Dimplexrenewables®

A world of expertise

CI/SFB (56)

Tried. Tested. Trusted.

Dimplex Heat Pumps

Working with nature's energy
for environmentally friendly heating

A name you can trust

For over 60 years, Dimplex has been making life more comfortable, in more ways, in more places than any other company. Dimplex has long been the number one name in electric heating technology, having established an unmatched reputation for quality, reliability and innovation.

The Dimplex brand is well known in both the public and private sectors, particularly with local authorities, housing associations and major home builders where the brand has become synonymous with a commitment to excellence and customer satisfaction.

Our experience

For Dimplex, there's nothing new about renewables. As part of the worldwide Glen Dimplex Group, Dimplex has been producing innovative heat pumps for over 30 years with thousands of installations throughout Europe.

We are committed to developing heating solutions which utilise sustainable and renewable energy with the aim of reducing CO_2 emissions and their impact on the environment.

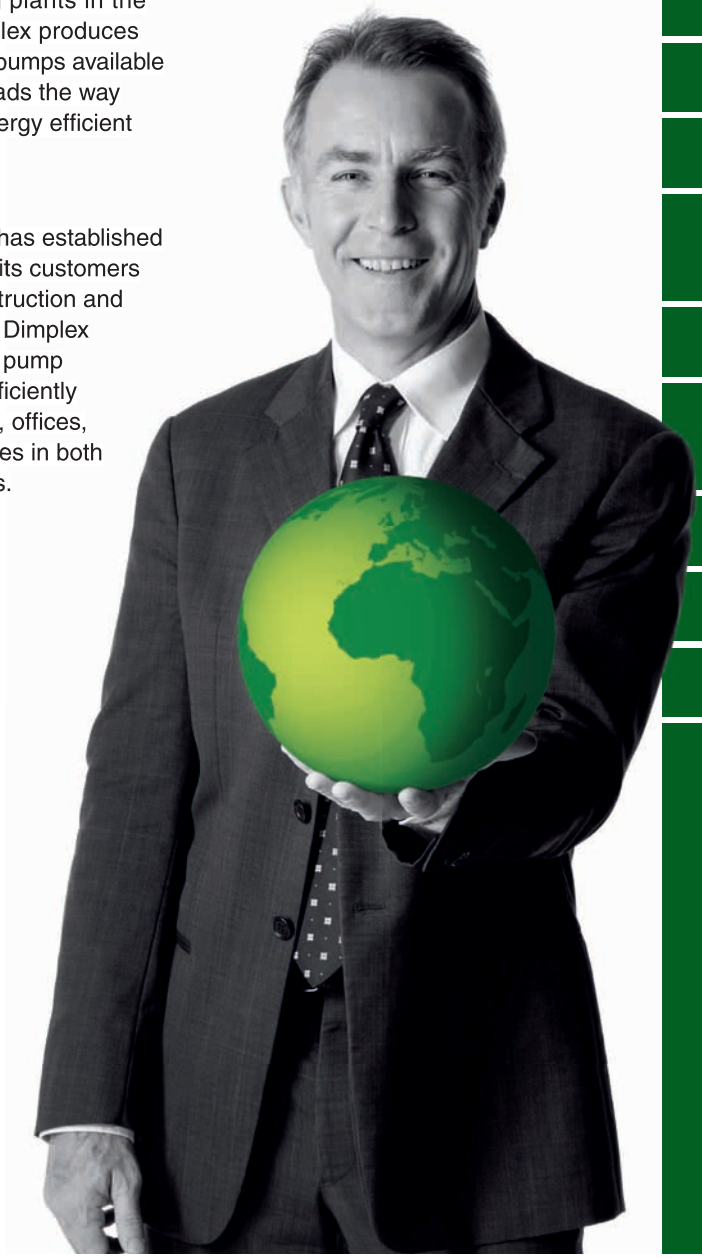
From our manufacturing plants in the UK and Germany, Dimplex produces the widest range of heat pumps available on the UK market and leads the way in the development of energy efficient heat pump technologies.

Quality assured

Over the years, Dimplex has established strong relationships with its customers in all aspects of the construction and heating industries. Today Dimplex electric heating and heat pump systems are operating efficiently across the UK in schools, offices, social housing and libraries in both private and public sectors.

In order to ensure the highest levels of quality and to provide peace of mind, Dimplex has an established network of Accredited Heat Pump Installers, all accredited under the Microgeneration Certification Scheme and fully trained and experienced in the installation of Dimplex heat pump products.

No other company can provide the depth of range, expertise and service back-up for economical, sustainable heating solutions.



Contents

Why choose a heat pump?

In the context of ever rising energy costs and climate change, every household is in need of a heating technology that is future-proof, cost-effective and independent of fossil fuels.

Using nature's energy

Heat pumps make a significant contribution towards solving the problems associated with increasingly scarce and evermore expensive energy resources – supplying more energy than they consume by tapping into the freely available, inexhaustible solar energy stored in the earth, the ambient air or water and converting this for use in a heating system.

In fact, up to 75% of the energy needed by the heating system is extracted from the environment, so the only energy required is electricity needed to drive the heat pump compressor.

Put another way, for every 1kWh of electricity used to run the heat pump, up to 4kW of useful heat is provided, giving the heat pump an efficiency of up to 400%.

A low carbon heating solution

Whenever fossil fuels such as gas or oil are burnt, carbon dioxide is released. CO_2 is the principle contributor to the greenhouse effect which is leading to long term climate change.

However as heat pumps extract as much as 75% of their heating energy from the environment, building carbon emissions for heating can be reduced by as much as 50% compared with gas fuelled heating systems.

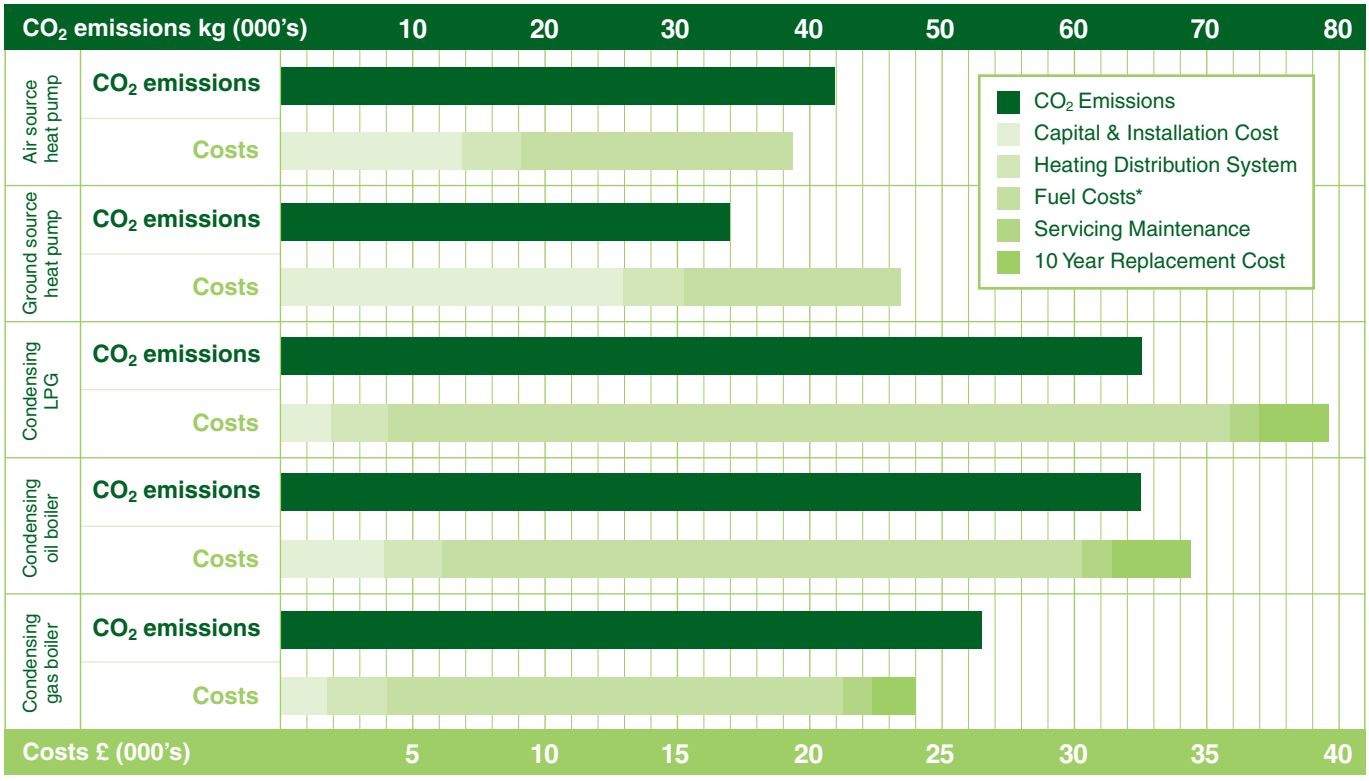
This is an obvious benefit when considering building regulations Part L compliance, planning obligations requiring minimum contributions from renewable energy and EcoHome/Code for Sustainable Homes ratings.

Low running costs Low ownership costs

The considerable contribution from renewable energy sources also helps to provide running cost savings over fossil fuelled heating systems and arguably more importantly, future proofs the system against future energy price increases.

But fuel costs are only part of the story. Unlike gas and oil based systems, heat pumps require no costly regular maintenance or annual safety inspections. And because a heat pump has a reasonable life expectancy of 20 – 25 years, typically twice that of a boiler, the investment costs can be recovered over a longer period meaning the ownership costs over the working life of the system are demonstrably lower.

Lifetime ownership cost and CO_2 emissions comparison



Figures compared over a 20 year period for space and water heating for a typical 3 bed semi detached home (new build)

The global challenge

Climate change is the greatest threat facing the planet, with rising temperatures causing more droughts, floods and storms causing sea levels to rise.

In the last 20 years, use of the Thames Barrier (designed to protect London from flooding) has risen from once every two years to six times a year.

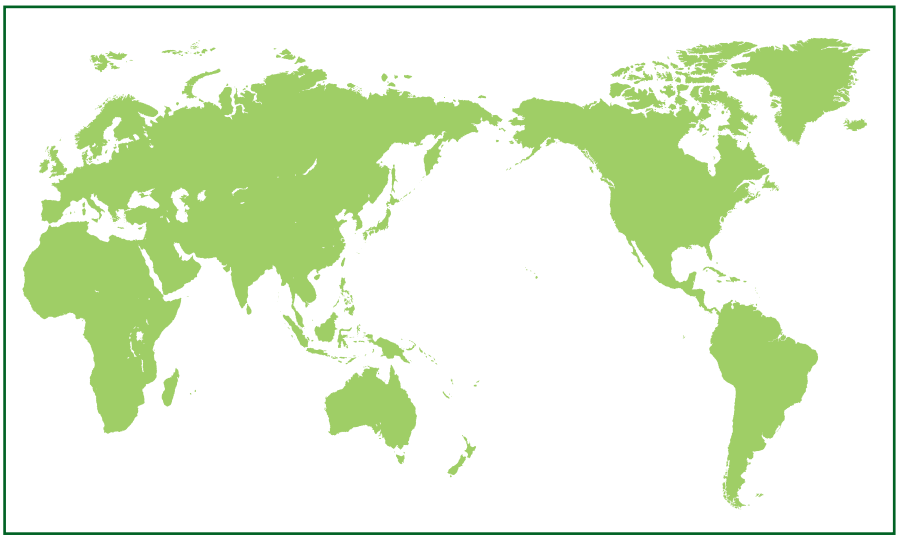
According to the latest figures from the Intergovernmental Panel on Climate Change (IPCC), 11 of the last 12 years rank in the 12 warmest years since 1850 and 2005 was the hottest year on record. The impacts of weather related disasters are also increasing two to three times more rapidly than impacts due to earthquakes.

Most scientists agree that climate change is largely due to human activity, mainly the increased use of fossil fuels. The main human influence on the global climate is likely to be emissions of greenhouse gases such as carbon dioxide (CO_2) and methane.

What difference can we make?

Emerging nations such as China and India are today consuming more and more energy to fuel their enormous economic growth, so what difference can a tiny island like the UK make?

Indeed if the UK became 100% zero carbon tomorrow, it would take China less than 3 months to replace the UK's carbon emissions.



However, carbon emissions per capita in the UK are one of the highest in the world – in fact if every nation had such high emissions per head of population, global emissions would increase 3-fold.

So the UK has a responsibility to demonstrate to the developing nations of the world that it is possible to achieve economic growth while reducing its carbon emissions and environmental impact.

Planning for the future

Currently we all have the freedom to choose whether or not to voluntarily install greener technologies to reduce our homes' or businesses' carbon footprint. Some experts predict that greener technologies will be compulsory through legislation in the near future as has the recycling of our rubbish.

The sooner you switch, the sooner you can start to save money and the planet.

Harnessing nature's energy

Our environment is full of energy, even at sub-zero temperatures there is plenty of energy available.

Heat pumps use conventional refrigeration technology to extract the sun's energy stored in the environment and raise it to a temperature suitable for heating purposes.

This method even works in the middle of winter at temperatures as low as -25°C.

One system for all types of heat sources

Dimplex heat pumps offer you two different future-proof heat sources – outside air or the ground.

Air source heat pumps extract heat from the outside ambient air all year round, even at temperatures as low as -25˚C.

Ground source heat pumps extract heat from the earth all year-round via ground heat collectors buried beneath the ground.

Trusted technology

Using nature's energy efficiently

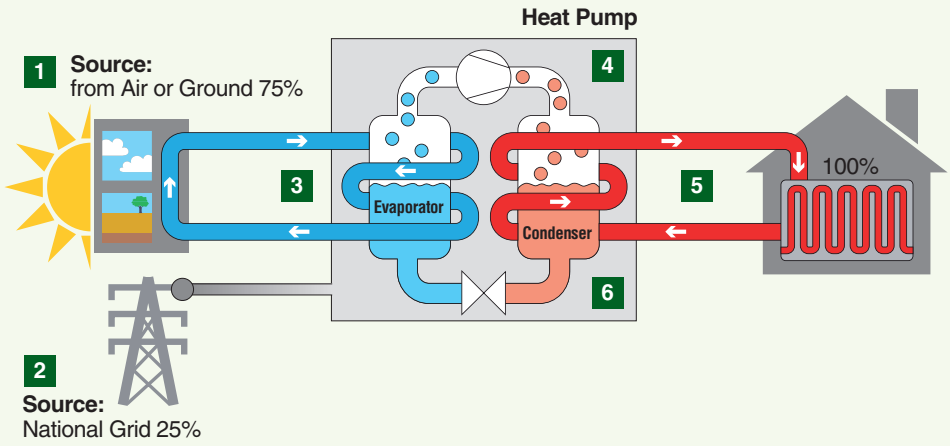
Heat pumps are among the most efficient heating and hot water systems available today. Approximately 75% of the energy needed for heating comes from the environment. This means that for every 1kWh of electricity used to power the heat pump compressor, between 3 and 4 kWh of heating energy are produced, giving the heat pump an efficiency of 300 – 400% or higher.

The heat pump's "efficiency" is known as its "Coefficient of Performance" (CoP). This is simply a ratio between the proportion of the total energy supplied that can be extracted from the environment and the amount supplied by electricity to run the heat pump compressor. The higher the CoP, the more "free" environmental energy the heat pump is using!

Heat pump system components

A heat pump heating system consists of 3 components: the heat source, the heat pump itself and a heat distribution and storage system.

Heat pumps are able to produce more energy than they consume by using the conventional refrigeration cycle to absorb heat from the environment and raise it to a suitable level for heating.



1 75% of the energy is taken from the environment i.e. the air or ground and transferred to the heat pump.

2 25% of the energy is sourced from the national grid in the normal way of supplying your electricity. This is used to operate the heat pump but with very low consumption.

3 The energy from the air or ground is transferred to the refrigerant inside the heat pumps evaporator. This causes the temperature of the refrigerant to rise and change state from liquid to gas.

4 The refrigerant gas is then compressed, using an electrically driven compressor, reducing its volume but causing its temperature to rise significantly.

5 A heat exchanger (condenser) then extracts the heat energy from the hot refrigerant to heat water for central heating, underfloor heating or domestic hot water.

6 After giving up its heat energy the refrigerant turns back into a liquid and is able to absorb energy from the environment, allowing the cycle to begin again.

