

# Amicus HT high temperature air source heat pumps



- Heating capacity ranging from 7.7 to 100.7kW
- Suitable for LTHW and DHW applications
- Low noise levels
- Operates at up to 63°C water temperature
- COP up to 4.64
- SCOP up to 4.20
- Scroll compressors equipped with “Economised Vapour Injection”
- Integral controls including:
  - BMS fault and remote on/off signal
  - Indirect water heater control / hot water priority
  - Anti-legionella programme

# Amicus HT

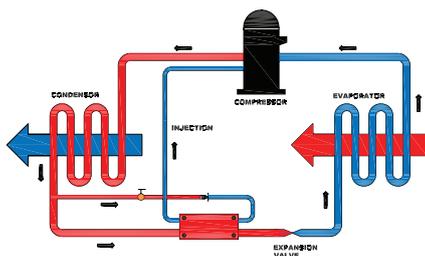
## High temperature air source heat pumps

Amicus HT air to water heat pumps are an efficient method of providing low temperature hot water (LTHW), which can be used for space heating or for the generation of domestic hot water. As a renewable technology, Amicus HT works by absorbing low grade energy from surrounding air and directs this into an evaporator, which converts the liquid into a cold, low-pressure gas. This is the refrigerant in its gaseous state, which is then pressurised, heated and circulated to a heat exchanger which can then transfer this heat to the space heating or hot water system.

The Coefficient of Performance (COP) ranges from 4.16 to 4.64 across the 13-model range. These figures are based upon the EN14511 standards of 35°C water flow temperature and an ambient temperature of 7°C. Amicus HT units can operate in temperatures as low as -20°C.

All units are high temperature air to water heat pumps, which means they can supply water at temperatures of up to 63°C, making them suitable for a wide range of space heating and domestic hot water applications.

### Economised Vapour Injection (EVI)



This could also be described as two-stage compression with inter-cooling. The process begins when a proportion of the refrigerant liquid is extracted and passes through an expansion valve. The low temperature liquid/gas mixture is then injected into the heat exchanger which acts as a sub-cooler. The liquid then evaporates and the vapour produced is superheated. This process significantly boosts capacity and Heat Pumps equipped with EVI technology will usually operate more efficiently than models with single scroll compressors.

### Amicus HT key product features

In addition to EVI technology other key features include:

- Low noise floating frame technology
- Condensate management tray for safe discharge
- Antifreeze protection
- Pre-configured user-friendly control system
- Flow temperatures up to 63°C
- Staged compressors to enhance load matching
- Minimal onsite refrigerant volume

### Amicus HT bivalent – ‘integrated’ installations

An Amicus HT Air Source Heat Pump installation, integrated with Condensing Boilers and/or Water Heaters can offer additional benefits. The Amicus HT unit will act as ‘the lead’ in terms of supplying heating/hot water and the Boilers/Water Heaters will supplement during peak demand.

This maximises the benefit of the Amicus HT Renewable technology, and when compared with monovalent installations, can reduce capital cost. As a result, return on investment (payback) can often be more attractive with this ‘integrated’ approach.

Amicus HT units can be integrated with most types of Condensing Boilers and Water Heaters.

### Ancillary options

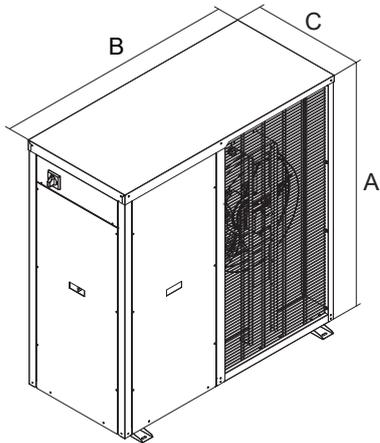
- Anti-vibration dampers
- Remote control panel
- Electronic soft start
- Interface card for Modbus control
- Thermal stores
- Pre-plumbed hydraulic kit – including primary circulating pump and safety valve
- Cascade control



