argo

improve your life

Air|water heat pumps

Residential and commercial applications

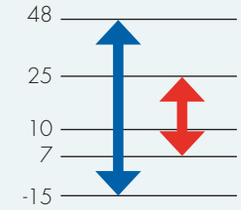
X3 AIR TO WATER HEAT PUMPS
PLUS

WIDE OPERATING RANGE

The outdoor temperature range varies between -25 °C and +35 °C, while the leaving water temperature interval is 20–60 °C: this means that the heat pump can be used with radiant floor systems, fan coil units and also medium-temperature radiators.

Cooling mode

from –15 °C* to 48 °C
from 7 °C to 25 °C



DHM production

from -25 °C to 45 °C
from 40 °C to 60 °C
(80 °C with electric heater)

Heating mode

from -25 °C to 35 °C
from 20 °C to 60 °C

* +10 °C for split and all-in-one models

Outdoor air temperature Water temperature

VERSATILITY AND EASE OF INSTALLATION

The unit is compact and has reduced overall dimensions: it can therefore be used also in tight spaces and is easy to carry and to install. In addition, it can be paired with heating systems that use medium-temperature radiators, as well as with radiant floor systems and fan coil units. It is not necessary to create any connection to the cooling circuit: the hydraulic connections are sufficient.

R32 REFRIGERANT WITH LOW ENVIRONMENTAL IMPACT

Heat pumps run on GREEN technology that uses renewable energy: this system captures the thermal energy present in the air and transfers it from one place to another, multiplying it. For every kW consumed, it produces over 4 kW of thermal energy: 75% of the energy is free, renewable and clean. The use of R32, a refrigerant gas with a low global environmental impact, makes these heat pumps even more environment-friendly.

REMOTE CONTROL

The unit can be integrated with a BMS supervision system, using the Modbus protocol.
By installing the EWPE application on the smartphone, most of the heat pump's parameters can be controlled remotely in a comfortable way.

THE ADVANTAGES

HIGH ENERGY EFFICIENCY

Steam-injection compressor

- With low outdoor temperatures, the compressor with steam injection reduces the thermal capacity losses and has a greater efficiency compared to a traditional compressor.
- In the same conditions, the compressor's high discharge temperatures and other problems can be completely avoided, making the compressor significantly more reliable.
- Two-stage compression, two-stage lamination and steam injection increase the leaving water temperature and improve the control accuracy.

Heat exchanger fins

The heat exchange batteries are subjected to a special "Golden Fin" anti-corrosion protective treatment. The battery fins, made of aluminium-manganese (Al-Mn), are coated with a special layer of epoxy resin, which gives them their typical golden colour, and a further hydrophilic layer.
This special treatment is able to protect the heat exchanger against rust and corrosion in zones where the air is very salty, typical of coastal areas.

Circulator pump

The high-efficiency Class A inverter hydronic pump satisfies the requirements imposed by the European ErP directive. Its operating frequency adapts to the system's load. In this way, it is possible to improve the efficiency and temperature control of the heat transfer fluid.

DC brushless axial fans

The DC inverter axial fan with high air flow rate controls the volume of air delivered in a precise way and guarantees operating stability.

Plate heat exchanger

- The heat exchanger has a compact structure, minimal overall dimensions and a reduced pressure loss. Moreover, it guarantees a highly efficient heat exchange and boasts excellent resistance to corrosion.
- It is coated externally with anti-condensate material and is equipped with a heating element to protect it against frost build-up.

TOUCH-SCREEN CONTROL PANEL

The touch-screen remote control interface, either supplied with the heat pump or integrated into the indoor unit, can be used to manage all the functions of the heat pump and perform parametrisation and commissioning of the latter.

HOME PAGE

FUNCTION: for setting certain functions, including the operating mode, various scheduling operations, the DHW disinfection cycle, etc.

PARAMETER: for setting the unit's operating functions, such as the heating and cooling mode temperature, DHW temperature

VIEW: used to view the status of the unit (compressor, valves, pump, etc.) and its parameters (temperatures, pressures, errors, etc.)

COMMISSION: for viewing/modifying the unit's parameters during the commissioning phase

GENERAL: for setting general parameters, for example the language, backlight, date and time, etc.

SPECIAL FUNCTIONS

- **Weekly programming with time bands** including the possibility of setting up to three daily operating schedules (in both the heating and cooling modes).
- **Emergency operation**: in case of a heat pump malfunction, the auxiliary heating elements or the external supplementary source is activated.
- **Rapid heating function** for the domestic hot water (Quick Hot Water).
- **Automatic management** of the system's delivery temperature in relation to the outdoor temperature – Climatic curve (Weather Dependent Mode).
- **Silent operation** (Quiet), with a reduction of the compressor and fan speeds, settable through the timer.
- **Activation of the anti-Legionella cycle**: by heating weekly the entire tank to a certain temperature (max. 70 °C),the function eliminates the bacterium responsible for the disease.
- **"Auto-Restart" function**, i.e., the automatic re-start following a blackout.
- **"Anti-freeze" function**, activates automatically in winter.

MONOBLOC

Single-phase 6-8 kW range

Single/three-phase 10-12-14-16 kW range

MONOBLOC HEAT PUMPS

MAIN FEATURES

(Standard)
Touch-screen control panel

- Monobloc Air/Water heat pump with new-generation DC Inverter technology
- Equipped with the heating, cooling and domestic hot water production functions
- Single-phase version with 6-8 kW heating capacity
- Single/three-phase version with 10-12-14-16 kW heating capacity
- Achieves very high efficiency levels in heating mode, up to 5 COP
- Its integrated structure, which includes all the hydraulic components, ensures easy installation and, consequently, savings on the relative costs
- It uses R32, a refrigerant with low impact on global warming and ozone layer, characterised by high energy efficiency and a 30% lower charge compared to R410A
- The vapour-injection compressor, thanks to its special technology, guarantees exceptional performances and a wide operating range
- The leaving water temperature range is 20 °C–60 °C: this means that the heat pump can be used with radiant floor systems, fan coil units and also medium-temperature radiators
- The DC brushless axial fans are designed to ensure aerodynamic optimisation: they guarantee low noise levels coupled with high efficiency and a high air flow rate
- It is equipped with a heating element on the base to prevent ice build-up during winter operation
- It is equipped with an electronic expansion valve

Internal copper groove
Quiet mode
Weekly timer
Heating down to low temperatures
Door control
Full protection
24h on/off timer
Child lock
Wide operating range
Wide voltage range
Self-diagnosis
Low-voltage start-up

Memory function
Smart defrosting
°C / °F switching
Long-distance monitoring
Exch. condenser gold fin treatment
-25 °C Min. outdoor temp. heating
+35 °C Max. outdoor temp. heating
-15 °C Min. outdoor temp. cooling
+48 °C Max. outdoor temp. cooling
-25 °C Min. outdoor temp. DHW
+45 °C Max. outdoor temp. DHW
60 °C Max. output temp. DHW

A+++ Heating mode 35 °C
A++ Heating mode 55 °C
A DHW
A++ Heating mode 35 °C for sizes 14/16 kW

THE RANGE

	Model	Code			Rated capacity according to EN14511 (kW)			
			1PH	3PH	Heating (1)	Heating (3)	Cooling (2)	Cooling (4)
	AGHP061PH	398600001	●		6.0	6.0	4.0	5.8
	AGHP081PH	398600002	●		7.5	7.5	5.0	6.8
	AGHP101PH	398600003	●		10.0	10.0	7.8	8.8
	AGHP121PH	398600004	●		12.0	12.0	9.5	11.0
	AGHP141PH	398600005	●		14.0	14.0	12.0	12.5
	AGHP161PH	398600006	●		15.5	15.5	13.0	14.5
	AGHP103PH	398600007		●	10.0	10.0	7.8	8.8
	AGHP123PH	398600008		●	12.0	12.0	9.5	11.0
	AGHP143PH	39860009		●	14.0	14.0	12.0	12.5
	AGHP163PH	398600010		●	15.5	15.5	13.0	14.5

- (1) Water temperature 30 °C / 35 °C, outdoor air temperature 7 °C DB / 6 °C WB
- (2) Water temperature 12 °C / 7 °C, outdoor air temperature 35 °C
- (3) Water temperature 40 °C / 45 °C, outdoor air temperature 7 °C DB / 6 °C WB
- (4) Water temperature 23 °C / 18 °C, outdoor air temperature 35 °C

Accessories	Optional	Supplied	Code
40 litres tank/insulated separator, 6 fittings	●		387030204
80 litres tank/insulated separator, 6 fittings	●		387030205
2 kW heating element for tank/separator	●		387030206
Glazed ceramic-coated DHW storage tank with 200 litres capacity, equipped with a single fixed heat exchanger for connection to the heat pump	●		387030701
Glazed ceramic-coated DHW storage tank with 300 litres capacity, equipped with a single fixed heat exchanger for connection to the heat pump	●		387030702
Glazed ceramic-coated DHW storage tank with 300 litres capacity, equipped with a double heat exchanger for connection to the heat pump and to the solar heating system	●		387030700
3 kW heating element for DHW tank	●		387030208
1" three-way diverting valve body	●		387030209
230 VAC servo motor for three-way diverter valve body	●		387030210
Supplementary heating element for outdoor installation, 3 kW 1ph	●		387030222
Supplementary heating element for outdoor installation, 3 kW 3ph	●		387030223
Ambient air temperature sensor		●	
DHW temperature sensor		●	
Additional system water temperature sensor		●	
Y-shaped filter		●	
Remote control panel		●	

TECHNICAL DATA 6-8 kW SINGLE-PHASE VERSION

Model					AGHP061PH	
Matchable units for domestic hot water production (DHW)					**200/300 litres external tank with diverting valve**	
					Cooling	Heating
COMFORT IN ENVIRONMENT	**Performance according to EN 14511**	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	5.80	6.00
			Rated electrical power input	kWel	1.34	1.21
			EER/COP		4.34	4.94
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	4.00	6.00
			Rated electrical power input	kWel	1.29	1.58
			EER/COP		3.10	3.80
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load ($Pdesign_h$)	kW	5.00	
			Seasonal energy efficiency η_s	%	185	
			Energy efficiency class		A+++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load ($Pdesign_h$)	kW	6.00	
			Seasonal energy efficiency η_s	%	127	
			Energy efficiency class		A++	
DHW	**DHW performance according to EN 16147**	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL	
			Energy efficiency class		A	
			ERP efficiency	%	86.7	
Unit operation data			Maximum delivery water temperature	°C	Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	0.69
					at 45 °C	0.69
					at 7 °C	0.52
					at 18 °C	0.66
			Minimum efficient water volume of the system	litres	40	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50	
			Maximum electricity consumption	A	10.4	
			Sound power level	dB(A)	64	
			Sound pressure level (cooling mode)	dB(A)	51	
			Sound pressure level (heating mode)	dB(A)	50	
			Fan air flow rate	m^3/h	2600	
Components and dimensions			Expansion vessel	litres	2	
			Maximum circulator pump head	kPa	7.4 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female	
			Safety valve	bar	3	
			Weight	kg	96	
			Dimensions (H/W/D)	mm	758/1150/345	
			Compressor type		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq	
			Quantity		0.87 kg / 0.59 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to Regulations (EU) 303/2008 and 517/2014.