Built to last

1 **Powerful, quiet, safe and reliable.** The "heart" of the heat pump is the Copeland scroll compressor, providing high levels of efficiency, reliability and low noise operation.

2 **Always in control.** The WPM heat pump manager monitors, regulates and controls the entire system to ensure optimum performance and efficiency for heating, domestic hot water and where applicable, cooling.

3 **Evaporator.** Large surface area plate heat exchangers allow for efficient heat transfer of energy from the environment. They are compact, efficient and reliable.

4 **Insulated casing.** Sound insulation around the insides of the heat pump casing reduce operating noise to a minimum.

The natural solution

...with so many applications

Increasingly stringent legislation and escalating fuel costs make heat pumps the ideal choice for so many applications, both domestic and non-domestic.

Whether for new build or retro-fit, for self builders, commercial housing developments or schools; for heating, cooling or for use with underfloor heating systems or radiators, heat pumps provide the ideal low carbon energy solution, whatever the application.

Social Housing

Social Housing

- Ideal for stock refurbishment projects as a means to meeting Decent Homes standards and tackling fuel poverty, particularly in off gas-grid areas
- Significant CO_2 emission savings over other fuels, helping compliance with higher levels of the Code for Sustainable Homes
- Negligible maintenance requirements

Housing Developments

Housing Developments

- Up to 50% CO_2 savings over fossil fuelled systems helps towards Building Regulations Part L/Code for Sustainable Homes compliance
- Heat pumps formally accepted as a “Renewable” technology so meet local planning authority requirements to incorporate renewable energy in new buildings (Planning Policy Statement 22/“Merton Rule”)
- Will make a significant contribution towards high EPC scores
- Highly marketable “Eco” credentials and low end-user running costs for heating/hot water

Flats and Apartments

Flats and Apartments

- Multiple high output ground or air source units commonly linked together to provide central plant space/water heating for multi-occupancy dwellings
- Up to 50% CO_2 savings over fossil fuelled systems helps towards Building Regulations Part L/Code for Sustainable Homes compliance
- Significant cost reduction over installing individual heat pumps in each apartment
- Efficiency benefits of communal systems recognised by SAP

Self Builders

Self Builders

- 50% lower CO_2 emissions than gas boilers, help make a significant contribution towards Building Regulations Part L compliance, particularly with contemporary styled homes with large glazed areas
- High renewable energy contribution helps ease planning consent
- Requires electrical infrastructure only – ideal for off gas-grid areas
- Makes a significant contribution to lower home energy bills
- Can be used for energy-efficient swimming pool heating in the summer months

Education

Leisure and Residential

Education

- Ongoing schools' building programmes can benefit from heat pump systems that improve the environmental footprint and reduce running and operational costs
- Able to meet governmental targets for 60% renewable energy in new schools projects
- Can be utilised to provide a valuable learning tool for students
- Income generation through Renewable Heat Incentive (RHI)

Retail and Commerce

- Heat pumps meet the increasing local authority requirements to incorporate renewable energy within the energy profile of new buildings (Planning Policy Statement 22/"Merton Rule")
- Significant CO_2 savings over fossil fuelled systems help towards building regulations compliance
- Many developers investing in "green" buildings with low energy costs in the knowledge that they can attract premium rent/lease values
- Ability to provide energy efficient heating and cooling from a single system optimises capital investment
- Income generation through Renewable Heat Incentive (RHI)

Leisure and Residential

- Growing take up in the leisure/hotels sector to reduce consumption and CO_2 emissions, particularly where mains gas is not available
- Typical uses include swimming pool heating, hot water production, space heating and cooling
- Reversible units with heat recovery ideal for utilising waste heat for swimming pool or water heating
- Multiple air source units commonly linked together to provide central plant space/water heating for multi-occupancy dwellings such as care homes
- Income generation through Renewable Heat Incentive (RHI)

Public and Community

- Dimplex heat pumps are already installed in a wide range of public and community buildings, both new build and refurbished, allowing them to benefit from lower fuel bills and reduced CO_2 emissions
- Typical installations include:
  - Visitor centres
  - Village halls
  - Community centres
  - Emergency service buildings (fire stations, mountain rescue centres, lifeboat stations)
  - Libraries
  - Places of worship
- Income generation through Renewable Heat Incentive (RHI)


Retail and Commerce


Public and Community

Financial incentives

Grants and Funding

The era of grant funding schemes for heat pumps is beginning to come to an end, however as the Government endeavours to meet it's target of 15% of total UK energy consumption being generated from renewable source by 2020, schemes are being put in place to encourage the uptake of renewable heat technologies.

Renewable Heat Incentive (RHI)

The Renewable Heat Incentive (RHI) announced in March 2011, is aimed at encouraging people to install renewable heating technologies and is the first financial support scheme for renewable heat in the world. Administered by OFGEM the scheme has been split in to two phases:

Phase 1

This phase of the scheme opened for applications on November 28, 2011 and is focussed on the non-domestic sector (industrial, business and public sector) as it accounts for 38% of the UK's emissions. For the domestic sector a one off incentive has been put in place, the Renewable Heat Premium Payment (RHPP) to provide householders with financial support to install renewable heating technology. Currently only the technologies listed within the EU Renewable Energy Directive are supported. As listed below:

- solid biomass and solid biomass contained in municipal waste (including CHP),
- ground and water source heat pumps,
- geothermal (including CHP),
- solar thermal (at capacities of less than 200 kWth),
- biogas combustion (except from landfill gas but including CHP; at capacities of less than 200 kWth) biomethane injection.

Note: Air source heat pumps are not currently supported.

Participants also need to meet several other eligibility requirements which are explained in the Guidance document. These include demonstrating that the heat is used for an eligible purpose, that metering arrangements are appropriate, and that grants have not been received for certain purposes.

The tariffs will be paid for 20 years to eligible technologies that have been installed since 15th July 2009 with payments being made for each kWh of renewable heat which is produced. Once in the scheme the level of support an installation will receive is fixed and adjusted annually with inflation.

Phase 2

The second phase is likely to see the scheme expanded to include additional technologies as well as long term support for house holders. DECC expects that Phase 2 will be up and running by Summer 2013 which represents a significant slippage from the original intended start date so to accommodate this slippage a second phase of RHPP has been put in place, effective from 2 April 2012.

Consultations are taking place looking at the inclusion of further commercial technologies such as Air Source Heat pumps and budget control measures; an interim budget control mechanism for Phase 1 and for Phase 2, a longer-term flexible degression-based cost control mechanism to automatically reduce tariffs should spending against the overall budget or uptake of certain technologies exceed forecasts.

RHI at a glance

- Commercial, public sector, not for profit and communal residential installations only
- Dimplex eligible technologies – ground source heat pumps and solar thermal
- Tariffs – paid quarterly, guaranteed for 20 years, index linked
- Rates:
  - GSHP <100kWth – 4.7p/kWh
    >100kWth – 3.4p/kWh
  - Solar Thermal 8.9p/kWh
- Installations under 45kWth must be MCS certified (equipment and installer)
- Installation must have been completed after 15 July 2009
- Systems must be heat metered payments are based on meter readings submitted
- Scheme administered by OFGEM

Dimplex Renewable Energy Finance

Dimplex Renewable Energy Finance has been specifically designed to help not-for-profit organisations including local authorities, schools and housing associations overcome the need for initial capital investment when installing heat pump systems.

The scheme is designed to provide a solution for organisations looking to implement renewable energy technologies but for whom the initial capital outlay, even where grants are available, could make going ahead with the project an impossibility, by allowing investment costs to be repaid over a period of years funded through the savings in energy costs the heat pump will provide.

Benefits of the scheme include:

- Can be used in place of grants to cover entire project costs
- Project costs covered in full with no up-front capital outlay
- Investment costs recovered from energy cost savings on an ongoing basis
- Allows project schedules to be accelerated by removing budgetary constraints
- Flexible payment schedules and accounting structure based on client needs

Reduced Energy Costs

In addition to reducing a property's carbon footprint the installation of a heat pump can also bring financial rewards in the form of lower energy bills and potential income through the Renewable Heat Incentive scheme.

The typical scenarios on the following page demonstrate just how much you could save.

2 BEDROOM END TERRACE HOUSE

Property size: **(63m²)**
Space heating demand: **8248kWh**
DHW demand: **2000kWh**
TOTAL heating demand: **10248kWh**

Fossil fuel heating costs

2 bedroom end terrace house	kWh/yr	Fuel cost/kWh
LPG space heating	11783	
LPG water heating	5714	
Total LPG heating	17497	£1518
Oil space heating	11783	
Oil water heating	5714	
Total oil heating	17497	£1182

6kW ASHP

6kW ASHP

Potential costs/savings using a heat pump

Heat emitter type	Space heating kWh/yr	Water heating kWh/yr	Total heating kWh/yr	Running costs/ year	Yearly savings vs LPG	Yearly savings vs oil
Radiators	3437	833	4270	£541	£977	£641
SmartRads	2426	833	3583	£454	£1064	£728

Heat emitter type	Space heating kWh/yr	Water heating kWh/yr	Total heating kWh/yr	Running costs/ year	Yearly savings vs LPG	Yearly savings vs oil
Radiators	2661	645	3306	£419	£1099	£763
SmartRads	2229	645	2874	£364	£1153	£818

5 BEDROOM DETACHED HOUSE

Property size: **(150m²)**
Space heating demand: **18273kWh**
DHW demand: **3500kWh**
TOTAL heating demand: **21773kWh**

Fossil fuel heating costs

5 bedroom detached house	kWh/yr	Fuel cost/kWh
LPG space heating	26104	
LPG water heating	10000	
Total LPG heating	36104	£3132
Oil space heating	26104	
Oil water heating	10000	
Total oil heating	36104	£2439

9kW ASHP

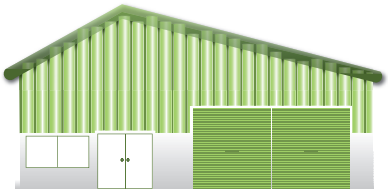
9kW GSHP

Potential costs/savings using a heat pump

Heat emitter type	Space heating kWh/yr	Water heating kWh/yr	Total heating kWh/yr	Running costs/ year	Yearly savings vs LPG	Yearly savings vs oil
Radiators	7614	1458	9072	£1149	£1982	£1290
SmartRads	6091	1458	7549	£957	£2175	£1482

Heat emitter type	Space heating kWh/yr	Water heating kWh/yr	Total heating kWh/yr	Running costs/ year	Yearly savings vs LPG	Yearly savings vs oil
Radiators	5895	1129	6540	£829	£2303	£1610
SmartRads	4939	1129	5584	£707	£2424	£1732

COMMERCIAL UNIT



Property size: **(650m²)**
Space heating demand: **720000kWh**
DHW demand: **0kWh**
TOTAL heating demand: **720000kWh**

Fossil fuel heating costs

Small commercial office block	kWh/yr	Fuel cost/kWh
LPG space heating	102857	
LPG water heating	n/a	
Total LPG heating	102857	£8922
Oil space heating	102857	
Oil water heating	n/a	
Total oil heating	102857	£6948

40kW ASHP

40kW GSHP

Potential costs/savings using a heat pump

Heat emitter type	Space heating kWh/yr	Total heating kWh/yr	Running costs/ year	Yearly savings vs LPG	Yearly savings vs oil
Radiators	30000	30000	£3801	£5121	£3147
SmartRads	24000	24000	£3041	£5881	£3908

Heat emitter type	Space heating kWh/yr	Total heating kWh/yr	Running costs / year	RHI payment /yr	Yearly savings vs LPG	Yearly savings vs oil	Total benefits vs LPG	Total benefits vs oil
Radiators	23226	23226	£2943	£3096	£5979	£4006	£9075	£7102
SmartRads	19459	19459	£2466	£3096	£5826	£4483	£8922	£7579

Assumptions: Energy costs including maintenance, delivery, supplier discounts and circulation pump for a 3 bed house: LPG price – 61.69p per litre, Oil – 64.57p per litre, Electricity –

Range overview

Dimplex is setting new standards with its latest generation of heat pumps. With the widest range of heat pumps in the UK, no matter what your choice of energy source (ground or air), there will be a solution in the Dimplex range ideally suited to your needs.

Flexibility

Our heat pumps can be combined with a wide number of fully compatible system accessories, including buffer tanks and domestic hot water systems to provide complete flexibility in terms of system design.

To simplify specification and installation, a number of our heat pumps are also offered in packages which include heat pump ready cylinders and/or buffer tanks and all the components required to install a standard domestic system.

Performance

The Dimplex ethos is always to aim for the highest level of system efficiency, with our heat pumps designed to minimise energy use – no matter what the temperature or operating conditions.

Quality and Reliability

The international quality label for heat pump systems guarantees the highest environmental, safety and quality standards.

Control

The comprehensive Dimplex heat pump manager provides complete system control over multiple heating and hot water circuits and, where needed, cooling functions. Self explanatory display text provides simple operation.

	Air Source								Ground Source							
				Nominal Rating kW	Indoor or Outdoor	Phase	WPM Controller	Max. Flow Temp				Nominal Rating kW	Indoor or Outdoor	Phase	WPM Controller	Max. Flow Temp
Domestic	LA MI	Inverter		6-16	O	1	x		SIH ME	High temperature		4-11	I	1	√	70
	LA MS	Heating & hot water		9-16	O	1	√	55	SI ME	Heating & hot water		14	I	1	√	58
	LA PMS	High temperature		8-14	O	1	√	65	SIK ME	Integrated hydraulic components		16	I	1	√	55
Commercial	LA TU	High efficiency		17-60	O	3	√*	58-65	SI TE ..... SI TU	Heating & hot water		18-130	I	3	√	58-60
	LA AS	High output		20-28	O	3	√	55	SIH TE	High temperature		20-40	I	3	√	70
	LA PS	High temperature		17-26	O	3	√	65	SI TER + ... SI TUR +	Heating & cooling		30-130	I	3	√	55
	LA TUR +	Heating & cooling		35-60	O	3	√*									
Swimming pool	LAS MT			10-15	O	1	x	40								
	LAS TT			22	O	3	x	40								

Heat Pump Accessories:

- EC-Eau hot water cylinders
- Buffer cylinders
- Hydraulic system accessories
- Heat pump manager
- SmartRad
- Passive cooling
- Solar integration
- Ground collector circuit manifolds and accessories

*WPM EconPlus heat pump manager

Air source heat pumps

Even cold air is full of energy and Dimplex air source heat pumps use the freely available heat in the ambient air to provide efficient heating and hot water at air temperatures as low as -25ºC.

Because the source of heat – the air – is abundantly available all around us, air source heat pumps have the advantage of low installation costs and minimal space requirements, while relatively mild winter temperatures in the UK mean excellent levels of efficiency and performance are achieved throughout the year.

Benefits of the outside air as a heat source

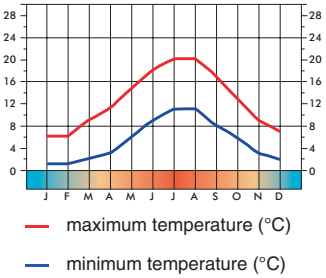
- Can be utilised all year round between -25ºC and +35ºC
- Always available and inexhaustible source of heat
- No requirement for the cost and land area of ground collectors
- Ideal for new build or retro fit applications, especially where space is limited
- Can be used for heating, cooling, domestic hot water and swimming pools

Air source heat pumps – benefits of the UK climate

Compared with central Europe (where air source heat pumps are already very popular), the UK has a relatively moderate winter climate.

With average winter temperatures of around 5°C, seasonal co-efficients of performance comparable with ground source heat pumps are achievable, without the additional cost of expensive ground loop systems having to be installed.

Average UK temperatures over 12 month period



Installation

Dimplex air source heat pumps are constructed from robust, powder-coated metal casings to provide year round protection against the elements. The heat pump is connected to the indoor heating system simply by laying two heat insulated pipes and the electric connection cables under the ground.

Features/benefits

- No space is required inside the property
- Installation is relatively straightforward
- The heat source is easy to tap
- The weatherproof heat pump is installed on a sturdy concrete base
- The water pipes and electric cables are securely laid underground

Case studies

Heat pumps in action

Dimplex heat pumps have been installed in a wide variety of applications – two are featured here, but more are available on our website.

Scotland self builders warm to free energy with Dimplex

Energy efficient, low carbon heating is now taken for granted by the owners of a new build property in Scotland with the installation of a Dimplex 11kW air source heat pump providing all of their heating and hot water needs. Installed at the side of the 160m^2 four bedroom property, the LA 11 MS provides enough heat for the water in a 300 litre tank and the under floor heating system delivering a room temperature of 22°C.