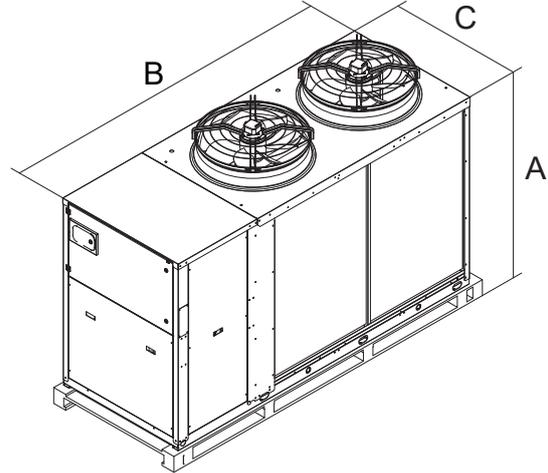
# Amicus HT air source heat pumps

## Dimensional drawings

Amicus HT LAHP8 to LAHP20



Amicus HT LAHP252 to LAHP1202

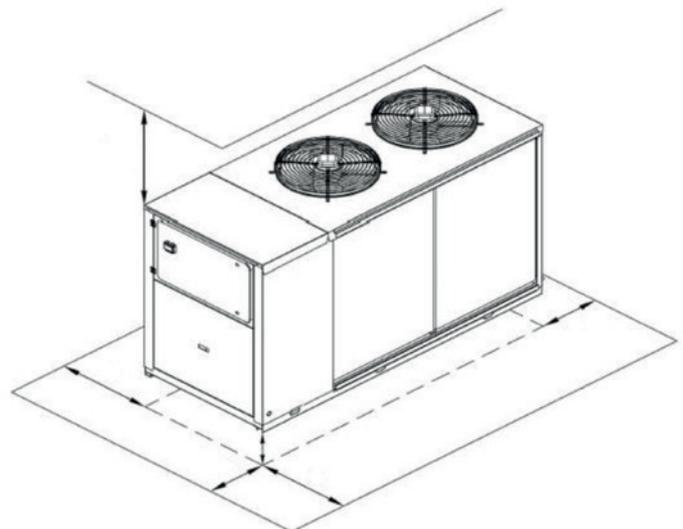


Legend	Data	Unit	Amicus HT heat pump model										
			LAHP-8/10HT	LAHP-15/20HT	LAHP-252HT	LAHP-302HT	LAHP-452HT	LAHP-502HT	LAHP-602HT	LAHP-752HT	LAHP-852HT	LAHP-1002HT	LAHP-1202HT
A	Height	mm	1251	1450	1468	1468	1677	1677	1840	1840	1892	1892	1892
B	Length	mm	1208	1402	1915	1915	2115	2115	2905	2905	2905	2905	2905
C	Width	mm	650	650	875	875	875	875	1146	1146	1146	1146	1146
Weight		Kg	180	270	570	590	720	730	1080	1090	1140	1170	1250

### Installation clearances

Amicus HT heat pumps are designed for outdoor installation and in order to work efficiently and effectively it is vitally important that adequate air volume is available to the source fan; and it is important to provide sufficient space for clearances.

