Dimplex®
Comfort. By design

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www.dimplex.co.uk

SOLAR thermal

the low carbon water heating system

A name you can trust

For 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 also nothing new about renewables. As part of the worldwide Glen Dimplex Group, Dimplex has been producing innovative renewable solutions for nearly 30 years. 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.

Quality assured

Over the years, Dimplex has established strong relationships with its customers in all aspects of the construction and heating industries. Today Dimplex heating and hot water systems are operating efficiently across the UK in both private and public sectors.

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

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The global and local challenge

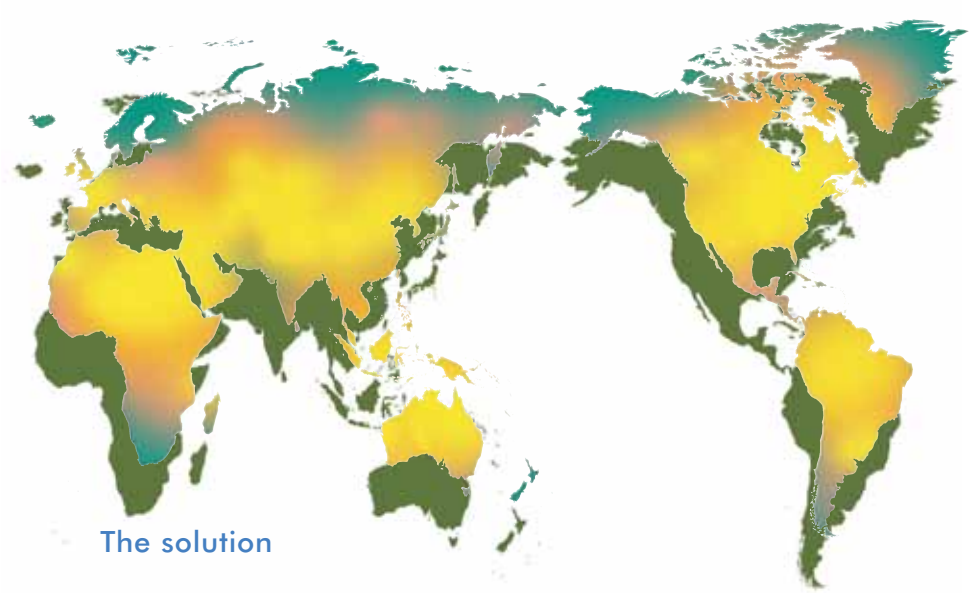
The problem

Climate change is the greatest threat facing the planet, with rising temperatures contributing to 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 Intergovernmental Panel on Climate Change (IPCC), 11 of the 12 years to 2006 rank in the 12 warmest years since 1850 and 2005 was the second 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.



The solution

Carbon emissions per capita in the UK are one of the highest in the world, but the UK has a commitment to cutting greenhouse gas emissions by 80% over 1990 levels by 2050 and a binding commitment under the EU Renewable Energy Directive to provide 15% of its energy from renewable resources by 2020.

Around half of the UK's carbon dioxide (CO_2) emissions are currently produced by the energy we use to heat, light and power our buildings, with half of that coming from our homes, so the need to reduce our energy consumption and carbon footprint has never been more pressing. As a result, the government is using legislation like the Building Regulations and initiatives such as the Code for Sustainable Homes to encourage the use of renewable energy for our space heating and hot water.

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

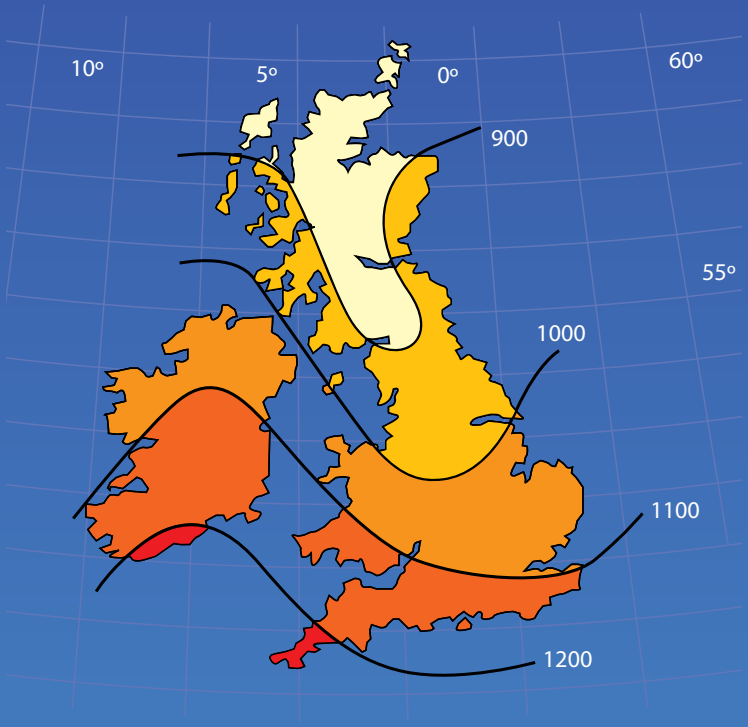
Whenever fossil fuels such as coal, oil or gas are burnt, carbon dioxide is released. CO_2 is the principal contributor to the green-house effect which is leading to long term climate change.

