



AMICUS ALTUS

AIR SOURCE HEAT PUMP



KEY FEATURES

- Available as a two pipe or four pipe version
- Ultra low GWP heat pump utilising R290 refrigerant
- High operating temperatures, up to 70°C
- Fully cascadable with outputs from 88 to 880kW
- Suitable for heating/cooling and domestic hot water production
- COP up to 5.5
- SCOP up to 3.95
- Able to operate in heating mode down to -20°C external air temperatures
- Small footprint
- Integral controls including:
 - BMS fault and remote on/off signal

Lochinvar Amicus Altus Heat pump

Amicus Altus are very high temperature air to water heat pumps available in two pipe or four pipe configuration, both versions can supply heating/cooling and domestic hot water.

The units are capable of supplying hot water at up to 70°C.

the units are available in three versions

- Two pipe heating only
- Two pipe heating or cooling
- Four pipe simultaneous cooling with heating and heat recovery

The units utilise R290 refrigerant which has a Global warming potential (GWP) of only 3 (compared to R410A at 2088) it also has an Ozone depletion factor (ODP) of zero and can achieve temperatures up to 70°C, making them especially useful for use in supplying domestic hot water or when replacing gas boilers.



Standard ancillaries

- Refrigerant leak detection
- Primary pump
- Double safety valves
- Pressure gauges
- Antifreeze kit
- RS485 BMS serial interface card
- Anti-vibration dampers
- Pipework header kit
- Crane lifting hooks
- Fork truck brackets
- Cascade wiring centre
- (from models LAHP-130HTR290 and above)

Optional ancillaries

- Cascade wiring centre with HIWEB remote connect
- Remote display
- Soft starter
- Low noise fans
- Soundproofing for compressors
- Coastal protection for evaporator
- Thermal stores
- Domestic hot water storage vessels and matching plate heat exchangers



Technical specifications

		Model	
		LAHP-65HTR290	LAHP-65HTR2904P
Heating data			
Heating capacity (EN14511) ¹	kW	88.9	86.8
Total power input (EN14511) ¹	kW	22.2	22.1
COP (EN14511) ¹	W/W	4	3.93
EcoDesign data ²			
Energy label rating low temperature		A++	A++
SCOP low temperature		3.95	3.69
Seasonal efficiency low temperature	%	155	145
Energy label rating high temperature		A+	A
SCOP medium temperature		3.32	3.15
Seasonal efficiency high temperature	%	130	123
Cooling data			
Cooling capacity (EN14511) ³	kW	66.3	71.9
Total power input (EN14511) ³	kW	26.4	26.7
EER (EN14511) ³	W/W	2.51	2.69
Cooling with heating			
Cooling capacity (EN14511) ³	kW	Not applicable to 2 pipe units	79.5
Total power input (EN14511) ³	kW		101
Total power input (EN14511)	kW		21.4
TER	W/W		8.4
General data			
Refrigerant type		R290	R290
Refrigerant charge	Kg	6.5	6.5
Compressor type		Scroll	Scroll
Number of compressors		2	2
Number of circuits		1	1
Sound power level	dB(A)	87	87
Sound pressure level (10m)	dB(A)	55	55
Minimum water content in the user circuit	litre	900	900
Shipping weight	Kg	835	835
Electrical data			
Power supply	V/Ph/Hz	415/3/50	415/3/50
Maximum input power	kW	44	44
Maximum input current standard unit	A	79.2	79.2
Peak input current standard unit	A	231	231

Installation

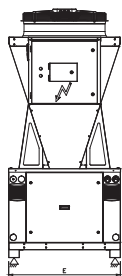
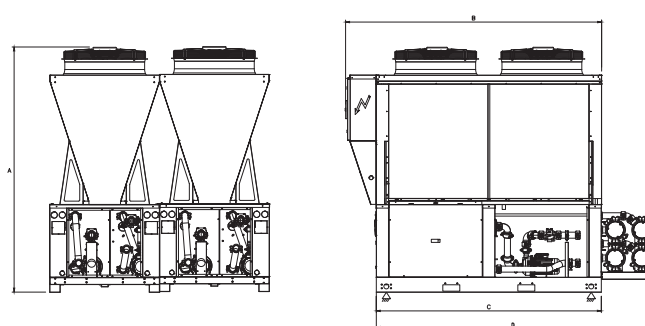
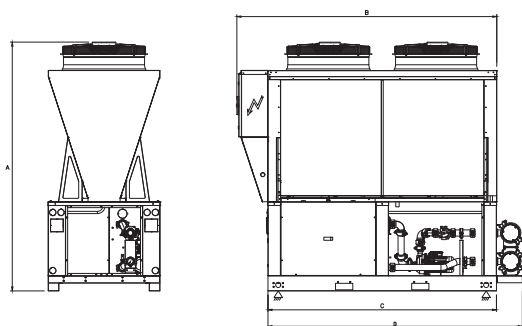
The Amicus Altus should be sited in an area which:

