

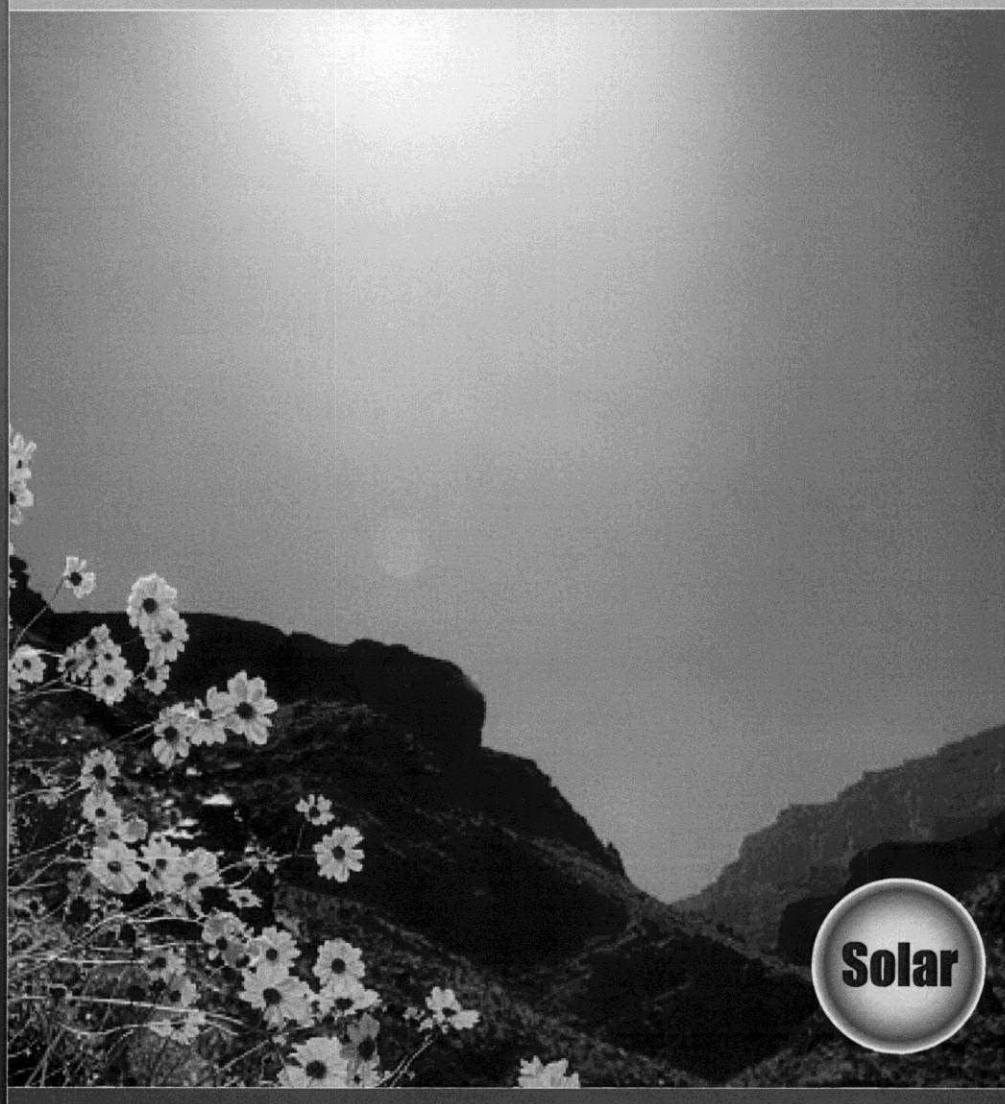
Appendix A Solar Heating Proposals

HEATRAE SADIA

The quality name in water heating

Solar water heating

Megatech Solar / Megalife Solar



Solar water heating

Climate change is now an undeniable fact which has increased the focus on alternative energy sources. Solar energy direct from the sun is such a source of energy which, when harnessed, can be converted into heat to generate hot water for the home whilst at that same time helping to reduce carbon emissions and reduce global warming.