Data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

Model					AGHP081PH	
Matchable units for domestic hot water production (DHW)					**200/300 litres external tank with diverting valve**	
					Cooling	Heating
COMFORT IN ENVIRONMENT	**Performance according to EN 14511**	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	6.80	7.50
			Rated electrical power input	kWel	1.58	1.63
			EER/COP		4.32	4.60
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	5.00	7.50
			Rated electrical power input	kWel	1.61	2.00
			EER/COP		3.11	3.75
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	6.00	
			Seasonal energy efficiency η_s	%	183	
			Energy efficiency class		A+++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	7.00	
			Seasonal energy efficiency η_s	%	128	
			Energy efficiency class		A++	
DHW	**DHW performance according to EN 16147**	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL	
			Energy efficiency class		A	
			ERP efficiency	%	86.7	
Unit operation data			Maximum delivery water temperature	°C	Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	1.25
					at 45 °C	1.24
					at 7 °C	0.86
					at 18 °C	1.22
			Minimum efficient water volume of the system	litres	40	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50	
			Maximum electricity consumption	A	10.4	
			Sound power level	dB(A)	65	
			Sound pressure level (cooling mode)	dB(A)	53	
			Sound pressure level (heating mode)	dB(A)	51	
			Fan air flow rate	m^3/h	2600	
Components and dimensions			Expansion vessel	litres	2	
			Maximum circulator pump head	kPa	7.2 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female	
			Safety valve	bar	3	
			Weight	kg	96	
			Dimensions (H/W/D)	mm	758/1150/345	
			Compressor type		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq	
			Quantity		0.87 kg / 0.59 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to European regulations 303/2008 and 517/2014.

Data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

CAPACITY AND EFFICIENCY DATA IN RELATION TO THE OUTDOOR TEMPERATURE ACCORDING TO THE EN14511-3:2013 STANDARD

HEATING - Dry bulb outdoor air temperature in °C - (AGHP061PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	3.00	4.18	3.36	4.48	3.78	4.71	4.14	5.09	4.32	5.24	5.10	5.58	5.88	5.85	6.24	6.04	6.54	6.34	6.02	6.91	5.96	7.22	5.41	7.59	4.75	8.13	3.70	8.39
30	2.94	3.38	3.30	3.72	3.72	3.91	4.08	4.29	4.26	4.44	5.10	4.71	5.76	5.01	6.12	5.51	6.54	5.77	6.34	6.30	6.29	6.65	5.70	6.95	5.01	7.33	3.90	7.71
35	2.40	2.77	2.88	2.92	3.42	3.19	3.90	3.49	4.20	3.65	5.04	3.95	5.70	4.10	6.00	4.94	6.48	5.20	6.54	5.58	6.48	5.96	5.88	6.19	5.16	6.53	4.02	6.87
40	2.40	2.54	2.88	2.81	3.42	3.08	3.90	3.30	4.14	3.46	5.04	3.72	5.70	3.87	6.00	4.41	6.48	4.59	6.54	5.05	6.48	5.24	5.88	5.54	5.16	5.85	4.02	6.19
45			2.88	2.51	3.42	2.73	3.90	2.92	4.08	3.08	4.98	3.30	5.70	3.46	6.00	3.80	6.42	3.99	6.54	4.33	6.48	4.56	5.88	4.78	5.16	5.01	4.02	5.32
50					3.42	2.28	3.72	2.47	4.02	2.58	4.86	2.77	5.58	2.89	5.76	3.27	6.30	3.42	6.34	3.72	6.29	3.91	5.70	4.10	5.01	4.33	3.90	4.56
55							3.60	2.09	3.96	2.16	4.74	2.32	5.40	2.43	5.52	2.77	6.18	2.92	6.02	3.15	5.96	3.34	5.41	3.49	4.75	3.65	3.70	3.87
60									3.90	1.86	4.62	1.94	5.28	2.09	5.28	2.35	6.06	2.47	5.69	2.70	5.64	2.85	5.12	2.96	4.49	3.11	3.50	3.30

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	3.28	4.22	3.64	4.06	3.84	3.94	4.08	3.75	4.16	3.44	4.00	3.10	3.64	2.57	2.84	1.89	2.40	1.52
8	3.40	4.37	3.80	4.22	4.00	4.09	4.24	3.91	4.32	3.57	4.16	3.22	3.80	2.67	2.96	1.95	2.48	1.58
9	3.56	4.53	3.92	4.34	4.16	4.22	4.40	4.00	4.48	3.69	4.32	3.32	3.92	2.76	3.08	2.02	2.60	1.61
10	3.68	4.68	4.08	4.50	4.32	4.37	4.56	4.16	4.64	3.81	4.48	3.44	4.08	2.85	3.20	2.11	2.68	1.67
11	3.80	4.84	4.24	4.68	4.44	4.53	4.72	4.31	4.84	3.97	4.64	3.57	4.24	2.95	3.28	2.17	2.80	1.74
12	3.92	4.96	4.36	4.81	4.60	4.65	4.88	4.43	5.00	4.06	4.80	3.66	4.36	3.04	3.40	2.23	2.88	1.80
13	4.12	5.15	4.56	4.96	4.80	4.81	5.12	4.59	5.20	4.19	5.00	3.78	4.56	3.13	3.56	2.29	3.00	1.86
14	4.24	5.27	4.68	5.09	4.96	4.93	5.28	4.68	5.36	4.31	5.16	3.88	4.68	3.22	3.68	2.36	3.08	1.89
15	4.36	5.43	4.84	5.24	5.12	5.09	5.44	4.84	5.52	4.43	5.32	4.00	4.84	3.32	3.76	2.45	3.20	1.95
18	4.76	5.89	5.28	5.67	5.56	5.52	5.92	5.24	6.04	4.81	5.80	4.34	5.28	3.60	4.12	2.64	3.48	2.14
20	5.00	6.20	5.56	5.98	5.88	5.80	6.24	5.52	6.36	5.05	6.12	4.56	5.56	3.78	4.36	2.79	3.68	2.23
23	5.40	6.67	6.00	6.42	6.32	6.23	6.72	5.92	6.88	5.43	6.60	4.90	6.00	4.06	4.68	2.98	3.96	2.39
25	5.72	6.95	6.32	6.70	6.68	6.51	7.08	6.20	7.24	5.67	6.96	5.12	6.32	4.25	4.96	3.13	4.16	2.51

HEATING - Dry bulb outdoor air temperature in °C - (AGHP081PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	3.75	3.83	4.20	4.05	4.73	4.31	5.18	4.50	5.40	4.76	6.38	4.99	7.35	5.18	7.80	5.40	8.18	5.63	7.52	6.15	7.45	6.53	6.76	6.49	5.93	7.05	4.62	7.46
30	3.68	3.15	4.13	3.41	4.65	3.64	5.10	3.86	5.33	4.09	6.38	4.28	7.20	4.50	7.65	4.99	8.18	5.29	7.93	5.66	7.86	6.04	7.13	6.04	6.26	6.53	4.87	6.98
35	3.00	2.70	3.60	2.85	4.28	3.04	4.88	3.30	5.25	3.49	6.30	3.71	7.13	3.83	7.50	4.58	8.10	4.84	8.18	5.25	8.10	5.48	7.35	5.48	6.45	6.08	5.03	6.45
40	3.00	2.36	3.60	2.63	4.28	2.85	4.88	3.04	5.18	3.19	6.30	3.45	7.13	3.64	7.50	4.16	8.10	4.39	8.18	4.76	8.10	4.99	7.35	4.95	6.45	5.48	5.03	5.85
45			3.60	2.36	4.28	2.59	4.88	2.81	5.10	2.93	6.23	3.11	7.13	3.30	7.50	3.75	8.03	3.94	8.18	4.28	8.10	4.50	7.35	4.73	6.45	4.95	5.03	5.25
50					4.28	2.25	4.65	2.44	5.03	2.55	6.08	2.74	6.98	2.85	7.20	3.34	7.88	3.49	7.93	3.83	7.86	4.01	7.13	4.20	6.26	4.39	4.87	4.69
55							4.50	2.10	4.95	2.21	5.93	2.40	6.75	2.51	6.90	2.93	7.73	3.08	7.52	3.34	7.45	3.53	6.76	3.68	5.93	3.86	4.62	4.13
60									4.88	1.95	5.78	2.06	6.60	2.18	6.60	2.59	7.58	2.66	7.11	2.85	7.05	3.00	6.39	3.15	5.61	3.30	4.37	3.53

COOLING - Dry bulb outdoor air temperature in °C

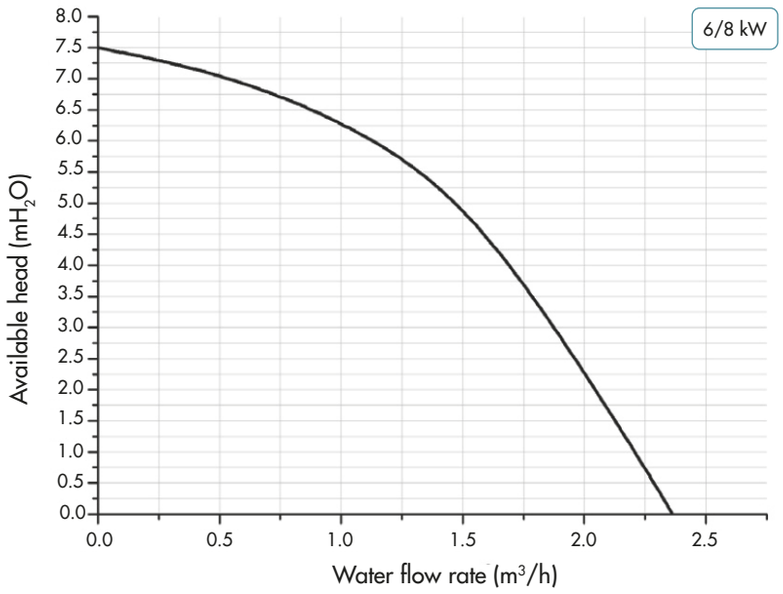
LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	4.10	4.23	4.55	4.07	4.80	3.95	5.10	3.76	5.20	3.45	5.00	3.11	4.55	2.58	3.55	1.90	3.00	1.52
8	4.25	4.39	4.70	4.23	4.95	4.11	5.25	3.89	5.35	3.58	5.15	3.23	4.70	2.67	3.65	1.96	3.10	1.59
9	4.35	4.54	4.85	4.35	5.10	4.23	5.45	4.04	5.55	3.70	5.35	3.33	4.85	2.77	3.80	2.02	3.20	1.62
10	4.50	4.67	5.00	4.51	5.25	4.39	5.60	4.17	5.70	3.83	5.50	3.45	5.00	2.86	3.90	2.08	3.30	1.68
11	4.65	4.82	5.15	4.67	5.45	4.51	5.75	4.29	5.90	3.95	5.65	3.55	5.15	2.95	4.00	2.18	3.40	1.74
12	4.75	4.98	5.30	4.79	5.60	4.67	5.95	4.42	6.05	4.07	5.80	3.67	5.30	3.05	4.15	2.24	3.50	1.80
13	4.90	5.13	5.45	4.94	5.75	4.79	6.10	4.57	6.20	4.20	6.00	3.76	5.45	3.14	4.25	2.30	3.60	1.83
14	5.05	5.29	5.60	5.10	5.90	4.94	6.25	4.70	6.40	4.32	6.15	3.89	5.60	3.23	4.35	2.36	3.70	1.90
15	5.15	5.44	5.75	5.22	6.05	5.07	6.45	4.82	6.55	4.42	6.30	3.98	5.75	3.33	4.50	2.43	3.80	1.96
18	5.60	5.88	6.20	5.66	6.55	5.50	6.95	5.22	7.05	4.79	6.80	4.32	6.20	3.58	4.85	2.64	4.10	2.11
20	5.85	6.19	6.50	5.94	6.85	5.78	7.25	5.50	7.40	5.04	7.15	4.54	6.50	3.76	5.05	2.77	4.30	2.24
23	6.25	6.62	6.95	6.38	7.30	6.19	7.75	5.91	7.90	5.41	7.60	4.88	6.95	4.04	5.40	2.99	4.55	2.39
25	6.50	6.94	7.25	6.69	7.65	6.47	8.10	6.16	8.25	5.66	7.95	5.10	7.25	4.23	5.65	3.11	4.75	2.49

