Dimplexrenewables®

A world of expertise

CI/SFB (53)

Tried. Tested. Trusted.

Solar Thermal

The low carbon water heating system

A name you can trust

With an unmatched reputation for quality, reliability and innovation, the Dimplex brand is well known in both public and private sectors where the brand has become synonymous with a commitment to excellence and customer satisfaction.

Recognising the need to develop and deliver solutions to meet increasingly stringent energy standards, Dimplex has made significant product research and development investment to grow a portfolio of renewable energy technology products. Now with one of the widest ranges of building integrated renewables available from a single manufacturer in the UK, we continue to expand our expertise and product ranges to meet the needs of our customers in both the domestic and commercial environments..

Our experience

Renewable technologies such as solar hot water systems, ground and air source heat pumps, solar photovoltaics, heat recovery systems and low energy radiators are not necessarily new, but expertise in the UK of how to most practically and efficiently apply them is – especially where multiple technologies need to be applied to meet increasingly demanding building energy targets. But for Dimplex there's nothing new about developing low carbon solutions – as part of the worldwide Glen Dimplex Group, we have been producing innovative heat pumps for over 30 years with thousands of installations throughout Europe.

Committed to developing our building integrated renewables product portfolio, our technical sales and in-house design teams work with housing developers, housing associations, consulting specifiers, local authorities and expert installers to ensure that we deliver the most effective renewable energy solutions, whatever the building design requirement.

Contents

Renewable energy in a changing world

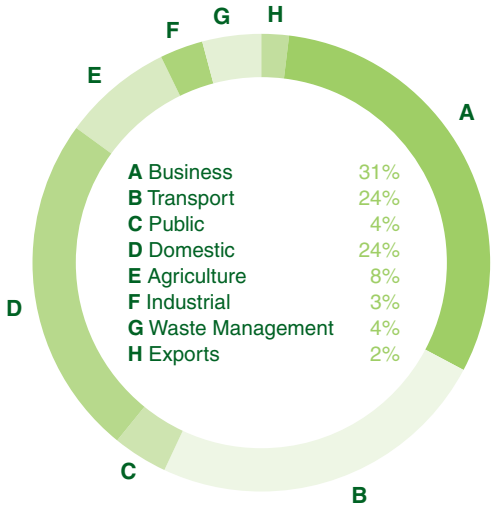
The threat to the planet from climate change, depletion of our natural energy resources and concern over the long term security of our energy supplies, means that energy efficiency and carbon dioxide emissions reduction has never been higher on social and political agendas.

With the energy used to heat, light and run buildings accounting for nearly half of the UK's carbon dioxide emissions, it's no surprise that a raft of European Directives, national legislation and government policy across the domestic and commercial building sectors now exists to reduce the long term energy and carbon impact of our buildings on the environment.

As part of EU-wide action to increase the use of renewable energy, the UK has committed to sourcing 15% of its energy from renewable sources by 2020 and building integrated renewable technologies such as solar hot water solutions, heat pumps, and solar electricity will all play an important part in achieving these targets.

Of course to deliver sustainable, low energy, low carbon buildings, designers and specifiers must take an increasingly holistic approach to reducing building energy demand and the application of renewable energy technologies. But as energy standards from policies such as the Code for Sustainable Homes increase – for example domestic new build requirements to be zero carbon by 2016 – the integration of multiple renewable technologies to provide low carbon heating, hot water and electrical power will be essential in achieving these targets.

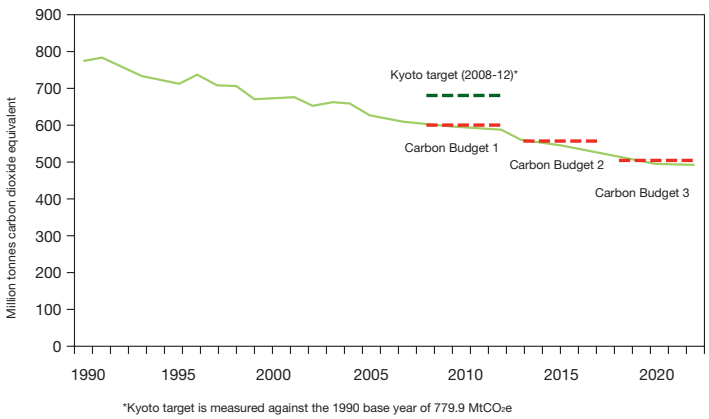
UK carbon emissions by sector



Source DECC – End user carbon emissions for 2008.

UK CO_2 reduction target trajectory

UK Net carbon account projection 1990-2022



*Kyoto target is measured against the 1990 base year of 779.9 $MtCO_2e$

Why choose solar hot water

In the context of ever-rising energy costs, climate change and changing legislation, the need for a heating and hot water technology that is future-proof, cost-effective and able to use an unlimited, sustainable source of energy is essential.

It's time to harness the sun's energy

Every year the sun provides over 8000 times as much energy as we consume worldwide and in the UK alone we receive between 900 and 1200kWh of energy per m^2 of land per year. On average, every home spends 20-25% of its combined annual energy bills on water heating. In the UK a well designed solar water heating system can provide almost all the hot water for a home during the summer months and on average around 50-60% year round. This is why solar water heating systems are one of the most cost-effective and environmentally-friendly renewable energy solutions available, reducing fuel bills and building carbon dioxide emissions.