Heatrae Sadia now offers a range of domestic hot water cylinders based on Megaflo HE (unvented) and Megalife HE (vented) which have been specifically designed for Solar applications.

Designed for use with a wide range of solar systems now available in the UK, Megatech Solar and Megalife Solar are an environmentally friendly and efficient way of providing domestic hot water. Unlike some other 'twin coil' cylinders (which simply use heating coils designed for traditional boiler heated cylinders), Megatech Solar and Megalife Solar cylinders have a purpose designed solar heating coil at the base of the cylinder, which ensures maximum heat input and efficiency from the solar energy. Available in 190, 210, 250 and 300 litre capacities, both ranges are available in Direct (Electric auxiliary heat input) and Indirect (Gas, Oil or Electric boiler auxiliary heat input) versions.

Megatech Solar unvented features Megaflo technology and provides powerful mains pressure showering and fast filling baths with low running costs – as much as 60% less than traditional systems.*

Megalife Solar vented is ideal for upgrading traditional vented hot water systems to solar.



How much of your water heating energy needs can be provided by solar?

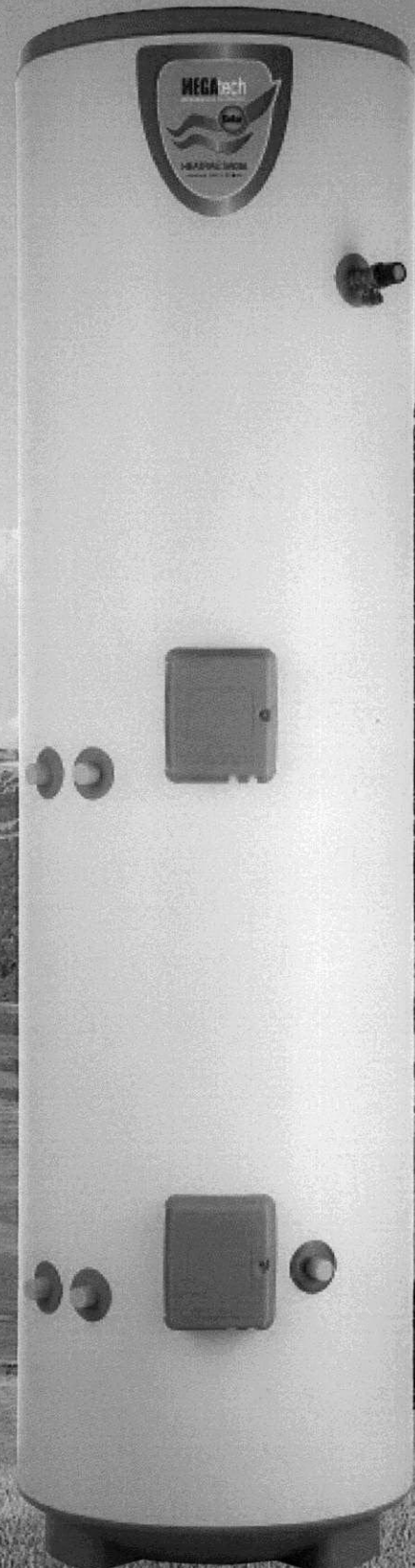
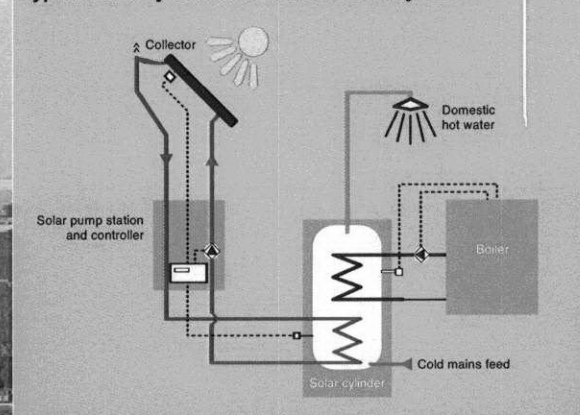
During the summer months as much as 100% of the energy used by Megatech Solar or Megalife Solar could be solar*. In winter, despite the lower intensity of the sun's rays and fewer daylight hours as much as 30% could be solar.* On average throughout the year up to 60% of a dwelling's hot water requirement can be provided by solar power.* The balance is provided by traditional means; either indirect (via a gas, oil or electric boiler heating a second coil within the cylinder) or direct (via electric immersion heaters in the cylinder).