KEY

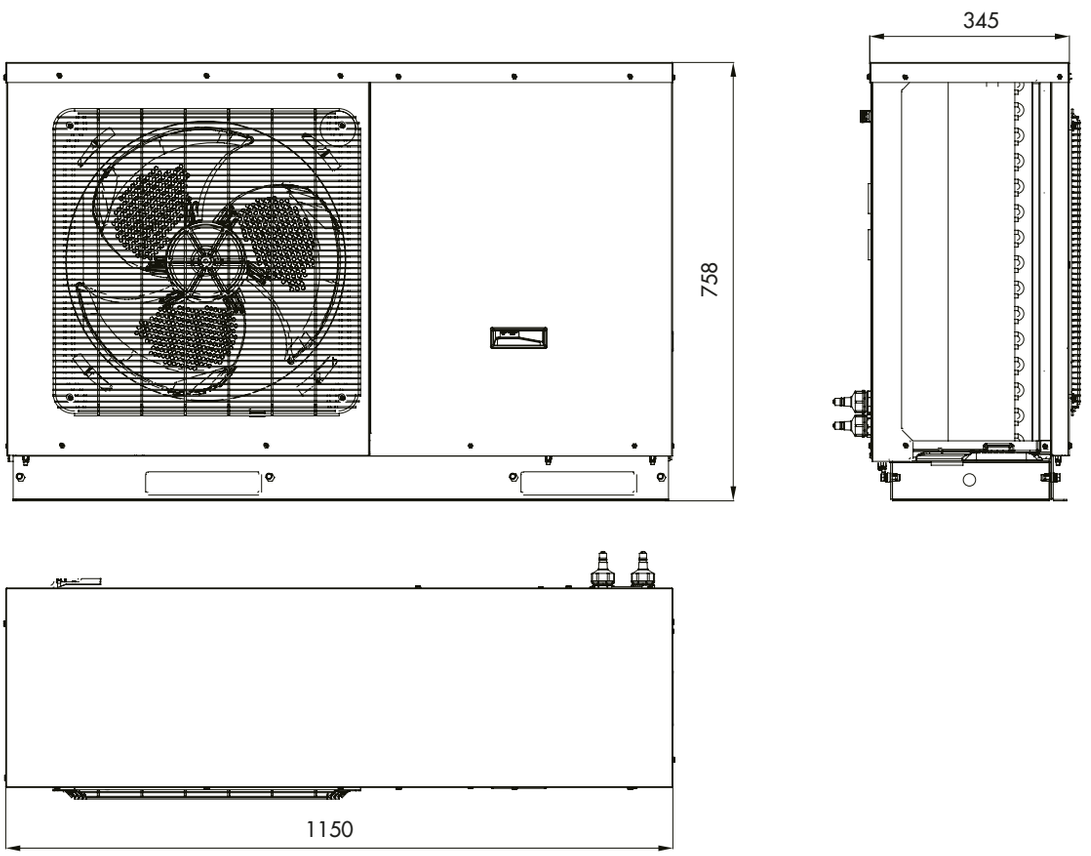
LWT: Leaving water temperature
Qh: Heat capacity
COP: Coefficient of performance

LWT: Leaving water temperature
Qc: Cooling capacity
EER: Energy efficiency ratio

FLOW RATE CURVES



DIMENSIONAL DRAWINGS



TECHNICAL DATA FOR 10 kW SINGLE AND THREE-PHASE VERSION

Model					AGHP101PH		AGHP103PH	
Matchable units for domestic hot water production (DHW)					200/300 litres external tank with diverting valve		200/300 litres external tank with diverting valve	
					Cooling	Heating	Cooling	Heating
COMFORT IN ENVIRONMENT	Performance according to EN 14511	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	8.81	10.00	8.80	10.00
			Rated electrical power input	kWel	1.99	2.22	1.96	2.17
			EER/COP		4.43	4.51	4.49	4.61
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	7.80	10.00	7.80	10.00
			Rated electrical power input	kWel	2.48	2.70	2.64	2.70
			EER/COP		3.15	3.70	2.95	3.70
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	9.00		9.00	
			Seasonal energy efficiency η_s	%	176		176	
			Energy efficiency class		A+++		A+++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	8.00		8.00	
			Seasonal energy efficiency η_s	%	126		128	
			Energy efficiency class		A++		A++	
DHW	DHW performance according to EN 16147	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL		XL	
			Energy efficiency class		A		A	
			ERP efficiency	%	90.9		90.9	
Unit operation data			Maximum delivery water temperature	°C	Up to 60		Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35		-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48		-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	1.74	at 35°C	1.72
					at 45 °C	1.70	at 45°C	1.71
					at 7 °C	1.32	at 7 °C	1.27
					at 18 °C	1.51	at 18 °C	1.50
			Minimum efficient water volume of the system	litres	80		80	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50		380-415~/3N/50	
			Maximum electricity consumption	A	23		12	
			Sound power level	dB(A)	69		69	
			Sound pressure level (cooling mode)	dB(A)	56		56	
			Sound pressure level (heating mode)	dB(A)	54		54	
			Fan air flow rate	m^3/h	4500		4500	
Components and dimensions			Expansion vessel	litres	3		3	
			Maximum circulator pump head	kPa	7.1 (see H/Q graphs)		7.1 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female		G1" female	
			Safety valve	bar	3		3	
			Weight	kg	151		151	
			Dimensions (H/W/D)	mm	878/1200/460		878/1200/460	
			Compressor type		Twin Rotary with vapour injection		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq		R32/675 kg CO_2eq	
			Quantity		2.2 kg / 1.49 tons CO_2 eq.		2.2 kg / 1.49 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to European regulations 303/2008 and 517/2014.

Data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

CAPACITY AND EFFICIENCY DATA IN RELATION TO THE OUTDOOR TEMPERATURE ACCORDING TO THE EN14511-3:2013 STANDARD

HEATING - Dry bulb outdoor air temperature in °C - (AGHP101PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	5.00	3.77	5.60	4.00	6.30	4.26	6.90	4.44	7.20	4.70	8.50	4.92	9.80	5.11	10.40	5.33	10.90	5.55	10.03	6.07	9.94	6.44	9.02	6.40	7.91	6.96	6.16	7.36
30	4.90	3.11	5.50	3.37	6.20	3.59	6.80	3.81	7.10	4.03	8.50	4.22	9.60	4.44	10.20	4.92	10.90	5.22	10.57	5.59	10.48	5.96	9.51	5.96	8.34	6.44	6.50	6.88
35	4.00	2.66	4.80	2.81	5.70	3.00	6.50	3.26	7.00	3.44	8.40	3.66	9.50	3.77	10.00	4.51	10.80	4.77	10.90	5.18	10.80	5.40	9.80	5.40	8.60	5.99	6.70	6.36
40	4.00	2.33	4.80	2.59	5.70	2.81	6.50	3.00	6.90	3.15	8.40	3.40	9.50	3.59	10.00	4.11	10.80	4.33	10.90	4.70	10.80	4.92	9.80	4.88	8.60	5.40	6.70	5.77
45			4.80	2.33	5.70	2.55	6.50	2.78	6.80	2.89	8.30	3.07	9.50	3.26	10.00	3.70	10.70	3.89	10.90	4.22	10.80	4.44	9.80	4.66	8.60	4.88	6.70	5.18
50					5.70	2.22	6.20	2.41	6.70	2.52	8.10	2.70	9.30	2.81	9.60	3.29	10.50	3.44	10.57	3.77	10.48	3.96	9.51	4.14	8.34	4.33	6.50	4.63
55							6.00	2.07	6.60	2.18	7.90	2.37	9.00	2.48	9.20	2.89	10.30	3.03	10.03	3.29	9.94	3.48	9.02	3.63	7.91	3.81	6.16	4.07
60									6.50	1.92	7.70	2.04	8.80	2.15	8.80	2.55	10.10	2.63	9.48	2.81	9.40	2.96	8.53	3.11	7.48	3.26	5.83	3.48

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	6.40	4.28	7.10	4.13	7.49	4.00	7.96	3.81	8.11	3.50	7.80	3.15	7.10	2.61	5.54	1.92	4.68	1.54
8	6.47	4.44	7.18	4.28	7.57	4.16	8.03	3.97	8.19	3.62	7.88	3.28	7.18	2.71	5.62	1.98	4.76	1.61
9	6.55	4.60	7.25	4.44	7.64	4.28	8.11	4.10	8.27	3.75	7.96	3.37	7.25	2.80	5.69	2.08	4.76	1.67
10	6.63	4.76	7.33	4.60	7.72	4.44	8.27	4.25	8.42	3.87	8.11	3.50	7.33	2.90	5.77	2.14	4.84	1.70
11	6.71	4.91	7.41	4.76	7.88	4.60	8.35	4.38	8.50	4.03	8.19	3.62	7.41	2.99	5.77	2.21	4.91	1.76
12	6.79	5.07	7.49	4.88	7.96	4.76	8.42	4.54	8.58	4.16	8.27	3.75	7.49	3.09	5.85	2.27	4.99	1.83
13	6.86	5.23	7.57	5.04	8.03	4.88	8.50	4.66	8.66	4.28	8.35	3.84	7.57	3.21	5.93	2.36	4.99	1.89
14	6.94	5.39	7.72	5.20	8.11	5.04	8.58	4.82	8.81	4.41	8.42	3.97	7.72	3.31	6.01	2.43	5.07	1.95
15	7.02	5.58	7.80	5.36	8.19	5.20	8.74	4.95	8.89	4.54	8.50	4.10	7.80	3.40	6.08	2.49	5.15	2.02
18	7.25	6.05	8.03	5.83	8.42	5.64	8.97	5.39	9.20	4.95	8.81	4.44	8.03	3.69	6.24	2.71	5.30	2.17
20	7.41	6.36	8.19	6.11	8.66	5.95	9.20	5.67	9.36	5.20	8.97	4.66	8.19	3.87	6.40	2.87	5.38	2.30
23	7.64	6.84	8.42	6.58	8.89	6.39	9.44	6.08	9.67	5.58	9.28	5.04	8.42	4.16	6.55	3.06	5.54	2.46
25	7.72	7.15	8.58	6.90	9.05	6.68	9.67	6.36	9.83	5.83	9.44	5.26	8.58	4.38	6.71	3.21	5.69	2.58