- Can bear the weight of the unit.
- Has enough space around the unit to allow the correct airflow across the source heat exchanger.
- Is not too windy.
- Does not present a noise nuisance to users of the building and neighbours.

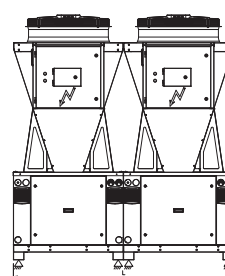
Dimensions

Item	Description	Unit	2 pipe model	4 pipe model
A	Height	mm	2450	2450
B	Length including control box	mm	2560	2560
C	Length of base	mm	2250	2250
D	Length of base including pipework header	mm	2515	2775
E	Width	mm	1100	1100
L	Width of multiple units	mm	**	**

** = E multiplied by the number of units in the cascade



Single unit



Multiple units

Cascade sets

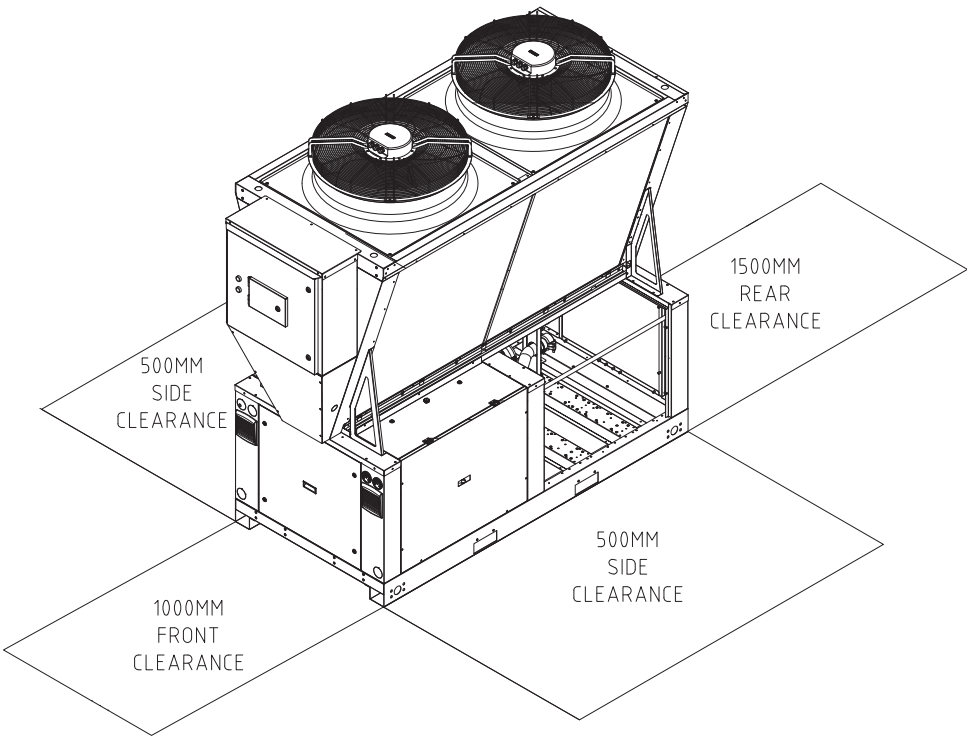
Data	Unit	Cascade item number				
		LAHP-65HTR290	LAHP-130HTR290	LAHP-195HTR290	LAHP-260HTR290	LAHP-325HTR290
Number of units in the cascade		1	2	3	4	5
Minimum capacity step heat pump	%	100	50	33	25	20
Minimum capacity step Compressor	%	50.0	25.0	16.0	12.5	10.0
Heating capacity (EN14511) ¹	kW	88.9	177.8	266.7	355.6	444.5
Total power input (EN14511) ¹	kW	22.2	44.4	66.6	88.8	111.0
Data	Unit	Cascade item number				
		LAHP-390HTR290	LAHP-455HTR290	LAHP-520HTR290	LAHP-585HTR290	LAHP-650HTR290
Number of units in the cascade		6	7	8	9	10
Minimum capacity step heat pump	%	17	14	13	11	10
Minimum capacity step Compressor	%	8.3	7.1	6.2	5.5	5.0
Heating capacity (EN14511) ¹	kW	533.4	622.3	711.2	800.1	889.0
Total power input (EN14511) ¹	kW	133.2	155.4	177.6	199.8	222.0