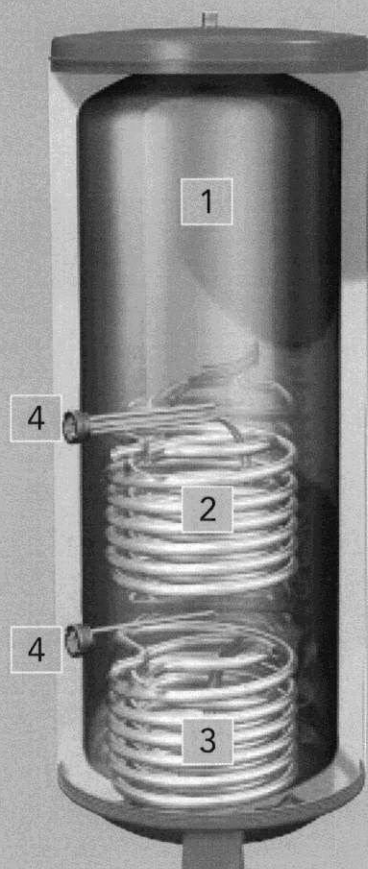
How do Megatech Solar and Megalife Solar work?

The Solar cylinder is used in conjunction with solar panels (not supplied) which convert energy collected from the sun's rays to heat a water / glycol liquid in its pipe work. This liquid is circulated through a specially designed solar coil in the base of the cylinder where the liquid transfers its heat to the water stored before being pumped back to the solar panel to be re-heated. The design of this coil allows maximum solar gain to be achieved ensuring that the solar system is being used to its full potential.

*Savings vary depending on type of solar system used, location and usage patterns.

Typical Solar System with Indirect Solar Cylinder





Megatech Solar features

Mains pressure (unvented) hot water for balanced supply to showers and mixers

- 1 Duplex stainless steel cylinder for long life
190, 210, 250 and 300 litre capacities
- 2 Choice of direct or indirect auxiliary heat input
- 3 Specially designed solar coil for maximum solar efficiency
- 4 Safety and hot water controls

Remote expansion vessel

High flow rates for improved hot water delivery

Compatible with a wide range of UK solar systems

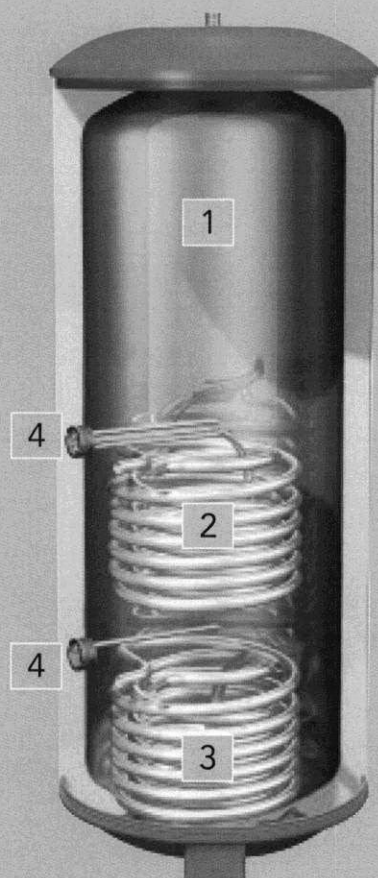
Lower running costs and reduced energy bills