HEATING - Dry bulb outdoor air temperature in °C - (AGHP103PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	5.00	3.77	5.60	4.00	6.30	4.26	6.90	4.44	7.20	4.70	8.50	4.92	9.80	5.11	10.40	5.33	10.90	5.55	10.03	6.07	9.94	6.44	9.02	6.40	7.91	6.96	6.16	7.36
30	4.90	3.11	5.50	3.37	6.20	3.59	6.80	3.81	7.10	4.03	8.50	4.22	9.60	4.44	10.20	4.92	10.90	5.22	10.57	5.59	10.48	5.96	9.51	5.96	8.34	6.44	6.50	6.88
35	4.00	2.66	4.80	2.81	5.70	3.00	6.50	3.26	7.00	3.44	8.40	3.66	9.50	3.77	10.00	4.51	10.80	4.77	10.90	5.18	10.80	5.40	9.80	5.40	8.60	5.99	6.70	6.36
40	4.00	2.33	4.80	2.59	5.70	2.81	6.50	3.00	6.90	3.15	8.40	3.40	9.50	3.59	10.00	4.11	10.80	4.33	10.90	4.70	10.80	4.92	9.80	4.88	8.60	5.40	6.70	5.77
45			4.80	2.33	5.70	2.55	6.50	2.78	6.80	2.89	8.30	3.07	9.50	3.26	10.00	3.70	10.70	3.89	10.90	4.22	10.80	4.44	9.80	4.66	8.60	4.88	6.70	5.18
50					5.70	2.22	6.20	2.41	6.70	2.52	8.10	2.70	9.30	2.81	9.60	3.29	10.50	3.44	10.57	3.77	10.48	3.96	9.51	4.14	8.34	4.33	6.50	4.63
55							6.00	2.07	6.60	2.18	7.90	2.37	9.00	2.48	9.20	2.89	10.30	3.03	10.03	3.29	9.94	3.48	9.02	3.63	7.91	3.81	6.16	4.07
60									6.50	1.92	7.70	2.04	8.80	2.15	8.80	2.55	10.10	2.63	9.48	2.81	9.40	2.96	8.53	3.11	7.48	3.26	5.83	3.48

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	6.40	4.01	7.10	3.86	7.49	3.75	7.96	3.57	8.11	3.27	7.80	2.95	7.10	2.45	5.54	1.80	4.68	1.45
8	6.47	4.19	7.18	4.04	7.57	3.92	8.03	3.72	8.19	3.42	7.88	3.07	7.18	2.57	5.62	1.89	4.76	1.50
9	6.55	4.37	7.25	4.22	7.64	4.07	8.11	3.89	8.27	3.57	7.96	3.22	7.25	2.66	5.69	1.95	4.76	1.56
10	6.63	4.54	7.33	4.40	7.72	4.25	8.27	4.04	8.42	3.72	8.11	3.33	7.33	2.77	5.77	2.04	4.84	1.65
11	6.71	4.72	7.41	4.54	7.88	4.43	8.35	4.22	8.50	3.86	8.19	3.48	7.41	2.89	5.77	2.12	4.91	1.71
12	6.79	4.90	7.49	4.72	7.96	4.57	8.42	4.37	8.58	4.01	8.27	3.60	7.49	2.98	5.85	2.21	4.99	1.77
13	6.86	5.07	7.57	4.90	8.03	4.75	8.50	4.51	8.66	4.16	8.35	3.75	7.57	3.10	5.93	2.27	4.99	1.83
14	6.94	5.25	7.72	5.07	8.11	4.93	8.58	4.69	8.81	4.31	8.42	3.86	7.72	3.22	6.01	2.36	5.07	1.89
15	7.02	5.43	7.80	5.25	8.19	5.07	8.74	4.84	8.89	4.45	8.50	4.01	7.80	3.33	6.08	2.45	5.15	1.95
18	7.25	5.99	8.03	5.75	8.42	5.58	8.97	5.31	9.20	4.87	8.81	4.40	8.03	3.66	6.24	2.68	5.30	2.15
20	7.41	6.34	8.19	6.11	8.66	5.93	9.20	5.63	9.36	5.16	8.97	4.66	8.19	3.86	6.40	2.83	5.38	2.27
23	7.64	6.87	8.42	6.61	8.89	6.43	9.44	6.11	9.67	5.61	9.28	5.04	8.42	4.19	6.55	3.07	5.54	2.48
25	7.72	7.23	8.58	6.96	9.05	6.76	9.67	6.43	9.83	5.90	9.44	5.31	8.58	4.43	6.71	3.25	5.69	2.60

KEY

LWT: Leaving water temperature
Qh: Heat capacity
COP: Coefficient of performance

LWT: Leaving water temperature
Qc: Cooling capacity
EER: Energy efficiency ratio

TECHNICAL DATA FOR 12 kW SINGLE AND THREE-PHASE VERSION

Model					AGHP121PH		AGHP123PH	
Matchable units for domestic hot water production (DHW)					**200/300 litres external tank with diverting valve**		**200/300 litres external tank with diverting valve**	
					Cooling	Heating	Cooling	Heating
COMFORT IN ENVIRONMENT	**Performance according to EN 14511**	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	11.00	12.00	11.00	12.00
			Rated electrical power input	kWel	2.59	2.68	2.56	2.67
			EER/COP		4.25	4.48	4.3	4.50
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	9.50	12.00	9.50	12.00
			Rated electrical power input	kWel	3.20	3.48	3.11	3.48
			EER/COP		2.97	3.45	3.05	3.45
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	11.00		11.00	
			Seasonal energy efficiency η_s	%	175		175	
			Energy efficiency class		A+++		A+++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	10.00		10.00	
			Seasonal energy efficiency η_s	%	126		126	
			Energy efficiency class		A++		A++	
DHW	**DHW performance according to EN 16147**	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL		XL	
			Energy efficiency class		A		A	
			ERP efficiency	%	90.9		90.9	
Unit operation data			Maximum delivery water temperature	°C	Up to 60		Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35		-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48		-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	2.14	at 35°C	2.10
					at 45 °C	2.05	at 45°C	2.04
					at 7 °C	1.65	at 7 °C	1.67
					at 18 °C	1.93	at 18 °C	1.90
			Minimum efficient water volume of the system	litres	80		80	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50		380-415~/3N/50	
			Maximum electricity consumption	A	25		12	
			Sound power level	dB(A)	69		69	
			Sound pressure level (cooling mode)	dB(A)	56		56	
			Sound pressure level (heating mode)	dB(A)	54		54	
			Fan air flow rate	m^3/h	4500		4500	
Components and dimensions			Expansion vessel	litres	3		3	
			Maximum circulator pump head	kPa	6.5 (see H/Q graphs)		6.4 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female		G1" female	
			Safety valve	bar	3		3	
			Weight	kg	151		151	
			Dimensions (H/W/D)	mm	878/1200/460		878/1200/460	
			Compressor type		Twin Rotary with vapour injection		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq		R32/675 kg CO_2eq	
			Quantity		2.2 kg / 1.49 tons CO_2 eq.		2.2 kg / 1.49 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to European regulations 303/2008 and 517/2014.

PRELIMINARY data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

CAPACITY AND EFFICIENCY DATA IN RELATION TO THE OUTDOOR TEMPERATURE ACCORDING TO THE EN14511-3:2013 STANDARD

HEATING - Dry bulb outdoor air temperature in °C - (AGHP121PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	6.00	3.79	6.72	4.07	7.56	4.28	8.28	4.62	8.64	4.76	10.20	5.07	11.76	5.31	12.48	5.48	13.08	5.76	12.03	6.28	11.92	6.55	10.82	6.90	9.49	7.38	7.40	7.62
30	5.88	3.07	6.60	3.38	7.44	3.55	8.16	3.90	8.52	4.03	10.20	4.28	11.52	4.55	12.24	5.00	13.08	5.24	12.69	5.72	12.57	6.03	11.41	6.31	10.01	6.66	7.80	7.00
35	4.80	2.52	5.76	2.66	6.84	2.90	7.80	3.17	8.40	3.31	10.08	3.59	11.40	3.72	12.00	4.48	12.96	4.72	13.08	5.07	12.96	5.41	11.76	5.62	10.32	5.93	8.04	6.24
40	4.80	2.31	5.76	2.55	6.84	2.79	7.80	3.00	8.28	3.14	10.08	3.38	11.40	3.52	12.00	4.00	12.96	4.17	13.08	4.59	12.96	4.76	11.76	5.03	10.32	5.31	8.04	5.62
45			5.76	2.28	6.84	2.48	7.80	2.66	8.16	2.79	9.96	3.00	11.40	3.14	12.00	3.45	12.84	3.62	13.08	3.93	12.96	4.14	11.76	4.34	10.32	4.55	8.04	4.83
50					6.84	2.07	7.44	2.24	8.04	2.34	9.72	2.52	11.16	2.62	11.52	2.97	12.60	3.10	12.69	3.38	12.57	3.55	11.41	3.72	10.01	3.93	7.80	4.14
55							7.20	1.90	7.92	1.97	9.48	2.10	10.80	2.21	11.04	2.52	12.36	2.66	12.03	2.86	11.92	3.03	10.82	3.17	9.49	3.31	7.40	3.52
60									7.80	1.69	9.24	1.76	10.56	1.90	10.56	2.14	12.12	2.24	11.38	2.45	11.28	2.59	10.23	2.69	8.98	2.83	6.99	3.00

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	7.79	4.04	8.65	3.89	9.12	3.77	9.69	3.59	9.88	3.30	9.50	2.97	8.65	2.47	6.75	1.81	5.70	1.46
8	7.89	4.19	8.74	4.04	9.22	3.92	9.79	3.74	10.07	3.42	9.60	3.09	8.74	2.55	6.84	1.87	5.80	1.51
9	7.98	4.37	8.93	4.19	9.41	4.07	9.98	3.86	10.17	3.56	9.79	3.21	8.93	2.64	6.94	1.96	5.89	1.57
10	8.17	4.51	9.03	4.34	9.50	4.22	10.07	4.01	10.36	3.68	9.88	3.33	9.03	2.76	7.03	2.02	5.99	1.63
11	8.27	4.66	9.12	4.48	9.69	4.37	10.26	4.16	10.45	3.80	10.07	3.45	9.12	2.85	7.13	2.11	5.99	1.69
12	8.36	4.84	9.31	4.66	9.79	4.51	10.36	4.31	10.64	3.95	10.17	3.56	9.31	2.94	7.22	2.17	6.08	1.75
13	8.46	4.99	9.41	4.81	9.88	4.66	10.55	4.43	10.74	4.07	10.36	3.65	9.41	3.03	7.32	2.23	6.18	1.78
14	8.55	5.14	9.50	4.96	10.07	4.81	10.64	4.57	10.93	4.19	10.45	3.77	9.50	3.15	7.41	2.32	6.27	1.84
15	8.74	5.32	9.69	5.11	10.17	4.96	10.83	4.72	11.02	4.34	10.64	3.89	9.69	3.24	7.51	2.38	6.37	1.90
18	9.03	5.76	10.07	5.55	10.55	5.41	11.21	5.14	11.50	4.72	11.02	4.25	10.07	3.53	7.79	2.58	6.65	2.08
20	9.31	6.09	10.26	5.88	10.83	5.70	11.50	5.41	11.78	4.96	11.31	4.48	10.26	3.71	7.98	2.73	6.75	2.20
23	9.60	6.56	10.64	6.33	11.21	6.12	11.97	5.85	12.16	5.35	11.69	4.84	10.64	4.01	8.36	2.94	7.03	2.38
25	9.79	6.89	10.93	6.62	11.50	6.42	12.26	6.12	12.45	5.61	11.97	5.05	10.93	4.19	8.55	3.09	7.22	2.47

