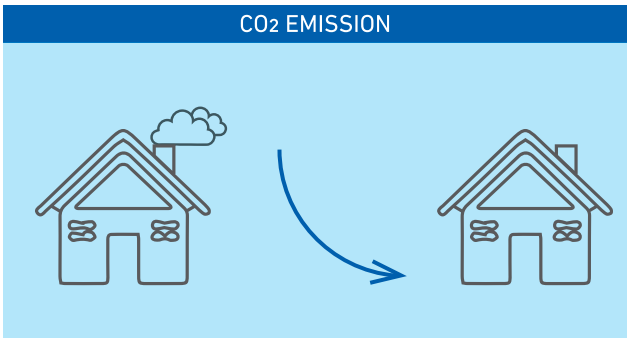
Air to water heat pump is renewable.

Air to water heat pump uses less energy than furnaces, gas / electric water heater. The heat pump product absorbs energy from the surrounding air by the outdoor unit and transfers the energy into the refrigerant of the unit. The heat energy is upgraded using a refrigerant cycle and this renewable heat energy is transferred in the water by the heat-exchanger.

Air to water heat pump has great financial benefits.

Air to water heat pump will most likely save a lot of money on your annual fuel bills due to the unit's high COP (Coefficient of performance).When the unit can achieve COP between 3-4 it means the unit can produce 3kW to 4kW of heat for every 1 kW power consummed.





Air to water heat pump is more reliable.

Safe to operate Easy for installation Cheap to operate	Risk of fire and explosion Lifespan of several years Expensive to operate	Risk of electric shocks Expensive to install Expensive to operate	Risk of fire and explosion Lifespan of several years Expensive to operate

Air to water heat pump will decrease your carbon footprint.

Compared with a gas water heater or a boiler, due to the fact that the heat pump does not use directly combustion to generate heat, won't cause as much pollution and will generate a smaller carbon footprint. Air to water heat pump only need a small amount of electricity to run the compressor and fan motor.

Comparison of the power needed to heat 1 ton water from 15°C to 55°C under the same conditions:

	Air to water HP	Gas water heater	Electric water heater	Boiler
Energy resource	Air & electricity	Gas	Electricity	Diesel oii
Calorific value	860 kcal/kW·h	24,000 kcal/m^3	860 kcal/kW·h	10,200 kcal/kg
Average efficiency	4.6	0.8	0.95	0.7
Consumption	10 kW-h	2.08 m^3	48.9 kW·h	5.6 kg

R32 Monobloc

- Operation range down to -25°C
- Maximum LWT reach 65°C
- Single point maximum COP 5.01
- Energy efficiency level: A+++

R32 Monobloc

Solutions for house heating/cooling and domestic hot water in one system.
R32 monobloc is an integrated system which provides house heating/cooling as well as domestic hot water, offering a complete and convenient solution which can replace the needs for traditional gas or oil boilers, or work together with them.

Monobloc							
Model (kW)	4kW	6kW	8kW	10kW	12kW	14kW	16kW
220~240-1ph	√	√	√	√	√	√	√
380~415-3ph					√	√	√

