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Dimplex eBrochure PDF

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RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME range

CoP: 4.0 - 4.5

Heat output and coefficient of performance data measured at operating condition B0/W35.

Features

- Ground source heat pump with flow temperatures up to 70ºC, enabling 100% of a homes heating and hot water to be provided without the need for supplementary heating
- Model range:
  SIH 4 ME – 4kW, single phase
  SIH 6 ME - 6Kw, single phase
  SIH 9 ME – 9kW, single phase
  SIH 11 ME – 11kW, single phase
- Compact dimensions for versatile installation
- Variable heating water flow temperatures from 35ºC to 70ºC, weather compensated
- Variable options for ground collector and heating system connections
- Integrated WPM 2007 heat pump manager with removable control panel
- Suitable for use with underfloor heating, radiator systems and to provide domestic hot water
- Scroll compressor providing efficient, low noise running
- Single phase electrical connection with electronic soft start to reduce starting current loads
- Provides domestic hot water to 60ºC with no need for supplementary heating


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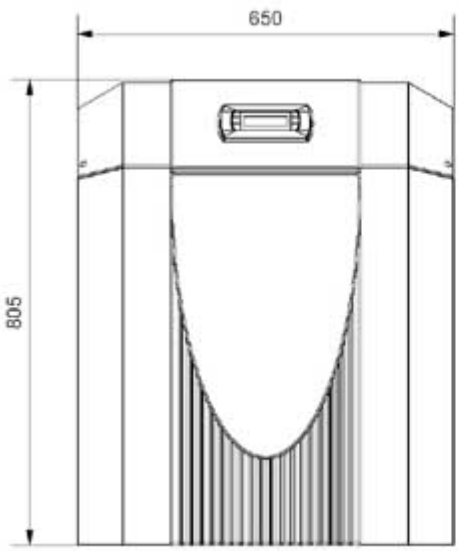
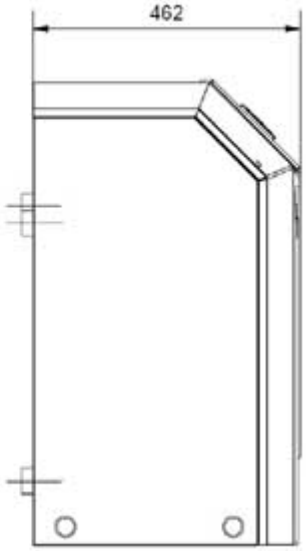
RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME

Technical Specification





High-temperature brine-to-water heat pump				
Model	**SIH 4 ME**	**SIH 6 ME**	**SIH 9 ME**	**SIH 11 ME**
Dimensions (W x D x H) mm	650 x 462 x 805			
Casing Colour	White			
Maximum flow temperature for heating	70°C+/- 2			
Temperature operating limits for brine	-5°C to 25°C			
Heat Output / CoP at B0/W45 (kW/-)	4.1 / 3.0	5.8 / 3.4	8.6 / 3.4	10.0 / 3.5
Heat Output / CoP at B0/W35 (kW/-)	4.3 / 4.1	6.0 / 4.1	8.9 / 4.0	10.7 / 4.5
Electrical nominal power consumption at B0/W35 (kW)	1.15	1.47	2.22	2.36
Sound power level (dB/A)	55	56	56	57
Refrigerant R134a (kg)	1.5	1.8	2.2	2.4
Brine throughput with an int. pressure differential of (m^2/h / Pa)	1.0 / 7000	1.30 / 8900	2.00 / 7500	2.45 / 8000
Heating water flow with an int. pressure differential of (m^2/h / Pa)	0.75 / 1000	1.0 /4100	1.55 / 6400	1.9 / 7000
Weight (Including packing) (kg)	118	118	130	133
Connection Voltage	1/N/ PE~230V,50Hz	1/N/PE ~230V, 50Hz	1/N/PE ~230V, 50Hz	1/N/PE ~230V, 50Hz
Starting current with soft starter (A)	26	38	43	45

Fuse protection (A)	16	20	25	32
Connection heating	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Heat source connection	1 1/4"	1 1/4"	1 1/4"	1 1/4"

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SIH ME

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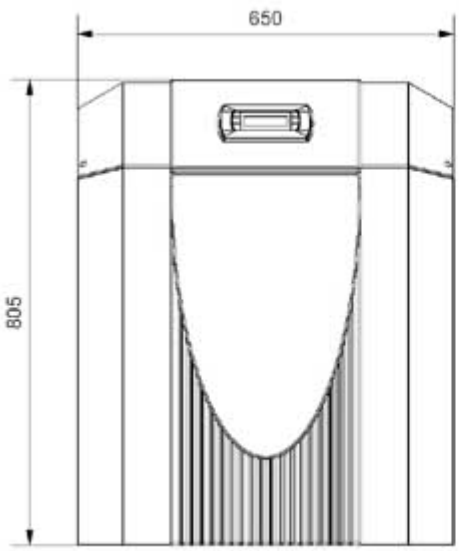