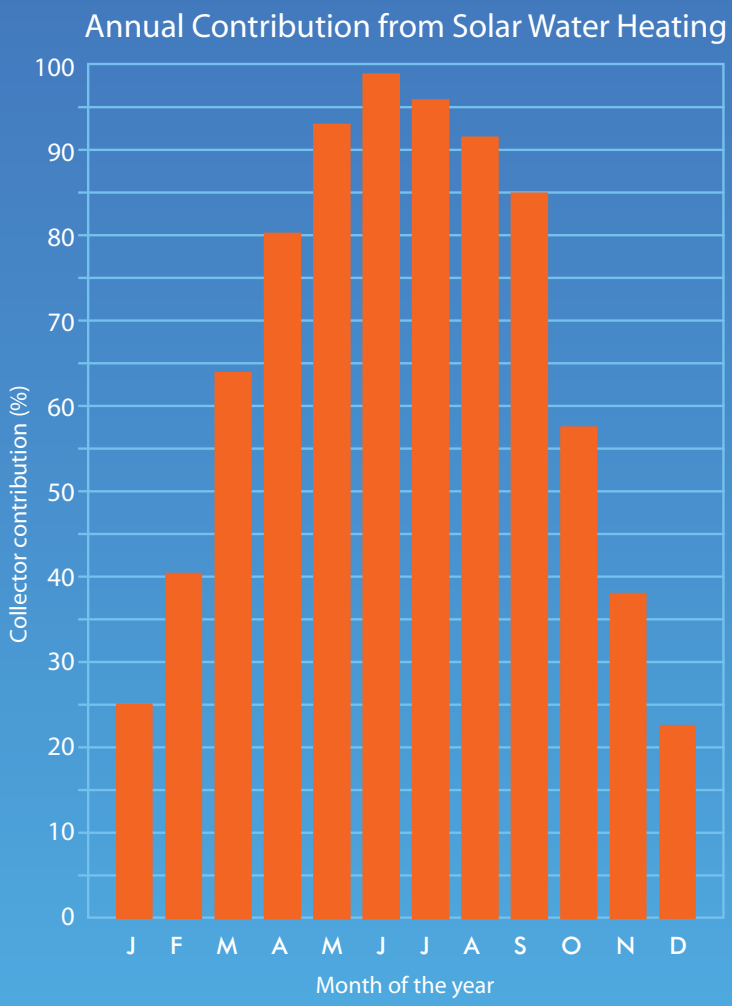
However as solar water heating can provide as much as 60% of a building's annual hot water demand from renewable energy, building carbon emissions can be significantly reduced, particularly in new homes where water heating is fast becoming the largest source of energy use.

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.





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

The natural solution..

Private developments

Social housing

Home owners

..with so many applications

Increasingly stringent legislation and escalating fuel costs make solar hot water an even more attractive option.

Private Developments

- Can provide as much as 60% of the annual hot water demand from carbon-free solar energy, making a significant contribution towards Building Regulations Part L compliance.
- A combination of the SAP "Block Assessment" method and a contribution from solar water heating (for example the top floor flats) is an effective means of demonstrating compliance with Part L when specifying electric heating.
- High renewable energy contribution helps ease minimum planning consent obligations.
- Contributes towards high energy efficiency scores for Code for Sustainable Homes ratings.
- Using freestanding mounting brackets the collectors can be mounted on the roof and can not be seen from the ground.
- Solar hot water is ideal for reducing heating costs for direct electric systems.
- Highly marketable "eco" credentials.