Excellent Performance & Efficiency

R32 refrigerant | Solar thermal | ERP A+++@35°C | LWT 65°C | @A7W35 for 10kW

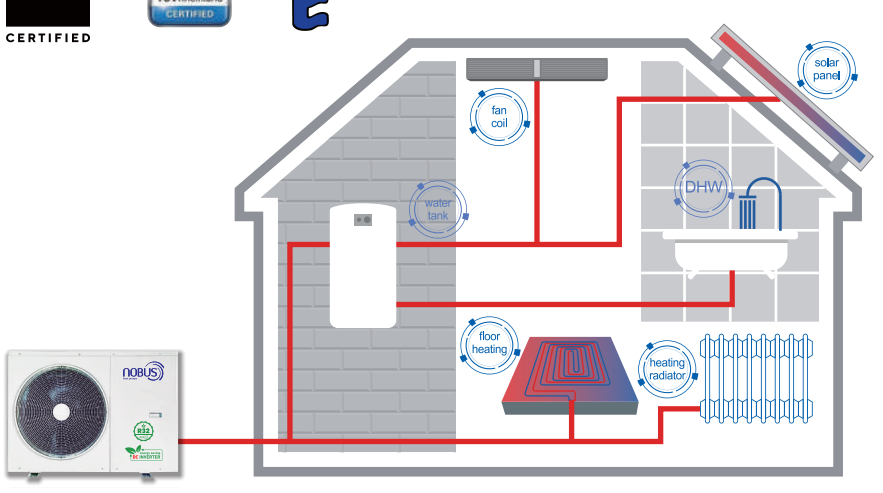
User Convenience

Intuitive interface | WIFI | 2 zones control | gas boiler | DHW | Low noise mode | 3kW back up heater as standard | Auto mode

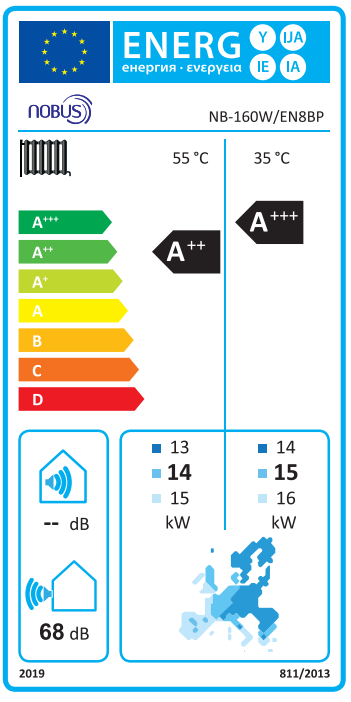
Certificates

CERTIFIED

Auto mode



Energy label



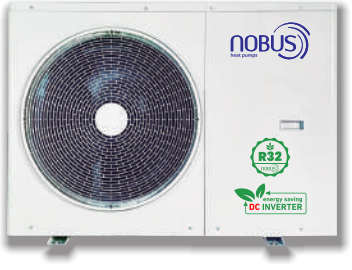
*35°CA+++
*55°CA++

Eco-Conscious with R32 Refrigerant

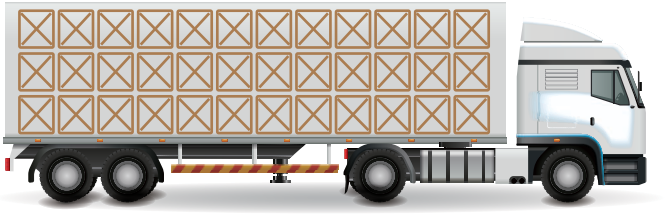
- R32 efficiently works even in small volume compared to existing R410A refrigerant, which decreases the potential hazard of global warming. Furthermore, R32 refrigerant is easy to recycle
- Lower GWP and carbon emission(GWP:Global Warming Potential) reduce up to 75% of CO_2 eg comparing with R41 0 A

Structure innovation

- Single fan compact structure design for 4~16kW models with lower noise,and more loading quantity
- Three cabinets design which can ensure more compact and cost control
- Three layer loading can put 135 pcs for 4-6-8kw model în a 40HQ container