HEATING - Dry bulb outdoor air temperature in °C - (AGHP123PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	6.00	3.80	6.72	4.07	7.56	4.28	8.28	4.62	8.64	4.76	10.20	5.07	11.76	5.31	12.48	5.49	13.08	5.76	12.03	6.28	11.92	6.56	10.82	6.90	9.49	7.38	7.40	7.62
30	5.88	3.07	6.60	3.38	7.44	3.55	8.16	3.90	8.52	4.04	10.20	4.28	11.52	4.55	12.24	5.00	13.08	5.24	12.69	5.73	12.57	6.04	11.41	6.31	10.01	6.66	7.80	7.00
35	4.80	2.52	5.76	2.66	6.84	2.90	7.80	3.17	8.40	3.31	10.08	3.59	11.40	3.73	12.00	4.49	12.96	4.73	13.08	5.07	12.96	5.42	11.76	5.62	10.32	5.93	8.04	6.24
40	4.80	2.31	5.76	2.55	6.84	2.79	7.80	3.00	8.28	3.14	10.08	3.38	11.40	3.52	12.00	4.00	12.96	4.17	13.08	4.59	12.96	4.76	11.76	5.04	10.32	5.31	8.04	5.62
45			5.76	2.28	6.84	2.48	7.80	2.66	8.16	2.79	9.96	3.00	11.40	3.14	12.00	3.45	12.84	3.62	13.08	3.93	12.96	4.14	11.76	4.35	10.32	4.55	8.04	4.83
50					6.84	2.07	7.44	2.24	8.04	2.35	9.72	2.52	11.16	2.62	11.52	2.97	12.60	3.11	12.69	3.38	12.57	3.55	11.41	3.73	10.01	3.93	7.80	4.14
55							7.20	1.90	7.92	1.97	9.48	2.10	10.80	2.21	11.04	2.52	12.36	2.66	12.03	2.86	11.92	3.04	10.82	3.17	9.49	3.31	7.40	3.52
60									7.80	1.69	9.24	1.76	10.56	1.90	10.56	2.14	12.12	2.24	11.38	2.45	11.28	2.59	10.23	2.69	8.98	2.83	6.99	3.00

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	7.79	4.15	8.65	4.00	9.12	3.87	9.69	3.69	9.88	3.39	9.50	3.05	8.65	2.53	6.75	1.86	5.70	1.49
8	7.89	4.30	8.74	4.15	9.22	4.03	9.79	3.81	10.07	3.51	9.60	3.17	8.74	2.62	6.84	1.92	5.80	1.56
9	7.98	4.45	8.93	4.27	9.41	4.15	9.98	3.97	10.17	3.63	9.79	3.26	8.93	2.71	6.94	1.98	5.89	1.59
10	8.17	4.58	9.03	4.42	9.50	4.30	10.07	4.09	10.36	3.75	9.88	3.39	9.03	2.81	7.03	2.04	5.99	1.65
11	8.27	4.73	9.12	4.58	9.69	4.42	10.26	4.21	10.45	3.87	10.07	3.48	9.12	2.90	7.13	2.14	5.99	1.71
12	8.36	4.88	9.31	4.70	9.79	4.58	10.36	4.33	10.64	4.00	10.17	3.60	9.31	2.99	7.22	2.20	6.08	1.77
13	8.46	5.03	9.41	4.85	9.88	4.70	10.55	4.48	10.74	4.12	10.36	3.69	9.41	3.08	7.32	2.26	6.18	1.80
14	8.55	5.19	9.50	5.00	10.07	4.85	10.64	4.61	10.93	4.24	10.45	3.81	9.50	3.17	7.41	2.32	6.27	1.86
15	8.74	5.34	9.69	5.12	10.17	4.97	10.83	4.73	11.02	4.33	10.64	3.90	9.69	3.26	7.51	2.38	6.37	1.92
18	9.03	5.76	10.07	5.55	10.55	5.40	11.21	5.12	11.50	4.70	11.02	4.24	10.07	3.51	7.79	2.59	6.65	2.07
20	9.31	6.07	10.26	5.83	10.83	5.67	11.50	5.40	11.78	4.94	11.31	4.45	10.26	3.69	7.98	2.71	6.75	2.20
23	9.60	6.50	10.64	6.25	11.21	6.07	11.97	5.80	12.16	5.31	11.69	4.79	10.64	3.97	8.36	2.93	7.03	2.35
25	9.79	6.80	10.93	6.56	11.50	6.34	12.26	6.04	12.45	5.55	11.97	5.00	10.93	4.15	8.55	3.05	7.22	2.44

KEY

LWT: Leaving water temperature
Qh: Heat capacity
COP: Coefficient of performance

LWT: Leaving water temperature
Qc: Cooling capacity
EER: Energy efficiency ratio

TECHNICAL DATA FOR 14 kW SINGLE AND THREE-PHASE VERSION

Model					AGHP141PH		AGHP143PH	
Matchable units for domestic hot water production (DHW)					**200/300 litres external tank with diverting valve**		**200/300 litres external tank with diverting valve**	
					Cooling	Heating	Cooling	Heating
COMFORT IN ENVIRONMENT	**Performance according to EN 14511**	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	12.50	14.00	12.50	14.00
			Rated electrical power input	kWel	3.05	3.22	3.05	3.22
			EER/COP		4.1	4.35	4.1	4.35
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	12.00	14.00	12.00	14.00
			Rated electrical power input	kWel	4.14	4.18	4.38	4.18
			EER/COP		2.9	3.35	2.74	3.35
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	11.00		11.00	
			Seasonal energy efficiency η_s	%	168		168	
			Energy efficiency class		A++		A++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	11.00		11.00	
			Seasonal energy efficiency η_s	%	125		125	
			Energy efficiency class		A++		A++	
DHW	**DHW performance according to EN 16147**	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL		XL	
			Energy efficiency class		A		A	
			ERP efficiency	%	90.9		90.9	
Unit operation data			Maximum delivery water temperature	°C	Up to 60		Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35		-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48		-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	2.52	at 35 °C	2.40
					at 45 °C	2.50	at 45 °C	2.47
					at 7 °C	2.08	at 7 °C	2.07
					at 18 °C	2.24	at 18 °C	2.20
			Minimum efficient water volume of the system	litres	80		80	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50		380-415~/3N/50	
			Maximum electricity consumption	A	29		12	
			Sound power level	dB(A)	70		70	
			Sound pressure level (cooling mode)	dB(A)	57		57	
			Sound pressure level (heating mode)	dB(A)	55		55	
			Fan air flow rate	m^3/h	4500		4500	
Components and dimensions			Expansion vessel	litres	3		3	
			Maximum circulator pump head	kPa	5.1 (see H/Q graphs)		5.1 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female		G1" female	
			Safety valve	bar	3		3	
			Weight	kg	151		151	
			Dimensions (H/W/D)	mm	878/1200/460		878/1200/460	
			Compressor type		Twin Rotary with vapour injection		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq		R32/675 kg CO_2eq	
			Quantity		2.2 kg / 1.49 tons CO_2 eq.		2.2 kg / 1.49 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to European regulations 303/2008 and 517/2014.

Data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

CAPACITY AND EFFICIENCY DATA IN RELATION TO THE OUTDOOR TEMPERATURE ACCORDING TO THE EN14511-3:2013 STANDARD

HEATING - Dry bulb outdoor air temperature in °C - (AGHP141PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	7.00	3.69	7.84	3.95	8.82	4.15	9.66	4.49	10.08	4.62	11.90	4.92	13.72	5.16	14.56	5.33	15.26	5.59	14.04	6.10	13.91	6.37	12.62	6.70	11.08	7.17	8.63	7.40
30	6.86	2.98	7.70	3.28	8.68	3.45	9.52	3.79	9.94	3.92	11.90	4.15	13.44	4.42	14.28	4.86	15.26	5.09	14.80	5.56	14.67	5.86	13.31	6.13	11.68	6.47	9.10	6.80
35	5.60	2.45	6.72	2.58	7.98	2.81	9.10	3.08	9.80	3.22	11.76	3.48	13.30	3.62	14.00	4.36	15.12	4.59	15.26	4.92	15.12	5.26	13.72	5.46	12.04	5.76	9.38	6.06
40	5.60	2.24	6.72	2.48	7.98	2.71	9.10	2.91	9.66	3.05	11.76	3.28	13.30	3.42	14.00	3.89	15.12	4.05	15.26	4.46	15.12	4.62	13.72	4.89	12.04	5.16	9.38	5.46
45			6.72	2.21	7.98	2.41	9.10	2.58	9.52	2.71	11.62	2.91	13.30	3.05	14.00	3.35	14.98	3.52	15.26	3.82	15.12	4.02	13.72	4.22	12.04	4.42	9.38	4.69
50					7.98	2.01	8.68	2.18	9.38	2.28	11.34	2.45	13.02	2.55	13.44	2.88	14.70	3.02	14.80	3.28	14.67	3.45	13.31	3.62	11.68	3.82	9.10	4.02
55							8.40	1.84	9.24	1.91	11.06	2.04	12.60	2.14	12.88	2.45	14.42	2.58	14.04	2.78	13.91	2.95	12.62	3.08	11.08	3.22	8.63	3.42
60									9.10	1.64	10.78	1.71	12.32	1.84	12.32	2.08	14.14	2.18	13.28	2.38	13.15	2.51	11.94	2.61	10.47	2.75	8.16	2.91

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	9.84	3.94	10.92	3.80	11.52	3.68	12.24	3.51	12.48	3.22	12.00	2.90	10.92	2.41	8.52	1.77	7.20	1.42
8	9.84	4.09	10.92	3.94	11.52	3.83	12.24	3.63	12.48	3.34	12.00	3.02	10.92	2.49	8.52	1.83	7.20	1.48
9	9.96	4.23	11.04	4.09	11.64	3.94	12.36	3.77	12.60	3.45	12.12	3.10	11.04	2.58	8.64	1.89	7.20	1.54
10	9.96	4.38	11.04	4.21	11.64	4.09	12.36	3.89	12.60	3.57	12.12	3.22	11.04	2.67	8.64	1.97	7.32	1.57
11	9.96	4.52	11.04	4.35	11.64	4.21	12.36	4.03	12.72	3.68	12.12	3.34	11.04	2.76	8.64	2.03	7.32	1.62
12	9.96	4.67	11.16	4.50	11.76	4.35	12.48	4.15	12.72	3.80	12.24	3.42	11.16	2.84	8.64	2.09	7.32	1.68
13	10.08	4.81	11.16	4.64	11.76	4.50	12.48	4.26	12.72	3.92	12.24	3.54	11.16	2.93	8.76	2.15	7.32	1.74
14	10.08	4.96	11.16	4.76	11.76	4.61	12.60	4.41	12.84	4.03	12.36	3.63	11.16	3.02	8.76	2.23	7.44	1.77
15	10.08	5.10	11.28	4.90	11.88	4.76	12.60	4.52	12.84	4.15	12.36	3.74	11.28	3.10	8.76	2.29	7.44	1.83
18	10.20	5.51	11.40	5.31	12.00	5.16	12.72	4.90	12.96	4.50	12.48	4.06	11.40	3.36	8.88	2.47	7.44	2.00
20	10.32	5.80	11.40	5.60	12.12	5.42	12.84	5.16	13.08	4.73	12.60	4.26	11.40	3.54	8.88	2.61	7.56	2.09
23	10.44	6.24	11.52	6.00	12.24	5.83	12.96	5.54	13.20	5.10	12.72	4.58	11.52	3.80	9.00	2.78	7.56	2.26
25	10.44	6.53	11.64	6.29	12.24	6.09	13.08	5.80	13.32	5.34	12.84	4.79	11.64	3.97	9.12	2.93	7.68	2.35