Social Housing

- Suitable for new build and refurbishment projects.
- Helps to reduce running costs for hot water usage and therefore contributes towards eliminating fuel poverty.
- Low maintenance costs.
- Significantly reduces building carbon emissions, so helps with Building Regulations Part L compliance and Code for Sustainable Homes ratings for new properties or major refurbishment.
- Ideal complementary water heating solution for the "all electric" home.
- 50% grants against total installation costs through Low Carbon Buildings Programme Phase 2 (Extended).

Home Owners

- Easy to retro fit to existing homes.
- Reduces long term energy bills, maintenance costs and reliance on fossil fuels.
- Reduces building carbon emissions and therefore a property's "carbon footprint".
- Contributes towards a higher rated Energy Performance Certificate in the home.
- Government grants available to subsidise purchase and installation costs and VAT levied at only 5% (see page 21).
- No planning permission required.

Self build

Leisure and commercial

Self Build

- Can provide as much as 60% of the annual hot water demand from carbon-free solar energy, so makes a significant contribution towards Building Regulations Part L compliance, particularly in contemporary styled homes with large areas of glazing (ie large space heating heat losses).
- High renewable energy contribution, so helps ease planning consent obligations.
- Reduces long term energy bills, maintenance costs and reliance on fossil fuels.
- Government grants available to subsidise purchase and installation (see page 21).

Leisure and Commercial

- For large systems, up to 10 panels can be connected in a series and any required number of arrays connected in parallel using just one pump station and controller.
- Ideally suited for premises with large water usage in the summer months such as lidos, sports clubs, hotels and residential accommodation such as nursing homes.
- Not for profit/community organisations can attract 50% grant funding through Low Carbon Building Programme Phase 2 (Extended).

Dimplex Solar Thermal just the tonic at former hospital site

An old hospital site in Forfar has been turned into a private and social housing development with a number of properties featuring Dimplex solar panels and electric heating – not only to comply with Scottish Building Regulations, but also to reduce tenant running costs.

Angus Housing Association was keen to have sustainable energy solutions as a key part of its development. Mike McManus, development manager, Angus Housing Association, explains: "Using renewable energy was a key feature for our specification but so was moving towards an all electric solution because of the costs, as a landlord, of the annual inspections and maintenance that come with using gas. Over the last couple of years we've had a policy of pushing towards using more renewables and we've installed solar hot water with gas before but this will be the first time we've used solar with electric heating."

With the high levels of insulation required in new homes and the consequent reduction in energy needed for heating, energy requirements for water heating are often a significant part of the overall energy needs for a property. The use of solar thermal water heating easily reduces energy consumption, reducing the carbon dioxide emissions for the property which helps to comply with Building Regulations.

Angus Housing Association manages more than 1600 houses in Angus and Dundee, and although it's early days in assessing the success of the solar installation, it has already specified solar again.

How solar 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 solar radiation to efficiently and effectively heat water stored in a cylinder, ready for use whenever you need it.

One system, many applications

Solar systems comprise of three key elements which are highly versatile enabling them to be used for a variety of applications from small apartments to large commercial installations.

Collector

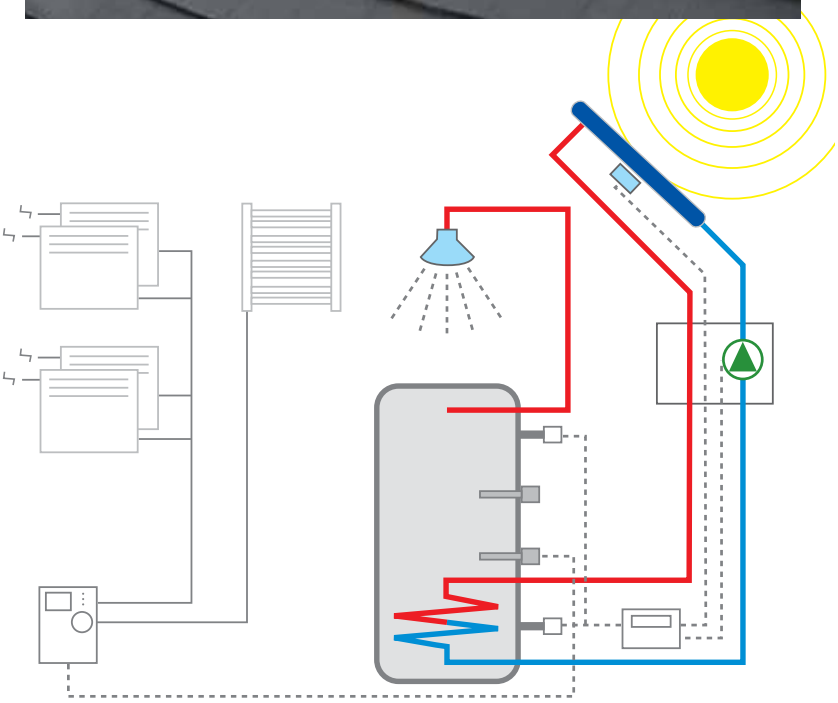
Roof mounted or free standing, the collector captures solar radiation from the sun and passes it on a working heat transfer fluid.