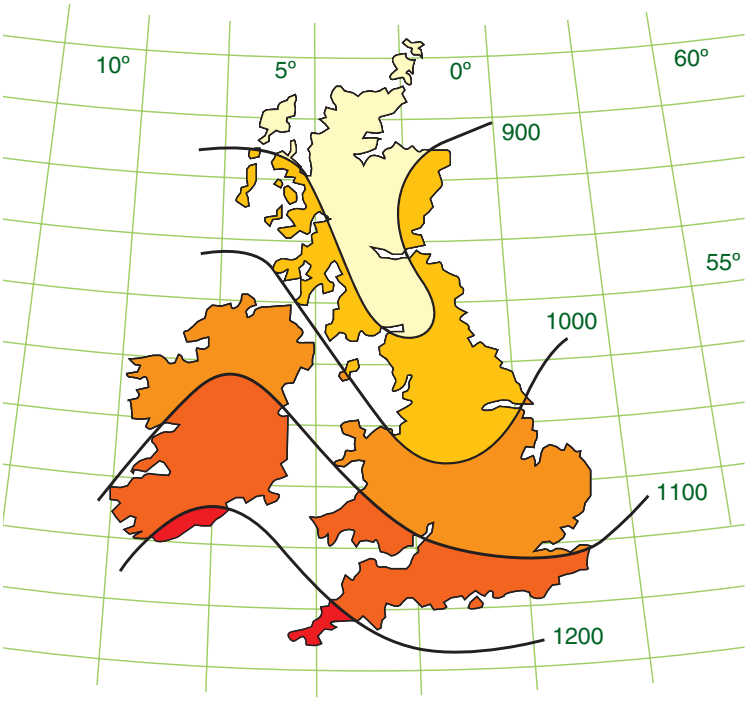
Low carbon hot water solution

Whenever fossil fuels such as coal, oil or gas are burnt,carbon dioxide is released. CO_2 is the principal contributor to the green-house effect which is leading to long term climate change. However as solar water heating can provide as much as 60% of a building's annual hot water demand from renewable energy, building carbon emissions can be significantly reduced, particularly in new homes where water heating is fast becoming the largest source of energy use. This has an obvious benefit when considering Building Regulations Part L compliance, planning obligations requiring minimum contributions from renewable energy or Code for Sustainable Homes ratings.

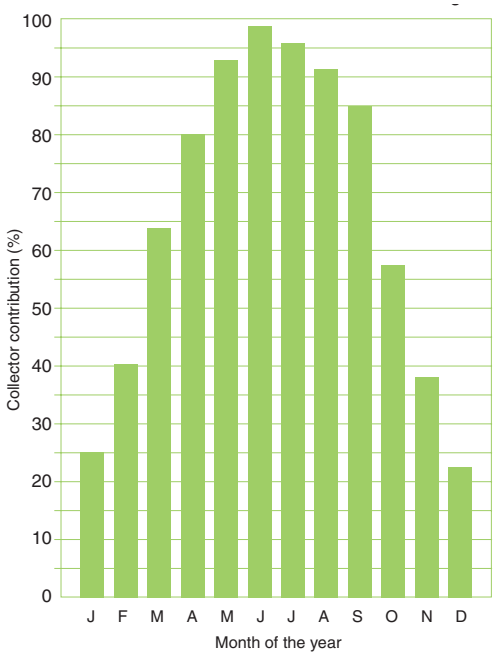
Future proof energy costs

Using renewable solar energy means that running costs compared with traditional fossil fuelled water heating systems can be reduced. More importantly, using free energy from the environment future-proofs the system against fossil fuels as they become ever more scarce and their price inevitably continues to rise.

UK Solar Radiance



Annual contribution from Solar Water Heating



Amount of hot water supplied by solar thermal for the annual hot water demand of a typical 4 bedroom house.

The natural solution

...with so many applications

Increasingly stringent legislation and escalating fuel costs make solar hot water a very attractive option.

Housing developments

Solar thermal hot water systems can provide as much as 60% of the annual hot water demand from carbon-free solar energy, making a significant contribution towards reducing building CO_2 emissions and running costs. This makes solar thermal an ideal choice for developers seeking to achieve Building Regulations Part L and Code for Sustainable Homes compliance as well as the increasingly frequent planning requirements for new developments to deliver a proportion of their energy from renewable sources. As more and more house purchasers become interested in low carbon heating and reducing their dependency on fossil fuels, housing developers have found specifying easy to install solar thermal systems at the development stage makes developments more attractive and saleable to future purchasers.

Social housing

Solar thermal hot water systems are increasingly being specified for installation on social housing developments for both new build and refurbishment projects. By providing a high proportion of hot water demand from free solar energy, Dimplex solar thermal systems help to reduce tenant running costs and contribute significantly towards eliminating fuel poverty. Simple to fit and easy to integrate into the build program, our systems significantly reduce building carbon emissions and so represent a cost effective way to meet building regulations and Code for Sustainable Homes targets. When the second phase of the Renewable Heat Incentive (RHI) is launched for domestic properties, housing associations and social landlords that have installed solar thermal systems on their housing stock can expect to benefit from RHI tariff payments to offset the costs of installation and generate a regular income over the duration of the scheme.

Home owners

Easy to retro fit into existing homes – no planning permission is required, installing a Dimplex solar thermal hot water system can make a significant contribution towards reducing long term utility bills, maintenance costs and reliance on fossil fuels as well as reducing building carbon emissions and therefore a property's carbon footprint. When the second phase of the Renewable Heat Incentive (RHI) is launched for domestic properties, home owners can expect to benefit from RHI tariff payments to offset the costs of installation and generate a regular income over the duration of the scheme. A visual statement of the home owners' green credentials, a solar thermal system also contributes towards a higher rated Energy Performance Certificate (EPC) for the property which can potentially improve its saleability and increase its value.

Self Build

Properly specified and installed, solar thermal hot water systems can provide as much as 60% of the annual hot water demand of a property from carbon-free solar energy making a considerable contribution towards Building Regulations Part L compliance, particularly in contemporary styled homes with large areas of glazing which are subject to large space heating heat losses. When the second phase of the Renewable Heat Incentive (RHI) is launched for domestic properties, home owners can expect to benefit from RHI tariff payments to offset the extra build costs and generate a regular income over the duration of the scheme. A visual statement of the home owners' green credentials, a solar thermal system contributes towards a higher rated Energy Performance Certificate (EPC) for the property which can potentially improve its saleability and increase its value as well as reducing long term heating bills and reliance on fossil fuels.

Leisure and Commercial

The increasing demands and constraints of Build Regulations are forcing more and more developers to look at innovative ways of balancing the "energy model" for commercial premises. Easy to specify and install at the build stage and with low maintenance costs, solar thermal systems provide a simple, reliable and cost effective solution in these instances, providing carbon free hot water that future-proofs the business against rising energy costs. Dimplex can specify large solar thermal systems, up to 10 flat panels or 70 evacuated tubes connected in series and any number of arrays connected in parallel which are ideal for premises with high water usage in the summer months such as lidos, sports clubs, hotels and residential accommodations such as nursing homes. For building owners, solar thermal systems now offer an extra financial advantage through the Renewable Heat Incentive which will pay system owners a regular income for generating hot water over a period of 20 years. Solar thermal is a reliable, proven technology which provides a visual statement of a company's green credentials encouraging wider energy savings.