1) External air +7°C 30/35 flow

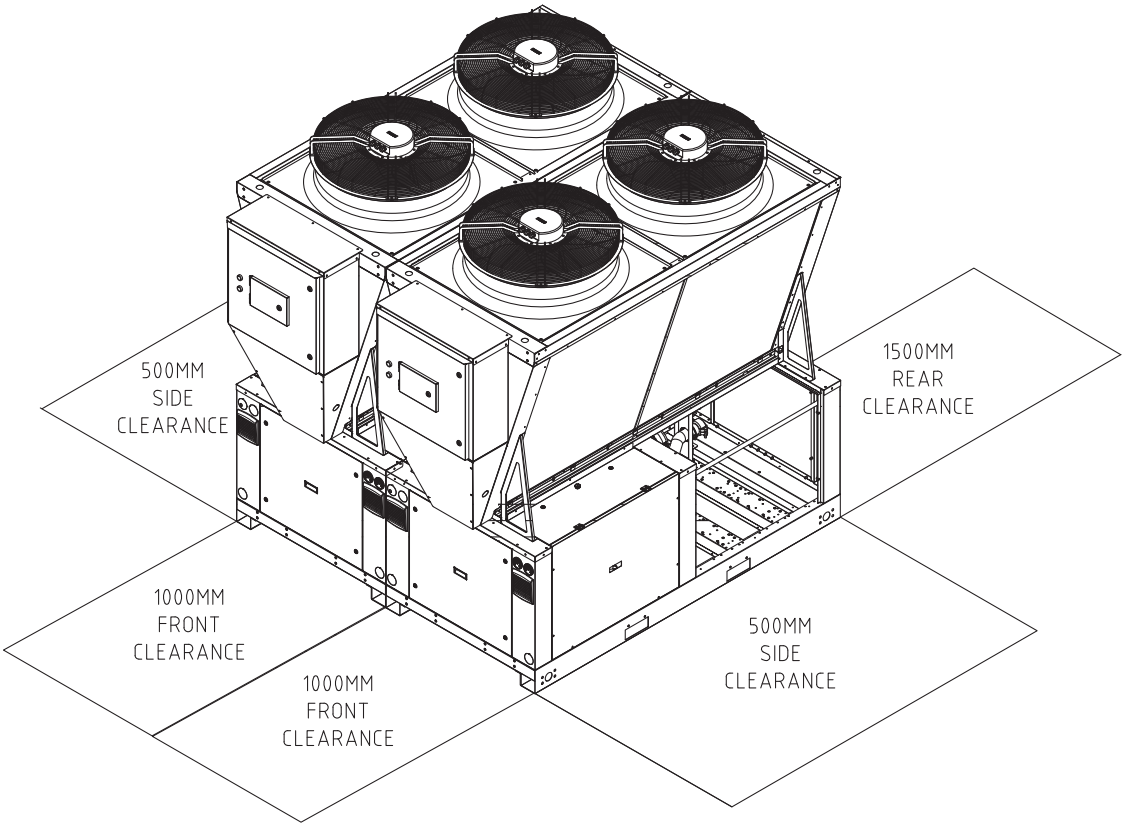
2) Average conditions according to EU/811/2013