Heat transfer system

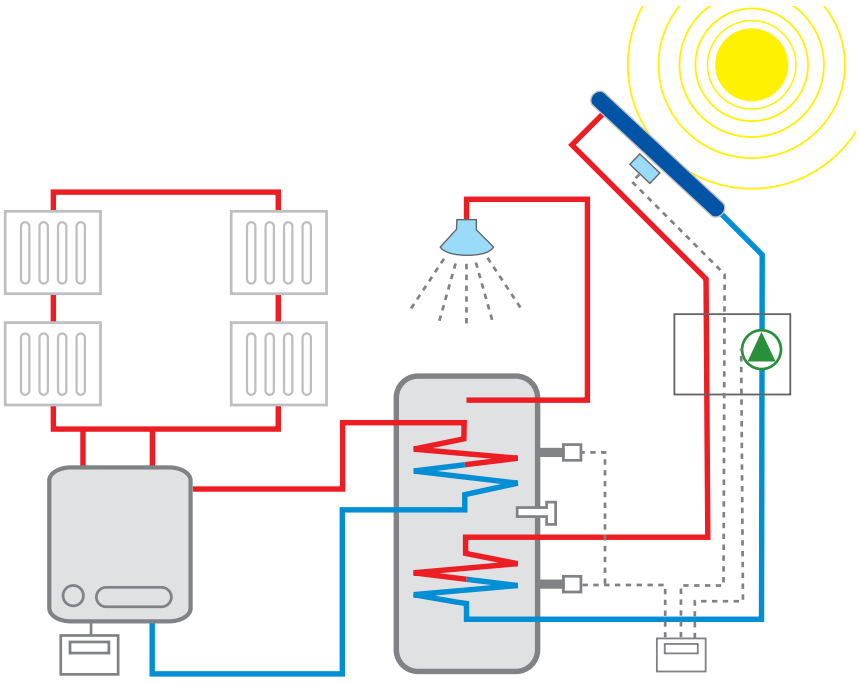
The pump station, controlled by the control unit, moves the captured solar energy from the collector to the water storage cylinder.

Storage cylinder

Energy from the heat transfer fluid is transferred to the stored water via a coil heat exchanger. The cylinder has a supplementary heat source to provide back up for times when insufficient solar energy is available.



Solar Thermal with direct electric heating



Solar Thermal with a secondary heat generator

Dimplex Solar packages

Dimplex solar hot water packages combine all the necessary components into easy to purchase kits. This makes specification and purchase easy, giving confidence that every component has been carefully selected for its quality and suitability for the UK climate. With a range of cylinder sizes suitable for each property and a selection of roof mounting options, the Dimplex solution has an answer for every solar water heating requirement.

Roof kit packages

- Choice of 2m², 4m² and 6m² collector kits.
- On roof mounting for plain tile, corrugated tile or slate roofs.
- Integrated roof mounting for tile or slate roofs with optional flashing kits to cover visible on-roof pipe work.
- Free standing panels for flat roofs or ground level mounting.

Hydraulic packages

Suitable for the majority of domestic application systems with a static height up to 7m, includes:

- Pump station.
- Control unit.
- Heat transfer fluid.
- Expansion vessel and fixing kit.