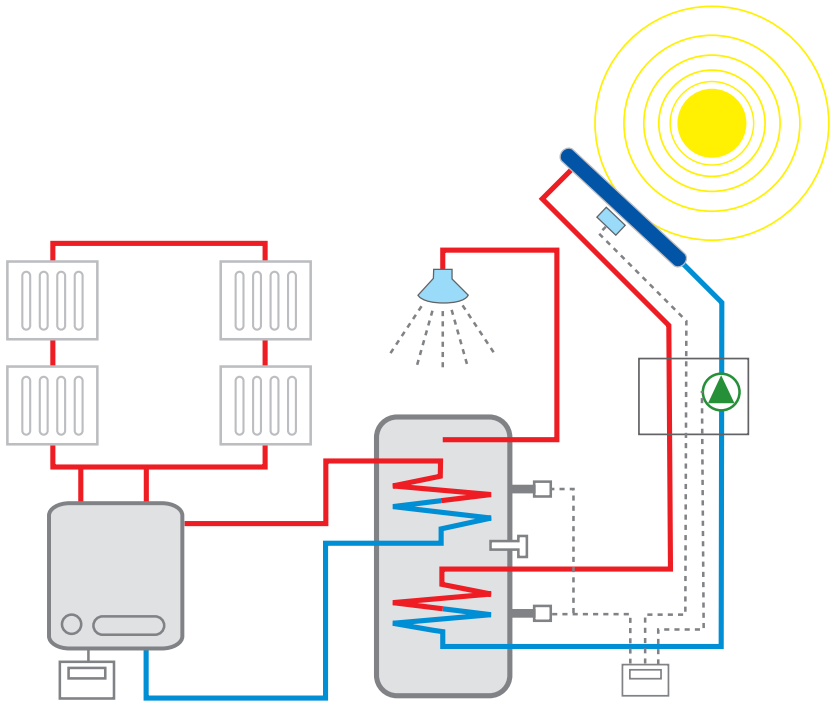
Public and Community

Installing a solar thermal hot water system on a community building provides the ability not only to reduce heating bills and dependency on fossil fuels, but to display a community's commitment to reducing greenhouse gases. As public sector buildings are eligible for the Renewable Heat Incentive, in addition to reduced utility bills, public and community buildings using solar thermal systems to produce their hot water will generate a regular income over 20 years through RHI tariff payments. Capital funding to offset installations costs may also be available through the Community Energy Saving Program (CESP).

How solar hot water works

Solar energy is available in abundance all around us. Every year the sun provides 8000 times more energy than we consume globally ready for use whenever you need it. Solar water heating systems harness this freely available solar radiation to efficiently and effectively heat water stored in a cylinder ready for use whenever you need it.

Solar Thermal with a secondary heat generator



One system, adaptable for many applications

Solar systems are made up of three key elements which work seamlessly together to convert the sun's energy into hot water.

1. Collector

Roof or facade mounted or free standing, the collector converts light energy from the sun into heat energy which is transferred to the heat transfer fluid which circulates through the system.

2. Heat transfer system (hydraulic pack)

The pump station circulates the heat transfer fluid through the solar collector and on to the heat exchanger coil in the water storage cylinder. The pump is automatically managed by a solar controller, which measures the temperature of the fluid in the solar collector and the water in the cylinder in order to determine if the system needs to operate.

3. Storage cylinder

The heat from the transfer fluid is transferred through the coil to the stored water. Heated water rises to the top of the cylinder and is available for use. The now cold heat transfer fluid is pumped back to the collector for reheating. The cylinder has a supplementary heat source to provide back up for times when insufficient solar energy is available.

Factors to consider

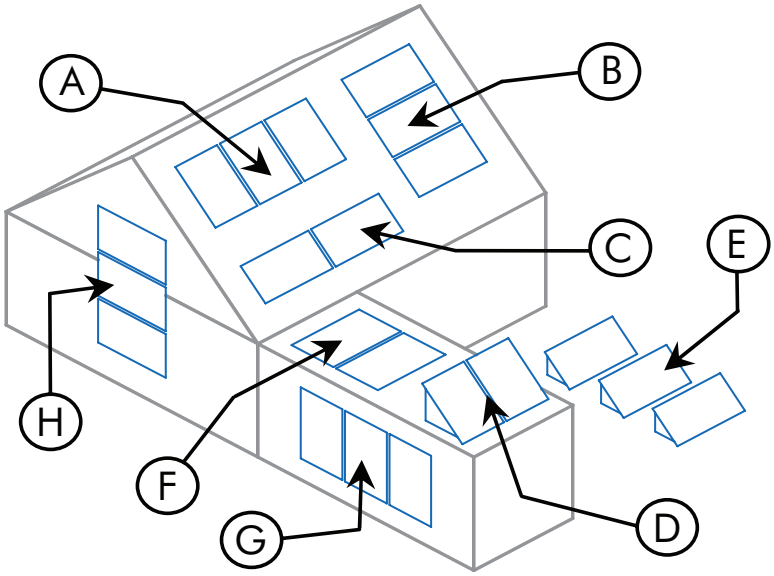
System siting and orientation

The location and orientation of the collectors is important to ensure as much sunlight as possible is collected to maximise system performance.

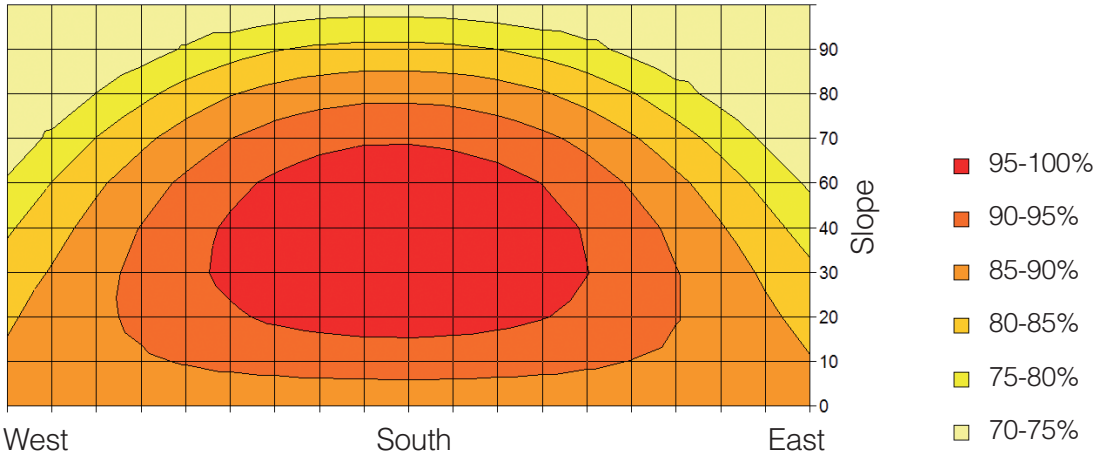
Before choosing collector type, it is essential to decide where it will be located on the property.

For best efficiency, the collectors should be installed facing south at an angle of 35° from horizontal.