The owner's objective for the property was to have an energy efficient house and felt that a heat pump represented the most advanced and effective method for heating.

Dimplex heat pumps score for McCarthy & Stone

McCarthy & Stone, the UK's largest builder of retirement homes, took the lead in energy savings by installing Dimplex heat pumps at a development of 41 apartments in Clevedon, Somerset and achieved level 3 of the Code for Sustainable Homes. Three 28kW Dimplex air source heat pumps provide a communal system, servicing the entire block, with each flat having its own metering and separate hot water cylinder.

Domestic air source heat pumps

Inverter driven air source heat pumps

Dimplex Air-Eau inverter driven air source heat pumps deliver market leading energy efficiency and performance with achievable CoPs of up to 4.7. With a range of inverter models with outputs from 6 – 16kW, Dimplex can provide a solution for most domestic applications from small, well-insulated new build homes, to retrofits in existing homes which have higher heat demands.

Easy to install, due to the range's monobloc configuration, the Air-Eau is the ideal choice for new developments looking to reduce CO_2 emissions, social housing refurbishment projects to tackle fuel poverty and the replacement of oil/LPG systems in larger private homes.

At the heart of the Air-Eau heat pump is a variable speed, inverter controlled compressor, which allows the heat levels delivered to be matched closely to the heating requirements of the building, as ambient temperatures change. This means that in cold weather heat pump capacity is maintained, eliminating any need for supplementary back up heating, while at warmer air temperatures, heat pump output can be reduced, helping to improve efficiency.

LA 9 MI

APPROVED PRODUCT

Air-Eau/LA MI

The Dimplex Air-Eau range of inverter-driven air source heat pumps are designed to match output to varying heating demand. With achievable CoPs of up to 4.7, the Air-Eau provides one of the most advanced, efficient and high performance air source heat pump ranges available.

Employing an inverter driven compressor to maximise heat pump efficiency enables the Air-Eau range to modulate the heat pump output to match the heating demand, so at warmer air temperatures when heating demand falls the heat pump output is reduced, which helps to improve efficiency (CoP).

Available in 6, 9, 12 and 16kW variants, Air-Eau heat pumps are supplied as a fully integrated unit, including circulation pump and expansion vessel making installations easier to carry out and less time consuming. The Air-Eau models also come with the added advantages of low starting current (phased compressor start up) and low noise levels.

Model	LA 6 MI	LA 9 MI	LA 12 MI	LA 16 MI
Connection Voltage (V)	230	230	230	230
Maximum flow temperature (°C)	55	55	55	55
Heat output A7/W35 (kW)	6	9	12	16
CoP A7/W35	4.4	4.1	4.67	4.23
MCS certificated	√	√	√	√

Please see page 46 for full technical specifications.

Range features

- Range of 4 models with nominal heating capacities from 6 – 16kW single phase
- Superior efficiency – CoPs of up to 4.7
- Variable heating water flow temperatures from 25°C to 55°C, weather compensated
- Operational temperatures from -20°C to +35°C
- Inverter driven compressor, providing variable output levels and low starting current
- "Monobloc" heat pump unit with fully integrated systems components:
- Supplied complete with wall mounted inverter heat pump manager
- Easy access to electrical and plumbing connections for ease of installation
- Designed to work efficiently with underfloor heating, Dimplex SmartRad or conventional radiators
- Ideal for use in conjunction with a Dimplex EC-Eau heat pump-ready cylinder to produce domestic hot water
- Very low noise levels and "Night Mode" for extra low night time operation
- Available in system packages with EC-Eau cylinders/buffer tanks and controls and ancillaries for ease of specification and installation
- MCS certificated

Domestic air source heat pumps

Dimplex domestic air source heat pumps are designed specifically for the UK climate and are constructed to withstand the best and worst of the British weather, with powder-coated metal casings and a stainless steel base frame. Installed outside the property, close to the building with a minimum 30cm clearance, they are ideal in situations where internal space is at a premium.

With low noise levels and outputs ranging from 8 to 16kW, the Dimplex domestic air source heat pump models provide a range of cost effective heating and hot water solutions for small to large properties.

Our domestic air source heat pumps are designed to deliver 100% of the heating and hot water demand, with the heat pump itself typically sized to provide at least 99% of the annual heating requirement. To minimise investment costs, it is normal to provide the remaining energy demand from a supplementary heat source, most commonly an electric immersion heater, however in retro-fit applications it is also possible to run the heat pump in parallel – “bivalent” mode – with an existing boiler.

LA MS

Dimplex LA MS air source heat pumps provide excellent levels of heating and hot water performance at temperatures as low as -20°C, and can be used in place of or alongside an existing boiler to reduce energy bills and CO_2 emissions.

The range incorporates innovative design technologies to minimise sound transmissions and an auto-adaptive defrost cycle to minimise energy consumption.

LA 9 MS

LA 11/16 MS

APPROVED PRODUCT

Model	LA 9 MS	LA 11 MS	LA 16 MS
Connection Voltage (V)	230	230	230
Maximum flow temperature (°C)	55	55	55
Heat output A7/W35 (kW)	9.5	10.9	15.1
CoP A7/W35	3.9	3.9	3.6
MCS certificated	√	√	√

Please see page 47 for full technical specifications.

Range features

- 3 models with nominal heating capacities from 9 – 16kW single phase
- High levels of efficiency with CoPs of up to 3.9
- Variable heating water flow temperatures from 35 to 55°C with weather compensation
- Suitable for use with underfloor heating, Dimplex SmartRad or conventional radiators
- Ideal for use with a Dimplex EC-Eau heat pump-ready cylinder to produce domestic hot water
- Available in system packages with EC-Eau cylinders/buffer tanks and controls and ancillaries for ease of specification and installation
- MCS certificated

LA PMS

Dimplex LA PMS high temperature air source heat pumps provide variable water flow temperatures of up to 65°C to provide a complete heating and hot water solution in place of or alongside an existing boiler.

The range uses R290, an efficient and naturally occurring refrigerant with close to zero GWP

APPROVED PRODUCT

Model	LA 8 PMS	LA 14 PMS
Connection Voltage (V)	230	230
Maximum flow temperature (°C)	65	65
Heat Output A7/W35 (kW) 1 compressor 2 compressors	 6 -	 7.4 13.3
CoP A7/W35 1 compressor 2 compressors	 3.8 -	 3.7 3.9
MCS certificated	√	√

Please see page 47 for full technical specifications.

Range features

- 2 models with nominal heating capacities from 8 – 14kW single phase
- High levels of efficiency with CoPs of up to 3.9
- Variable heating water flow temperatures from 35 to 65°C with weather compensation
- Suitable for use with underfloor heating, Dimplex SmartRad or conventional radiators
- Ideal for use with a Dimplex EC-Eau heat pump-ready cylinder to produce domestic hot water
- Available in system packages with EC-Eau cylinders/buffer tanks and controls and ancillaries for ease of specification and installation

Commercial air source heat pumps

High efficiency air source heat pumps

Dimplex high efficiency air source heat pumps deliver maximum energy efficiency even at low ambient air temperatures to produce seasonal efficiencies comparable with ground source systems. With a range of high efficiency models ranging from 17 – 60kW, Dimplex can provide the solution to high capacity heating demands.

Optimised twin compressor operation ensures that buildings with high heat consumption requirements, such as offices, schools, hotels or retail units can be catered for. High efficiency heat pumps are also an ideal solution for multiple occupancy buildings such as apartment blocks where centralised heat pump systems are able to provide a building wide heating solution.

The LA TU range of air source heat pumps utilise the WPM EconPlus heat pump manager to monitor, regulate and control the entire heating system. Internally wall mounted, the heat pump manager can control up to three individually programmed heating circuits, any supplementary heating sources and the defrost cycle ensuring the LA TU operates flexibly and at maximum efficiency.

LA 40 TU

LA TU

The Dimplex LA TU range of high efficiency air source heat pumps are designed to maximize energy efficiency at low ambient temperatures to deliver seasonal performances comparable to ground source systems. The high capacity outputs achievable with this range provide a flexible range of solutions for applications with higher capacity demands.

Twin compressor operation enables these models to flexibly and efficiently adapt to fluctuating heat demand by automatically switching between single and dual compressor modes depending on the outside air temperature and the building's heating demand.

All models utilize the WPM EconPlus heat pump manager, allowing independent control over multiple heating circuits at differing flow temperatures and integrated heat metering.

Model	LA 17 TU	LA 25 TU	LA 40 TU	LA 60 TU
Connection Voltage (V)	400	400	400	400
Maximum flow Temperature (°C)	58	58	58	65
Heat Output A7/W35 (kW) 1 compressor 2 compressors	 10.0 19.6	 13.9 26.1	 20.0 35.7	 31.9 60.1
CoP A7/W35 1 compressor 2 compressors	 4.5 4.4	 4.5 4.4	 4.6 4.4	 4.3 4.1
MCS certificated	√	√	√	N/A

Please see page 48 for full technical specifications.

Range features

- Range of 4 models with nominal heating capacities from 17 – 60kW
- Variable heating water flow temperatures from 35°C to 58°C (65˚ LA 60 TU), weather compensated
- Intelligent load switching between single and dual compressor modes to maximise efficiency and compressor life
- Wall mounted WPM EconPlus heat pump manager with integrated heat meter
- Three phase connection, with electronic soft start to reduce start current loads
- Optional flexible expansion for bivalent or bivalent-renewable operating mode and for distributed systems with mixed and unmixed heating circuits
- Suitable for use with underfloor heating, Dimplex SmartRad fan convectors or conventional radiators and to produce domestic hot water
- Sound optimised through electronically controlled, low-speed fan, with low, natural sounding acoustics
- Side or under unit entry for hydraulic/electrical connections
- Multiple units can be connected in parallel
- MCS certificated

Commercial air source heat pumps

High output and high temperature air source heat pumps

The Dimplex range of high output air source heat pumps are ideal for multiple occupancy properties such as flats and apartments when installed as a centralised heat pump system. With models ranging from 20-28kW our high output air source heat pumps are able to provide an efficient, building-wide heating solution.

Employing optimised twin compressor operation this high output range can also cater for buildings with high heat consumption such as offices, schools, hotels or retail outlets.

Improving a buildings thermal insulation can often be enough to allow the heating system to be operated at the low temperatures normally associated with heat pumps. However higher water flow temperatures are sometimes needed where high volumes of hot water are required at temperatures of 60°C or higher, or where the heat pump is intended for use in older buildings with existing radiator systems.

The Dimplex range of high temperature air source heat pumps can easily fulfil these requirements by providing variable water flow temperatures of up to 65°C.

Parallel operation for higher total capacity

Multiple Dimplex heat pumps can be connected together in parallel to provide a highly cost effective solution where very high capabilities are required. The WPM heat pump manager controls and optimises performance of the system.

High output air source heat pumps – LA AS

The Dimplex LA AS range of high output 3 phase air source heat pumps provide a flexible range of solutions for higher capacity heating systems.

Twin compressor operation enables these models to efficiently adapt to fluctuating heat demand by automatically switching between single and dual compressor modes depending on outside temperature and building heat demand.

LA 20 – 28 AS

Model	LA 20 AS	LA 24 AS	LA 28 AS
Connection Voltage (V)	400	400	400
Maximum flow temperature (°C)	55	55	55
Heat output A7/W35 (kW) 1 compressor 2 compressors	 9.8 16.6	 13.1 24.8	 14.2 25.8
CoP A7/W35 1 compressor 2 compressors	 3.2 3.1	 3.4 3.6	 3.1 3.4

Please see page 49 for full technical specifications.

Range features

- 3 models with nominal heating capacities from 20 – 28kW
- Variable heating water flow temperature from 35°C to 55°C with weather compensation
- WPM 2007 heat pump manager
- Electronic soft start to reduce current loads
- Suitable for use with underfloor heating, Dimplex SmartRad or conventional radiators and to provide hot water

High temperature air source heat pumps – LA PS

The LA PS high temperature range of air source heat pumps provide variable water flow temperatures of up to 65°C and utilise the environmentally sensitive R290 refrigerant.

APPROVED PRODUCT

LA 17 PS

Model	LA 17 PS	LA 22 PS	LA 26 PS
Connection Voltage (V)	400	400	400
Maximum flow temperature (°C)	65	65	65
Heat output A7/W35 (kW) 1 compressor 2 compressors	 9.6 16.6	 12.0 21.1	 13.3 22.9
CoP A7/W35 1 compressor 2 compressors	 3.4 3.4	 3.6 3.5	 3.5 3.5
MCS certificated	√	-	-

Please see page 50 for full technical specifications.

Range features

- 3 models with nominal heating capacities from 17 – 26kW
- Variable heating water flow temperature from 35°C to 65°C with weather compensation
- Intelligent switching between single and dual compressor modes, maximising efficiency and compressor duty cycle
- WPM 2006 heat pump manager
- Electronic soft start to reduce current loads
- Utilises environmentally sensitive R290 refrigerant
- Suitable for use with underfloor heating, Dimplex SmartRad or conventional radiators and to provide hot water

Ground source heat pumps

Drawing as much as 75% of the energy needed by the heating system from freely available, inexhaustible solar energy stored in the ground, Dimplex ground source heat pumps are available in an extensive range of models types and capacities suitable for either domestic or commercial applications.

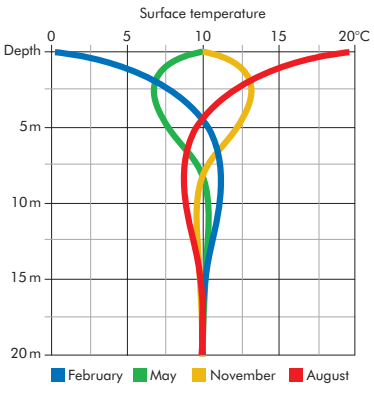
Due to highly stable temperatures below the earth's surface, ground source heat pumps provide high levels of efficiency for space and water heating all year round.

Benefits of the ground as a heat source

- Consistent temperatures below ground throughout the year provides a high Co-efficient of Performance.
- Can be used for heating, domestic hot water and swimming pools.
- Borehole systems can be used for either passive or active cooling (see page 33).

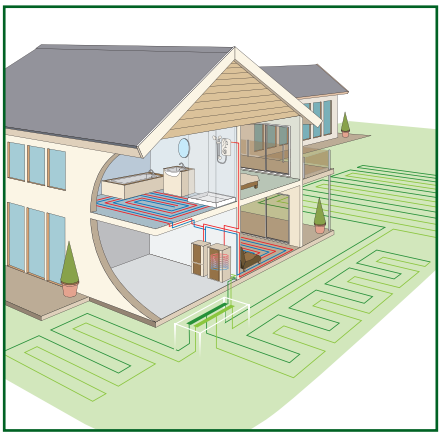
At just 1m below the surface, the earth provides a stable source of heat throughout the year.

At depths of 15m or more, the earth provides a constant 10°C temperature.



Installation

The earth stores an enormous amount of solar energy from both solar radiation and rainfall. To extract this energy, ground collectors consisting of flexible poly ethylene pipes are buried in the earth, either horizontally or vertically. A mixture of water and anti-freeze is then circulated through the pipe loops, attracting the heat energy and transferring it to the heat pump.



Horizontal ground collectors

If a large enough land area is available, horizontal ground collectors provide an effective method of extracting heat from the ground.

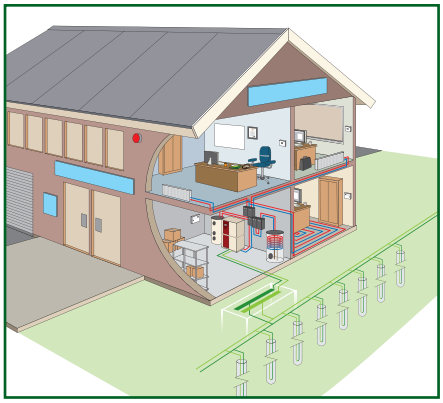
The pipework is buried at a depth of approximately 1.2m and spaced 0.75m apart. The land area required is dependent on both the capacity of the heat pump and heat conductance of the soil type in which the pipes are buried.

As a space saving alternative to horizontal collectors, slinkies, consisting of coiled pipes buried in a trench can be used.

Vertical boreholes

If land space is limited the ground collectors can be installed vertically in a borehole, drilled up to 100m deep in the ground.