Environmentally friendly - reduced carbon emissions

Equally suited for new build or refurbishment projects

Fully indemnified design service

25-year on-site parts and labour cylinder guarantee



Megalife Solar features

Cistern-fed (vented) water heater

- 1 Duplex stainless steel cylinder for long life
190, 210, 250 and 300 litre capacities
- 2 Choice of direct or indirect auxiliary heat input
- 3 Specially designed solar coil for maximum solar efficiency
- 4 Safety and hot water controls

Compatible with a wide range of UK solar systems

Lower running costs and reduced energy bills

Environmentally friendly - reduced carbon emissions

Equally suited for new build or refurbishment projects

Fully indemnified design service

25-year on-site parts and labour cylinder guarantee

Which unit to use

The choice of capacity for traditional cylinders is based on the hot water requirements of the dwelling. With solar cylinders the usable hot water will vary due to a number of factors such as siting of solar panels, time of year and weather conditions. For this reason, when choosing a solar cylinder you should ensure that sufficient usable hot water will be available during winter months where solar gain is at its lowest. For example a non-solar dwelling of 3 inhabitants with a bath and a shower would normally require a 145 litre indirect cylinder. However in line with the ClearSkies* requirements at least 30% of the cylinder capacity must be dedicated to solar only, therefore the same dwelling with a solar system would require a 210 litre indirect solar cylinder which would provide 143 litres of hot water during periods where there is little or no solar gain. For guidance please refer to the table opposite. Some applications may require larger water quantities or higher recovery rates, therefore it is important to calculate the hot water requirement before selecting the cylinder capacity.

Which unit to use

Application	Capacity (Indirect) litres	Capacity (Direct) litres
Bedsit	190	190
1 bed 1 bath + shower	190	190
2 bed 1 bath + shower	190	210
3 bed 1 bath + shower	210	250
4 bed 1 bath + shower	210/250	250/300
4/5 bed 2 bath + shower	250/300	300
4/5 bed 3 bath + shower	300	N/A [†]

[†] For high demand direct auxiliary applications and commercial uses, cylinders can be linked to provide larger capacity output. Contact Specification Advice on 01603 420220 to discuss your application.

Figures are for guidance only and are based on BS 6700 recommendations.

BS6700 gives recommendations for water supply for domestic use.

Some applications may require larger water quantities or higher recovery rates and so should be individually calculated to ensure the correct size unit is selected.

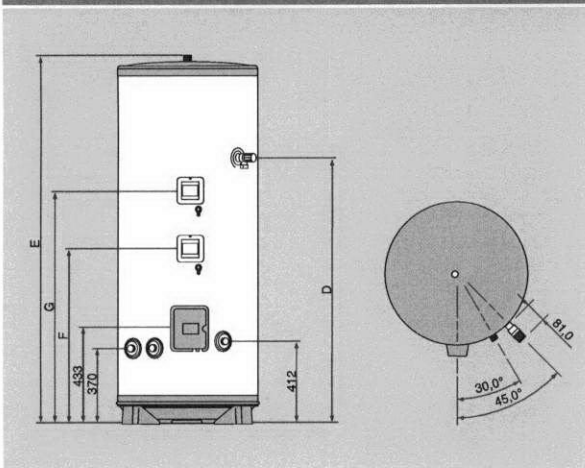
The Heatrae Sadia Specifier Advice team should be contacted to discuss requirements and designs for specific sites. Actual usage requirements should be assessed in selecting the correct cylinder.