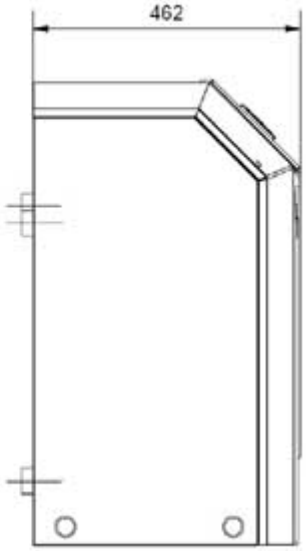

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RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME

Controller

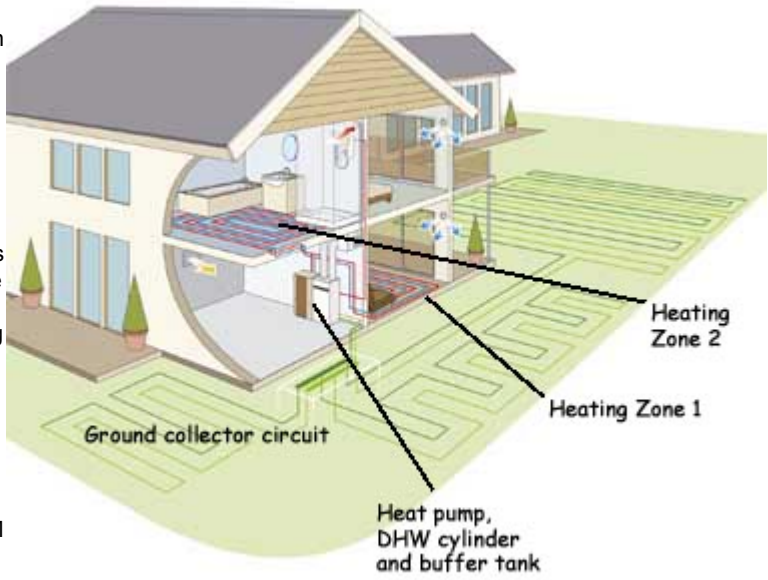
SIH ME ground source heat pumps utilise the WPM 2007 Plus integrated heat pump manager, which monitors regulates and controls the entire heating system.
The heat pump, ground collector circulating pump, heating and hot water circulation pumps for up to 3 individually programmable circuits, mixer motors and any supplementary heating sources are all automatically activated by the heat pump manager, allowing the heat pump to provide maximum flexibility, control and efficiency.

Key features

- Removable control panel for convenient remote positioning
- 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
- Individual time / temperature controlled operation over 3 separate heating circuits, including production of domestic hot water
- User definable domestic hot water pasteurisation cycle period
- Weather compensated water flow temperature control
- Automatic actuation of supplementary heat sources (electric immersion heater or oil / gas boiler)
- Automatic actuation of mixer valves for supplementary heat generators (gas/oil boiler or solar energy storage system)
- Diagnostics system for monitoring important heat pump functions

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 operation in accordance to need and ensures that no excessive temperatures can enter the heating system.
This provides Dimplex heat pumps with an excellent opportunity to be installed in existing homes and buildings alongside legacy heating systems.



Integration with other renewables

For optimal integration of renewable heat sources, the WPM heat pump manager offers an operating mode developed especially for this purpose.
Heat from solar thermal systems or biomass boilers can be fed into a “renewable energy” 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.

RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME

Applications

Installation types

Dimplex SIH ME ground source heat pumps are suitable for the following types of application:

Domestic - The SIH ME range uses a single phase electricity supply, making them suitable for installation in UK homes

Non domestic – for light commercial applications with low heat load demands (i.e. up to 11W). Multiple heat pumps can be installed in parallel if required for buildings with a higher heating demand.

Heating system types

Dimplex SIH ME ground source heat pumps are suitable for use with the following types of heating distribution system:

Underfloor heating – the ideal choice for use with a heat pump. The larger heating surface area available allows lower water temperatures to be used (i.e. 35ºC - 45ºC), helping to improve the efficiency of the heat pump system.

Fan convector heaters (heating mode) – fan assisted wall mounted heat emitters such as the Dimplex SmartRad offer an excellent alternative to underfloor heating, allowing the heat pump to operate at low water temperatures (i.e. 40 – 45ºC), so the heat pump is able to achieve the same high level of efficiency without the installation complexities required for underfloor heating, especially in retro fit situations.

Radiators – The SIH ME range has a maximum water output temperature of 70ºC, making it possible for use with radiators providing the radiators are correctly sized.

Boiler systems usually run at much higher water output temperatures (75ºC +), therefore for lower water temperatures produced by a heat pump, the size of each radiator has to be approximately doubled to enable the same level of heat output.

Running the heat pumps for heating radiators at high temperatures will however have a negative effect on its coefficient of performance. It would be therefore advisable to run the heating system at lower temperatures, using high temperature operation for water heating only.