Multiple boreholes are commonly used in large installations where very high levels of heat extraction are required.



Case studies

Heat pumps in action

Dimplex heat pumps have been installed in a wide variety of applications – two are featured here, but more are available on our website.

Housing Association bungalows convert to Dimplex

Stafford & Rural housing association has fitted Dimplex ground source heat pumps into a refurbishment project of nine warden-linked bungalows at Synnerton, Staffordshire, with five of the properties taking part in a year long survey by the EST to monitor heat pumps in real-life installations.

One of the key considerations when replacing the system was fuel poverty as economic heating was very important to its tenants. The housing association was also looking for something that was future-proof, cost effective with no costly bills or annual inspections. Three suppliers were considered by an assessment panel which included 3 tenants with Dimplex selected because of the overall package they could supply.

Top Marks for Dimplex in London school

Ealing council has installed Dimplex ground source heat pumps at three schools and is already planning a fourth!

A Dimplex SIH 40 TE high temperature ground source heat pump was initially installed at Grange Primary School, a larger than average school with 500 pupils, with 15 boreholes required in a restricted area which subsequently became part of the playground.

Following the success at Grange Primary, a Dimplex SI 37 TE heat pump has been installed at Mandeville School, Northolt, a co-educational day school for pupils aged 2-12 and a SI 24 TE has been installed at Ellen Wilkinson School for Girls in Acton, with 1400 students aged 11-18.

Domestic ground source heat pumps

Dimplex domestic ground source heat pumps are available in a range of sizes and configurations to provide a sustainable, cost effective heating and hot water solution for most domestic applications.

Ideal for use with either underfloor heating, SmartRad or conventional radiator systems Dimplex domestic ground source heat pumps are also able to provide domestic hot water.

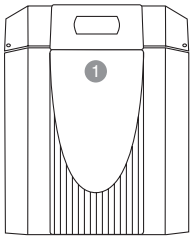
The range includes high temperature models which can produce water flow temperatures up to 70°C, providing the ability to fulfil all of the hot water demands of the property without the need for supplementary electric heating.

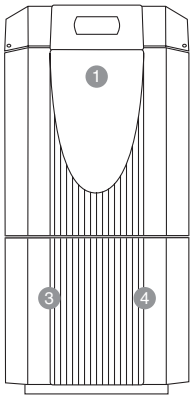
Installed inside the property, the range is available in outputs from 4 –16kW in either standalone or integrated formats providing maximum flexibility to meet the installation requirements of virtually any domestic scenario.

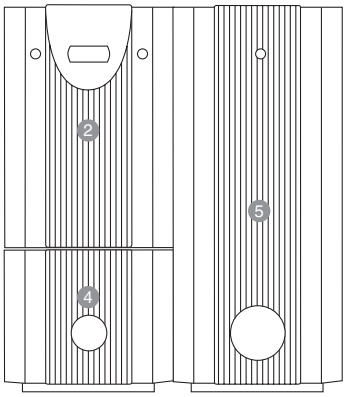
Flexible system options

The Dimplex ground source range, including buffer tanks and hot water cylinders are designed to fully co-ordinate and provide a range of flexible system options:

1. SIH ME/SI ME ground source heat pump
2. SIK ME integrated ground source heat pump
3. WWSP229EUK 200L domestic hot water cylinder
4. PSP100E 100L buffer cylinder
5. WWSP442EUK 400L domestic hot water cylinder







High temperature ground source heat pumps – SIH ME

The SIH ME range provides flow temperatures up to 70°C enabling 100% of a home's heating and hot water to be provided without the need for supplementary heating.

Domestic ground source heat pump – SI 14 ME

Identical in design to the SIH ME range, the popular SI 14 ME provides flow temperatures up to 58°C making it an ideal domestic heating solution.

Where space saving is an issue the SIH ME and SI ME can be combined with a 200L domestic hot water cylinder, which fits neatly below the heat pump unit.

APPROVED PRODUCT

SIH ME/SI ME

Model	SIH 4 ME	SIH 6 ME	SIH 9 ME	SIH 11 ME	SI 14 ME
Connection Voltage (V)	230	230	230	230	230
Maximum flow temperature (°C)	70	70	70	70	58
Heat output B0/W35 (kW)	4.0	6.0	8.9	10.7	14.8
CoP B0/W35	4.1	4.1	4.0	4.5	3.9
MCS certificated	√	√	√	√	√

Please see page 51 for full technical specifications.

Integrated ground source heat pump – SIK ME

The SIK 16 ME fully integrated ground source heat pump provides easy installation and minimises space requirements, with the heat pump manager and key system components all fully integrated into one compact unit.

A complementary 100L buffer tank and 400L domestic hot water cylinder are also available to complete the system.

APPROVED PRODUCT

SIK 16 ME

Model	SIK 16 ME
Connection Voltage (V)	230
Maximum flow temperature (°C)	58
Heat output B0/W35 (kW)	15.8
CoP B0/W35	4.2
MCS certificated	√

Please see page 52 for full technical specifications.

Range features

- 4 high temperature models with nominal heating capabilities from 4 – 11kW
- 1 standard temperature model with nominal heating capabilities of 14 kW
- Variable heating water flow temperatures from 35°C to 70°C with weather compensation (high temperature models)
- WPM 2007 heat pump manager with removable control panel
- Electronic soft start control reduces starting current loads
- Suitable for use with underfloor heating, Dimplex SmartRad fan convectors or conventional radiator systems and to produce domestic hot water
- Can be used as the sole heating source or in "bivalent" mode in combination with an existing heating system
- Provides domestic hot water to 60°C with no need for supplementary heating (high temperature models)

Range features

- Available with nominal heating capacities of 16kW
- Integrated system components, including circulating pumps, expansion vessels and safety assemblies for both the heating and ground collector circuits
- WPM2007 heat pump manager with removable control panel
- Variable heating water flow temperatures from 35°C to 55°C with weather compensation
- Suitable for use with underfloor heating, Dimplex SmartRad fan convectors or conventional radiator systems and to produce domestic hot water
- Matching built-under buffer tank for space

Commercial ground source heat pumps

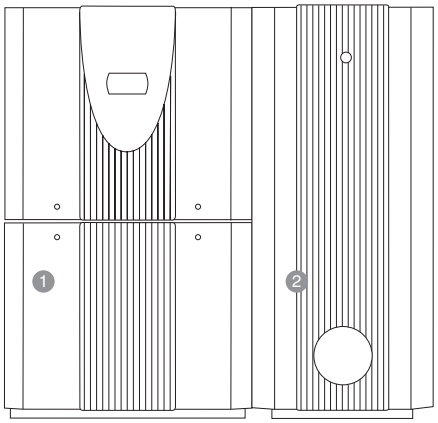
High output ground source heat pumps

Dimplex high output ground source heat pumps expand the scope of applications for high efficiency heating solutions with ranges of increased output models ranging from 18 – 130kW.

Optimised twin compressor operation allows buildings with high heat consumption to be catered for, in the shape of either non-domestic applications such as offices or schools. High output heat pumps are also ideal for multiple occupancy buildings such as flats and apartments where centralised heat pump systems are able to provide a building wide heating solution.

Flexible system options

SI 24 TE – SI 37 TE heat pumps are designed to co-ordinate with the WWSP442EUK hot water cylinder.



1. SI 24-37 TE ground source heat pump
2. WWSP442EUK 400L hot water cylinder

High output ground source heat pumps – SI TE/ SI TU

The Dimplex SI TE and SI TU ranges of high output 3 phase ground source heat pumps provide a flexible range of solutions for higher capacity heating systems.

All models utilise the WPM2007 heat pump manager, allowing independent control over multiple heating circuits at differing flow temperatures.

Models with outputs of 24kW and above incorporate twin compressors, enabling them to flexibly and efficiently adapt to fluctuating heat demand by automatically switching between single and dual compressor modes depending on the outside temperature and heat demand of the building.

SI 50-130 TE

SI 18-22 TU

SI 24-37 TE

APPROVED PRODUCT

Range features

- Range of 9 models with nominal heating capacities from 18 – 130kW
- Variable heating water flow temperatures from 35˚C to 60˚C with weather compensation
- Twin compressors on outputs of 24kW and over for higher capacity output
- Intelligent switching between single and dual compressor modes, maximising efficiency and compressor duty cycle
- WPM2007 heat pump manager with removable control panel
- Suitable for use with underfloor heating, Dimplex SmartRad fan convectors or conventional radiator systems and to produce domestic hot water
- Three phase electrical connection, with electronic soft start to reduce start current loads
- Able to use ground water as a heat source with the addition of an intermediate heat exchanger
- Matching 400 litre domestic hot water cylinder

Model	SI 18 TU	SI 22 TU	SI 24 TE	SI 30 TE	SI 37 TE	SI 50 TE	SI 75 TE	SI 100 TE	SI 130 TE
Connection Voltage (V)	400	400	400	400	400	400	400	400	400
Maximum flow temperature (°C)	62	57	60	60	60	60	60	60	60
Heat output B0/W35 (kW)									
1 compressor	17.5	22.9	12.7	14.4	18.3	23.0	37.6	48.4	63.3
2 compressors	-	-	23.7	31.2	35.4	46.7	75.2	96.3	125.8
CoP B0/W35									
1 compressor	4.7	4.4	4.3	4.2	4.5	4.4	4.3	4.6	4.2
2 compressors	-	-	4.1	4.6	4.3	4.5	4.4	4.6	4.3
MCS certificated		√	√	√	√	√			

Please see page 52-55 for full technical specifications.

Commercial ground source heat pumps

High temperature ground source heat pumps

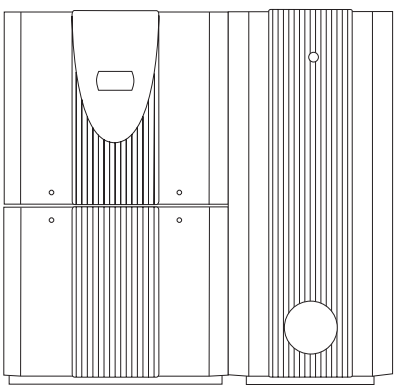
Dimplex high temperature ground source heat pumps have the ability to provide high water flow temperatures of up to 70°C.

This makes them ideal for applications where high volumes of stored hot water are required at temperatures of 60°C or higher, or where the heat pump is required to be connected to a high temperature heating system using radiators.

Optimised twin compressor operation allows the SIH TE range to be used in buildings with high heat consumption, for example commercial applications, schools or for centralised heat production in multiple occupancy residential buildings such as flats.

Flexible system options

SIH 20 TE is designed to co-ordinate with the WWSP442EUK hot water cylinder.



1. SIH 20 TE ground source heat pump
2. WWSP442EUK 400L hot water cylinder

High temperature ground source heat pumps – SIH TE

The Dimplex SIH TE range of high temperature ground source heat pumps provide variable water flow temperatures up to 70°C, providing a solution for buildings with high temperature heating systems (radiators) or where high temperature hot water storage is required.

Available in 20kW and 40kW options, both models utilise the WPM2007 heat pump manager, allowing independent control over multiple heating circuits at differing flow temperatures.

Both models incorporate twin compressors, enabling them to flexibly and efficiently adapt to fluctuating heat demand by automatically switching between single and dual compressor modes depending on the outside temperature and heat demand of the building.

SIH 20 TE

SIH 40 TE

APPROVED PRODUCT

Model	SIH 20 TE	SIH 40 TE
Connection Voltage (V)	400	400
Maximum flow temperature (°C)	70	70
Heat output B0/W35 (kW) 1 compressor 2 compressors	 11.5 21.4	 17.4 34.2
CoP B0/W35 1 compressor 2 compressors	 4.6 4.4	 4.1 4.1
MCS certificated	√	√

Please see page 54 for full technical specifications.

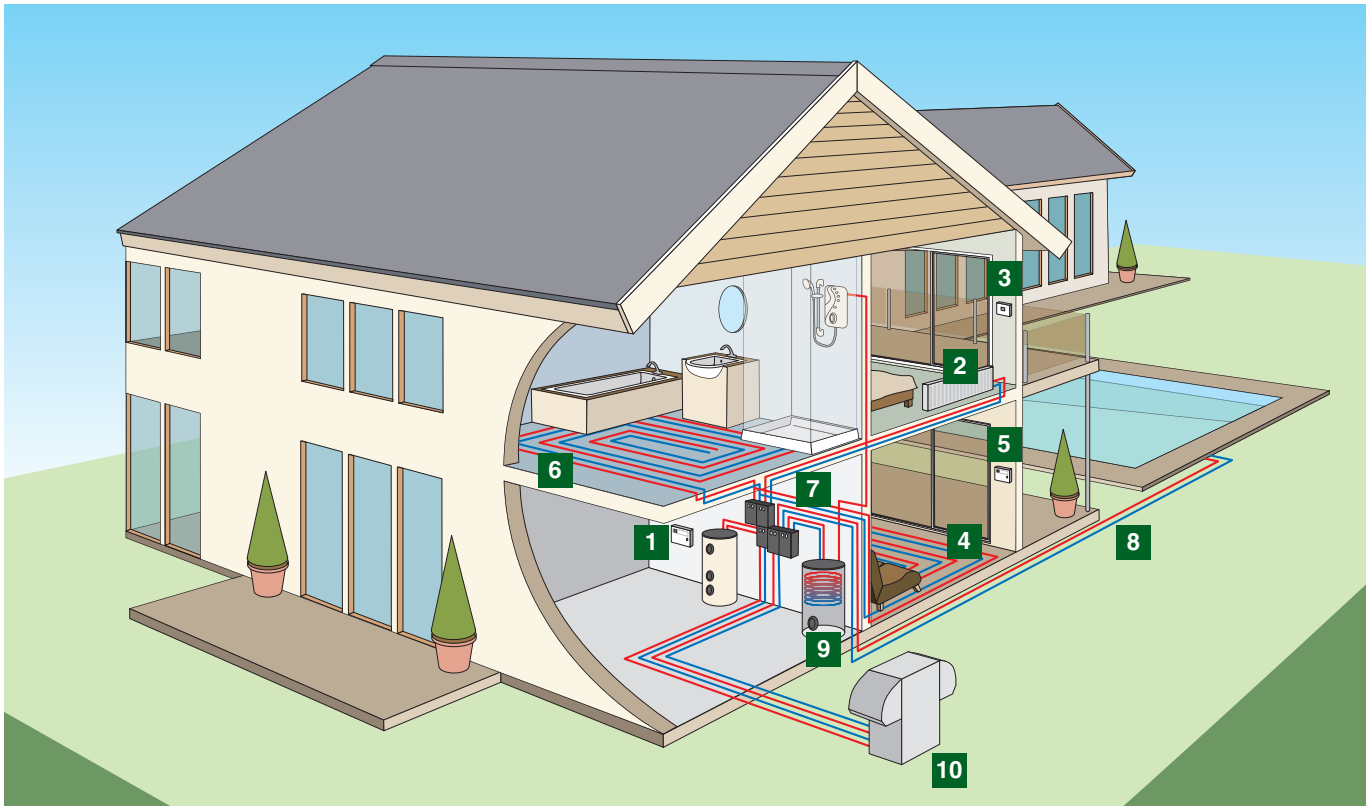
Range features

- 2 high temperature models with nominal heating capacities of 20kW and 40kW
- Variable heating water flow temperatures from 35°C to 70°C with weather compensation
- Twin compressors for higher capacity output
- Intelligent switching between single and dual compressor modes, maximising efficiency and compressor duty cycle
- WPM2007 heat pump manager with removable control panel
- Suitable for use with underfloor heating, Dimplex SmartRad fan convectors or conventional radiator systems and to provide domestic hot water at stored water temperatures of up to 60°C
- Three phase electrical connection, with electronic soft start to reduce start current loads
- Able to use ground water as a heat source with the addition of an intermediate heat exchanger
- Matching 400 litre domestic hot water cylinder

Reversible heat pumps

Innovative heating and cooling

Apart from an efficient heat pump heating system, summer time cooling of well-insulated new buildings is becoming increasingly important to achieve a comfortable environment. Solar gain, higher levels of insulation and increasingly warm summer temperatures all lead to a rising demand for cooling systems. Dimplex offers an innovative, energy efficient concept for all types of heat sources to also utilise water-bearing heating systems for cooling purposes.