HEATING - Dry bulb outdoor air temperature in °C - (AGHP143PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	7.00	3.69	7.84	3.95	8.82	4.15	9.66	4.49	10.08	4.62	11.90	4.92	13.72	5.16	14.56	5.33	15.26	5.59	14.04	6.10	13.91	6.37	12.62	6.70	11.08	7.17	8.63	7.40
30	6.86	2.98	7.70	3.28	8.68	3.45	9.52	3.79	9.94	3.92	11.90	4.15	13.44	4.42	14.28	4.86	15.26	5.09	14.80	5.56	14.67	5.86	13.31	6.13	11.68	6.47	9.10	6.80
35	5.60	2.45	6.72	2.58	7.98	2.81	9.10	3.08	9.80	3.22	11.76	3.48	13.30	3.62	14.00	4.36	15.12	4.59	15.26	4.92	15.12	5.26	13.72	5.46	12.04	5.76	9.38	6.06
40	5.60	2.24	6.72	2.48	7.98	2.71	9.10	2.91	9.66	3.05	11.76	3.28	13.30	3.42	14.00	3.89	15.12	4.05	15.26	4.46	15.12	4.62	13.72	4.89	12.04	5.16	9.38	5.46
45			6.72	2.21	7.98	2.41	9.10	2.58	9.52	2.71	11.62	2.91	13.30	3.05	14.00	3.35	14.98	3.52	15.26	3.82	15.12	4.02	13.72	4.22	12.04	4.42	9.38	4.69
50					7.98	2.01	8.68	2.18	9.38	2.28	11.34	2.45	13.02	2.55	13.44	2.88	14.70	3.02	14.80	3.28	14.67	3.45	13.31	3.62	11.68	3.82	9.10	4.02
55							8.40	1.84	9.24	1.91	11.06	2.04	12.60	2.14	12.88	2.45	14.42	2.58	14.04	2.78	13.91	2.95	12.62	3.08	11.08	3.22	8.63	3.42
60									9.10	1.64	10.78	1.71	12.32	1.84	12.32	2.08	14.14	2.18	13.28	2.38	13.15	2.51	11.94	2.61	10.47	2.75	8.16	2.91

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	9.84	3.73	10.92	3.59	11.52	3.48	12.24	3.32	12.48	3.04	12.00	2.74	10.92	2.27	8.52	1.67	7.20	1.34
8	9.84	3.89	10.92	3.75	11.52	3.64	12.24	3.45	12.48	3.18	12.00	2.85	10.92	2.38	8.52	1.75	7.20	1.40
9	9.96	4.06	11.04	3.89	11.64	3.78	12.36	3.62	12.60	3.32	12.12	2.99	11.04	2.47	8.64	1.81	7.20	1.45
10	9.96	4.22	11.04	4.06	11.64	3.95	12.36	3.75	12.60	3.45	12.12	3.10	11.04	2.58	8.64	1.89	7.32	1.51
11	9.96	4.38	11.04	4.22	11.64	4.08	12.36	3.89	12.72	3.56	12.12	3.21	11.04	2.66	8.64	1.97	7.32	1.59
12	9.96	4.55	11.16	4.38	11.76	4.25	12.48	4.03	12.72	3.70	12.24	3.34	11.16	2.77	8.64	2.03	7.32	1.64
13	10.08	4.71	11.16	4.52	11.76	4.38	12.48	4.19	12.72	3.84	12.24	3.45	11.16	2.88	8.76	2.11	7.32	1.70
14	10.08	4.88	11.16	4.69	11.76	4.55	12.60	4.33	12.84	3.97	12.36	3.59	11.16	2.96	8.76	2.19	7.44	1.75
15	10.08	5.01	11.28	4.85	11.88	4.69	12.60	4.47	12.84	4.11	12.36	3.70	11.28	3.07	8.76	2.25	7.44	1.81
18	10.20	5.51	11.40	5.32	12.00	5.15	12.72	4.90	12.96	4.49	12.48	4.06	11.40	3.37	8.88	2.47	7.44	2.00
20	10.32	5.84	11.40	5.62	12.12	5.45	12.84	5.21	13.08	4.77	12.60	4.30	11.40	3.56	8.88	2.63	7.56	2.11
23	10.44	6.33	11.52	6.08	12.24	5.92	12.96	5.62	13.20	5.15	12.72	4.66	11.52	3.86	9.00	2.85	7.56	2.27
25	10.44	6.66	11.64	6.41	12.24	6.22	13.08	5.92	13.32	5.43	12.84	4.90	11.64	4.06	9.12	2.99	7.68	2.38

KEY

LWT: Leaving water temperature
Qh: Heat capacity
COP: Coefficient of performance

LWT: Leaving water temperature
Qc: Cooling capacity
EER: Energy efficiency ratio

TECHNICAL DATA FOR 16 kW SINGLE AND THREE-PHASE VERSION

Model					AGHP161PH		AGHP163PH	
Matchable units for domestic hot water production (DHW)					**200/300 litres external tank with diverting valve**		**200/300 litres external tank with diverting valve**	
					Cooling	Heating	Cooling	Heating
COMFORT IN ENVIRONMENT	**Performance according to EN 14511**	Air +35 °C - Water 23/18 °C Air +7 °C - Water 30/35 °C	Rated capacity	kW	14.50	15.50	14.50	15.50
			Rated electrical power input	kWel	3.82	3.60	3.82	3.60
			EER/COP		3.8	4.30	3.8	4.30
		Air +35 °C - Water 12/7 °C Air +7 °C - Water 40/45 °C	Rated capacity	kW	13.00	15.50	13.00	15.50
			Rated electrical power input	kWel	4.96	4.70	4.91	4.70
			EER/COP		2.62	3.30	2.65	3.30
	Performance according to Ecodesign (ERP) EN 14825	LOW TEMPERATURE (35 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	13.00		13.00	
			Seasonal energy efficiency η_s	%	164		164	
			Energy efficiency class		A++		A++	
		MEDIUM TEMPERATURE (55 °C) AVERAGE climate	Design thermal load (Pdesign$_h$)	kW	13.00		13.00	
			Seasonal energy efficiency η_s	%	125		125	
			Energy efficiency class		A++		A++	
DHW	**DHW performance according to EN 16147**	With 300 litres tank and diverting valve AVERAGE climate	Load profile		XL		XL	
			Energy efficiency class		A		A	
			ERP efficiency	%	90.9		90.9	
Unit operation data			Maximum delivery water temperature	°C	Up to 60		Up to 60	
			Outdoor temperature range (heating)	°C	-25/+35		-25/+35	
			Outdoor temperature range (cooling)	°C	-15/+48		-15/+48	
			Nominal water flow rate	m^3/h	at 35 °C	2.70	at 35°C	2.63
					at 45 °C	2.70	at 45°C	2.73
					at 7 °C	2.27	at 7 °C	2.23
					at 18 °C	2.64	at 18 °C	2.57
			Minimum efficient water volume of the system	litres	80		80	
			Power supply (Voltage/Phases/Frequency)	V/Ph/Hz	220-240~/1/50		380-415~/3N/50	
			Maximum electricity consumption	A	29		12	
			Sound power level	dB(A)	72		72	
			Sound pressure level (cooling mode)	dB(A)	59		59	
			Sound pressure level (heating mode)	dB(A)	57		57	
			Fan air flow rate	m^3/h	4500		4500	
Components and dimensions			Expansion vessel	litres	3		3	
			Maximum circulator pump head	kPa	4.5 (see H/Q graphs)		4.6 (see H/Q graphs)	
			Hydraulic connections	inches	G1" female		G1" female	
			Safety valve	bar	3		3	
			Weight	kg	151		151	
			Dimensions (H/W/D)	mm	878/1200/460		878/1200/460	
			Compressor type		Twin Rotary with vapour injection		Twin Rotary with vapour injection	
Refrigerant			Type and GWP		R32/675 kg CO_2eq		R32/675 kg CO_2eq	
			Quantity		2.2 kg / 1.49 tons CO_2 eq.		2.2 kg / 1.49 tons CO_2 eq.	

The equipments described in this catalogue contain HFC R32-type fluorinated greenhouse gases.
These products must be fitted by qualified staff pursuant to European regulations 303/2008 and 517/2014.

Data declared in accordance with REGULATION (EU) No. 811/2013 of 18 February 2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices, packages of combination heater, temperature control and solar devices, and with COMMISSION REGULATION (EU) No. 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters.

CAPACITY AND EFFICIENCY DATA IN RELATION TO THE OUTDOOR TEMPERATURE ACCORDING TO THE EN14511-3:2013 STANDARD

HEATING - Dry bulb outdoor air temperature in °C - (AGHP161PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	7.75	3.63	8.68	3.89	9.77	4.09	10.70	4.42	11.16	4.55	13.18	4.85	15.19	5.08	16.12	5.25	16.90	5.51	15.54	6.01	15.40	6.27	13.97	6.60	12.26	7.06	9.55	7.29
30	7.60	2.94	8.53	3.23	9.61	3.40	10.54	3.73	11.01	3.86	13.18	4.09	14.88	4.36	15.81	4.79	16.90	5.02	16.39	5.48	16.24	5.78	14.73	6.04	12.93	6.37	10.07	6.70
35	6.20	2.41	7.44	2.54	8.84	2.77	10.08	3.04	10.85	3.17	13.02	3.43	14.73	3.56	15.50	4.29	16.74	4.52	16.90	4.85	16.74	5.18	15.19	5.38	13.33	5.68	10.39	5.97
40	6.20	2.21	7.44	2.44	8.84	2.67	10.08	2.87	10.70	3.00	13.02	3.23	14.73	3.37	15.50	3.83	16.74	3.99	16.90	4.39	16.74	4.55	15.19	4.82	13.33	5.08	10.39	5.38
45			7.44	2.18	8.84	2.38	10.08	2.54	10.54	2.67	12.87	2.87	14.73	3.00	15.50	3.30	16.59	3.47	16.90	3.76	16.74	3.96	15.19	4.16	13.33	4.36	10.39	4.62
50					8.84	1.98	9.61	2.15	10.39	2.24	12.56	2.41	14.42	2.51	14.88	2.84	16.28	2.97	16.39	3.23	16.24	3.40	14.73	3.56	12.93	3.76	10.07	3.96
55							9.30	1.82	10.23	1.88	12.25	2.01	13.95	2.11	14.26	2.41	15.97	2.54	15.54	2.74	15.40	2.90	13.97	3.04	12.26	3.17	9.55	3.37
60									10.08	1.62	11.94	1.68	13.64	1.82	13.64	2.05	15.66	2.15	14.70	2.34	14.56	2.48	13.22	2.57	11.60	2.71	9.03	2.87