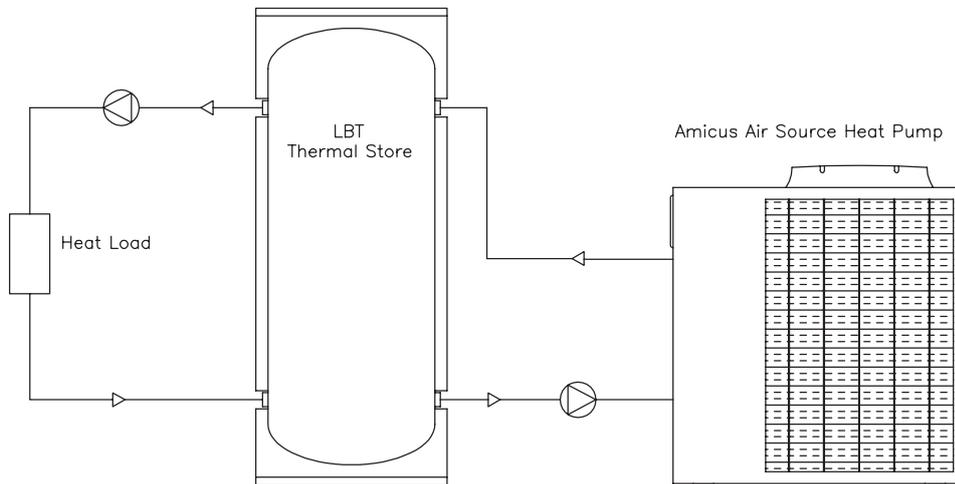
Details on specific clearances by Amicus HT model are available in our installation, commissioning and maintenance manuals, which are available at [www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)



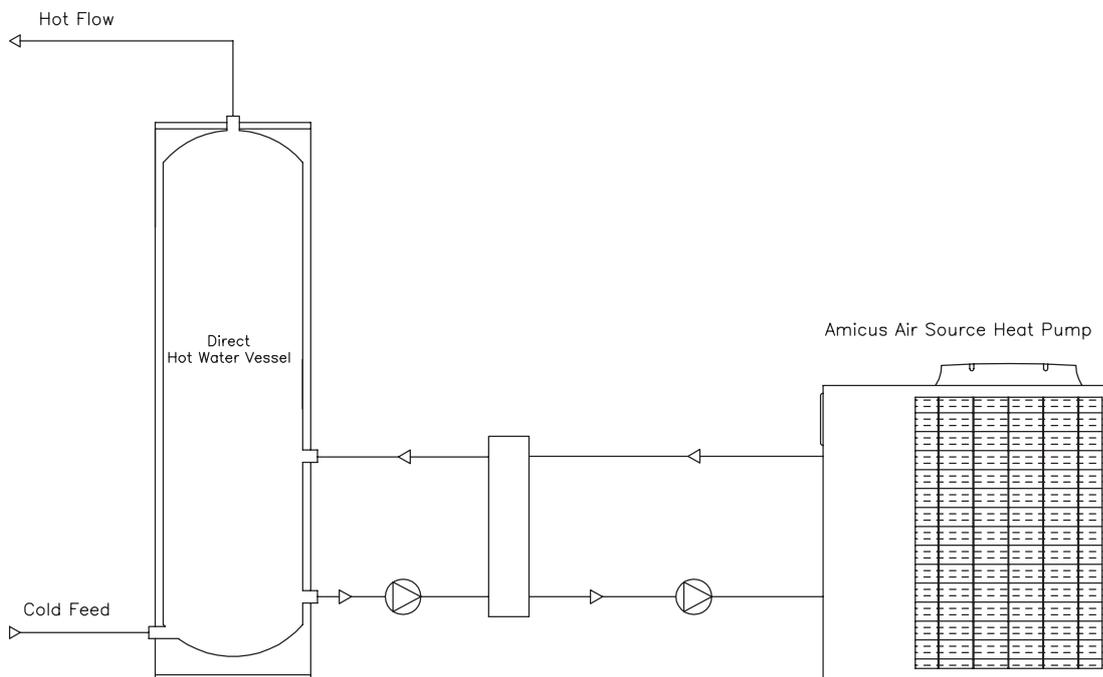
# Typical schematic drawings

## Monovalent systems

Amicus HT EVI technology allows for operation as a monovalent system –  
i.e. a 'stand alone' heat pump installation without the requirement for a secondary heat source



