

Amicus LT Low Temperature Air Source Heat Pumps



- Heating capacity ranging from 22 to 464kW
- Designed to supply low temperature heating systems
- Suitable for hybrid systems including LTHW and DHW applications
- COP up to 4.61
- SCOP up to 4.13
- Stage compressors
- Integral controls including:
 - BMS fault and remote on/off signal
 - MODBUS protocol compatibility
 - Indirect water heater control with DHW priority
 - Anti-legionella programme



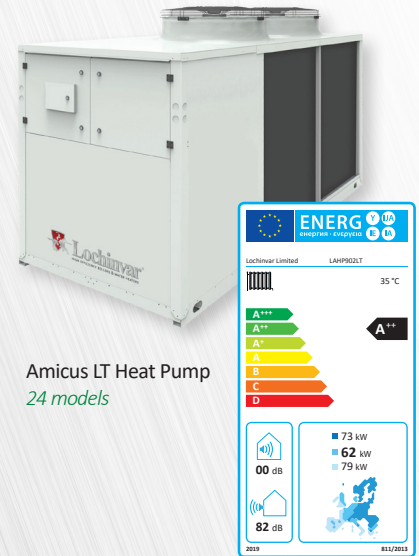
Lochinvar[®]
HIGH EFFICIENCY BOILERS & WATER HEATERS

Amicus LT

Low Temperature Air Source Heat Pumps

Amicus LT 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 LT works by absorbing low-grade energy from surrounding air and directs this into an evaporator, which then 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.

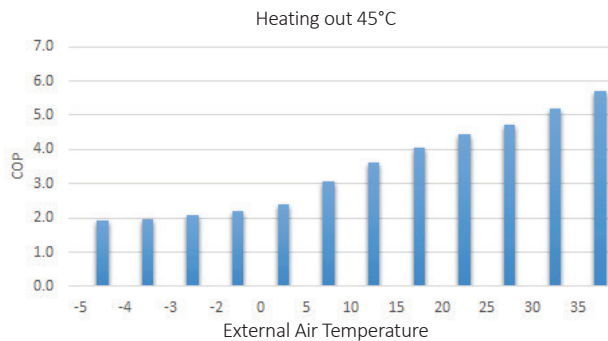
We use the term 'heating capacity' to express the output of heat pumps – see data table on page 6. The heating capacity is based upon ambient air temperature of 7°C and flow temperature of 30 to 35°C. Heating capacity can therefore fluctuate according to ambient temperature with output reducing in lower temperatures, but increasing in higher temperatures. Amicus LT units can operate in temperatures as low as -20°C.



Amicus LT Heat Pump
24 models

COP (Coefficient of Performance)

The efficiency of a heat pump is often expressed as COP; this is the ratio of heat output available from a single unit of heat input. Amicus LT have COP of up to 4.61, which could also be described as an efficiency of up to 461%. COP is calculated at a specific ambient temperature of 7°C and at a flow temperature of 30 to 35°C.



Typical COP values based upon a range of conditions

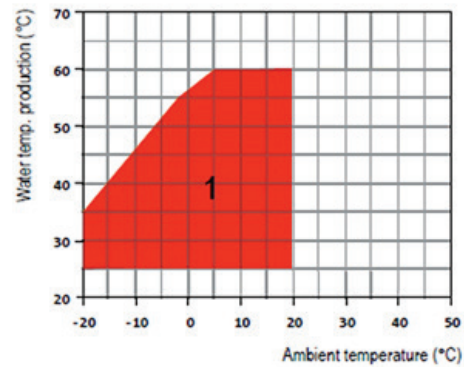
SCOP (Seasonal Coefficient of Performance)

Seasonal COP data allows for expected variables in ambient temperature according to geographical location. Amicus LT heat pumps operate with SCOP rating of up to 4.13.