Dimplex collectors are highly versatile and can be successfully installed either east or west facing with only a 20% loss of captured energy.



Ref	Solution type	Flat plate		Evacuated tube
		On roof	In roof	
A	Standard	√	√	√
B	Standard	√	X	√
C	Possible using multiple basic kits but with additional components	√	X	X
D	Standard	√	X	X
E	Possible using multiple basic kits but with additional components	√	X	X
F	Standard	X	X	√
G	Possible with additional parts supplied by installer	√	X	√
H	Possible with additional parts supplied by installer	√	X	√



Change in performance due to panel orientation

Dimplex solar packages

Dimplex makes solar specification simple by combining all the necessary components for a standard installation into easy to purchase kits. Each component has been carefully selected for its quality and suitability for the UK climate and building stock to provide complete confidence in system performance both for installers and users alike. With a range of purpose designed solar cylinders in sizes suitable for a variety of properties and a choice of flat plate or evacuated tube collectors with a selection of roof mounting options, Dimplex has a solution for every solar water heating requirement.

For maximum efficiency the complete package can be custom designed by our heating design team for your application. Collectors and hot water cylinders will be sized to meet the requirements of the property and site orientation plans will be provided to aid installation.

Roof kits

High quality flat plate or evacuated tube collectors are provided with all the required mounting components.

Flat plate:

- Choice of 1, 2 or 3 panel collector kits
- On roof mounting for plain tile, corrugated tile, slate tile or coach bolts
- Integrated roof mounting (SOLC220 only) for tile or slate roofs
- Free standing panels for flat roofs or ground mounting

Evacuated tube:

- Choice of 20 or 30 tube kits
- On roof mounting for tiled or slate roofs, façade or flat roofs

Hydraulic packs

Suitable for the majority of domestic systems with a static height up to 7m. Different packs for flat plate and evacuated tube systems.
Each pack includes:

- Pump station
- Controller
- Heat transfer fluid
- Expansion vessel and fixing kit

Integration with heat pumps

Ideal for properties with high summer water demand compared to the standard heating load, such as well insulated houses or sports clubs, the SST 25 module provides the seamless integration of Dimplex solar thermal systems and heat pumps.

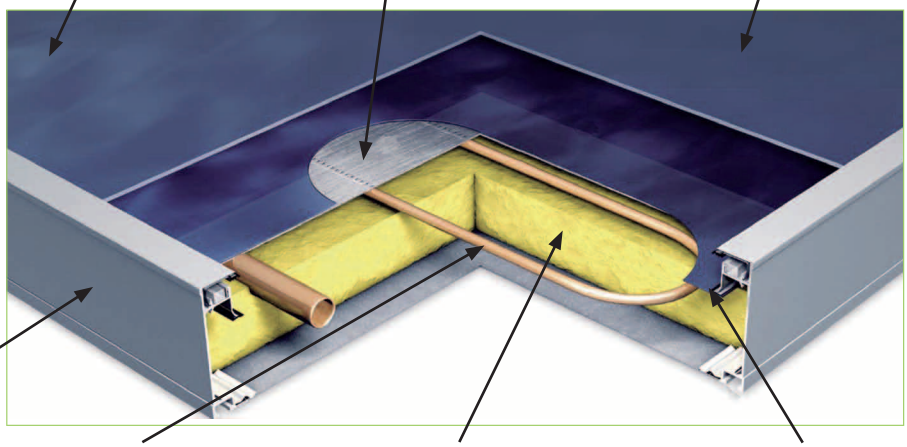
Range of cylinders

Available with dual coils for use with a secondary heat source, such as a boiler, or a single coil and dual immersions for direct electric systems. EC-Eau dedicated solar cylinders are available in 175, 210, 250 and 300 litre capacities all with external expansion vessel to maximise stored water content.
A 300 litre twin coil model is available for use with heat pumps.

Flat plate collectors

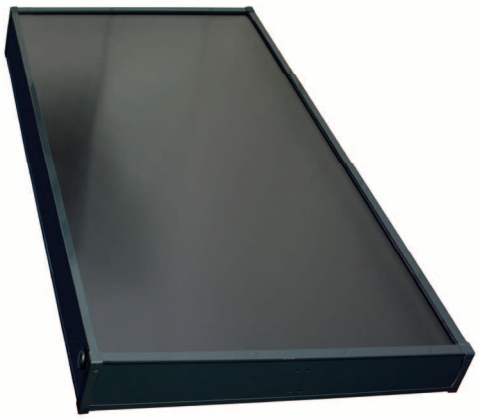
The Dimplex SOLC201 and SOLC220 high quality flat plate solar collectors offer high outputs coupled with a variety installation options making them suitable for a wide range of domestic and commercial applications. Robust and hardwearing, the SOLC201 and SOLC220 deliver excellent levels of performance and efficiency and can be connected in series in either horizontal or vertical orientation to suit the available roof space.

Both collectors consist of a laser welded meander pipe and aluminium absorber sheet, offering optimum heat transfer combined with low weight; covered with 3.2mm of low iron safety glass and encased in an aluminium frame. The anthracite frame provides lightweight protection for the absorber whilst blending with the roof and the safety glass covering is tested to EN 12975-2 impact tests offering peace of mind in extreme weather conditions such as hail.



Key features:

- Suitable for portrait or landscape mounting
- Multiple panels can be connected in series
- Easy to install with Dimplex roof fixing kits:
  - Slate
  - Tile
  - Coach bolts
  - Flat Roof
  - Free standing
  - Roof integrated (slate or tile) SOLC220 only
- Seamless in appearance, especially with roof integrated installation
- Reliable in operation – no vacuum to lose
- Robust – not susceptible to natural breakage, tested to EN 12975-2
- Not prone to overheating
- Low maintenance – only occasional cleaning required
- 10 year warranty
- Solar Keymark approved



SOLC220

SOLC201

10 year solar collector warranty

Specifications			SOLC220	SOLC201
Performance data[1]	Zero heat loss efficiency η_0	%	78.1	74.8
	Heat loss coefficient a_1	W/m²/k	3.83	3.93
Dimensions	Width	mm	1150	1058
	Length	mm	1870	1908
	Height	mm	95	75
	Absorber area	m²	1.972	1.825
	Aperture area	m²	1.972	1.825
	Gross collector area	m²	2.151	2.019
Construction	Weight (empty)	kg	34	29
	Liquid content	l	1.73	1.25
	Collector connections		Double o-ring	Compression
	Pipe connections		3/4 inch	22/18mm
Absorber	Material		aluminium/copper	
	Absorption	%	95	92
	Emission	%	5	5
Operating levels	Peak power	W	1540	1365
	Max operating pressure	Bar	10	10
	Nominal flow rate	l/min	2	2
	Stagnation temperature	°C	202	199
	Max. collector array (series)	m²	20 (10 collectors)	8 (4 collectors)
Cover	Glass		Structured	Clear
	Thickness	mm	3.2	
	Transmission	%	91	85
Insulation	Material		Rockwool	
	Thickness	mm	50	30
Installation	Min slope	°	20	
	Max slope	°	90	
Roof mounting options	Corrugated tile		√	
	Plain tile		√	
	Slate		√	
	Sheet		√	
	Free standing		√	
	In roof tile		√	X
	In roof slate		√	X

[1] Related to aperture area

Evacuated tubes

Dimplex evacuated tubes have been specifically designed for Northern European climates to provide an extremely efficient transfer of solar energy to heat, offering a highly effective solar hot water solution for a wide range of applications.