COOLING - Dry bulb outdoor air temperature in °C

LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	10.66	3.56	11.83	3.43	12.48	3.33	13.26	3.17	13.52	2.91	13.00	2.62	11.83	2.17	9.23	1.60	7.80	1.28
8	10.79	3.69	11.96	3.56	12.61	3.46	13.39	3.30	13.65	3.01	13.13	2.72	11.96	2.25	9.36	1.65	7.93	1.34
9	10.92	3.85	12.09	3.69	12.74	3.59	13.52	3.43	13.78	3.14	13.26	2.83	12.09	2.36	9.49	1.73	7.93	1.39
10	11.05	3.98	12.22	3.85	12.87	3.72	13.65	3.56	13.91	3.25	13.39	2.93	12.22	2.44	9.49	1.78	8.06	1.44
11	11.18	4.14	12.35	3.98	13.00	3.85	13.78	3.67	14.17	3.38	13.52	3.04	12.35	2.52	9.62	1.86	8.19	1.49
12	11.18	4.27	12.48	4.11	13.13	3.98	14.04	3.80	14.30	3.48	13.65	3.14	12.48	2.62	9.75	1.91	8.19	1.55
13	11.31	4.43	12.61	4.24	13.26	4.11	14.17	3.93	14.43	3.62	13.91	3.25	12.61	2.70	9.88	1.99	8.32	1.60
14	11.44	4.56	12.74	4.40	13.39	4.27	14.30	4.06	14.56	3.72	14.04	3.35	12.74	2.78	9.88	2.04	8.45	1.65
15	11.57	4.72	12.87	4.53	13.52	4.40	14.43	4.19	14.69	3.85	14.17	3.46	12.87	2.88	10.01	2.12	8.45	1.70
18	11.96	5.14	13.26	4.95	14.04	4.79	14.82	4.56	15.08	4.19	14.56	3.77	13.26	3.14	10.40	2.31	8.71	1.86
20	12.22	5.42	13.52	5.21	14.30	5.06	15.08	4.82	15.47	4.43	14.82	3.98	13.52	3.30	10.53	2.44	8.97	1.94
23	12.48	5.84	13.91	5.63	14.69	5.45	15.60	5.19	15.86	4.77	15.21	4.30	13.91	3.56	10.79	2.62	9.10	2.10
25	12.74	6.13	14.17	5.90	14.95	5.71	15.86	5.45	16.12	5.00	15.60	4.51	14.17	3.75	11.05	2.75	9.36	2.20

HEATING - Dry bulb outdoor air temperature in °C - (AGHP163PH)

LWT [°C]	-25		-20		-15		-10		-7		-2		2		7		10		15		20		25		30		35	
	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP	Qh [kW]	COP
25	7.75	3.63	8.68	3.89	9.77	4.09	10.70	4.42	11.16	4.55	13.18	4.85	15.19	5.08	16.12	5.25	16.90	5.51	15.54	6.01	15.40	6.27	13.97	6.60	12.26	7.06	9.55	7.29
30	7.60	2.94	8.53	3.23	9.61	3.40	10.54	3.73	11.01	3.86	13.18	4.09	14.88	4.36	15.81	4.79	16.90	5.02	16.39	5.48	16.24	5.78	14.73	6.04	12.93	6.37	10.07	6.70
35	6.20	2.41	7.44	2.54	8.84	2.77	10.08	3.04	10.85	3.17	13.02	3.43	14.73	3.56	15.50	4.29	16.74	4.52	16.90	4.85	16.74	5.18	15.19	5.38	13.33	5.68	10.39	5.97
40	6.20	2.21	7.44	2.44	8.84	2.67	10.08	2.87	10.70	3.00	13.02	3.23	14.73	3.37	15.50	3.83	16.74	3.99	16.90	4.39	16.74	4.55	15.19	4.82	13.33	5.08	10.39	5.38
45			7.44	2.18	8.84	2.38	10.08	2.54	10.54	2.67	12.87	2.87	14.73	3.00	15.50	3.30	16.59	3.47	16.90	3.76	16.74	3.96	15.19	4.16	13.33	4.36	10.39	4.62
50					8.84	1.98	9.61	2.15	10.39	2.24	12.56	2.41	14.42	2.51	14.88	2.84	16.28	2.97	16.39	3.23	16.24	3.40	14.73	3.56	12.93	3.76	10.07	3.96
55							9.30	1.82	10.23	1.88	12.25	2.01	13.95	2.11	14.26	2.41	15.97	2.54	15.54	2.74	15.40	2.90	13.97	3.04	12.26	3.17	9.55	3.37
60									10.08	1.62	11.94	1.68	13.64	1.82	13.64	2.05	15.66	2.15	14.70	2.34	14.56	2.48	13.22	2.57	11.60	2.71	9.03	2.87

COOLING - Dry bulb outdoor air temperature in °C

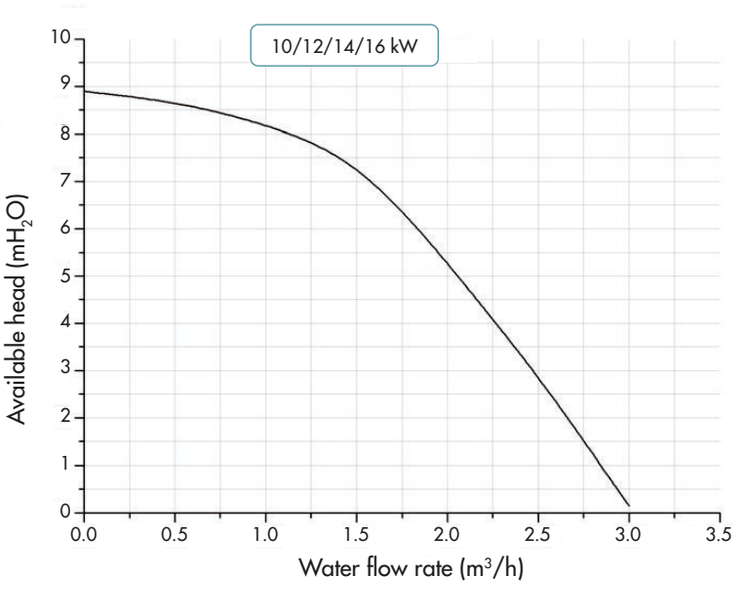
LWT [°C]	10		15		20		25		30		35		40		45		48	
	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER	Qc [kW]	EER
7	10.66	3.60	11.83	3.47	12.48	3.37	13.26	3.21	13.52	2.94	13.00	2.65	11.83	2.20	9.23	1.62	7.80	1.30
8	10.79	3.74	11.96	3.60	12.61	3.50	13.39	3.34	13.65	3.05	13.13	2.76	11.96	2.28	9.36	1.67	7.93	1.35
9	10.92	3.90	12.09	3.74	12.74	3.63	13.52	3.45	13.78	3.18	13.26	2.86	12.09	2.36	9.49	1.75	7.93	1.40
10	11.05	4.03	12.22	3.87	12.87	3.76	13.65	3.58	13.91	3.29	13.39	2.97	12.22	2.46	9.49	1.80	8.06	1.46
11	11.18	4.16	12.35	4.00	13.00	3.90	13.78	3.71	14.17	3.39	13.52	3.07	12.35	2.54	9.62	1.88	8.19	1.51
12	11.18	4.32	12.48	4.16	13.13	4.03	14.04	3.84	14.30	3.52	13.65	3.18	12.48	2.62	9.75	1.93	8.19	1.56
13	11.31	4.45	12.61	4.29	13.26	4.16	14.17	3.95	14.43	3.63	13.91	3.26	12.61	2.70	9.88	1.99	8.32	1.59
14	11.44	4.58	12.74	4.43	13.39	4.29	14.30	4.08	14.56	3.74	14.04	3.37	12.74	2.81	9.88	2.07	8.45	1.64
15	11.57	4.74	12.87	4.56	13.52	4.43	14.43	4.21	14.69	3.87	14.17	3.47	12.87	2.89	10.01	2.12	8.45	1.70
18	11.96	5.14	13.26	4.96	14.04	4.82	14.82	4.58	15.08	4.21	14.56	3.79	13.26	3.15	10.40	2.31	8.71	1.86
20	12.22	5.43	13.52	5.25	14.30	5.09	15.08	4.82	15.47	4.43	14.82	4.00	13.52	3.31	10.53	2.44	8.97	1.96
23	12.48	5.86	13.91	5.64	14.69	5.46	15.60	5.22	15.86	4.77	15.21	4.32	13.91	3.58	10.79	2.62	9.10	2.12
25	12.74	6.15	14.17	5.91	14.95	5.72	15.86	5.46	16.12	5.01	15.60	4.51	14.17	3.74	11.05	2.76	9.36	2.20

KEY

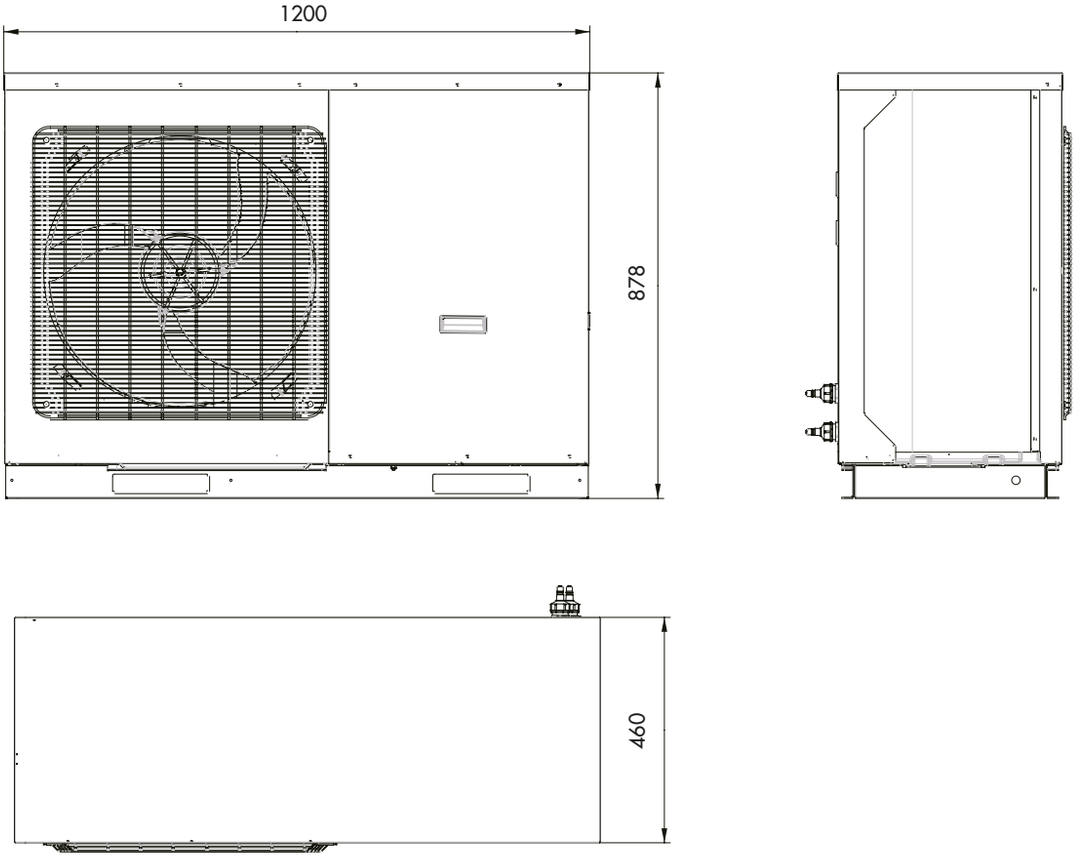
LWT: Leaving water temperature
Qh: Heat capacity
COP: Coefficient of performance