3) Cooling external air +35°C 12/7 flow

Clearances



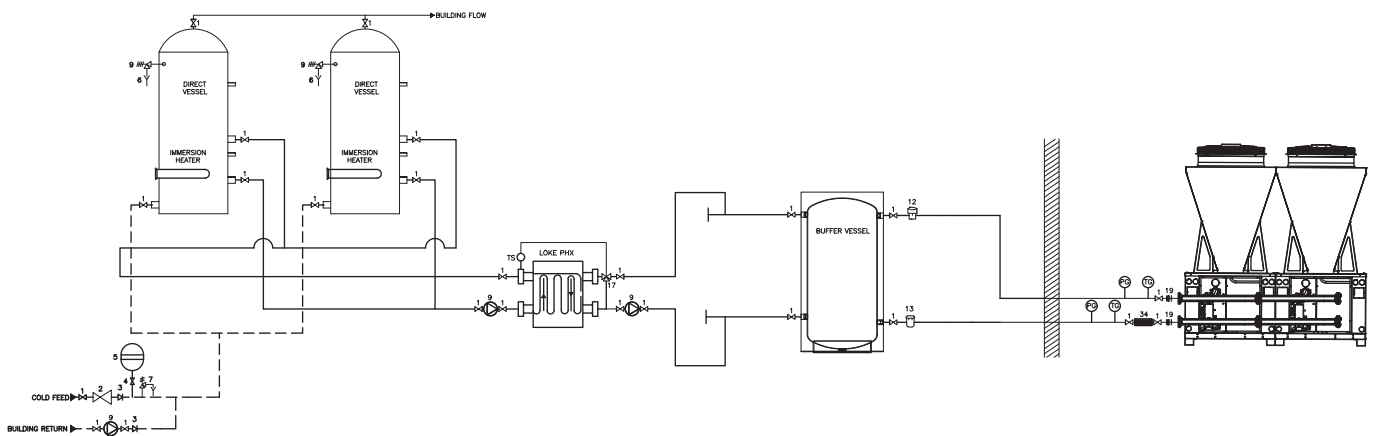
Clearances single unit



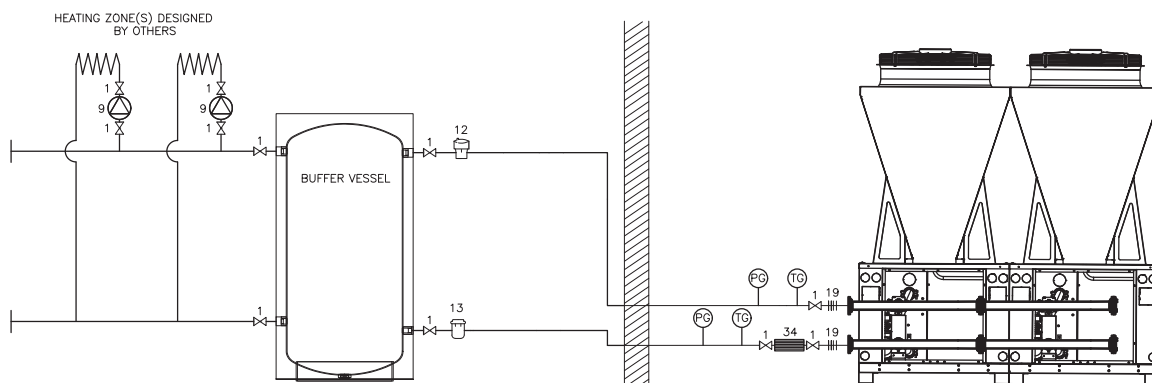
Clearances multiple units

Note there is zero clearance between each unit connected in cascade

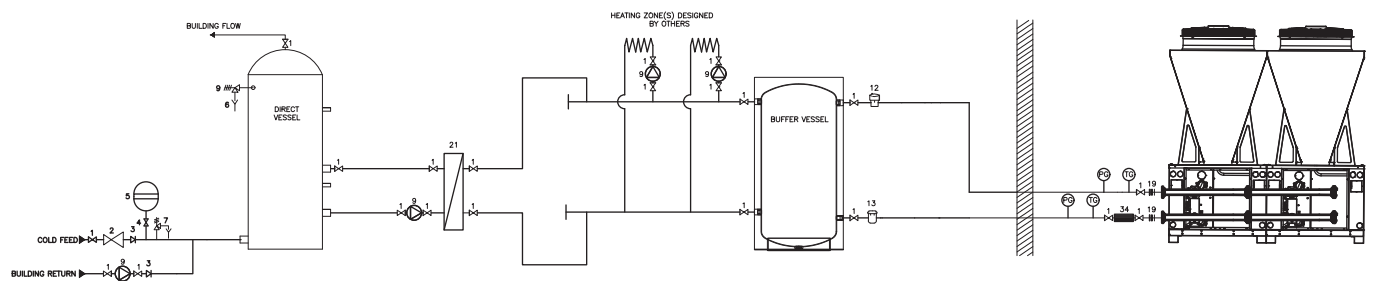
General schemes



Amicus Altus providing domestic hot water only*