Ordering guide

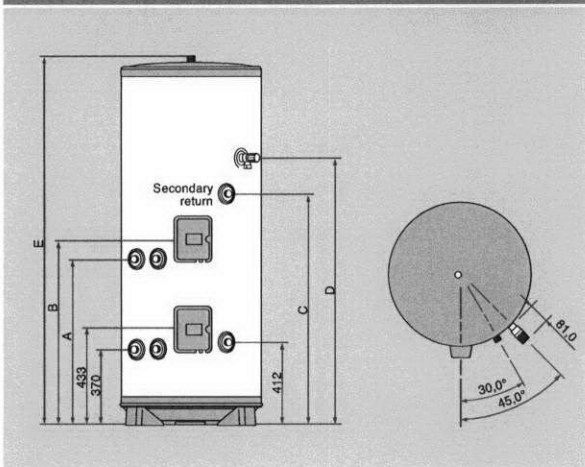
Model	Nominal Capacity (Litres)	Auxiliary Element @240V (kW)	Auxiliary Coil Rating (kW)	Auxiliary Coil Surface Area (m ²)	Solar Coil Surface Area (m ²)	Weight Empty (kg)	Weight Full (kg)	Product code
Megatech Solar								
CL190 SOLAR	190	1 x 3kW	18.0	0.61	1.1	45.5	235.5	95:050:411
CL210 SOLAR	210	1 x 3kW	18.0	0.68	1.1	47.5	257.5	95:050:413
CL250 SOLAR	250	1 x 3kW	18.7	0.73	1.1	56.5	306.5	95:050:415
CL300 SOLAR	300	1 x 3kW	24.5	0.79	1.1	66.5	366.5	95:050:417
DD190 SOLAR	190	2 x 3kW	N/A	N/A	1.1	40.5	230.5	95:050:410
DD210 SOLAR	210	2 x 3kW	N/A	N/A	1.1	42.5	252.5	95:050:412
DD250 SOLAR	250	2 x 3kW	N/A	N/A	1.1	51.5	301.5	95:050:414
DD300 SOLAR	300	2 x 3kW	N/A	N/A	1.1	61.5	361.5	95:050:416
Megalife Solar								
CLV190 SOLAR	190	1 x 3kW	18.0	0.61	1.1	45.5	235.5	95:030:724
CLV210 SOLAR	210	1 x 3kW	18.0	0.68	1.1	47.5	257.5	95:030:725
CLV250 SOLAR	250	1 x 3kW	18.7	0.73	1.1	56.5	306.5	95:030:726
CLV300 SOLAR	300	1 x 3kW	24.5	0.79	1.1	66.5	366.5	95:030:727
DDV190 SOLAR	190	2 x 3kW	N/A	N/A	1.1	40.5	230.5	95:030:720
DDV210 SOLAR	210	2 x 3kW	N/A	N/A	1.1	42.5	252.5	95:030:721
DDV250 SOLAR	250	2 x 3kW	N/A	N/A	1.1	51.5	301.5	95:030:722
DDV300 SOLAR	300	2 x 3kW	N/A	N/A	1.1	61.5	361.5	95:030:723

*ClearSkies is a government funded initiative run by the Building Research establishment. Further details can be found at www.clear-skies.org or Tel: 08702 430930.

Megatech Solar - Direct



Megatech Solar - Indirect



Dimensions

Model	Dimensions (mm)						
	A	B	C	D	E	F	G
Megatech 190 direct	-	-	-	1137	1404	754	900
Megatech 210 direct	-	-	-	1181	1502	759	1001
Megatech 250 direct	-	-	-	1376	1760	819	1259
Megatech 300 direct	-	-	-	1692	2067	975	1566
Megatech 190 indirect	732	803	1017	1137	1401	-	-
Megatech 210 indirect	892	808	1054	1181	1502	-	-
Megatech 250 indirect	1140	868	1256	1376	1760	-	-
Megatech 300 indirect	1438	1024	1571	1692	2067	-	-

Cylinder capacity

Application	Total Solar Heated Capacity litres	Auxiliary top-up Hot Water Capacity litres
190 Solar	190	122
210 Solar	210	143
250 Solar	250	175
300 Solar	300	210

Specification

Nominal capacities 190, 210, 250 and 300 litre.

Rating Immersion heater(s) 1 x 3 kW (indirect models), 2 x 3kW (direct models) @ 240V

Outer casing White plastic coated corrosion proofed steel.

Thermal insulation CFC/HCFC-free (ODP zero) flame-retardant expanded polyurethane (50mm thick). GWP 3.1 (Global Warming Potential).