1. Heat pump manager for heating and cooling
2. Dynamic cooling via fan convectors with condensate drainage; suitable for domestic buildings with high heat loads and commercial buildings
3. Room thermostats switch from heating to cooling via an external signal from the cooling controller
4. Silent cooling utilising existing heating surfaces (underfloor, ceiling or wall cooling)
5. Room climate control station for regulating the flow temperature with silent cooling via a reference room
6. Underfloor heating for comfortable heat in the winter
7. Dew point monitor for connection to the cooling controller to interrupt the cooling operation of the system if condensate forms at vulnerable points in the cooling distribution system
8. The waste heat produced in cooling operation can be utilised for swimming pool water heating
9. Efficient domestic hot water preparation utilising waste heat recovery in cooling operation
10. Reversible air source heat pumps for outdoor installation

Reversible air source heat pumps

Models available:

35kW three phase with waste heat recovery (LA 35 TUR+)

60kW three phase with waste heat recovery (LA 60 TUR+)

LA 35 TUR+
LA 60 TUR+

Reversible heat pumps for active cooling

In winter the heat pump functions as an energy efficient heating device and extracts the required energy from the environment. By reversing this process the heat pump can be operated to provide cooling, extracting heat from the building and transferring this to the environment via the heat pump refrigerant and compressor.

Waste heat recovery makes it possible to also produce domestic hot water extremely efficiently during the cooling process, while returning waste heat to the ground (using a ground source heat pump) effectively stores the energy for use later in the year when needed for heating. The entire system is controlled by the heat pump manager.

Passive cooling with borehole heat exchangers or ground water.

Deeper ground layers have constant temperature levels of around 10°C all year round. This allows ground source heat pumps installed with vertical borehole collectors to be used to provide 'passive' cooling, by transferring excess heat from the building to the ground via the collector in the summer months.

This is achieved with the addition of a retro-fittable passive cooling unit, controlled by an additional cooling controller, which communicates with the heat pump manager to enable a combination of heating and 'comfort' cooling in a single system.

Domestic hot water can still be provided in parallel to the cooling operation as the heat pump compressor is not active in the passive cooling mode.

Depending on the type of heating system installed in the building, cooling can be provided in one of two ways:

Silent (active) cooling via surface heating systems

In summer, the heating surfaces in floors, walls and ceilings are activated for cooling by passing cooled water through them. Large cooled surfaces cool the rooms to a comfortable temperature without draughts or air movement.

Dynamic cooling via fan convectors

Integrated ventilators guide the indoor air to a heat exchanger, which heats or cools the air according to need. Multi-level controllable air recirculation guarantees short response times and high transmission capacities.

Reversible ground source heat pumps

Models available:

30kW three phase with waste heat recovery (SI 30 TER+)

75kW three phase with waste heat recovery (SI 75 TER+)

130kW three phase with waste heat recovery (SI 130 TUR+)

SI 75 TER+
SI 130 TUR+

SI 30 TER+

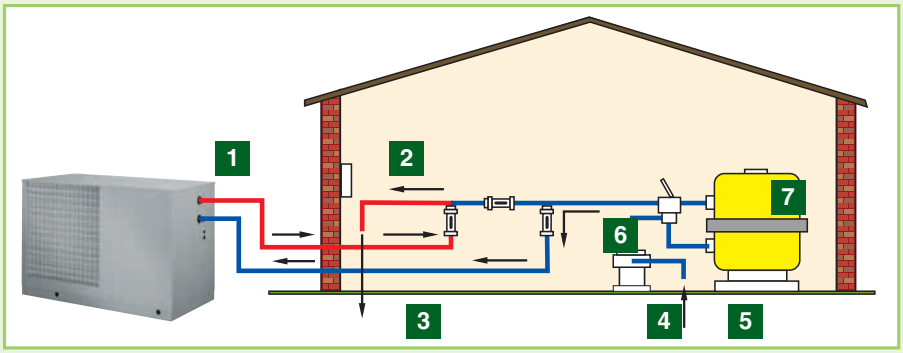
Please see technical specification pages for typical system configuration and accessories.

Swimming pool heat pumps

Heat pumps are the ideal solution for swimming pool heating, providing an economic and energy efficient means of delivering a constant pool water temperature throughout the year.

Air source heat pumps are particularly suitable due to their low installation cost and high efficiency at high ambient temperatures during the summer – the most frequent time of swimming pool use!

1. Swimming pool heat pump
2. Remote control
3. Pure water to the pool
4. Circulating pump
5. Bypass and regulator valves
6. Pipe water from the pool
7. Filter



The heat pump is connected directly to the pool system. No additional control.

Swimming pool heat pumps – air source – LAS MT & LAS TT

Dimplex LAS MT and LAS TT air source heat pumps provide an energy efficient and cost effective way of providing swimming pool heating throughout the year, irrespective of the weather conditions.

Purpose designed for swimming pool use and incorporating a titanium heat exchanger which allows the heat pump to be used with varying levels of water quality, the range is available in outputs from 10 – 22kW. The heat pump is installed outdoors and integrated into the swimming pool filter circuit.

A single heat pump setting ensures the required swimming pool water temperature is constantly maintained.

LAS 10 MT

Model	LAS 10 MT	LAS 15 MT	LAS 22 MT
Connection Voltage (V)	230	230	400
Maximum flow temperature (°C)	40	40	40
Heat output A20/W24 (kW)	12.1	16.6	22.3
CoP A20/W24	4.2	4.7	5.1

Please see page 55 for full technical specifications.

Range features

- Outdoor installation
- Nominal heating capacities of 10kW, 15kW and 22kW
- Variable heating water flow temperatures up to 40˚C
- WPM2007 heat pump manager with removable control panel
- Titanium heat exchanger ensuring safe operation with variable water qualities, including salt water
- Integrated automatic defrost cycle, allowing operation at temperatures as low as – 10˚C

Heat pump accessories

Perfectly matched

Dimplex heat pumps offer a variety of services – providing the home with comfortable warmth is only one of them. It can also provide all the hot water needed for the kitchen and bathroom.

Dimplex provides all the components needed for these applications, including buffer tanks, EC-Eau unvented hot water cylinders, hydraulic accessories and SmartRad fan convectors, ensuring the components are optimally matched to ensure maximum system efficiency.

A range of ancillary products designed to simplify heating system and ground collector connections are also available, ensuring installation is as compact and simple as possible.

1. Buffer Tank
2. Heating/DHW System Connection
3. EC-Eau Unvented Hot Water Cylinder
4. WPM Heat Pump Manager

Buffer tanks

Connection of a buffer tank ensures minimum compressor run times and minimum water flow rates through the heat pump to maintain optimum efficiency. A buffer is essential for air source heat pumps as it provides the energy for defrosting.

Where the heat pump provides the sole source of heating, an electric immersion element can also be integrated to provide supplementary heating if required.

Model	Capacity (litres)	Dimensions (mm)	For use with
PSW100	100	Ø512x850	Heat pumps up to 12kW
PSP100E	100	740x740x240	SI ME & SIK ME models
PSW200	200	Ø600x1300	Heat pumps up to 30kW
PSW500	500	Ø700x1950	All heat pumps
PSW1000	1000	Ø790x1970	All heat pumps

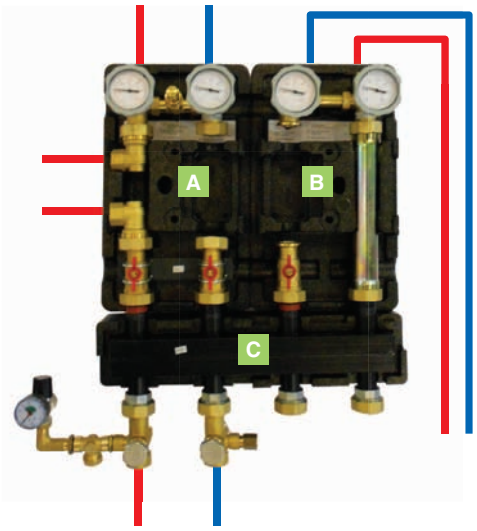
Note: a suitably sized immersion element must be ordered separately

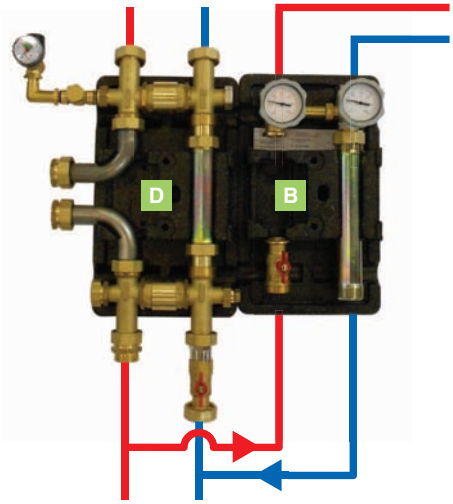
Distribution system

Modules matching the specific requirements of the heat pumps simplify connection to the heating system and offer the option of flexible expansion for domestic hot water or additional heating circuits.

Most common components are;

- **A** Compact manifold (KPV25) allows connection between heat pump, buffer tank and a single heating circuit, simplifying the installation process and reducing space
- **B** Hot water module (WMM25) allows connection between the heat pump and the hot water cylinder
- **C** Manifold bar (VTB25) allows simultaneous connection of the compact manifold and hot water module
- **D** Dual differential pressureless manifold (DDV25/32) allows efficient connection between heat pump, buffer tank and heating circuit to simplify installation





Model	Flow rates (m^3/h)	
KPV25	up to 1.3m^3/h	Compact manifold
EBKPV	up to 2.0m^3/h	Extension module for KPV module
DDV25	up to 2.0m^3/h	Dual differ. Pressure less module
DDV32	up to 2.5m^3/h	Dual differ. Pressure less module
WWM25	up to 2.5m^3/h	Heating circuit / hot water module
MMH25	up to 2.0m^3/h	Mixed heating circuit module
VTB25	up to 2.5m^3/h	Manifold bar
Additional manifolds for alternative systems		
MMB25	Flow rates up to 2.0m^3/h	Bivalent mixing manifold
SST25	Max. of 10m^2 solar panels	Solar station

NOTE: Circulation pumps supplied separately in order to cater for differing flow rates (project specific).

Commercial cylinders

For applications with a high hot water demand such as hotels, care homes and other multiple occupancy properties, Dimplex offers a range of commercial unvented hot water cylinders – all correctly sized for the maximum heating capacity of the heat pump.

It is important to remember that due to lower flow temperatures, correctly sized heat exchangers are required to maximise performance. An integrated temperature sensor is connected to the heat pump manager which allows the heat pump to automatically manage the production of hot water, ensuring a plentiful supply of hot water when required.

All Dimplex heat pump cylinders are fully UK approved for G3 building regulations.

kiwa approved product

Model	Capacity (litres)	Dimensions (mm)
WWSP880UK	400	Ø700 x 1600
WWSP900Uk	500	Ø700 x 1950

EC-Eau™ heat pump cylinders

Dimplex EC-Eau heat pump cylinders are designed to operate seamlessly with heat pumps to provide an efficient and environmentally friendly way of supplying domestic hot water.

Employing a large surface area heat exchanger, EC-Eau heat pump cylinders maximise the transfer of renewable energy to the stored water, optimising heat pump efficiency and reducing running costs. EC-Eau heat pump cylinders are the ideal partner to Dimplex heat pumps and are available in capacities from 125 to 300 litres, suitable for most domestic hot water demands. Combined heat pump cylinder and buffer tanks models are also available for applications where space is limited.

Heat pump cylinders

Model	Height (mm)	Diameter (mm)	Capacity (l)	Weight empty (kg)	Number of immersions	Expansion vessel (l)	Heat pump coil size (kW)	Heat pump coil surface area (m^2)	Reheat Time (mins)	Heat loss in 24 hrs (kW/24hrs)
ECS125HP-580	960	580	125	30	1	12	45(*)	2.2	7(*)	0.95
ECS150HP-580	1130	580	150	35	1	12	51(*)	2.8	7(*)	1.10
ECS175HP-580	1280	580	175	37.5	1	19	43.3(*)	2.8	11(*)	1.12
ECS210HP-580	1505	580	210	42	1	19	47(*)	3.0	12(*)	1.41
ECS250HP-580	1780	580	250	47	1	24	47(*)	3.0	17(*)	1.51
ECS300HP-580	2080	580	300	53	1	24	43(*)	3.2	20(*)	1.96

Heat pump cylinder range

Heat pump cylinder with buffer

Heat pump cylinders with buffer

Model	Height (mm)	Diameter (mm)	Capacity (l)	Buffer capacity (l)	Weight empty (kg)	Number of immersions	Expansion vessel (l)	Heat pump coil size (kW)	Heat pump coil surface area (m^2)	Reheat Time (mins)	Heat loss in 24 hrs (kW/24hrs)
ECS125HP75-580	1535	580	125	72	44.5	2	12	45(*)	2.2	7(*)	0.95
ECS150HP75-580	1705	580	150	72	49	2	12	51(*)	2.8	7(*)	1.10
ECS210HP75	2080	580	210	72	57	2	19	47(*)	3.0	12(*)	1.41

*Determined in accordance with EW12897-2000

Unvented stainless steel cylinders for heat pumps

Sustainable Material

- Inner vessel manufactured from premium grade Duplex stainless steel
  - Lightweight yet ultra high strength and stress/corrosion resistant, ensuring long cylinder life
  - 100% recyclable
  - No need for sacrificial anode
  - 25 year warranty
- HIPS/ABS outer cladding
  - Produced from 100% recycled material
  - Hard wearing, flexible and damage resistant
- CFC/HCFC free injected foam insulation
- High proportion of materials (excluding insulation) by volume recycled

Environmentally Sound Performance

- Designed for use with renewable sources of heat production – heat pumps and solar thermal systems
- Side hot water draw off connection, minimises heat losses through the top of the cylinder
- 60mm of injected polyurethane foam insulation
  - Exceeds 'CHESS' best practice standards for low heat loss and heat recovery
  - Completely void free, including insulation around immersions and thermostats
- Recessed immersion heater and thermostat housings reduces heat loss
- Large surface area coil for use with heat pumps

Superior Operational Performance

- High flow rates for efficient hot water delivery
  - Powerful showers and fast filling baths
- Corrugated coil construction maximises surface area while maintaining high usable volume

- Light and easy to handle for easy installation
- Surface mounted thermostats and sensors for easy installation and maintenance/replacement

- Supplied complete with inlet safety group and external expansion vessel
- All connections accessible from the front

Heat pump manager

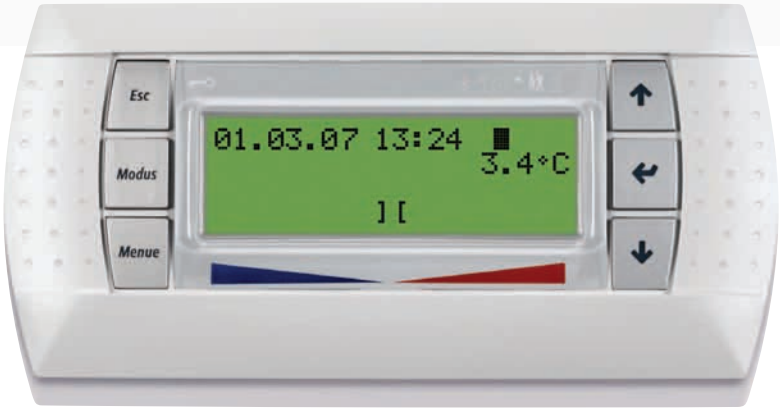
Everything is under control

The majority of Dimplex heat pumps utilise the WPM heat pump manager, which is designed to regulate, control and monitor the entire heating system.

Water temperatures for up to 3 heating / hot water circuits are individually programmable, allowing the heat pump to provide maximum flexibility, control and efficiency.