Stage compressors

Amicus LT heat pumps are designed with stage compressors; as temperature approaches setpoint, the heat pump controls will turn off one or more compressors. This feature improves operating efficiency and prevents the heat pump from overshooting the temperature setpoint.

Models LAHP252 to 2502LT include 2 stage compressors and models LAHP2504 to 5004LT have 4.



Operating Temperatures

Amicus LT models are low temperature air to water heat pumps, and can supply water at temperatures of up to 60°C, making them suitable for a range of applications including:

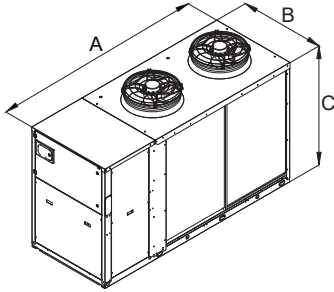
- Low temperature heating systems
- Hybrid systems integrated with Amicus Boost water to water heat pump
- Hybrid systems integrated with boiler and/or water heater

Amicus LT Ancillary items

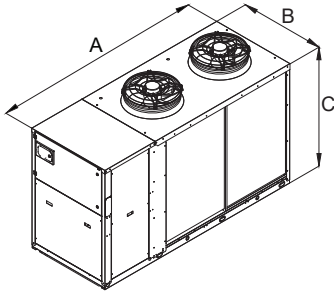
- Anti-Vibration Dampers
- Remote Control Panel
- Electronic Soft Start
- Thermal Stores

Amicus LT Air Source Heat Pumps Dimensional Drawings

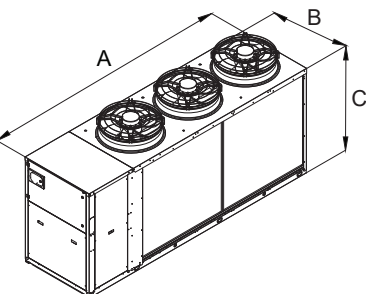
Legend	Data	Unit	Model (LAHP LT)				
			LAHP 252LT	LAHP 302LT	LAHP 402LT	LAHP 452LT	LAHP 502LT
A	Depth	mm	1915	1915	2115	2115	2115
B	Width	mm	875	875	875	875	875
C	Height	mm	1468	1468	1677	1677	1677
Weight		Kg	560	560	670	690	720



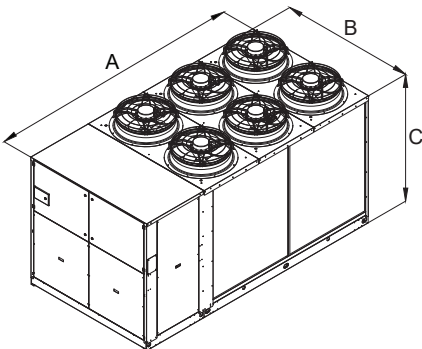
Legend	Data	Unit	Model (LAHP LT)					
			LAHP 602LT	LAHP 702LT	LAHP 802LT	LAHP 902LT	LAHP 1002LT	LAHP 1202LT
A	Depth	mm	2905	2905	2905	2905	2905	2905
B	Width	mm	1146	1146	1146	1145	1145	1145
C	Height	mm	1840	1840	1840	1892	1892	1892
Weight		Kg	1060	1060	1070	1120	1160	1240



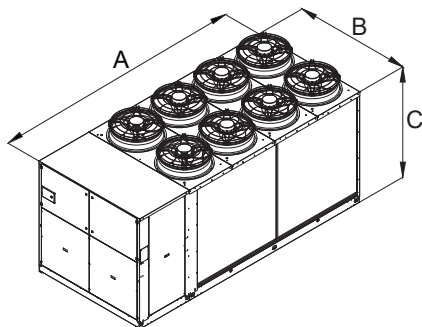
Legend	Data	Unit	Model (LAHP LT)					
			LAHP 1402LT	LAHP 1602LT	LAHP 1802LT	LAHP 2002LT	LAHP 2302LT	LAHP 2502LT
A	Depth	mm	3905	3905	3905	3905	3905	3905
B	Width	mm	1145	1145	1145	1145	1145	1145
C	Height	mm	1894	1894	1894	1894	2294	2294
Weight		Kg	1560	1580	1600	1620	1790	1820