Water container Duplex 2304 (Grade 1.4362 EN 10088) stainless steel.

Pressure testing To 15 bar.

Heat unit Long-life Superloy 825 alloy sheathed element/s, incorporated into an easily removable heater plate, should replacement be necessary. Rated 3.0kW @ 240V.

Primary coil (for auxiliary boiler heating) 22mm diameter stainless steel. Coil in coil design for improved performance

Solar coil 25mm diameter stainless steel. Coil in coil design and large surface area for improved performance.

Thermostat

Direct models: Element thermostat adjustable from 10°C to 70°C.

Indirect models: Factory-fitted cylinder thermostat adjustable to 70°C.

Solar: Factory fitted control pocket suitable for insertion of solar controller temperature probe

Factory fitted safety features

Direct models: Manually re-settable cut-out on heating element operates at 85°C.

Indirect models: High limit thermal cut-out operates at 85°C. Wired in series with two-port motorised valve (supplied) to provide primary over temperature protection when using the auxiliary (boiler) coil.

All models: Temperature and Pressure Relief Valve, factory set to operate at 10 bar and 90°C.

Anode Not required.

Approvals BEAB and kiwa approved. CE marked. ClearSkies accreditation applied for. Manufactured in the UK in a BS EN ISO 9001:2000 registered factory.



Installation

Must be installed by a competent installer in accordance with Local Regulations. England and Wales - Building Regulations G3. Scotland - Technical Standards P3. N. Ireland - Building Regulations P5.

Fixing Built in feet for floor standing.

Plumbing

Inlet/outlet: 3/4" BSP male parallel and 22mm compression fittings supplied. Indirect primary coil: 3/4" BSP male parallel and 22mm compression fittings supplied.

1/2" T&P Relief Valve: 15mm compression outlet supplied.

Solar coil: 3/4" BSP male parallel and 22mm compression fittings supplied.

Cold water control 22mm HiFlo cold water valve assembly comprising 3 bar pressure reducer, 1/4 turn isolating ball valve, line strainer, non-return valve and expansion valve (8 bar).

Cold water control valve (3 bar) is supplied for use with mains pressure of 20 bar to 1.5 bar, at the lower pressure, performance will be reduced accordingly. Normal working pressure is 3 bar.

Water expansion Via remote expansion vessel (supplied). 18 litre vessel for 190 and 210 litre models. 25 litre vessel for 250 and 300 litre models.

Flow rates Up to 72 litres per minute (depending on adequate supply conditions).

Minimum water supply requirements 20 litres per minute flow and 1.5 bar pressure. (At lesser values, the unit will operate but outlet flow rates may be unacceptable, especially with multiple draw-offs). Please contact our Specification Advice Team to discuss specific site conditions if the above minimum requirement cannot be met.

Secondary circulation 1/2" BSP female connection provided. (circulating pump not supplied). Secondary circulation is not recommended for units using off peak electric elements for auxiliary heating.

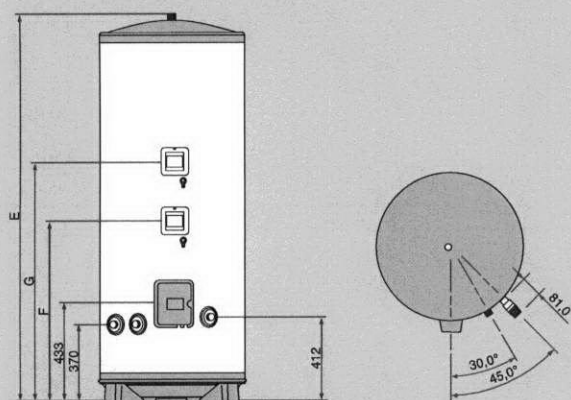
Compatible boilers Gas, electric or oil fired - sealed system or open vent type, fitted with integral control thermostat and thermal cut-out.

Tundish 15mm inlet and 22mm compression outlet.