Key features:

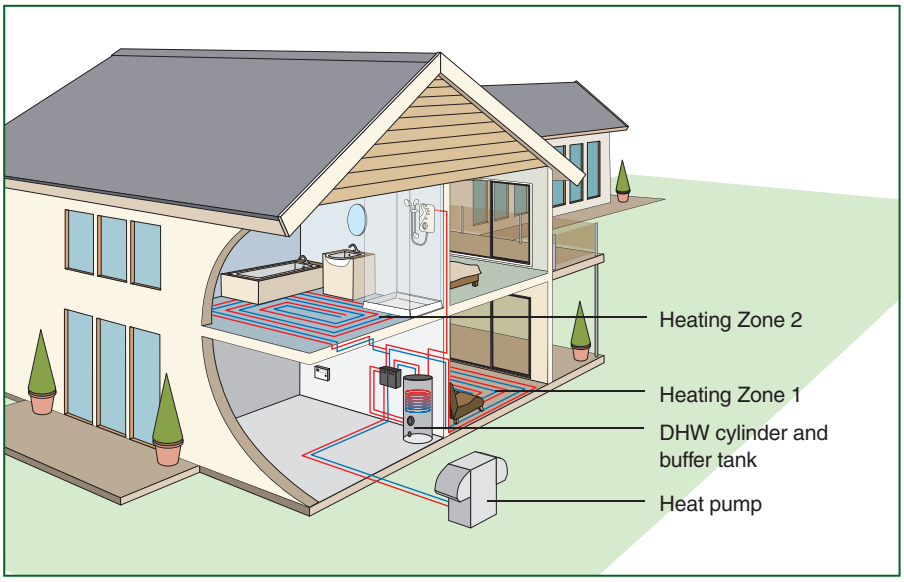
- Simple 6 key operation
- Large, well laid out illuminated display
- Dynamic menu based programming, customised to the configuration of the heat pump – settings that are not required are hidden
- Interface for remote control unit with identical menu options
- Ground source and indoor air source units have removable control panel for convenient positioning
- Weather compensated temperature control
- Control over 3 separate heating/hot water circuits
- Automatic actuation of supplementary heat source (electric immersion heater or gas/oil boiler)
- Automatic actuation of mixer valves for supplementary heat generators (gas/oil boiler or solar energy storage system)



Two heat generators and three heat consumers; the heat pump has everything under control

The heat pump manager monitors the operation of the heat pump and provides all the functions of a modern heating regulation system, including remote diagnostics and time programmes for heating and hot water preparation.

The heat pump, heating and hot water pumps, mixer motor and any supplementary heating sources are all automatically activated by the WPM manager. For reversible heat pumps both heating and cooling modes are managed by the same controller.



System integration with existing systems

The WPM controller also allows Dimplex heat pumps to be efficiently integrated in 'bi-valent' mode with existing systems. When combined in parallel with an existing boiler, the heat pump manager regulates the boiler in accordance to need and ensures that no excessive temperatures can enter the heating system.

This way, for example, a filled oil tank can be used up before converting to heat pump only operation later on, or provide the ability for the heat pump to manage the base heating load with supplementary support from an existing gas boiler. Such strategies provide an excellent opportunity for the installation of heat pumps in existing homes and buildings.

Integration with other renewables

For optimal integration of renewable heat sources, the heat pump manager offers an operating mode developed especially for purpose. Thermal solar energy systems or biomass boilers feed into a renewable cylinder fitted with an additional heat exchanger which, at a sufficient temperature level, gives priority to this energy for heating or hot water, over riding the operation of the heat pump.

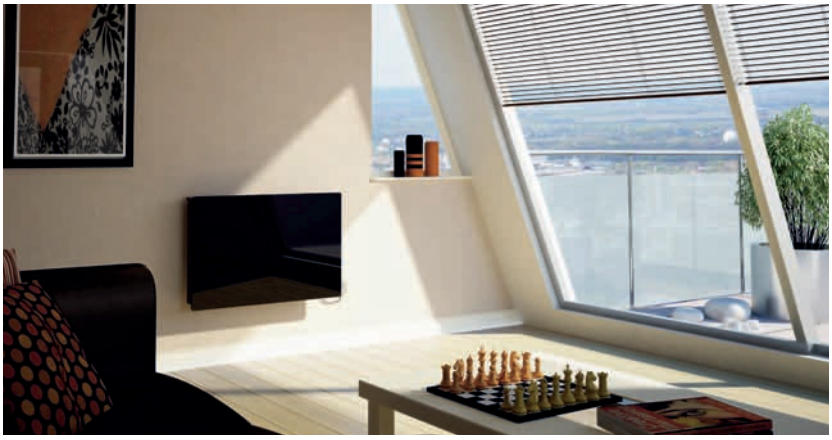
SmartRad®

The perfect heat pump partner

Dimplex SmartRad is an intelligent fan convector designed specifically to work with heat pumps.

Controllable, responsive and attractively designed SmartRad offers a practical, energy efficient alternative to underfloor heating as a low temperature heating system.

Containing only 5% of the water volume of a conventional radiator, SmartRad's low thermal mass means heat up time, responsiveness and ultimately comfort are significantly improved.



Operating limits	SRX080	SRX120	SRX140	SRX180
Heating water system/return °C	Max. 85/Min. 15 at 150 L/h			
Performance	***at medium fan speed and air inlet temp of 20°C**			
Heating capacity* mean water flow temp 40°C (kW)	0.6	0.9	1.1	1.5
Heating capacity* mean water flow temp 45°C (kW)	0.8	1.1	1.4	1.8
Heating capacity* mean water flow temp 50°C (kW)	1.0	1.4	1.7	2.2
Heating capacity* mean water flow temp 55°C (kW)	1.1	1.6	2.0	2.6
Heating capacity* mean water flow temp 60°C (kW)	1.3	1.8	2.3	2.9
Sound pressure level at 1m dB (A)				
Low	26			
Medium	29			
Boost	36			
Air flow rate				
Low (m^2/hr)	60	100	120	160
Medium (m^2/hr)	125	190	225	300
Boost (m^2/hr)	228	345	410	540
Dimensions (mm) HxWxD	530x503 x145	530x670 x145	530x740 x145	530x911 x145
Weight (kg)	13	16	18	23
Power input (W)				
Low	17	22	26	24
Medium	20	32	40	35
Boost	27	47	60	53
Standby power	1W			
Nominal voltage/ fuse rating (V/A)	~230/3			
Hydraulic connections	15mm left and/or right hand connection or from rear			
Water content (l)	0.31	0.43	0.48	0.60
Cable supplied	1 metre			

Key features

- Ideal for use with heat pumps
- Cost effective, practical alternative to underfloor heating
- Designed for low water temperature operation:
  - Optimises heat pump CoP
  - Reduces heat pump running costs
- More energy efficient than conventional radiators:
  - 40% less energy consumption to bring a room from 10°C to 21°C
- Fast response/room heat up due to very low water content:
  - 2x faster than conventional radiators
- Integral electronic thermostatic control
- Optional plug-in 24-hour or 7-day programmers
- Stylish compact design, with a choice of metal or glass fronts

Model range

Finish	Nominal output kW	
	0.8	1.2
White metal	SRX080M	SRX120M
White glass	SRX080WG	SRX120WG
Black glass	SRX080BG	SRX120BG

Finish	Nominal output kW	
	1.4	1.8
White metal	SRX140M	SRX180M
White glass	SRX140WG	SRX180WG
Black glass	SRX140BG	SRX180BG

Installers

Accredited Installers

Heat pumps are one of the most efficient and economical heating systems available provided the individual components of the system – the heat source, the heat pump itself and the connected heating system, are properly matched.

In order to ensure the highest levels of quality and to provide peace of mind, Dimplex has an established network of Accredited Heat Pump Installer Partners, all accredited under the Microgeneration Certification Scheme and fully trained and experienced in the installation, commissioning and after sales support of Dimplex heat pump products.

Installer Training

Dimplex believe that the key to success in the heat pump market is through thorough and robust installer training to ensure installations are provided to a high standard and maximise the energy efficiency of our customers' investment.

In addition to an Accredited Installer network we also provide dedicated training courses for new installers, covering installation of our range of ground and air source heat pumps. As the public interest in the environment and renewable energy products in particular increases, training ensures our installers are better equipped to satisfy our customers' requirements.

Microgeneration Certification Scheme

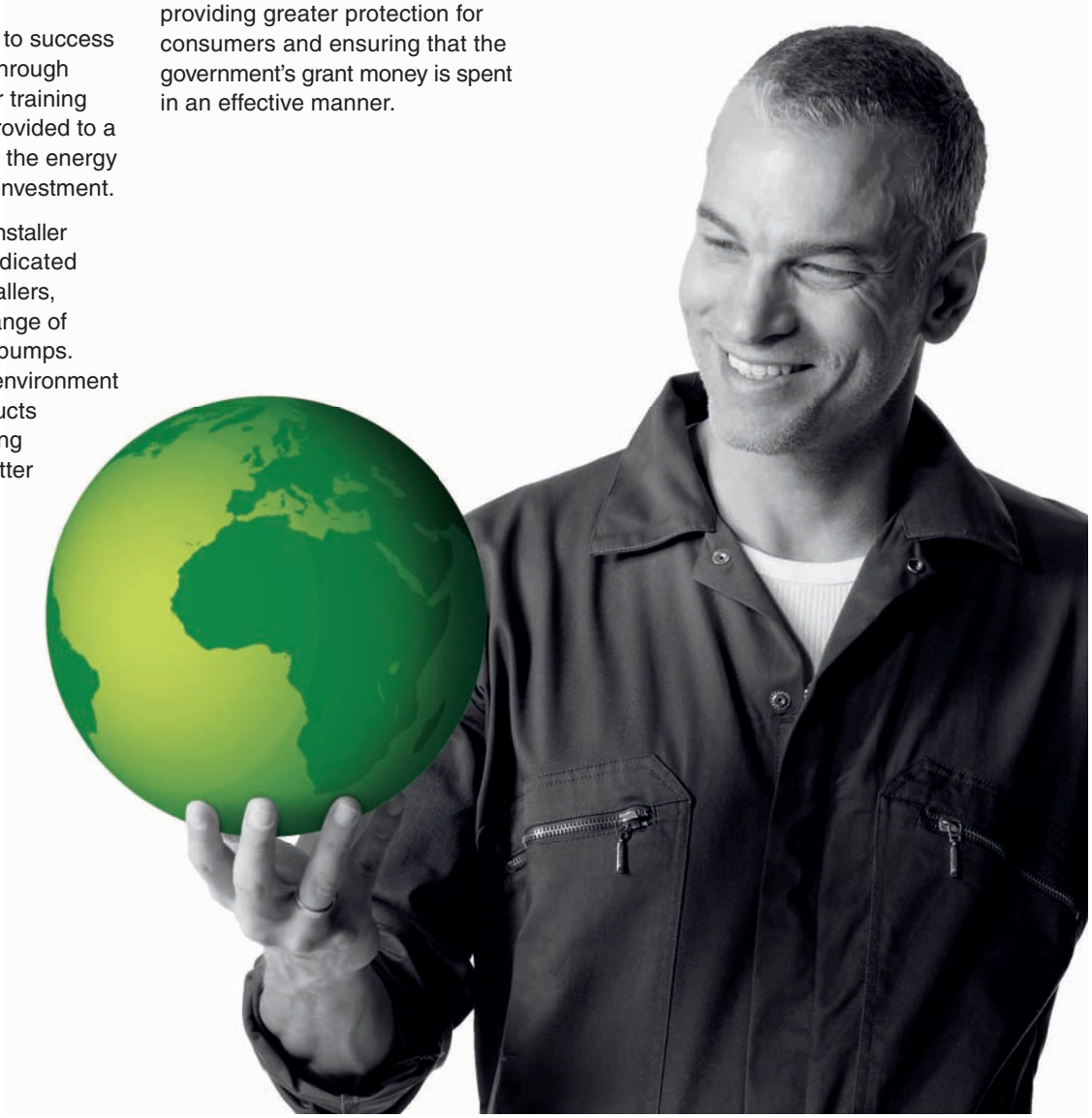
The Microgeneration Certification Scheme (MCS) is intended to provide a robust third party certification scheme for microgeneration products and installers and is designed to underpin the government's renewable energy incentive schemes. Grants and incentives will only be available to applicants using both products and installers certified under the Microgeneration Certification Scheme.

The scheme evaluates products and installers against robust criteria for each of the microgeneration technologies, providing greater protection for consumers and ensuring that the government's grant money is spent in an effective manner.

Dimplex recognises the importance of such schemes in helping to build a UK heat pump industry based on quality and good practice, which will make a substantial contribution to cutting the UK's dependency on fossil fuels and its carbon dioxide emissions.

Dimplex actively supports the scheme and we encourage all Dimplex heat pump installers to also become certified, giving our customers assurance as to the quality of our products and their installation and providing a means of accessing government grants.

For more information visit:
www.mircrogenerationcertification.org



Support information

As well as the most extensive range of heat pumps in the UK, Dimplex also has a wealth of support information available.

Case Studies

Dimplex heat pumps have been installed in a wide variety of installations across domestic and commercial applications from private and social housing developments, through to schools, hospitals, nursing homes and retail parks.

To view a selection of case studies, simply visit **www.dimplexrenewables.co.uk**

Planning Guide

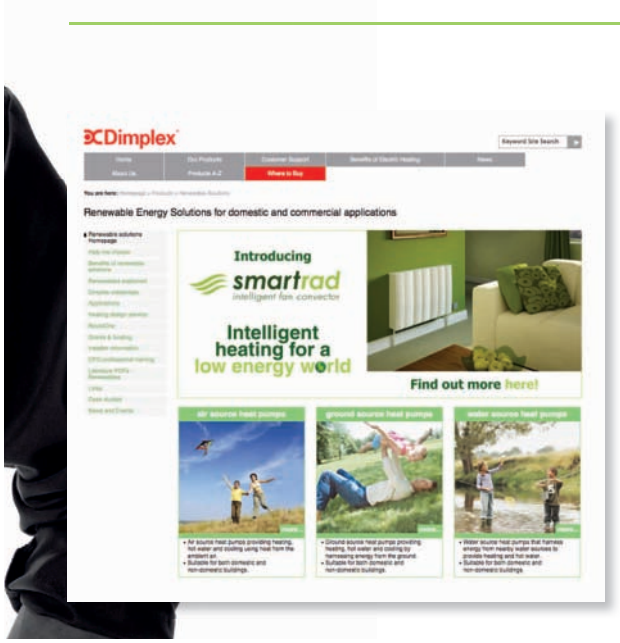
This comprehensive technical guide provides all the detailed information a specifier or installer needs including performance data, system design and other relevant support information documentation.

Available as a download on our website,or as a printed document – ordered via our website or by phoning **0845 601 5111**.

Newsletters

In addition to product based literature, we also produce a regular newsletter – EcoTalk which covers all the latest news and views of the industry.

Read an interactive copy at **www.dimplexrenewables.co.uk**



Electronic support

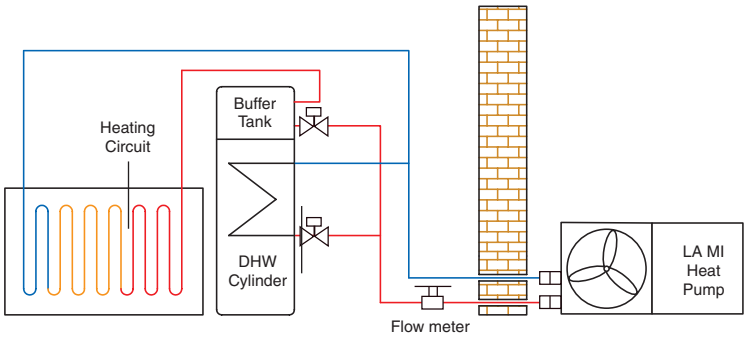
In addition to web based product information, we also have links to more detailed information on Dimplex heat pumps to assist those involved in the specification or installation.

- Individual Product Data Sheets
- On-line Cost Calculator. This powerful tool helps to select the correct heat pump for your application and compare the running costs with other types of heating systems.
- On-line Hydraulic Integration Diagrams. Aids system design and installation by creating customised hydraulic schematic diagrams of the heat pump system for your project.

Please visit **www.dimplexrenewables.co.uk** for full details.