LWT: Leaving water temperature
Qc: Cooling capacity
EER: Energy efficiency ratio

TECHNICAL DATA FOR 16 kW SINGLE AND THREE-PHASE VERSION



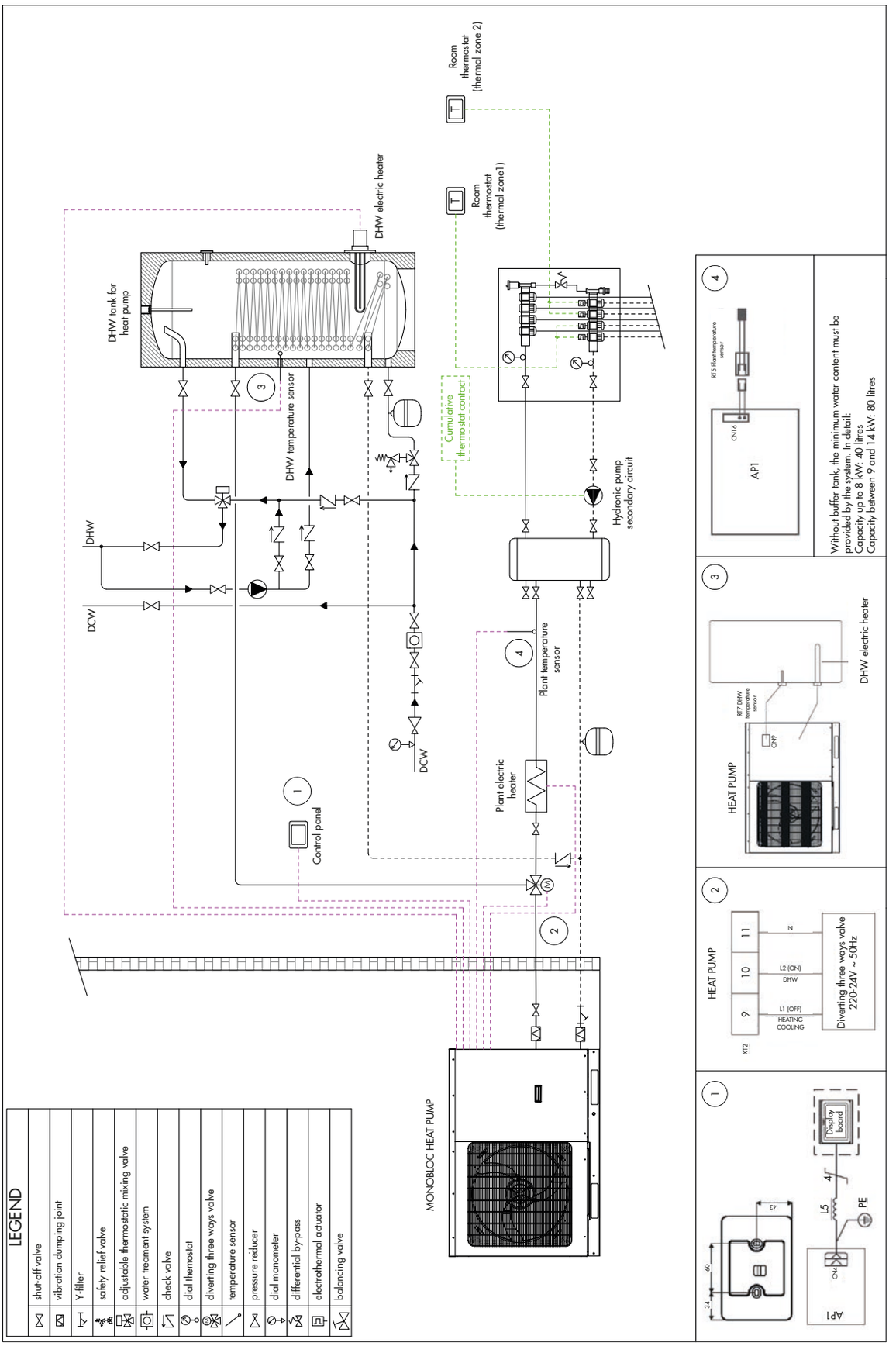
DIMENSIONAL DRAWINGS



INSTALLATION EXAMPLES

EXAMPLE 1

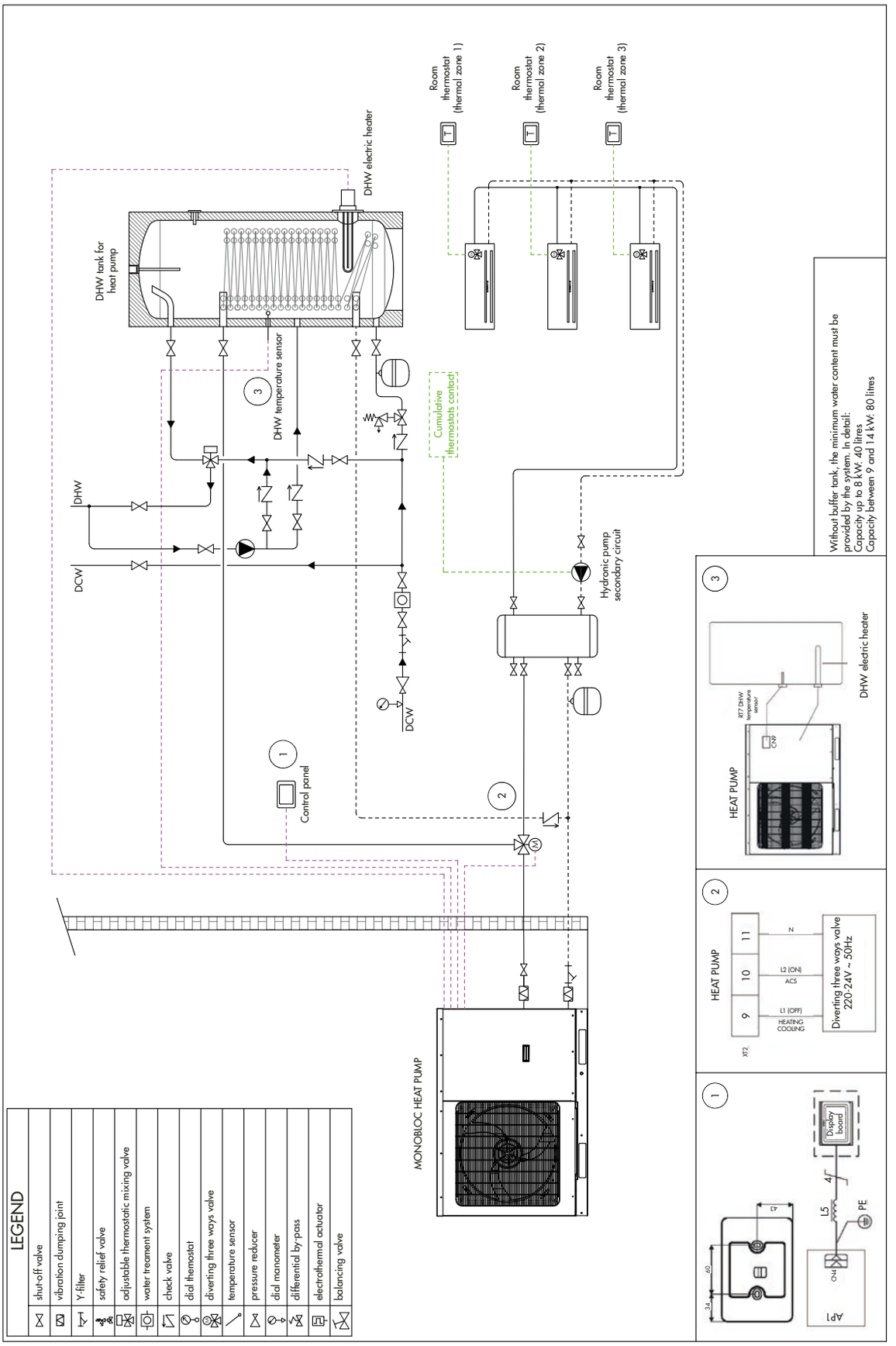
Radiant heating and DHW with three-way valve and tank



INSTALLATION EXAMPLES

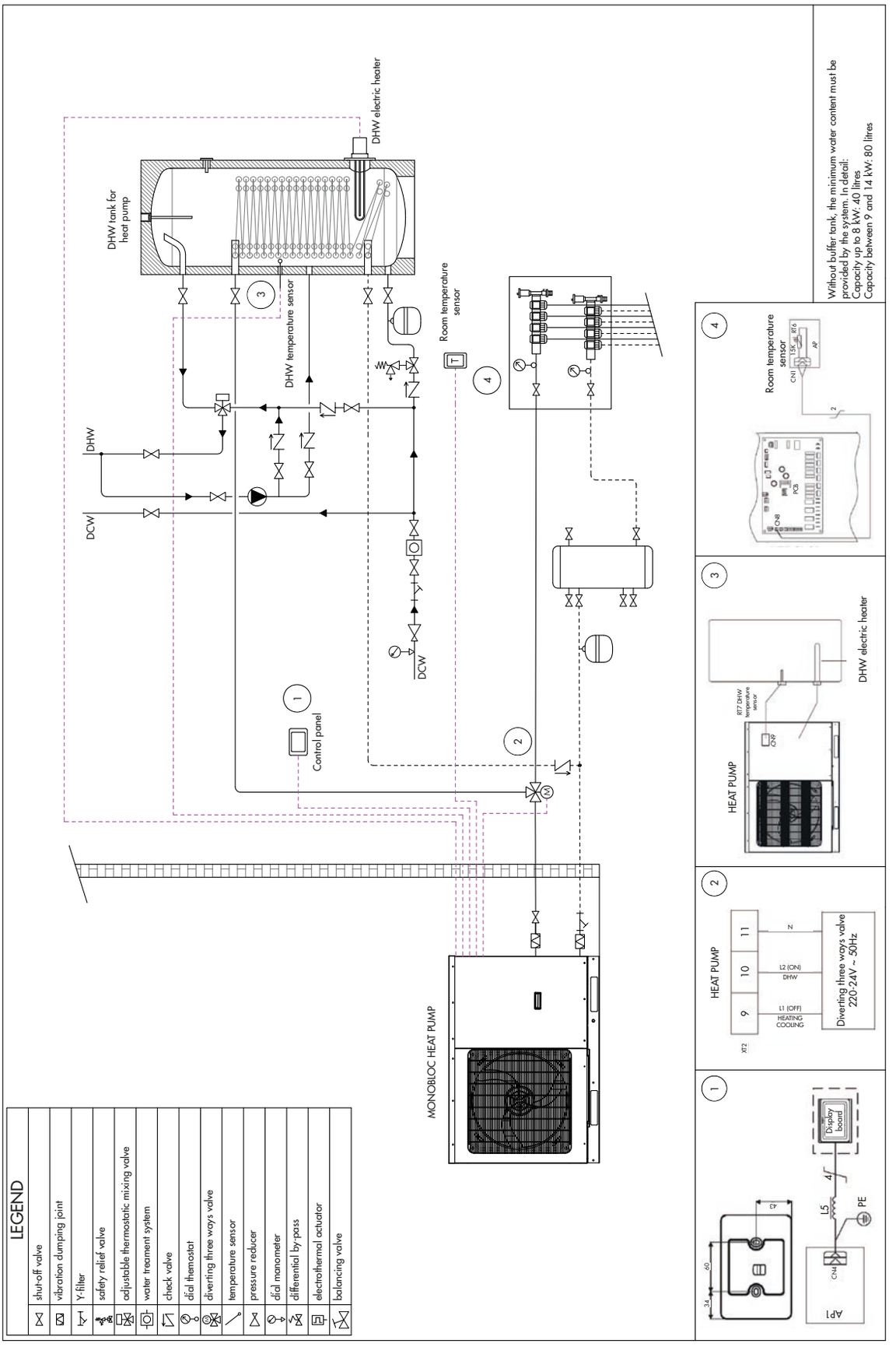
EXAMPLE 2

Heating (cooling) with fan coil units and DHW with three-way valve and tank



EXAMPLE 3

Radiant heating, single thermal zone and DHW with three-way valve and tank



INSTALLATION EXAMPLES

EXAMPLE 4

Radiant heating and integration with boiler and DHW with three-way valve and tank