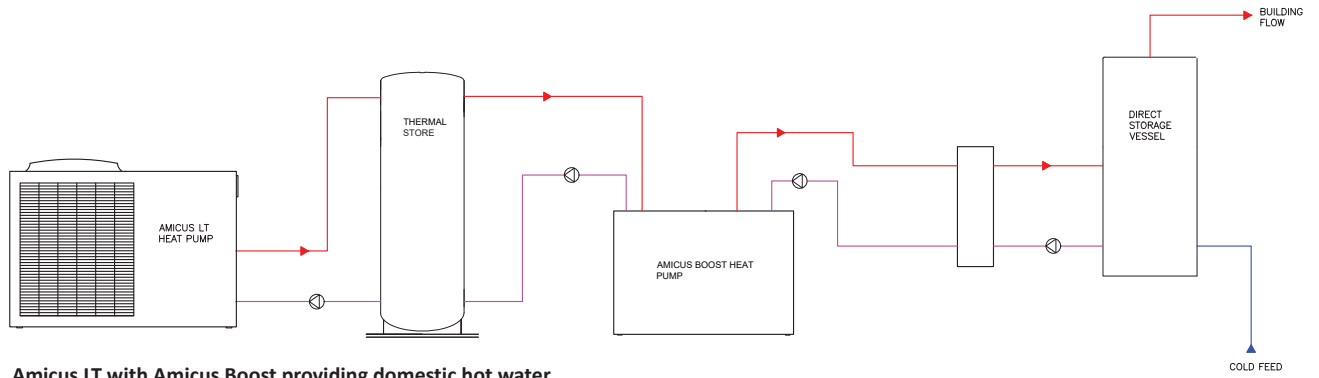
Legend	Data	Unit	Model (LAHP LT)			
			LAHP 2504LT	LAHP 3004LT	LAHP 3204LT	LAHP 3504LT
A	Depth	mm	4205	4205	4205	4205
B	Width	mm	2190	2190	2190	2190
C	Height	mm	2356	2356	2356	2356
Weight		Kg	3170	3220	3270	3320



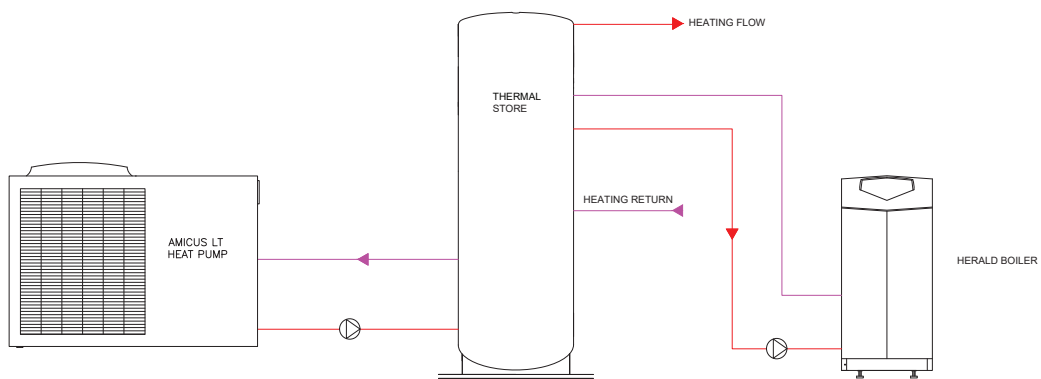
Legend	Data	Unit	Model (LAHP LT)		
			LAHP 4004LT	LAHP 4504LT	LAHP 5004LT
A	Depth	mm	4805	4805	4805
B	Width	mm	2190	2190	2190
C	Height	mm	2371	2371	2371
Weight		Kg	3660	3720	3780