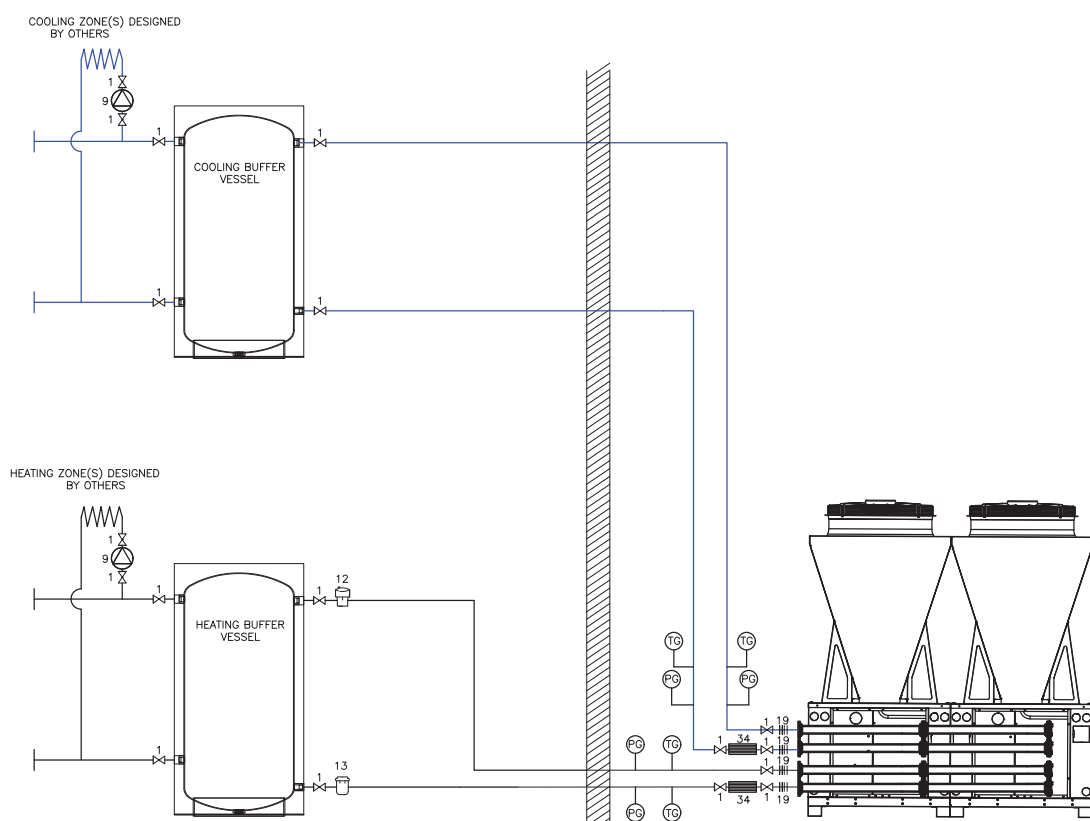


Amicus Altus providing heating only*



Amicus Altus providing heating and domestic hot water*

**) These drawings show typical layouts, some symtem components removed for clarity. These drawings are for guidance only. Multiple units are fitted in series using the pipework header kit included.*