Technical specifications

Typical system configuration and accessories



Domestic Air Source Heat Pumps: LA MI range

The diagram below shows a typical LA MI heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)

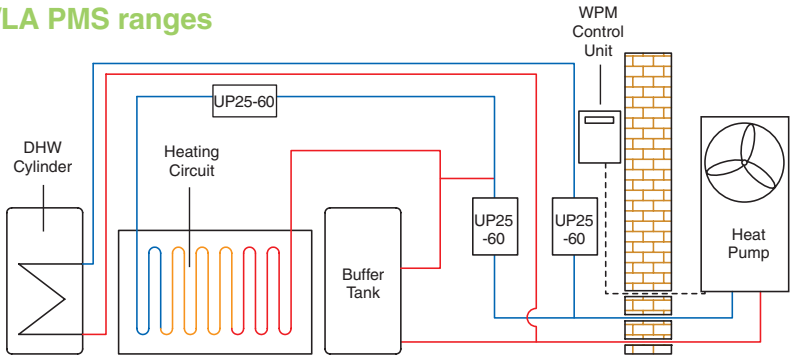
Heat pump		Qty
LA 6/9/12/16 MI	Inverter air source heat pump	1
Heating and hot water accessories		
MFK114	Isolation valves	1
TNDN25/32	Flow rate checker	1
HRST28	Two port valves and room stat	1
NTC2	DHW temp sensor	1
ECSxxxHP75-580	Heat pump cylinder with buffer	1
SmartRad		
SRX08	SmartRad fan convectors based dependant upon room size. Available in Metal, White glass and Black glass.	
SRX120		
SRX140		
SRX180		

	LA 6 MI	LA 9 MI	LA 12 MI	LA 16 MI
Operating Limits				
Heating water system/return °C	Max. 55/Min. 25	Max. 55/Min. 25	Max. 55/Min. 25	Max. 55/Min. 25
Air °C	-20 to +35	-20 to +35	-20 to +35	-20 to +35
Performance				
Heating capacity A7/W35 (kW)	6	9	12	16
CoP A7/W35	4.4	3.85	4.67	4.23
Heating capacity A2/W35 (kW)	6	9	12	16
CoP A2/W35	3.7	3.4	3.87	3.48
A-weighted sound power level dB(A)	58	61.5	62	64
Sound pressure level at 1m with Q=2 to MIS 3005	54	54	54	56
Heating water flow rate m^3/h	1	1.6	2.1	2.8
Air flow m^3/h	2800	3100	4800	5400
Dimensions HxWxD (mm)	865 x 1283 x 320	865 x 1283 x 320	1410 x 1284 x 400	1410 x 1284 x 400
Weight (kg)	122	122	165	165
Nominal voltage/fuse rating (V/A)	230/20	230/20	230/20	230/20
Starting current (inverter driven) (A)	Gradual increase from 0 – 6	Gradual increase from 0 – 10	Gradual increase from 0 – 12	Gradual increase from 0 – 13
Defrosting	Automatic, reverse cycle			

Domestic Air Source Heat Pumps: LA MS/LA PMS ranges

The diagram to the right shows a typical LA MS/LA PMS heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
LA 9/11/16 MS	Air source heat pump (heating)	1
LA 8/14 PMS	Air source heat pump (heating/cooling)	1
Heating and hot water accessories		
ECSxxxHP-580*	Heat pump cylinder	1
PSW100/PSW200	100L/200L Buffer tank	1
UP25-60/UP25-80	Heating/DHW circulation pumps	1
CTHK630/631	Buffer immersions	1
Controller accessories		
EVL 999/6/7/8-1	Controller connecting cable (heating)	1

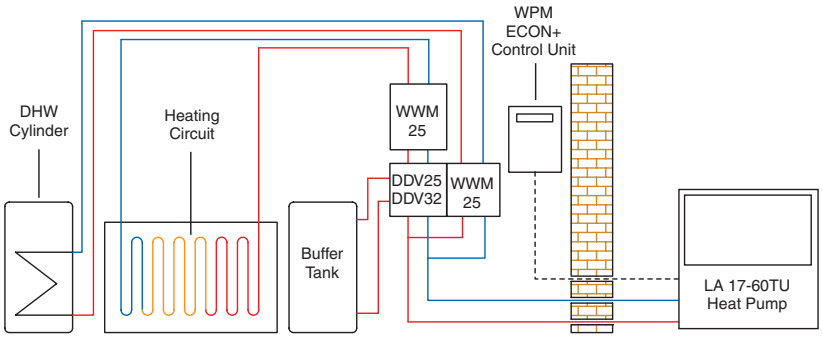
*Dependent on required heat pump flow rate + wall thermostat

	LA 9 MS	LA 11 MS	LA 16 MS	LA 8 PMS	LA 14 PMS	
Operating Limits						
Heating water system/return °C	Up to 55 +/-2	Up to 55 +/-2	Up to 55 +/-2	Up to 65 +/-2	Up to 65 +/-2	
Air °C	-20 to +35	-25 to +35	-25 to +35	-25 to +35	-20 to +35	
Performance					**1 x compressor**	**2 x compressors**
Heating capacity A7/W35 (kW)	9.5	10.9	15.1	8.0	7.4	13.3
CoP A7/W35	3.9	3.9	3.6	3.8	3.7	3.9
Heating capacity A2/W35 (kW)	7.9	9.0	12.5	6.0	5.8	10.2
CoP A2/W35	3.4	3.3	3.0	3.1	2.9	3.1
Heating water flow with internal pressure differential at A7/W35	1.7 m^3/hr @7600Pa	1.9 m^3/hr @10900Pa	2.6 m^3/hr @14600Pa	1.5 m^3/hr @7800Pa	2.4 m^3/hr @10100Pa	
Sound pressure level at 10m (db(A))	33	33	34	32	35	
Dimensions HxWxD (mm)	1340 x 852 x 1050	1360 x 1360 x 850	1570 x 1550 x 850	1361 x 1362 x 852	1571 x 1552 x 852	
Weight (kg)	189	219	264	232	256	
Refrigerant: type/ total charge weight (kg)	R404A/3.8	R404A/2.5	R404A/3.1	R290/1.0	R290/1.8	
Nominal voltage	230/1ph	230/1ph	230/1ph	230/1ph	230/1ph	
Starting current with soft start (A)	29	38	45	30	28	
Defrosting	Automatic, reverse cycle			Automatic, hot gas		

Commercial Air Source Heat Pumps: LA TU range

The diagram to the right shows a typical LA TU heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
LA 17/25/40/60 TU	Air source heat pump (heating)	1
Heating and hot water accessories		
ECS300HP-580/WWSP332UK/880UK/900UK	Domestic hot water cylinder	1
PSW100/200/500/1000	Buffer tank	1
UP25-60/UP25-80	Heating/DHW circulation pumps	1
UP32-70	Heating/DHW circulation pumps	1
CTHK632/3/4/5	Buffer immersions	1
DDV25/32*	Dual differential pressure less module	1
WWM25*	Heating Circuit/hot water module	1
WPG 25/32	Rear cylinder circulation pump mounting kit	1
Controller accessories		
WPM EconPlus	Heat pump controller (included with heatpump)	1
EVL 10/20/30/60U	Controller connecting cable (heating)	1

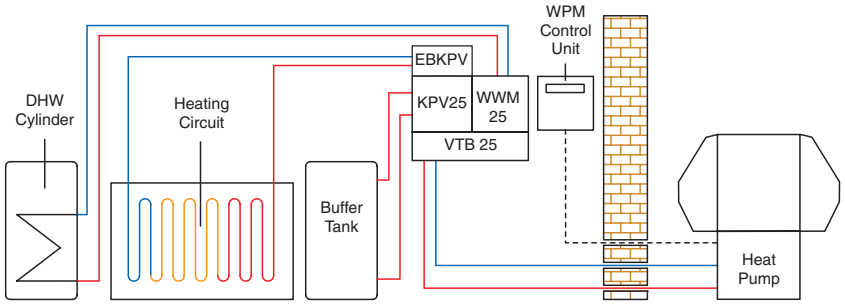
*Dependent on required heat pump flow rate

	LA 17 TU	LA 25 TU	LA 40 TU	LA 60 TU
Operating Limits				
Heating output A7/W35 (kW)				
1 compressor	10.0	13.9	20.0	31.9
2 compressors	19.6	26.1	35.7	60.1
CoP A7/W35				
1 compressor	4.5	4.5	4.6	4.3
2 compressors	4.4	4.4	4.4	4.1
Heat Output A2/W35 (kW)				
1 compressor	8.2	11.3	16.8	26.4
2 compressors	14.6	19.6	30.0	50.6
CoP A2/W35				
1 compressor	3.8	3.8	3.9	3.7
2 compressors	3.7	3.7	3.8	3.6
Mechanical/Electrical				
Connection voltage	400	400	400	400
Maximum flow temperature (°C)	58	58	58	65
Thermal energy metering	Integrated as standard			
Minimum water heating flow @ internal pressure differential	1.7m³/hr @1100Pa	2.2m³/hr @ 2100Pa	3.0m³/hr @ 950Pa	5.3m³/hr @ 2100Pa
Air flow (m³/hr)	5500	7500	11000	14000
Sound pressure level at 10m dB(A)	37	40	43	50
Refrigerant: type/Total charge weight (kg)	R404A/8.2	R404A/10.2	R404A/11.8	R417A/19.4
Height (mm)	1940	1940	2100	2300
Width (mm)	1600	1600	1735	1900
Depth (mm)	955	955	980	1000
Weight (including packaging) (kg)	436	510	585	915
Nominal voltage/fuse rating (V/A)	400/16	400/25	400/25	400/29.5
Starting current with soft start	17	22	30	78
Defrosting	Automatic, reverse cycle			

Commercial Air Source Heat Pumps: LA AS/LA PS ranges

The diagram to the right shows typical LA AS/ LA PS heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
LA 20/24/28/40 AS	Air source heat pump (heating)	1
LA 17/22/26 PS	Air source heat pump (heating/cooling)	1
Heating and hot water accessories		
ECS300HP-580/WWSP332UK/WWSP880UK	300L domestic hot water cylinder	1
PSW500/1000	500L Buffer tank	1
UP60/UP80	Heating/DHW circulation pumps	1
UP32-70	Heating/DHW circulation pumps	1
CTHK631/2/3/4/5/6	Buffer immersions	1
FLH60	Three phase 6.0kW flange heater	1
FLHU70	Three phase 2.0/2.7/4.0kW variable output flange heater	1
DDV32*	Dual differential pressure less module	1
KPV25*	Compact manifold	1
EBKPV*	Extension module for KPV	1
WWM25*	Heating circuit/hot water module	1
VTB25*	Manifold bar	1
Controller accessories		
WPM 2006 Plus	Heat pump controller (included with heatpump)	
EVL 995/6/7/8-1	Controller connecting cable (heating)	1

*Dependent on required heat pump flow rate

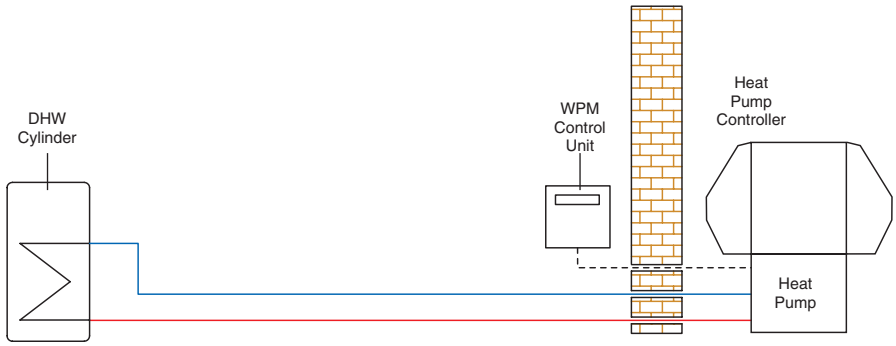
	LA 20 AS	LA 24 AS	LA 28 AS	LA 40 AS
Operating Limits				
Heating water supply/return °C	Max. 55/Min. 18	Max. 55/Min. 18	Max. 55/Min. 18	Max. 55/Min. 18
Air °C	-20 to +35	-20 to +35	-20 to +35	-20 to +35
Cooling flow °C	-	-	-	-
Air °C	-	-	-	-
Performance				
Heating capacity A7/W35 (kW) 1 compressor 2 compressors	 9.8 16.6	 13.1 24.8	 14.2 25.8	 20.2 36.3
Coefficient of Performance A7/W35 (kW)* 1 compressor 2 compressors	 3.2 3.1	 3.4 3.6	 3.1 3.4	 4.7 4.5
Cooling capacity A27/W18 (kW)*	-	-	-	-
Coefficient of Performance A27/W18*	-	-	-	-
Minimum heating flow @ internal pressure differential (m^3/h/Pa)	1.8/3700	2.3/5900	2.3/3100	4.0/4700
Sound pressures level at 10m dB (A)	37	41	41	43
Refrigerant: type/ total charge weight (kg)	R404A/3.7	R404A/4.2	R404A/4.2	R404A/11.8
Dimensions HxWxL (mm)	1570 x 1550 x 850	1710 x 1680 x 1000	1710 x 1680 x 1000	2100 x 1735 x 890
Weight (including packaging) (kg)	284	351	355	585
Nominal voltage/fuse rating (V/A)	400/20	400/25	400/25	400/25
Starting current with soft start (A)	23	24	25	30

*Performance standards measured to EN255

Commercial Air Source Heat Pumps: LA PS range, hot water only

The diagram to the right shows typical LA PS heat pump configuration for domestic hot water.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
LA 17/22/26/PS	Air source heat pump	1
Heating and hot water accessories		
ECS300HP-580/WWSP332UK/880UK/900UK	300L/400L/500L domestic hot water cylinder	1
Controller accessories		
WPM 2006 Plus	Heat pump controller (included with heatpump)	
EVL 995/6/7/8-1	Controller connecting cable (heating)	1

*Dependent on required heat pump flow rate

	LA 17 PS	LA 22 PS	LA 26 PS
Operating Limits			
Heating water supply/return °C	Max. 65/Min. 18	Max. 65/Min. 18	Max. 65/Min. 18
Air °C	-20 to +35	-20 to +35	-20 to +35
Performance			
Heating capacity A7/W35 (kW) 1 compressor 2 compressors	 9.6 16.6	 12.0 21.1	 13.3 22.9
Coefficient of Performance A7/W35 (kW)* 1 compressor 2 compressors	 3.4 3.4	 3.6 3.5	 3.5 3.5
Minimum heating flow @ internal pressure differential (m^3/h/Pa)	1.6 / 2900	2.0 / 4500	2.2 / 3100
Sound pressures level at 10m dB (A)	37	41	41
Refrigerant: type/total charge weight (kg)	R290 / 1.8	R290 / 2.2	R290 / 2.5
Dimensions HxWxL (mm)	1570 x 1550 x 850	1710 x 1680 x 1000	1710 x 1680 x 1000
Weight (including packaging) (kg)	330	360	371
Nominal voltage / fuse rating (V/A)	400 / 20	400 / 20	400 / 25
Starting current with soft start (A)	23	25	30

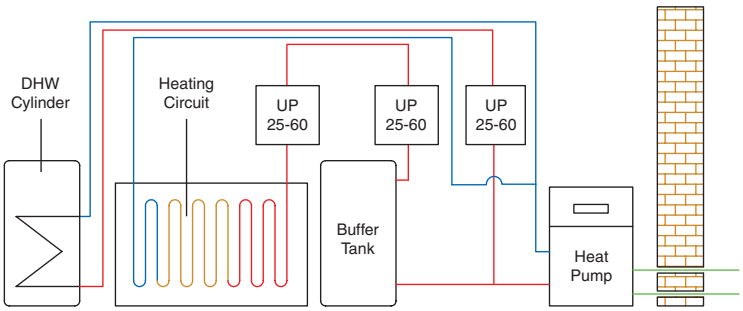
*Performance standards measured to EN14511

Domestic Ground Source Heat Pumps: SI ME range

Domestic High Temperature Ground Source Heat Pumps: SIH ME range

The diagram below shows a typical SI ME/SIH ME heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
SI 14 ME	Ground source heat pump (heating)	1
4/6/9/11 ME	Ground source heat pump (high temp)	1
Heating and hot water accessories		
ECSxxxHP-580*	Domestic hot water cylinder	1
PSW100/200	100L/200L Buffer tank	1
PSP100E	100L under Buffer cylinder	1
UP60/UP80	Heating/DHW circulation pumps	1
Ground/Controller accessories		
SZB 680/690	Ground loop circuit package	1
APSVT	Ground loop circuit manifold connection kit	1
SVT200/300/400	Ground circuit manifold (2/3/4 circuits)	1
WPM 2007	Heat pump controller (built into product)	