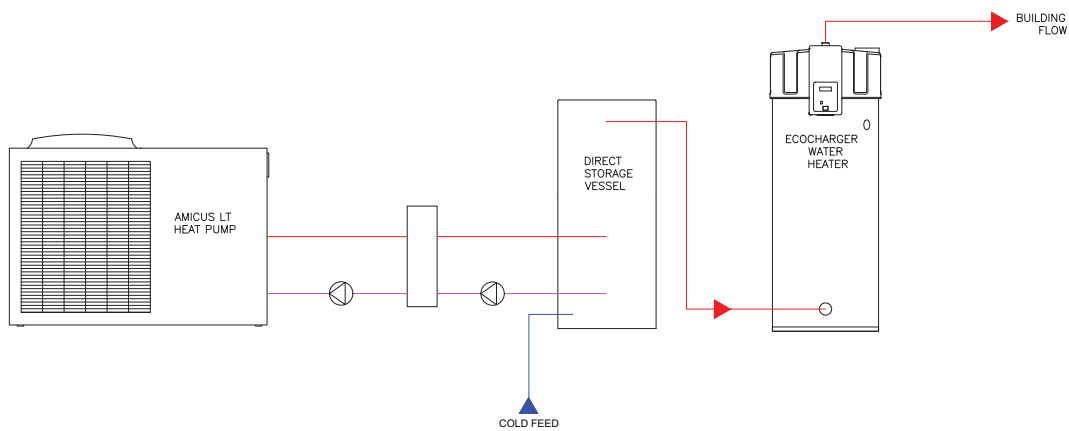
Typical Schematic Drawings Hybrid Systems



Amicus LT with Amicus Boost providing domestic hot water



Amicus LT with high efficiency gas-fired boiler providing heating



Amicus LT with high efficiency gas-fired water heater providing domestic hot water

Compatible Products for Hybrid installations

Amicus Boost water-to-water heat pump

Hybrid systems comprising Amicus LT and Amicus Boost heat pumps provide a cost effective solution for heating systems, and are suitable for retrofit projects as the Amicus Boost can provide flow temperatures of up to 78°C.



High efficiency gas-fired boilers

When integrated with high efficiency gas-fired boilers, Amicus LT heat pumps can provide an efficient, low carbon heating solution, for a range of applications including multi-residential and small district heating schemes. Ideally, this type of system should be designed so that Amicus LT heat pump(s) to provide the constant demand, with the gas-fired boiler(s) available to meet peak demand and back up.



High efficiency gas-fired water heaters

Amicus LT heat pumps can be installed in conjunction with traditional methods of generating domestic hot water, by providing pre-heated feed water. When used with direct gas-fired water heaters Amicus LT can reduce carbon emissions and improve system efficiency, with gas-fired water heaters helping to provide peak hot water demand, which can occur over short periods in many commercial and industrial buildings.



Electric storage-type water heaters

A combined installation of Amicus LT heat pumps and Lochinvar Cavalier electric water heaters provides a hot water solution with zero on-site emissions, and as such are particularly suitable for projects which are subject to BREEM assessment or general planning requirements.



Technical Specification

Model		LAHP252LT	LAHP302LT	LAHP402LT	LAHP452LT	LAHP502LT	LAHP602LT	LAHP702LT	LAHP802LT
Efficiency Data - Part L2									
Heating Capacity (EN14511) ¹	kW	22.2	29.6	37.3	47.1	50.8	61.2	67.3	74.9
Total Power input (EN14511) ¹	kW	5.3	7.1	8.8	11.5	11.8	13.3	15.1	17.2
COP (EN14511) ¹	W/W	4.11	4.16	4.23	4.11	4.32	4.61	4.46	4.36
Efficiency Data - ErP and Energy Label									
EcoDesign Energy Label Rating	LT/HT	A++	A++	A++	A++	A++	A++	A++	A++
Seasonal Efficiency Low temperature	%	150.1	151.4	150.9	151.1	153.6	162	158.4	155.8
SCOP Low Temperature		3.83	3.86	3.85	3.85	3.92	4.13	4.04	3.97
General Data									
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	400/3+N/50							
Fans	N°	2	2	2	2	2	2	2	2
Compressors/Circuits	N°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Sound power level ²	dB(A)	73	74	74	75	76	76	77	78
Sound pressure level ³	dB(A)	41	42	42	43	44	44	45	46
Weight	Kg	560	560	670	690	720	1060	1060	1070