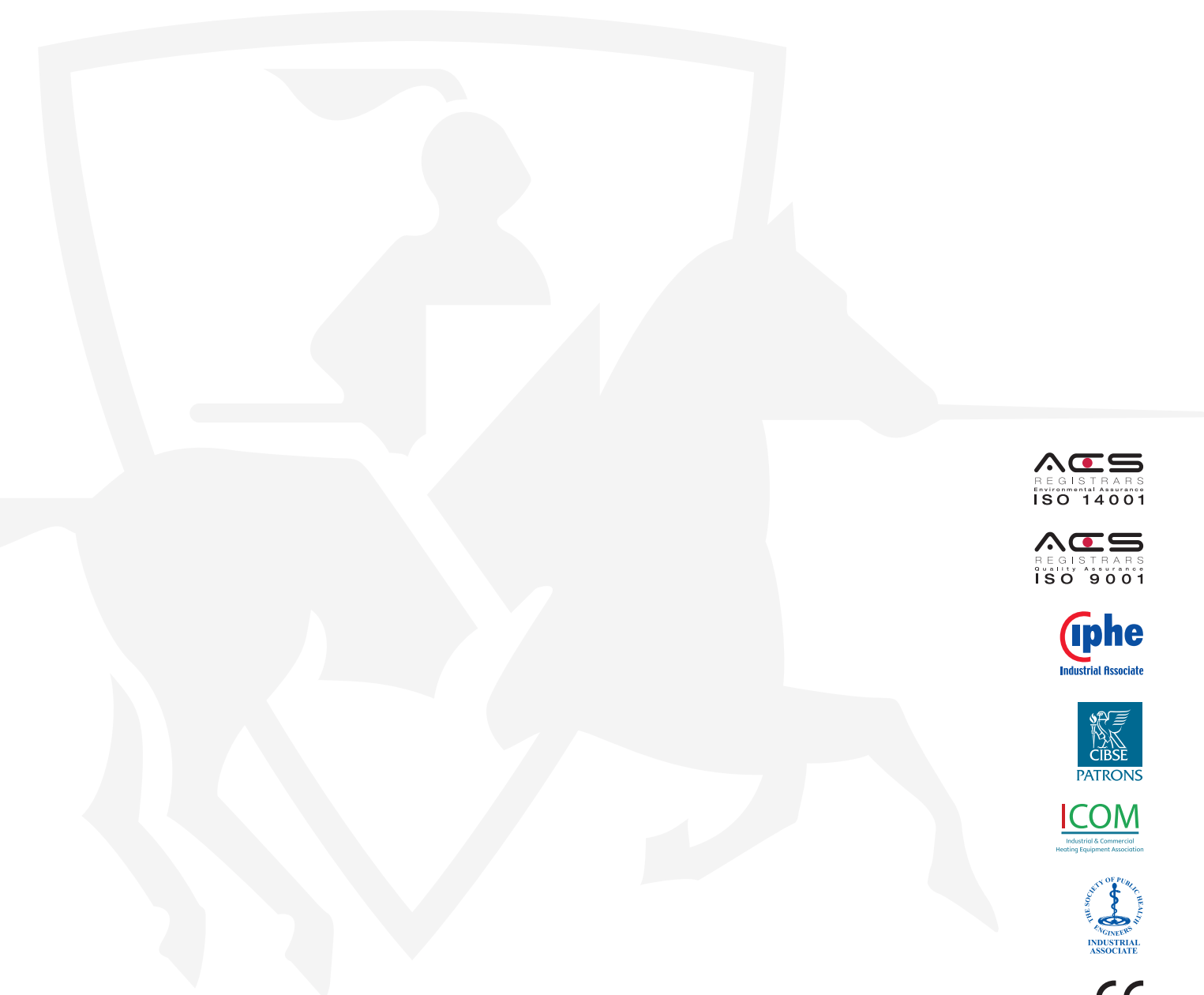


Amicus Altus 4P providing heating and cooling*

Key to schemes

Number	Description
1	Isolation valve
2	Pressure reducing valve
3	Non-return valve
4	Lockshield valve
5	Expansion vessel
6	Tundish
7	Expansion valve
8	Temperature & pressure relief valve
9	Pump
10	Drain valve
11	Tank temperature sensor
12	Air separator
13	Dirt separator
14	Plate system separator
15	Double check valve
16	Automatic air vent
17	3 Port valve
18	Temporary fill loop

Number	Description
19	Anti vibration coupling
20	Flow regulator/commissioning set
21	Plate heat exchanger
22	Hydraulic kit
23	Heat meter
24	Grundfos flow sensor
25	2 Port valve
26	Solar expansion vessel
27	Solar collector sensor
28	Solar vessel sensor
29	High limit stat
30	Solar pump station
31	Solar collection vessel
32	Flow switch
33	Strap on temperature sensor
34	Inline filter
35	Strainer



ACS
REGISTRARS
Environmental Assurance
ISO 14001

ACS
REGISTRARS
Quality Assurance
ISO 9001

iphe
Industrial Associate

CIBSE
PATRONS

ICOM
Industrial & Commercial
Heating Equipment Association

THE SOCIETY OF PUBLIC UTILITIES
ENGINEERS
INDUSTRIAL
ASSOCIATE

CE

UK
CA

Energy label, product fiche and ErP data table are available at www.lochinvar.ltd.uk

For further information on the Amicus Altus heat pumps, including ICM & user

instructions and our full warranty terms and conditions, please visit our website: www.lochinvar.ltd.uk



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LOC_25_0005 | LAHP | February 2025