*Dependent on required heat pump flow rate

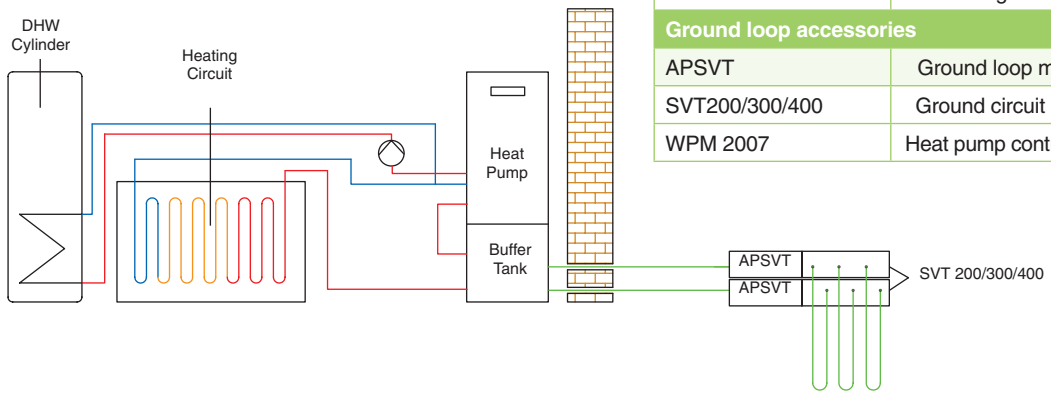
	SI 14 ME	SIH 4 ME	SIH 6 ME	SIH 9 ME	SIH 11 ME
Operating Limits					
Heating water supply/return °C	Max. 58/Min. 18	Max. 70/Min. 18	Max. 70/Min. 18	Max. 70/Min. 18	Max. 70/Min. 18
Brine °C	-5 to +25	-5 to +25	-5 to +25	-5 to +25	-5 to +25
Anti-freeze agent	Monoethylene glycol				
Minimum anti-freeze concentration	25%	25%	25%	25%	25%
Performance					
Heating capacity B0/W35 (kW)*	14.8	4.3	6	8.9	10.7
Coefficient of Performance B0/W35	3.9	3.8	4.1	4.0	4.5
Heating flow with internal pressure differential (m^3/h/Pa)	1.3 / 4800	0.75 / 1000	1.0 / 4100	1.55 / 6400	1.9 / 7000
Sound power level at 10m (db(A))	56	55	56	56	57
Refrigerant: type/ total charge weight (kg)	R407C/2.2	R134A/1.5	R134A/1.8	R134A/2.2	R134A/2.4
Dimensions HxWxD (mm)	805 x 650 x 462	805 x 650 x 462	805 x 650 x 462	805 x 650 x 462	805 x 650 x 462
Weight (including packaging) (kg)	130	118	118	130	133
Nominal voltage / fuse rating (V/A)	230 / 32	230 / 20	230 / 20	230 / 25	230 / 32
Starting current with soft start (A)	50	26	38	43	45

*Performance standards measured to EN14511

Domestic Ground Source Heat Pumps: SIK ME range

The diagram below shows a typical SIK ME heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)

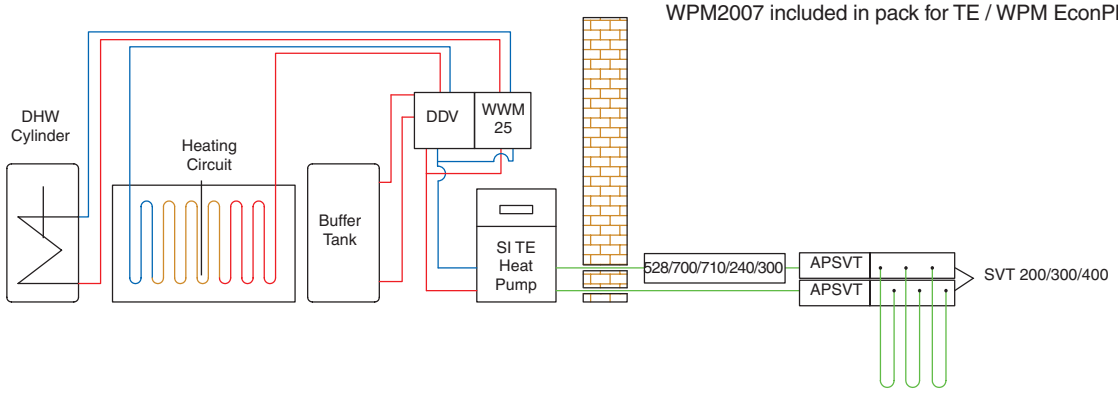


Heat pump		Qty
SIK 16 ME	Ground source heat pump	1
Heating and hot water accessories		
PSP100E	100L under-unit buffer tank	1
VSH KS	Buffer tank connection hose	1
WWSP 442 EUK	400L hot water storage tank	1
VSW KS	Hot water tank connection hose	1
UP60/UP80	Heating/DHW circulation pumps	1
Ground loop accessories		
APSVT	Ground loop manifold connection kit	1pr
SVT200/300/400	Ground circuit manifold 2/3/4 circuits	1pr
WPM 2007	Heat pump controller (built into product)	

Commercial Source Heat Pumps: SI TE range (24 – 37kW)/SI TU range Reversible Ground Source Heat Pumps: SI TER+ range

The diagram below shows a typical SI TE heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.

(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Heat pump		Qty
SI 24/30/37 TE	Ground source heat pump	1
SI 18/22 TU	Ground source heat pump	1
Heating and hot water accessories		
PSW200/500	200L/500L buffer tank	1
WWSP880UK/900UK	400L/500L domestic hot water cylinder	1
UP60/UP80	Heating/DHW circulation pumps	1
UP32-70	Heating/DHW circulation pumps	1
FLH60	Three phase 6.0kW flange heater	1
FLHU70	Three phase 2.0/2.7/4.0kW variable output flange heater	1
DDV32*	Dual differ. pressure less module	1
WWM25*	Heating circuit/hot water module	1
Ground/Controller accessories		
SZB700/710/250/400	Ground loop circuit package	1
APSVT†	Ground circuit manifold connection kit	1
SVT200/300/400†	Ground circuit manifold 2/3/4 circuits	1
WPM	Heat pump controller (built into product)	

*Dependent on required heat pump flow rate

†Not suitable for SI 24/30/37 TE

WPM2007 included in pack for TE / WPM EconPlus for TU

	SIK 16 ME
Operating Limits	
Heating water supply/return °C	Max. 55/Min. 18
Brine (heating) °C	-5 to +25
Anti-freeze agent	Monoethylene glycol
Maximum anti-freeze concentration	25%
Performance	
Heating capacity B0/W35	15.8
Coefficient of Performance B0/W35	4.2
Heating flow @ internal pressure differential (m3/h/Pa)	1.3 / 3500
Sound power level dB(A)	51
Refrigerant: type/total charge weight (kg)	R407C/2.3
Dimensions H x W x L (mm)	1115 x 652 x 688
Weight (including packaging) (kg)	203
Nominal voltage / fuse rating (V/A)	230/32
Starting current with soft starter (A)	50

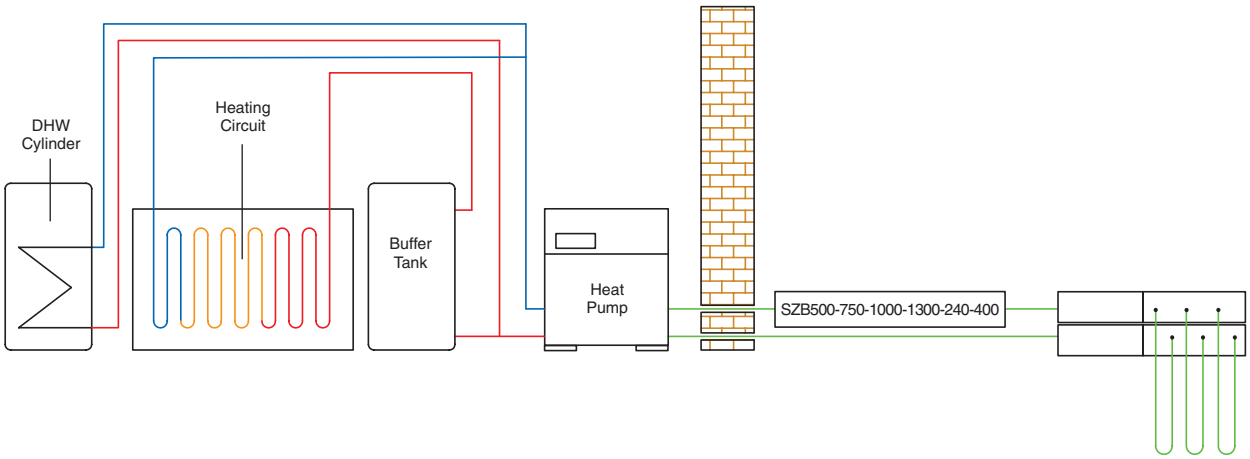
	SI 18 TU	SI 22 TU	SI 24 TE	SI 30 TE	SI 30 TER+	SI 37 TE
Operating Limits						
Heating water supply/return °C	Max. 62/Min.20	Max. 58/Min. 18	Max. 60/Min. 18			
Brine (heating) °C	-5 to +25					
Anti-freeze agent	Monoethylene glycol					
Minimum anti-freeze concentration	25%					
Operating Limits						
Cooling water supply	-				5°C to 30°C	-
Brine (cooling) °C	-				-5°C to +25°C	-
Performance (Heating)						
Heating capacity B/0/W35 (kW)*						
1 compressor	17.5	22.9	12.7	14.4	15.2	18.3
2 compressors	-	-	23.7	31.2	28.6	35.4
Coefficient of Performance B0/W35 (kW)*						
1 compressor	4.7	4.4	4.3	4.2	4.2	4.5
2 compressors	-	-	4.1	4.6	3.8	4.3
Performance (Cooling)						
Cooling capacity B0/W18 (kW)*						
1 compressor	-	-	-	-	25.4	-
2 compressors	-	-	-	-	46.7	-
Coefficient of Performance B10/W18 (kW)*						
1 compressor	-	-	-	-	9.5	-
2 compressors	-	-	-	-	7.4	-
Minimum heating flow @ internal pressure differential (m^3/h/Pa)	1.5 / 4500	1.9 / 5000	2.2 / 3100	2.6 / 1100	4.7 / 2200	3.2 / 1650
Sound power level at 10m dB (A)	50	53	59	62	62	63
Refrigerant: type/total charge weight (kg)	R410A/5.2	R407C/3.7	R404A/3.7	R404A/7.7	R404A/8.1	R404A/6.8
Dimensions HxWxL (mm)	845 x 650 x 665	845 x 650 x 665	1660 x 1000 x 775	1440 x 775 x 1000	1660 x 1000 x 775	1660 x 1000 x 775
Weight (including packaging) (kg)	163	184	282	365	385	371
Nominal voltage/fuse rating (V/A)	400/16	400/20				
Starting current with soft starter (A)	28	25	20	25	26	26

*Performance standards measured to EN14511

Commercial Ground Source Heat Pumps
High Output Ground Source Heat Pumps: SI TE range (50 – 130kW)
High Temperature Ground Source Heat Pumps: SIH TE range
Reversible Ground Source Heat Pumps: SI TER+/SI TUR+ ranges

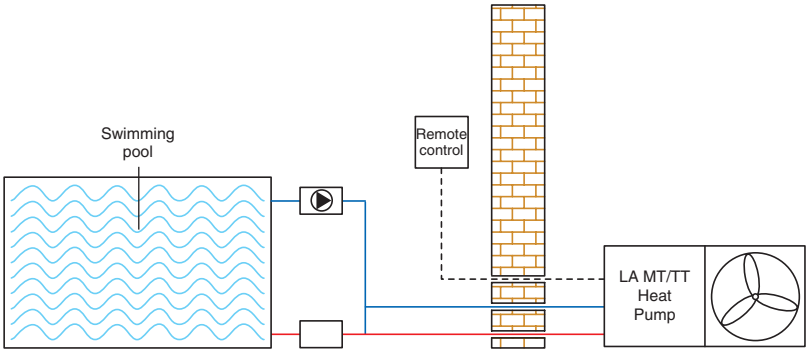
Heat pump		Qty
SI50/75/100/130TE SIH 20/40 TE SI 30/75 TER+ SI 130 TUR+ Ground Source Heat Pump		1
Heating and hot water accessories		
PSW500/1000	Buffer tank	1
WWSP900UK	500L domestic hot water cylinder	1
FLH60	Three phase 6.0kW flange heater	1
FLHU70	Three phase 2.0/2.7/4.0kW variable output flange heater	1
Ground loop controller accessories		
SZB500/750/1000/1300 & SZB250/400		
WPM 2007 Heat pump controller included with heat pump		

The diagram below shows a typical SI TE / SI TEH heat pump configuration for heating and domestic hot water including typical accessories required for a single heating circuit.
(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



Swimming Pool Heat Pumps: LAS MT/LAS TT ranges

The diagram shows a typical LAS MT / LAS TT heat pump configuration for swimming pool heating.
(Note this is for illustrative purposes only and is not intended as a full hydraulic schematic)



	SI 50 TE	SI 75 TE	SI 75 TER+	SI 100 TE	SI 130 TE	SIH 20 TE	SIH 40 TE
Operating Limits							
Heating water supply/return °C	Max. 60/Min. 18					Max. 70/Min. 18	
Brine (heating) °C	-5 to +25						
Anti-freeze agent	Monoethylene glycol						
Minimum anti-freeze concentration	25%						
Performance							
Heating capacity B0/W35 (kW) 1 compressor 2 compressors	 23.0* 46.7*	 37.6* 75.2*	 35.1* 65.3*	 48.4* 96.3*	 63.3* 125.8*	 11.5† 21.4†	 17.4† 34.2†
Coefficient of Performance B0/W35 (kW) 1 compressor 2 compressors	 4.4* 4.5*	 4.3* 4.4*	 3.8* 3.5*	 4.6* 4.6*	 4.2* 4.3*	 4.6† 4.4†	 4.1† 4.1†
Cooling capacity B10/W18 (kW) 1 compressor 2 compressors	 - -	 - -	 53.2 98.2	 - -	 - -	 - -	 - -
Coefficient of Performance B10/W18 1 compressor 2 compressors	 - -	 - -	 8.2 6.3	 - -	 - -	 - -	 - -
Minimum heating flow @ internal pressure differential (m^3/h/Pa)	4.5/2000	6.5/2500	11/6000	8.5/3600	11.5/2200	1.9/2310	3.2/1100
Sound power level dB (A)	50	54	54	55	56	47	50
Refrigerant: type/total charge weight (kg)	R404A/8.6	R404A/14.1	R404A/16.1	R404A/20.5	R404A/27.0	R134A/4.2	R134A/8.0
Dimensions HxWxL (mm)	1890 x 1350 x 775	1890 x 1350 x 775	1890 x 1350 x 775	1890 x 1350 x 775	1890 x 1350 x 775	1660 x 1000 x 775	1890 x 1350 x 775
Weight (including packaging) (kg)	486	571	607	652	860	307	502
Nominal voltage / fuse rating (V/A)	400/50	400/63	400/63	400/80	400/80	400/25	400/63
Starting current with soft starter (A)	56	105	105	120	115	30	84

*Performance standards measured to EN255

†Performance standards measured to EN255

	LAS 10 MT	LAS 15 MT	LAS 22 TT
Operating Limits			
Heating water supply/return °C	+10 to +40	+10 to +40	+10 to +40
Air °C	-10 to +35	-10 to +35	-10 to +35
Performance			
Heating capacity A20/W24 (kW)	12.1	16.6	22.3
Coefficient of Performance A20/W24	2.9	3.5	4.4
Sound pressure level at a distance of 10m dB (A)	45	45	46
Refrigerant: type/total charge weight (kg)	R407C/1.5	R407C/1.6	R407C/2.5
Dimensions HxWxL (mm)	860 x 127 x 67	860 x 127 x 67	860 x 127 x 67
Weight (including packaging) (kg)	147	155	162
Nominal voltage/fuse rating (V/A)	230/20	230/25	400/16
Starting current with soft starter (A)	33	43	25

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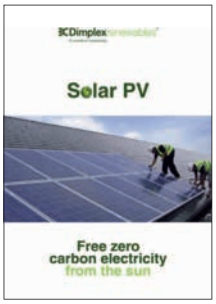

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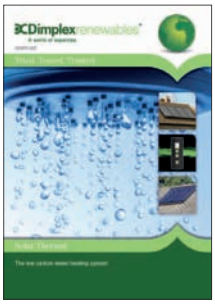
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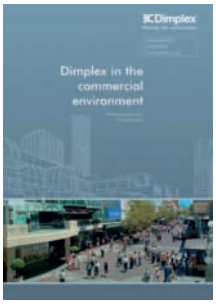

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