Hot water

Stored hot water - when used with a correctly sized Dimplex hot water cylinder, the SI MEH range can produce stored water temperatures of approximately 60ºC without the requirement for supplementary electric heating.

Cooling

It is possible to use SIH ME ground source heat pumps in the following ways for cooling:

Passive cooling – excess heat can be transferred from the building to the ground via the ground loop circuit with the addition of a retro-fittable passive cooling unit. An additional cooling controller communicates with the heat pump manager to enable a combination of heating and cooling in a single system.

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

Passive cooling is only possible with vertical borehole installations.

RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME

Energy Efficiency

Measuring heat pump efficiency

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 4kWh of heating energy are produced, giving the heat pump an efficiency of 300 – 400% or higher. This helps result in:

- Lower heating system carbon dioxide emissions
- Lower hearting system running costs

Take a look at our “Benefits of renewable heating” section for more information.

Coefficient of Performance (CoP)

The heat pump’s “efficiency” is known as its **“Coefficient of Performance”** or 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” energy the heat pump is using.
Heat pump CoP is affected by a number of factors, most importantly:

- Temperature of the heat source (eg the ground)
- Heating water temperature

As these factors vary throughout the heating season, the CoP will also continually vary. CoP will be at its highest when:

- The heat source temperature is high – a high amount of “free” energy is available from the environment
- The heating water temperature is low – the heat pump has to do less work to raise the temperature of the heating system

Dimplex SIH ME efficiency

For the purposes of comparison, it is normal to state ground source heat pump CoP at a ground collector water (Brine) temperature of 0ºC and water heating temperature of 35ºC (B0/W35), tested to the appropriate EN standard:

SIH 4 ME - CoP: 4.3
SIH 6 ME - CoP: 4.1
SIH 9 ME - CoP: 4.0
SIH 11 ME - CoP: 4.5

Performance characteristics and CoP’s of the SIH ME range at a range of varying operating conditions are listed in the technical specifications section.

RENEWABLE SOLUTIONS - GROUND SOURCE - HEATING AND HOT WATER

SIH ME

Funding and Accreditation

The Dimplex SIH ME range of ground source heat pump are accredited under the MCS / Microgeneration Certification Scheme - certificate HP0017.

This accreditation means that SIH ME heat pumps are eligible for funding under the following scheme:

- Renewable Heat Incentive (RHI)

MCS accreditation not only allows access to grant funding but also guarantees performance and manufacturing quality.

- SIH 4 ME certificate - MCS HP0017/22
- SIH 6 ME certificate - MCS HP0017/01
- SIH 9 ME certificate - MCS HP0017/15
- SIH11 MEcertificate - MCS HP0017/03

Bathrooms

Any electrical appliances installed in a bathroom should be fitted by a competent electrician in accordance with the current I.E.E. Regulations. Portable heaters are NOT suitable for use in a bathroom. Unless otherwise specified, heaters that can be permanently fixed have to be mounted so that any controls cannot be reached by a person using a bath or shower. This restriction does not apply to Dimplex heated towel rails, which do not have controls.

Safety

Dimplex products are designed to comply with EN60335 the British Standard covering the safety requirements of electric heating appliances, and momentary contact with any part of the heater should not cause injury. However, in order to be effective, heaters or towel rails of any type do get hot especially (if applicable) around the air outlet grille. Therefore if aged or infirm persons, or young children, are likely to be left unsupervised in the vicinity of a heater we advise that precautions should be taken. We recommend that a guard is fitted around the heater, as is normal with many types of heating appliances in similar circumstances, to ensure contact with the heater is avoided and objects cannot be inserted into the product. Heating appliances should never be covered or positioned where objects may fall onto them.

Specifications

Dimplex policy is one of continuous improvement. The company therefore reserves the right to alter specifications without notice. Although every care is taken in the reproduction of product finish in this brochure, the colour photographs should be taken as a guide only. This information is correct at the time of printing. You are advised to consult your dealer before purchasing.

Plugs

All portable appliances are supplied with a fitted plug.

British Electrotechnical Approvals Board - BEAB Approved

The mark of the British Electrotechnical Approvals Board signifies that the appliance bearing it has been produced to the stringent safety requirements for domestic electrical appliances as laid down in EN60355.

CE Mark

Products carrying the CE mark comply with European safety standards and the European Standard for electromagnetic compatibility.

Installation Guidance

This information is designed to assist you with your choice of Dimplex products and it is not intended as an installation guide. For safety, products should only be installed by a competent person, in accordance with current regulations and the manufacturers instruction. If you require advice concerning the installation of our products – especially where the installed dimensions may be critical and the location of the product – please consult your supplier.

Dimplex, Millbrook House, Grange Drive, Hedge End, Southampton, Hampshire, SO30 2DF

For Northern Ireland, please contact – Glen Dimplex N I Ltd, 5 Charlestown Avenue, Charlestown Ind Est, Charlesdown Road, Portadown, Craigavon, County Armagh, BT63 5ZF.

Please note that the dimensions contained within this publication do not in all cases include clearances required around installed product for safe operation.
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