Model		LAHP-902LT	LAHP-1002LT	LAHP-1202LT	LAHP-1402LT	LAHP-1602LT	LAHP-1802LT	LAHP-2002LT	LAHP-2302LT
Efficiency Data - Part L2									
Heating Capacity (EN14511) ¹	kW	93.2	104.9	114.9	137.1	151	167.9	182.8	210.6
Total Power input (EN14511) ¹	kW	21.2	24.5	27.8	30.9	34.4	40.2	45.5	49.4
COP (EN14511) ¹	W/W	4.4	4.29	4.13	4.44	4.39	4.18	4.02	4.26
Efficiency Data - ErP and Energy Label									
EcoDesign Energy Label Rating	LT/HT	A++	A++	A++	A++	A++	A++	A++	A++
Seasonal Efficiency Low temperature	%	151.7	150.8	150.2	151	151.3	150.9	150.4	153.6
SCOP Low Temperature		3.87	3.85	3.83	3.85	3.86	3.85	3.84	3.92
General Data									
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	400/3+N/50							
Fans	N°	2	2	2	3	3	3	3	3
Compressors/Circuits	N°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Sound power level ²	dB(A)	82	83	85	86	87	87	87	89
Sound pressure level ³	dB(A)	50	51	53	54	55	55	55	57
Weight	Kg	1120	1160	1240	1560	1580	1600	1620	1790

Model		LAHP-2502LT	LAHP-2504LT	LAHP-3004LT	LAHP-3204LT	LAHP-3504LT	LAHP-4004LT	LAHP-4504LT	LAHP-5004LT
Efficiency Data - Part L2									
Heating Capacity (EN14511) ¹	kW	241.3	229.4	271.4	296.7	339	364.9	407	463.7
Total Power input (EN14511) ¹	kW	54.8	55.8	63.90	71.5	83.7	88.8	104.1	115.1
COP (EN14511) ¹	W/W	4.4	4.11	4.25	4.15	4.05	4.11	3.91	4.03
Efficiency Data - ErP and Energy Label									
EcoDesign Energy Label Rating	LT/HT	A++	A++	A++	A++	A++	A++	A++	A++
Seasonal Efficiency Low temperature	%	155.6	150.2	151.1	150.3	153.5	152.4	151.9	151.5
SCOP Low Temperature		3.97	3.83	3.85	3.83	3.91	3.89	3.87	3.86
General Data									
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Power supply	V/Ph/Hz	400/3+N/50							
Fans	N°	3	4	6	6	6	6	8	8
Compressors/Circuits	N°	2/1	4/2	4/2	4/2	4/2	4/2	4/2	4/2
Sound power level ²	dB(A)	91	88	89	90	90	90	92	92
Sound pressure level ³	dB(A)	59	56	57	58	58	58	60	60
Weight	Kg	1820	3170	3220	3270	3320	3660	3720	3780

Performance data is based upon the following conditions:

1) Heating: user water temperature 30/35°C, source water temperature 10/7°C.

2) Average conditions, variable- Reg EU 811/2013

3) Sound power level in accordance with ISO 3744.

4) Sound pressure level at 1 mt from the unit in free field conditions direction factor Q=2, calculated in accordance with ISO 3744.



Lochinvar Ltd reserves the right to change specifications without prior notice

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