Single Fan structure
big noise reduction



3 layers loading
reduces fuel consumption

Electric BackUp heater and leading brand components

NOBUS
heat pumps

Multi-function wired controller and APP control

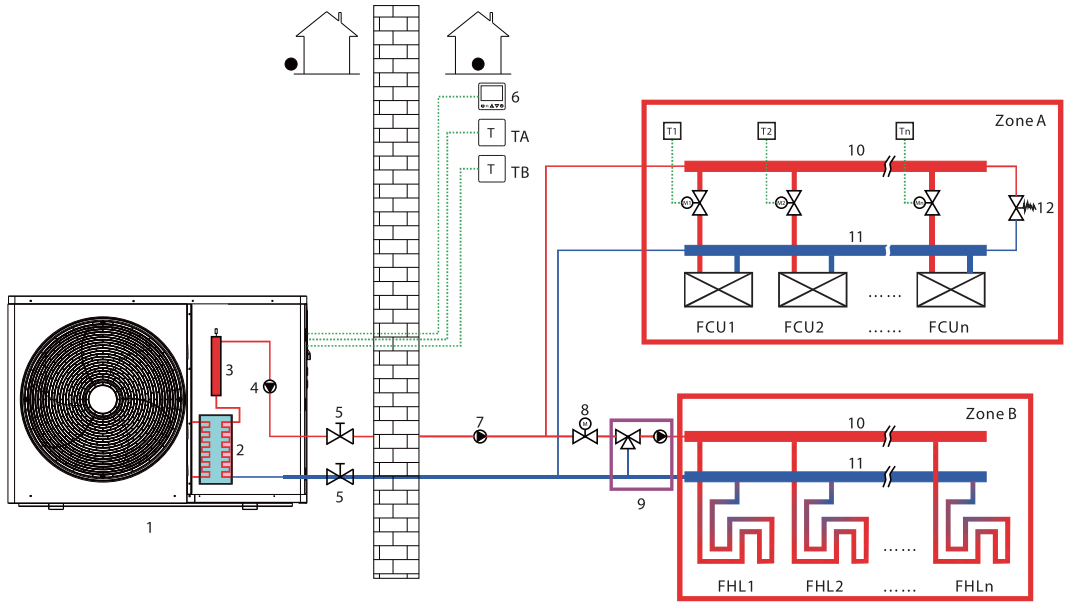
- Icon languages
- Mod bus protocol and network flexibility
- Built-in wifi module supports APP control
- Check the running state of heat pump, zone switch, operation mode and temperatu re

Extremely silent

- Two level of silent mode provides more comfort
- Silent mode minimum sound power level 55dB

Two zones control

For different indoor terminal units, the designed outlet water temperature is different. The two zones control function is used to ensure different indoor terminal units working at its designed temperature to enhance the comfort and save energy.