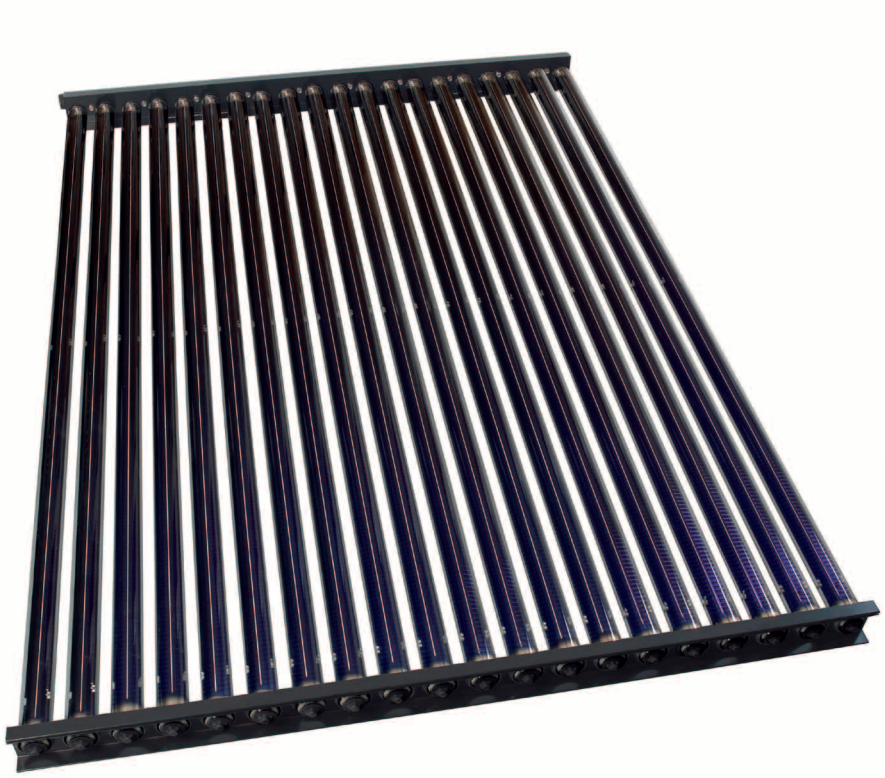
Our evacuated tube collectors employ the direct flow principal rather than heat pipe and so are extremely versatile. They can be mounted in almost any orientation, including flat on the roof or ground, as no minimum slope angle is required* offering a wider range of applications over flat plate collectors. Additionally the tubes can be individually rotated towards the angle of incidence to maximise efficiency, which is ideal in situations where the collectors cannot be sited in the optimal south facing position.

Direct Flow Principal:

- Manifolds and tubes are hydraulically connected (ie heat transfer fluid flows through the pipes in the absorber tube)
- Offers great versatility in system orientation / mounting position

Key features:

- Suitable for domestic and commercial applications
- Available as 20 and 30 tube kits which can be connected to create systems of up to 70 tubes
- Easy to install – “one man job”
- Roof mounting suitable for a variety of applications:
  - Tiled roof
  - Slate roof
  - Flat roof (collector laid flat)
  - Façade mounting
- Full vacuum direct flow tube (vacuum of 10^{-6} mbar) offering highly efficient insulation
- Innovative high mechanical strength glass-to-metal seal – protects vacuum in the long term
- Tubes can be angled for optimal positioning increasing thermal efficiency on sub-optimal facing locations
- Highly efficient at low incidence angles
- Easy “plug in connection” for quick installation and ease of tube replacement
- 10 year product warranty
- Solar Keymark approved



SOLCDF22/ SOLCDF32

* We recommend mounting with a minimum slope of 2 to 5°

Specifications			SOLCDF22	SOLCDF32
Performance data[1]	Zero heat loss efficiency η_0	%	77.6	
	Heat loss coefficient a_1	W/m²/k	1.936	
Dimensions	Width	mm	1500	2250
	Length	mm	2164	2164
	Height	mm	120	120
	Absorber area	m²	1.9	2.8
	Aperture area	m²	2.03	3.05
	Gross collector area	m²	3.3	4.9
Construction	Weight (empty)	kg	45	68
	Liquid content	l	2.64	3.96
	Collector connections		Double o-ring	
	Pipe connections	mm	15	
Absorber	Material		Copper	
	Absorption	%	96	
	Emission	%	4	
Operating levels	Peak power	W	1578	2368
	Max operating pressure	Bar	10	
	Nominal flow rate	l/min	2	3
	Stagnation temperature	°C	192	
	Max. collector array (series)	m²	70 tubes	
Cover	Glass		1.8mm hail resistant soda lime glass	
Insulation	Vacuum	mbar	10^{-6}	
Roof mounting options	Tiled roof		√	
	Slate roof		√	
	Flat roof or ground		√	
	Façade		√	

[1] Related to aperture area

Controllers

Dimplex solar hot water systems are available with a choice of control options, all of which provide:

- Simple end-user interface.
- Temperature display of collector and top and bottom of cylinder, sensors included.
- Stagnation indicator and system shut down.
- Extremely low 1W self power.
- Uses pump speed control to reduce pump toggling to increase system life and reduce energy consumption
- Holiday function and anti-freeze function.

SOLCU1

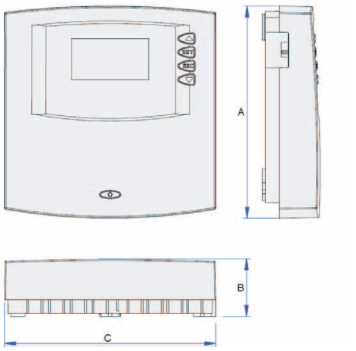
- For use with a single array of panels with one storage tank.
- 3 inputs and 1 output.