**Stand-alone Amicus HT air source heat pump providing heating only**

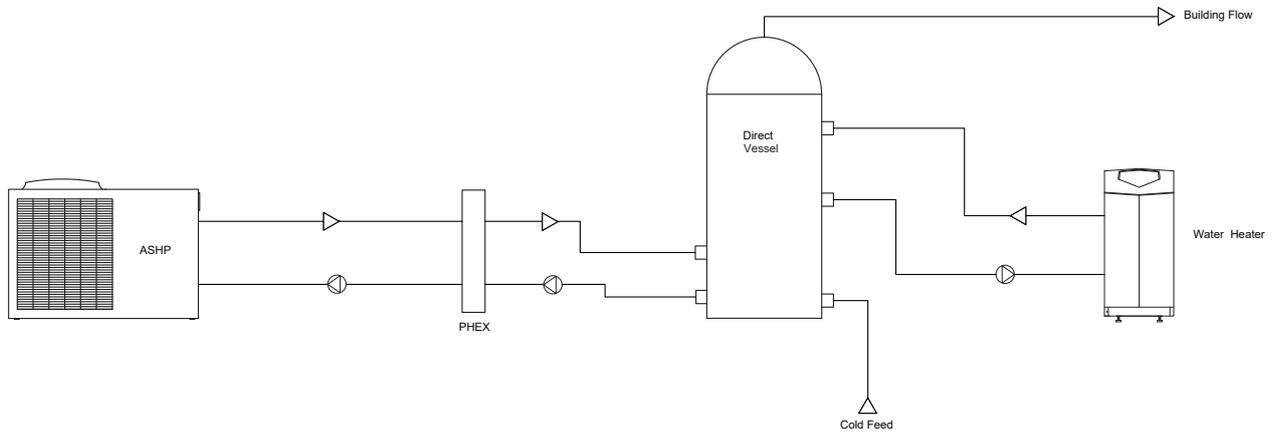


**Stand-alone Amicus HT air source heat pump providing hot water only**

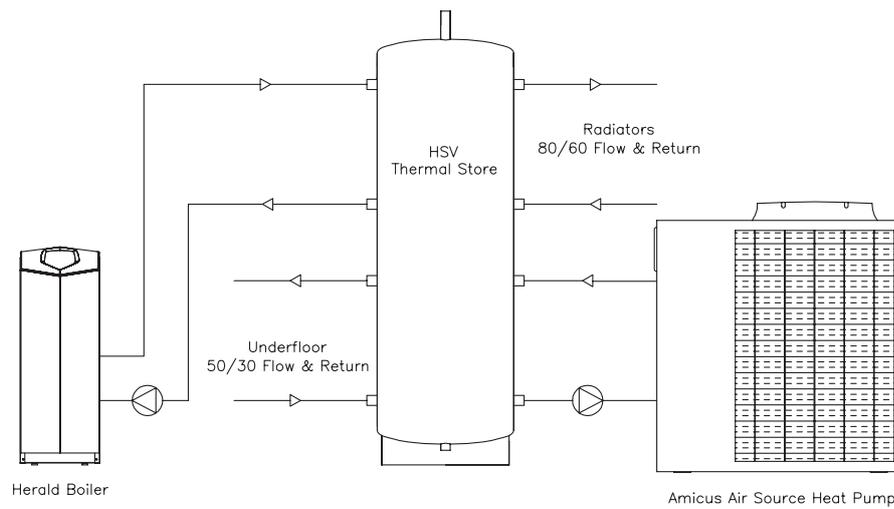
# Typical schematic drawings

## Bivalent systems

Amicus HT units installed in combination with traditional boilers and/or water heaters provide an integrated renewable solution, which can reduce capital outlay and reduce payback period.