Specifications

Specification--monobloc									
Model name			4kW	6kW	8kW	10kW	12kW	14kW	16kW
Power supply		V/Ph/H	220-240 / 1 / 50						
Heating[1]	Capacity	kW	3.96	6.01	7.93	10.21	12.06	14.47	15.91
	Rated input	kW	0.75	1.17	1.76	2.04	2.57	2.99	3.42
	COP		5.25	5.13	4.50	5.01	4.7	4.84	4.65
Heating[2]	Capacity	kW	4.18	6.04	8.30	10.20	12.10	14.50	15.9
	Rated input	kW	1.11	1.63	2.61	2.79	3.36	3.89	4.63
	COP		3.77	3.70	3.18	3.65	3.6	3.72	3.43
Heating[3]	Capacity	kW	4.41	6.09	7.70	9.60	12.30	13.80	15.80
	Rated input	kW	1.46	2.13	2.98	3.22	4.44	4.42	6.12
	COP		2.84	2.86	2.58	2.98	2.77	3.12	2.58
Cooling[4]	Capacity	kW	3.98	6.18	8.16	10.01	11.85	14.14	15.72
	Rated input	kW	0.77	1.26	1.75	2.42	2.72	3.10	4.03
	EER		5.19	4.91	4.65	4.14	4.36	4.56	3.90
Cooling[5]	Capacity	kW	4.29	6.27	7.58	8.78	11.58	14.30	15.98
	Rated input	kW	1.32	1.99	2.55	2.97	4.14	5.11	6.12
	EER		3.24	3.14	2.97	2.96	2.80	2.80	2.61
Seasonal space heating energy efficiency class	LWT at 35°C		A+++	A+++	A+++	A+++	A+++	A+++	A+++
	LWT at 55°C		A++	A++	A++	A++	A++	A++	A++
SCOP	LWT at 35°C		4.96	5.05	4.62	4.86	4.65	4.56	4.65
	LWT at 55°C		3.47	3.52	3.32	3.51	3.37	3.45	3.57
SEER	LWT at 7°C		5.15	5.27	5.17	4.66	5.02	4.76	4.63
	LWT at 18°C		8.56	8.77	8.31	8.23	8.15	6.72	6.51
MOP(Maximum overcurrent protection)		A	18	18	21	25	25	30	30
MCA(minimum circuit amps)		A	12	14	16	1 9	23	26	27
Water pressure drop		kPa	25	25	39	37	36	38	38
Refrigerant system pressure (Max. / Min.)			4.5MPa /1.5MPa						
Refrigerant	Type		R32	R32	R32	R32	R32	R32	R32
	Charged	kg	1.03	1.03	1.3	1.5	1.75	2.1	2.1
GWP value			675	675	675	675	675	675	675
Equivalent CO^2		Ton	0.695	0.695	0.878	1.013	1.181	1.417	1.417
Compressor	Type		Twin rotary DC inverter						
	Brand		Mitsubishi						
	Model		SVB172FNPMC	SVB172FNPMC	SVB220FLGMC-L	SVB220FLGMC-L	MVB33FBBMC	MVB42FCBMC-L	MVB42FCBMC-L
	Quantity		1	1	1	1	1	1	1
	Capacity	kW	5.54 (@60rps)	5.54 (@60rps)	7.10 (@60rps)	7.10 (@60rps)	11.37 (@60rps)	14.38 (@60rps)	14.38 (@60rps)
	Input	kW	1.73 (@60rps)	1.73 (@60rps)	2.23 (@60rps)	2.23 (@60rps)	3.57 (@60rps)	4.4 (@60rps)	4.4 (@60rps)
	Current	A	5.1 (@60rps)	5.1 (@60rps)	6.6 (@60rps)	6.6 (@60rps)	11 (@60rps)	13 (@60rps)	13 (@60rps)
	Oil type / charged		FW68S / 600ml	FW68S / 600ml	FW68S /460ml	FW68S / 460ml	FW68S / 1100ml	FW68S / 1250ml	FW68S / 1250ml
Outdoor fan	Motor type		Brushless DC motor						
	Number of fans		1	1	1	1	1	1	1
Air side heat exchanger	Material		Hydrophilic aluminum & Inner groove copper tube						
	Rows		1.5	1.5	2	2.5	2.5	3	3
	Tube size	mm	Φ7	Φ7	Φ7	Φ7	Φ7	Φ7	Φ7
Fan motor	Fan type		3 blade						
	Motor type		BLDC						
	Motor model		EHTSO3BLQ	EHTSO3BLQ	EHTSO3BLQ	EHTSO3BLQ	EHTSO3BLQ	EHTSO1DLQ	EHTSO1DLQ
	Motor Brand		Panasonic						
	Quantity		1	1	1	1	1	1	1
	Speed	rpm	850	850	850	850	850	825	825
Throttle type			Electronic expansion valve						
Water side heat-exchanger			Plate heat exchanger						
Sound power level[6]		dB	56	58	59	60	64	65	68
Controller (Standard: LCD)			GR-LC07						
Anti-UV cover			NO						
Water resistance			IPX4						
Water pipe connection	Inlet	mm	Φ33	Φ33	Φ33	Φ33	Φ33	Φ33	Φ33
	Outlet	mm	Φ33	Φ33	Φ33	Φ33	Φ33	Φ33	Φ33
Net/Gross weight	Net/Gross	kg	76/81	78/93	80/93.5	93/103	97/117	117/136	117/136
Dimension (LxWxH)	Net	mm	1125x370x680	1125x370x680	1125x370x680	1135x370x803	1135x370x803	1203x481x860	1203x481x860
	Packing	mm	1200x425x865	1200x425x865	1200x425x865	1260x488x982	1260x488x982	1305x495x1040	1305x495x1040
	Loading quantity (20GP/40GP)	sets	42/135	42/135	42/135	40/84	40/84	38/82	38/82
Operating temperature	Cooling	°C	-5 to 43						
	Heating	°C	-25 to 35						
	DHW	°C	-25 to 43						

Note:

1. Outdoor air temperature 7°C DB ,85% R.H ; EWT 30°C,LWT 35°C
2. Outdoor air temperature 7°C DB ,85% R.H ; EWT 40°C,LWT 45°C
3. Outdoor air temperature 7°C DB ,85% R.H ; EWT 47°C,LWT 55°C
4. Outdoor air temperature 35°C DB ,85% R.H ; EWT 23°C,LWT 18°C
5. Outdoor air temperature 35°C DB ,85% R.H ; EWT 12°C,LWT 7°C
6. Test standard:EN12102-1

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