SOLCU2

- Allows more complicated set-ups than the SOLCU1 such as east-west facing panels, swimming pool heat exchangers, dual coil solar heating and solar heating of two DHW cylinders.
- 5 inputs and 2 outputs.

SOLCU3

- Can be combined with a SOLFM120 or SOLFM240 flow meter to display the heat generated in kWh. The data is recorded to an SD card which can then be imported to a spreadsheet programme such as Excel.
- 6 inputs and 3 outputs



	Dimension A (mm)	Dimension B (mm)	Dimension C (mm)
SOLCU1	137	38	134
SOLCU2	170	47	170
SOLCU3	170	47	170

Accessories

A complete range of accessories is available to make installation and maintenance quick and easy. Dimplex solar thermal accessories have been specifically selected to cope with the higher temperatures and pressures that can occur in a solar thermal system. Accessories are suitable for both flat plate and evacuated tube systems.

Air separator

If you choose not to use the flush and fill pump, the air separator will remove air from the heat transfer fluid during commissioning making installation quicker.

Flow meter

For direct connection to the SOLCU2 or SOLCU3 in order to give an accurate measurement of the energy captured. SOLFM120 from 1 to 20l / min and SOLFM240 from 2 to 40l / min.

Heat transfer medium test kit

Ideal for the annual maintenance check, this test kit provides everything required to check the frost protection and pH of the heat transfer fluid.

Pump Station

The pump station transports the solar energy from the collector to the domestic hot water cylinder by circulating the heat transfer fluid through insulated pipes. To ease installation Dimplex offer a choice of pump stations, which can be used with any of our collector kits, to provide options suitable for a range of applications and budgets.

Premium Pump Station – SOLPU1 or SOLPU2

- Fully insulated 2 way pump unit
- Full metal thermostats in flow and return (0-160°C)
- Pump with 6m head (SOLPU1) 7m head (SOLPU2)
- Solar approved pressure relief valve – 6 bar
- High temperature pressure gauge 0-6 bar
- Integrated non return valves in flow and return, removing the need for a 2 port valve in the solar loop
- Integrated air separator
- Integrated flush and fill point
- Full body insulation
- Variable standard connection ports included

SOLPU1

Standard Pump Station – SOLPU0

- Fully insulated 1 way pump unit
- Full metal thermostat in flow
- Integrated ball valve with no return valve
- Pump with 6m Head
- Flow meter – 1-11l
- Solar approved pressure relief valve – 6 bar
- Integrated flush and fill point
- 3 part full body insulation

Flexible hoses

Available in 10, 15 or 25m lengths, the flexible stainless steel hoses come complete with insulation, sensor cable and temperature resistant fixings enabling quick installation. Fits directly on to pump station and the 0.8m flexible hoses from the SOLC201 and SOLC220 collectors.

Flush and fill pump

Ideal for installers who will be commissioning more than one system. This pump makes it easy to flush the primary pipework of air and charge the system to the required operating pressure. The built-in filter combined with powerful pump removes any debris which means that a water pre-flush is not required.

EC-Eau Solar Cylinders

Dimplex EC-Eau solar cylinders provide highly efficient hot water storage for a variety of solar thermal applications and are designed specifically to work seamlessly with Dimplex solar thermal systems. Featuring a purpose designed solar coil to maximise heat transfer of the generated solar energy to the stored water, EC-Eau solar cylinders are available in choice of single or dual coil options.

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

EC-Eau Heat pump cylinder shown

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 (ECS 300 HPST – 580)
- Up to 125l dedicated solar volume (ECS ST models) to maximise use of renewable energy

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

Benefits:

- **Mains pressure hot water**
  - For invigorating showers
- **High flow rates**
  - For quick filling baths and simultaneous supply of water to all bathrooms
- **Fast reheat**
  - For freely available hot water
- **Well insulated**
  - Minimises heat loss and energy consumption/running costs
- **Low maintenance**
  - No hidden costs
- **Duplex stainless steel**
  - Excellent corrosion resistance and long life
  - 100% recyclable
- **A complete package**
  - Just add pipework
- **25 year guarantee**
  - Peace of mind

25 year cylinder guarantee

kiwa approved product UK WATER SUPPLY REGULATIONS

kiwa approved product UK BUILDING REGULATIONS

Indirect solar cylinders

Dimensions Model	Height (mm)	Diameter (mm)	T&P Valve (mm)	Solar Coil return (mm)	Solar Coil flow (mm)	Indirect Coil return (mm)	Indirect Coil flow (mm)	Immersion (mm)	Thermostat 1 (mm)	Thermostat 2 (mm)	Weight empty (kg)	Weight packaged (kg)
ECSi175ST-580	1280	580	1050	190	525	740	995	580	330	847	37	49
ECSi210ST-580	1505	580	1275	190	525	837	1052	615	330	940	40	53
ECSi250ST-580	1780	580	1550	190	525	905	1120	640	330	1012	47	60
ECSi300ST-580	2080	580	1850	190	525	992	1207	640	330	1095	52	56

All measurements are taken from the bottom of the cylinder to the centreline on the component

Performance Model	Capacity (litres)	Indirect Heated Volume (litres)	Dedicated solar volume (litres)	Aux coil size (kW)	Aux coil surface area (m^2)	Solar coil size (kW)	Solar coil surface area (m^2)	Number of immersions	Aux Reheat (mins)	Solar Reheat (mins)	Heat loss in 24hrs (kWh/ 24hr)
ECSi175ST-580	175	80*	95**	20*	0.8	23*	1.1	1	12*	23*	1.12
ECSi210ST-580	210	100*	110**	20*	0.8	22*	1.1	1	15**	26*	1.41
ECSi250ST-580	250	140*	110**	17*	0.8	19*	1.1	1	24*	35*	1.51
ECSd300ST-580	300	175*	125**	18*	0.8	20*	1.1	1	31*	42*	1.96

* Determined in accordance with EN12897-2006
** Determined in accordance with KIWA document for unvented hot water storage cylinders to the requirements of the UK building regulations, Annex D

Direct solar cylinders

Dimensions Model	Height (mm)	Diameter (mm)	T&P Valve (mm)	Solar Coil return (mm)	Solar Coil flow (mm)	Immersion 1 (mm)	Immersion 2 (mm)	Thermostat (mm)	Weight empty (kg)	Weight packaged (kg)
ECSd175ST-580	1280	580	1050	190	525	630	895	330	34	45
ECSd210ST-580	1505	580	1275	190	525	724	1117	330	38	49
ECSd250ST-580	1780	580	1550	190	525	790	1350	330	44	57
ECSd300ST-580	2080	580	1850	190	525	880	1620	330	50	54