Electrical Each immersion heater must be permanently connected to the electrical supply through a double-pole linked switch with a minimum breaking capacity of 13A. The indirect thermal controls should be wired into a suitable indirect control system to ensure optimum control of the Megatech Solar and auxiliary boiler. The solar coil must be connected to a fully pumped solar primary system that should be controlled by a suitable solar controller and hydraulic set. The solar controller cylinder temperature sensor must be inserted in the pocket supplied on the heater.

All electrical work must conform to current IEE wiring regulations. Heatrae Sadia's Specification Advice Team is available to discuss requirements for specific projects, applications and product selection on Tel: 01603 420220.

Megalife Solar - Direct



Specification

Nominal capacities 190, 210, 250 and 300 litre.

Rating Immersion heater(s) 1 x 3 kW (indirect models), 2 x 3kW (direct models) @ 240V.

Outer casing White plastic coated corrosion proofed steel.

Thermal insulation CFC/HCFC-free (ODP zero) flame-retardant expanded polyurethane (50mm thick). GWP 3.1 (Global Warming Potential).

Water container Duplex 2304 (Grade 1.4362 EN 10088) stainless steel. 40 metres (4 bar) maximum working head.

Heat unit Tin plated long-life Superloy 825 alloy sheathed element/s, incorporated into an easily removable heater plate, should replacement be necessary. Rated 3.0kW @ 240V.

Primary coil (for auxiliary boiler heating) 22mm diameter stainless steel. Coil in coil design for improved performance.

Solar coil 25mm diameter stainless steel. Coil in coil design and large surface area for improved performance.

Thermostat

Direct models: Element thermostat adjustable from 10°C to 70°C.

Indirect models: Factory-fitted cylinder thermostat from 10°C to 70°C.

Solar: Factory fitted control pocket suitable for insertion of solar controller temperature probe.

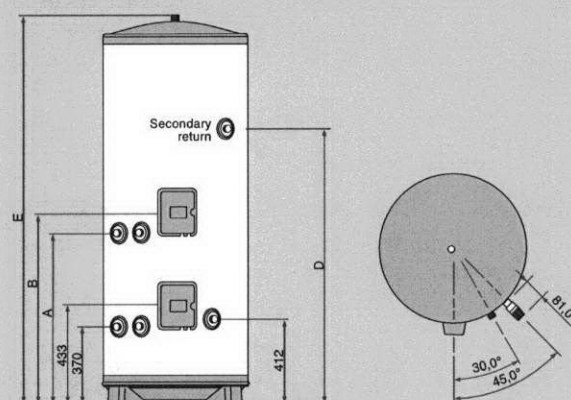
Safety features Thermostats with manually resettable thermal cut-out.

Anode Not required.

Approvals BEAB and kiwa approved. CE marked. ClearSkies accreditation applied for. Manufactured in the UK in a BS EN ISO 9001:2000 registered factory.



Megalife Solar - Indirect



Installation

Fixing Built in feet for floor standing.

Plumbing

Inlet/outlet: 3/4" BSP male parallel and 22mm compression fittings supplied.

Indirect primary coil: 3/4" BSP male parallel and 22mm compression fittings supplied.

Solar coil: 3/4" BSP male parallel and 22mm compression fittings supplied.

Secondary circulation: 1/2" BSP female connection provided. (circulating pump not supplied). Secondary circulation is not recommended for units using off peak electric elements for auxiliary heating.

Electrical Each immersion heater must be permanently connected to the electrical supply through a double-pole linked switch with a minimum breaking capacity of 13A. The indirect thermal controls should be wired into a suitable indirect control system to ensure optimum control of the Megalife Solar and auxiliary boiler. The solar coil must be connected to a fully pumped solar primary system that should be controlled by a suitable solar controller and hydraulic set. The solar controller cylinder temperature sensor must be inserted in the pocket supplied on the heater.

All electrical work must conform to current IEE wiring regulations. Heatrae Sadia's Specification Advice Team is available to discuss requirements for specific projects, applications and product selection on Tel: 01603 420220.