**Amicus HT air source heat pump providing hybrid hot water solution, with EcoKnight gas-fired condensing water heater**



**Amicus HT air source heat pump providing a LTHW heating solution with gas-fired condensing boiler back-up - an integrated renewable solution, which can reduce capital outlay and reduce payback period**

# Technical specification

Model		LAHP-8HT	LAHP-10HT	LAHP-15HT	LAHP-20HT	LAHP-252HT	LAHP-302HT	LAHP-452HT	LAHP-502HT
<b>Efficiency data - part L2</b>									
Heating capacity (EN14511) <sup>1</sup>	kW	7.7	9.6	15	19	24	30	41.2	49.2
Total power input (EN14511) <sup>1</sup>	kW	1.8	2.3	3.4	4.5	5.2	6.8	9.2	11.8
COP (EN14511) <sup>1</sup>	W/W	4.28	4.17	4.41	4.22	4.64	4.39	4.49	4.16
<b>Efficiency data - ErP and energy label</b>									
Energy label rating low temperature		A++	A++	A++	A++	A++	A++	A++	A++
SCOP low temperature		3.92	3.97	4.01	4.02	4.10	3.87	4.00	3.84
Seasonal efficiency low temperature	%	153.8	155.8	157.3	157.8	161.0	151.8	157.1	150.6
Energy label rating high temperature		A+	A+	A++	A++	A++	A+	A++	A++
SCOP high temperature		3.22	3.32	3.37	3.42	3.24	3.14	3.24	3.16
Seasonal efficiency high temperature	%	125.6	129.8	131.6	133.8	126.5	122.7	126.6	123.4
<b>General data</b>									
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	230/1/50		400/3+N/50					
Maximum input current standard unit	A	17.1	17.1	15.0	15.0	20.6	24.0	34.2	39.4
Peak input current standard unit	A	17.1	17.1	15.0	15.0	62.9	83.1	119.0	149
Fans	N°	1	1	2	2	2	2	2	2
Compressors/refrigerant circuits	N°	1 E.V.I. DC inverter				2/1			
Sound power level <sup>2</sup>	dB(A)	65	65	67	67	70	72	73	74
Sound pressure level <sup>3</sup>	dB(A)	33.6	33.6	35.5	35.5	38.0	40.0	41.0	42.0

Model		LAHP-602HT	LAHP-752HT	LAHP-852HT	LAHP-1002HT	LAHP-1202HT
<b>Efficiency data - part I2</b>						
Heating capacity (EN14511) <sup>1</sup>	kW	57.4	65.6	79.9	87.2	100.7
Total power input (EN14511) <sup>1</sup>	kW	12.9	15.1	17.8	19.4	23.5
COP (EN14511) <sup>1</sup>	W/W	4.57	4.35	4.49	4.49	4.29
<b>Efficiency data - ErP and energy label</b>						
Energy label rating low temperature		A++	A++	A++	A++	A++
SCOP low temperature		4.21	4.16	4.04	4.06	3.93
Seasonal efficiency low temperature	%	165.4	163.4	158.7	159.5	154.0
Energy label rating high temperature		A++	A++	A++	A++	A++
SCOP high temperature		3.38	3.29	3.26	3.33	3.25
Seasonal efficiency high temperature	%	132.0	128.6	127.3	130.0	126.9
<b>General data</b>						
Refrigerant		R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	400/3+N/50				
Maximum input current standard unit	A	44.2	54.2	67.6	68.6	77.4
Peak input current standard unit	A	141	168	209	210	208
Fans	N°	2	2	2	2	2
Compressors/refrigerant circuits	N°	2/1	2/1	2/1	2/1	2/1
Sound power level <sup>2</sup>	dB(A)	73	73	74	75	75
Sound pressure level <sup>3</sup>	dB(A)	41	41	42	43	43

- 1) External air+7C 30/35 flow
- 2) Average conditions according to EU/811/2013
- 3) Sound power level in accordance with ISO3744
- 4) Sound pressure level at 10mtr from the unit in free field conditions in accordance with ISO 3744



Lochinvar Ltd reserves the right to change specifications without prior notice