All measurements are taken from the bottom of the cylinder to the centreline on the component

Performance Model	Capacity (litres)	Auxiliary Heated Volume (litres)	Dedicated solar volume (litres)	Solar coil size (kW)	Aux coil surface area (m^2)	Number of immersions	Aux Reheat (mins)	Reheat (mins)	Heat loss in 24hrs (kW/24hr)
ECSd175ST-580	175	100*	75**	24*	1.1	2	101*	21*	1.12
ECSd210ST-580	210	115*	95**	22*	1.1	2	128*	27*	1.41
ECSd250ST-580	250	151*	100**	22*	1.1	2	166*	33*	1.51
ECSd300ST-580	300	194*	105**	21*	1.1	2	208*	43*	1.96

* Determined in accordance with EN12897-2006
** Determined in accordance with KIWA document for unvented hot water storage cylinders to the requirements of the UK building regulations, Annex D

Sizing guide

Total water usage in 24 hrs (litres)

50 65 80 95 110 125 140

1 Select a cylinder

DIRECT	ECSd175ST-580	ECSd175ST-580
	ECSd210ST-580	ECSd210ST-580
	ECSd250ST-580	
	ECSd300ST-580	
INDIRECT	ECSi175ST-580	ECSi175ST-580
	ECSi210ST-580	ECSi210ST-580
	ECSi250ST-580	
	ECSi300ST-580	
HP	ECS300HPST-580	

2 Select a collector

SOLC 220 Flat Plate collectors

1 x 2.2m² collector and roof mounting kit

Corrugated tile	SOL220CT
Plain tile	SOL220PT
Slate	SOL220S
Coach bolts	SOL220CB
Integrated for tiles	SOL220TI
Integrated for slate	SOL220SI
Integrated with flashing, tile	SOL220TF
Integrated with flashing, slate	SOL220SF
Free standing	SOL220F

or

SOLC 201 Flat Plate collectors

1 x 2.0m² collector and roof mounting kit

Corrugated tile	SOL201CT
Plain tile	SOL201PT
Slate	SOL201S
Coach bolts	SOL201RST
Freestanding	SOL201F

or

SOLCDF 22/32 Evacuated tube collectors

1 x 20 tube direct flow evacuated tube collector and roof mounting kit

- Universal roof hook
- Coach bolts

3 Select a hydraulic pack

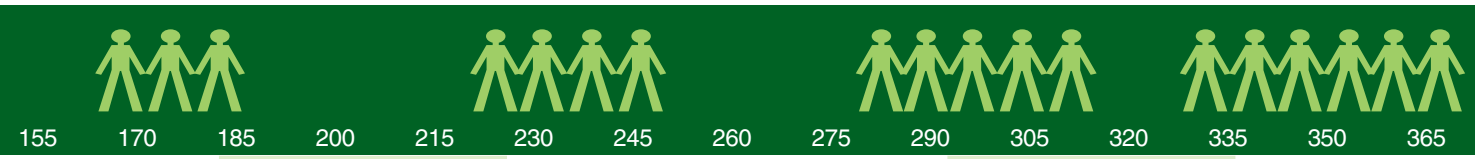
Hydraulic packs

- SOLHYPK1 solar hydraulic pack including
  - Premium pump station SOLPU1
  - Controller SOLCU1
  - Heat transfer fluid
  - 18 ltr expansion vessel and fixing kit

4 Select accessories

Accessories

*For Initial guidance only. Dimplex recommends completing a site questionnaire and consulting our design team in order to properly size the solar hot water system.



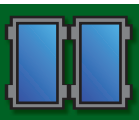
ECSd250ST-580

ECSd300ST-580

ECSi250ST-580

ECSi300ST-580

ECS300HPST-580

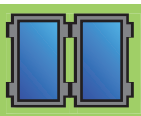


2 x 2.2m² collectors
and roof mounting kits

Corrugated tile	SOL440CT
Plain tile	SOL440PT
Slate	SOL440S
Coach bolts	SOL440CB
Integrated for tiles	SOL440TI
Integrated for slate	SOL440SI
Integrated with flashing, tile	SOL440TF
Integrated with flashing, slate	SOL440SF
Free standing	SOL440F

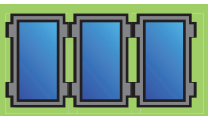
3 x 2.2m² collectors
and roof mounting kits

Corrugated tile	SOL660CT
Plain tile	SOL660PT
Slate	SOL660S
Coach bolts	SOL660CB
Integrated for tiles	SOL660TI
Integrated for slate	SOL660SI
Integrated with flashing, tile	SOL660TF
Integrated with flashing, slate	SOL660SF
Free standing	SOL660F



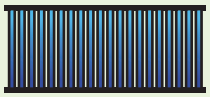
2 x 2.0m² collectors
and roof mounting kits

Corrugated tile	SOL402CT
Plain tile	SOL402PT
Slate	SOL402S
Coach bolts	SOL402RST
Freestanding	SOL402F



3 x 2.0m² collectors
and roof mounting kits

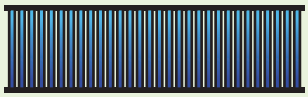
Corrugated tile	SOL603CT
Plain tile	SOL603PT
Slate	SOL603S
Coach bolts	SOL603RST
Freestanding	SOL603F



SOLDF22RT
SOLDF22RST

1 x 30 tube direct flow evacuated tube collector
and roof mounting kit

- Universal roof hook
- Coach bolts



SOLDF32RT
SOLDF32RST

- SOLHYPK0 solar hydraulic pack including
  Single stream pump station SOLPU0
  Controller SOLCU1
  Heat transfer fluid
  18 ltr expansion vessel and fixing kit
  Air separator and non return valve

- SOLHYPKETC-18 solar hydraulic pack including
  Premium pump station SOLPU1
  Controller SOLCU2
  Heat transfer fluid
  18 ltr expansion vessel and fixing kit

- 10m Flexible Hoses SOLFH10
- 15m Flexible Hoses SOLFH15

FAQ's

How effective is solar water heating in the UK?

If correctly specified and installed, solar water heating can be very efficient. About 4m² of good quality panels on a roof should provide the average family with around 50-60% of their hot water needs spread throughout the year (100% on sunny summer days and even around 10% on a cloudy, winter's day).

Is there a difference in the energy gains of solar panels for different parts of the UK?