Dimensions

Model	Dimensions (mm)						
	A	B	C	D	E	F	G
Megalife 190 direct	-	-	-	-	1401	754	900
Megalife 210 direct	-	-	-	-	1502	759	1001
Megalife 250 direct	-	-	-	-	1760	819	1259
Megalife 300 direct	-	-	-	-	2067	975	1566
Megalife 190 indirect	732	803	-	1137	1401	-	-
Megalife 210 indirect	892	808	-	1181	1502	-	-
Megalife 250 indirect	1140	868	-	1376	1760	-	-
Megalife 300 indirect	1438	1024	-	1692	2067	-	-

Cylinder capacity

Application	Total Solar Heated Capacity litres	Auxiliary top-up Hot Water Capacity litres
190 Solar	190	122
210 Solar	210	143
250 Solar	250	175
300 Solar	300	210

Guarantee for Megatech Solar and Megalife Solar

The Megatech Solar and Megalife Solar Duplex stainless steel vessels carry a 25-year transferable on-site parts and labour guarantee against faulty manufacture or materials provided that:

- It has been correctly installed as per the instructions contained in the instruction manual and all relevant Codes of Practice and Regulations in force at the time of installation.
- It has not been modified in any way, other than by Heatrae Sadia Heating.
- The damage is not due to scaling or frost.
- It has only been used for the storage of potable water.
- It has not been tampered with or been subjected to misuse or neglect.
- It has been installed in the UK.
- Within 60 days of installation the user completes and returns the certificate supplied along with the proof of purchase to register the product.

The immersion heater and thermal controls are guaranteed for a period of 2 years from the date of purchase. The Megatech expansion vessel is guaranteed for a period of 5 years. Evidence of purchase and date of supply must be submitted. The unit is not guaranteed against damage due to scaling or frost. The guarantee is transferable. This guarantee does not affect your statutory rights.



HEATRAE SADIA

The quality name in water heating

Products

Boiling water Supreme | Supreme SS

Chilled water SuperChill

Cistern-fed water heating Megalife HE | Megalife Solar

Cistern-type water heating FBM

Electric flow boiler Amptec | Electromax

Electric showers Accolade | Carousel | Sapphire | Cameo

Hand hygiene Handy | Concept | Hair Drier | Handy Dri

Immersion heaters Titanium | Superloy | Gold Dot | Maxistore | RDT Thermostats

Point of use Streamline | Express | UTC 99 | B3M | C3M | Vented tap range

Small unvented water heating Hotflo | Multipoint

Unvented water heating Megaflo HE | Megaflo HE SystemFit | Megatech Solar

For free product brochure(s) call our literature hotline on 01603 420127

Contact

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Service T: 01603 420330 F: 01603 420349 E: service@heatraesadia.com

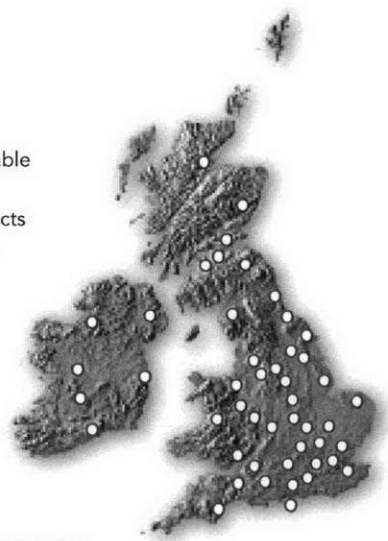
Web www.heatraesadia.com

National service network

Heatrae Sadia products are inherently reliable and are designed to meet the demanding needs of all users.

A nationwide network of experienced engineers is available to provide fast and efficient on-site service support.

In addition, spare parts for the complete range of products are readily available through a wide variety of stockists.



Heatrae Sadia Heating Hurricane Way Norwich Norfolk NR6 6EA

Heatrae Sadia Heating may introduce modifications to their products from time to time. Consequently, the details given in this brochure are subject to alteration without notice.

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