The solar radiation received on a collector facing due south at an incline of 30° varies from approximately 900 kWh/m² per year in Scotland and the North of England, to approximately 1,200 kWh/m² per year in the South West. This is illustrated on page 5 of this brochure.

Do solar heating systems continue to provide heat even when the sun is not shining?

On a cloudy day when there is little or no direct sunlight, there may still be 200W/m² of solar radiation falling on the solar collector. This is sufficiently intense to be usefully collected by solar collectors.

While the highest amounts of monthly solar radiation are obviously experienced in the summer months, there is enough radiation coming from the sun in spring, autumn and winter to make a very useful contribution to a household's energy needs. A properly sized system can be expected to provide the following:

- 80 – 90% of all summer hot water needs.
- 40 – 50% of spring and autumn hot water needs.
- 10 – 15% of winter hot water needs.

Can I increase the number of collectors on the roof for better performance?

The greater the surface area of collector on the roof, the greater the heating capacity of the solar system. However, during the summer months the solar radiation levels can be much higher and the sun shines for longer, compared with the winter months and during these periods of hot weather a solar system can heat the stored water very quickly, spending the rest of the day trying to dissipate heat from the system to prevent overheating.

Oversizing the solar collectors will improve the spring/autumn/winter performance when expected output is quite low, but the system can quickly stagnate in summer conditions. To improve spring / autumn / winter performance the inclination angle can be increased. The Dimplex packages are selected to provide the correct balance of performance versus cost and reduce periods of overheating.

How much would a typical system cost?

Cost depends on the number of panels required, the size of the cylinder and on installation details such as accessibility for the scaffold and the complexity of the wiring. A typical system will cost around £2,000 – £3,000 and a government grant of £400 is available to assist you.

What direction does my roof need to face in order for solar panels to provide maximum efficiency?

For maximum efficiency, solar panels should be mounted on a south facing roof at an angle of 30° – 50° to the horizontal and away from trees, surrounding buildings and chimneys. Fortunately, the average tilt of a UK house roof is about the optimum for receiving solar energy in the UK.

If your roof faces east or west solar panels can still be installed, although this will have some effect on the energy gain. The same applies to the angle of the roof which, provided it is pitched between 30º and 50ºC, should still be suitable.

How long do solar water heating systems take to install?

Time needed for installation will depend on the size and complexity of the job. However, most systems usually take 1-2 days to install. In Scotland and Northern Ireland planning permission is required for installations that protrude more than 150mm.

Is planning permission required?

From April 2008 new Government rules state that providing the solar installation does not protrude more than 200mm from the roof slope and is not in a conservation area or on a listed building, installation of solar panels are considered a permitted development, meaning that no planning permission is required.

Do I have adequate roof space?

You will need roughly one square meter of collector per person in the household installed on a roof that faces east to west through south and receives direct sunlight for the majority of the day. For a 2 bedroom house you would typically need 1 solar collector (2m²), increasing to 2 panels for a 3 bedroom house (4m²) and up to 3 panels (6m²) for larger properties. This will vary depending on how much hot water you use and which way your roof faces.

Do I have space inside the house?

You will need to fit an additional hot water cylinder or replace your existing one if you want to use a solar system to provide domestic hot water. Solar systems require cylinders containing a dedicated solar coil, such as a Dimplex EC-Eau solar cylinder, to store the hot water generated by the roof mounted panels.

Is my current heating system compatible with solar water heating?

Most conventional boiler and hot water cylinder systems are compatible with solar water heating. However, if you have a combination boiler and no hot water cylinder, a solar hot water system may not be compatible. Your Dimplex Renewables installer will be able to assess your system and help you to select the best setup to meet your needs.

Support

Installer training

Whether you are an installer looking for new business opportunities or a specifier wishing to understand more about solar thermal hot water systems, Dimplex can help you with a variety of training courses available. If you are an installer with demonstrable competency and experience in plumbing and heating, you could become an Accredited Dimplex Renewables installer. Our training courses are available throughout the UK and once you have passed the course and been invited to join the scheme, you can start to reap the many benefits associated with this programme.
Full details of all of our training courses can be found on our website, or by emailing **training@dimplex.co.uk**

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**

Maintenance

Dimplex solar systems are designed for long life and when serviced regularly will provide many years of high performance hot water heating.

The maintenance effort for the Dimplex solar system is minimal and can ideally be executed when carrying out the mandatory checks on the unvented hot water installation. It is recommended to check the function of the system after the first year of operation and then carry out a bi-annual maintenance check. For more information please see the 'On site guide' on our website.

The Dimplex Solar Package is supported by a national network of service engineers and a team of customer service personnel.

Warranty

The Dimplex guarantee gives you protection against manufacturing defects. Full terms and conditions are available in the product instructions on the Dimplex website.

Collector – 10 years

Cylinder – 25 years for the inner cylinder 2 years on immersion (excluding the effects of limescale) – 5 years on other components

All other components – 2 years

Approvals

Dimplex products are approved by the following standards and bodies:

Collector EN 12975 and Solar Keymark

Roof mounting Assessed to DIN 1055

Cylinder KIWA approved to building regulations G3 and water regulations UK, N. Ireland and Scotland

Expansion Vessel PED 97/23/CE

Dimplex renewables®

A world of expertise

Specifications

Dimplex policy is one of continuous improvement; the Company therefore reserves the right to alter specifications without notice. The information contained in this brochure is correct at the time of printing. You are advised to consult your Dealer before purchasing.

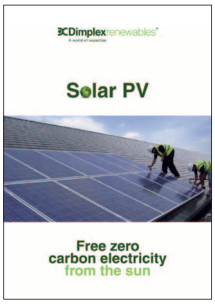
Installation Guidance

This brochure 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 manufacturer's instructions.

The Dimplex Range

Dimplex offers the widest range of electric space and water heating products in the world – over 400 – to meet almost any heating need. In addition to this publication, we have a wide range of brochures for both domestic and commercial applications. Please visit our website www.dimplex.co.uk for more information.

Renewables capabilities brochure



Solar PV brochure

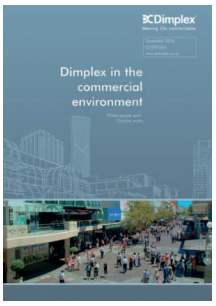
Heat pump brochure

EC-Eau Cylinder brochure

SmartRad brochure

Electric fires brochure

Domestic heating brochure



Commercial brochure

Solid fuel brochure

For more information on our wide range of renewable technologies, please visit: **dimplexrenewables.co.uk** email: **marketing@dimplex.co.uk** or call: Trade – **0844 879 3587** Consumer – **0844 879 3588**

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