Range of cylinders

Available with single coil and dual immersions for direct electric systems or dual coils for use with a secondary heat source (such as a boiler).
Sizes available:

- 175 Litre
- 215 Litre
- 255 Litre
- 305 Litre

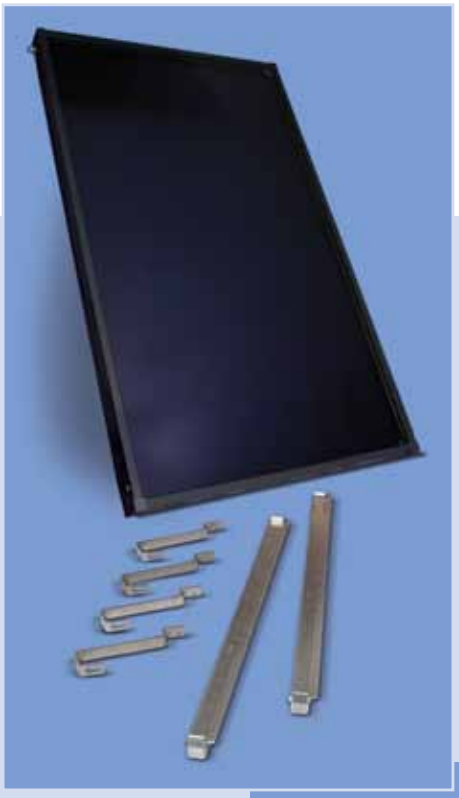
Accessories

A complete range of accessories is available to make installation and maintenance quick and easy including pre-insulated flexible hoses, vent tiles, flow meters and heat transfer fluid testing kits.

Integration with heat pumps

The SST 25 module allows integration of solar thermal with heat pumps. This solution is ideally suited for properties with high summer water usage compared to the standard heating load such as a well insulated house or sports clubs.

For more details on the products visit www.dimplex.co.uk/solar



1st Fix Kit

2nd Fix Kit

Solar collector

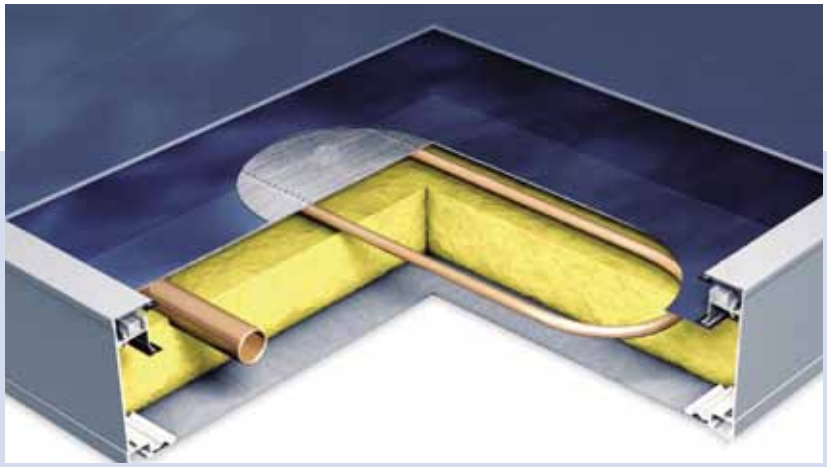
- Suitable for horizontal or vertical mounting orientation, with connection of up to 10 panels in series.
- 3.2mm structured solar safety glass with 91% transmission allowing the collector to absorb a large range of light frequencies.
- The structured solar safety glass covering has passed optional impact resistance tests as detailed in EN12975-2.
- Aluminium absorber sheet giving the optimum heat transfer combined with low weight.
- Good thermal insulation ensures that captured heat is not lost.
- Aluminium, anthracite powder coated frame provides lightweight protection for the absorber that blends with the roof.
- Laser-welded meander pipe with 1300 welds per metre ensuring an attractive finish with no visible seams and excellent absorber efficiency.
- 10 year solar collector warranty.

Push fit connections

- Double O-ring push fit connections for rapid installation using the 0.8m flexible hoses that come with the roof mounting kit.
- The flexible hoses allow the roofer to easily make all the necessary connections on the roof and simply leave the pipes in the loft ready for the plumber to connect up at a later date.
- Compression fittings are used from the 0.8m flexible hose to the rest of the system.

Solar Keymark approved

The solar collector is approved to EN 129752 and the European Solar Keymark Standard. Compliance to these standards assure you that the collector is high quality and capable of operating for many years. The testing checks the product's ability to withstand temperature, internal pressure and thermal shocks, rain and UV resistance, mechanical loading and impact resistance.



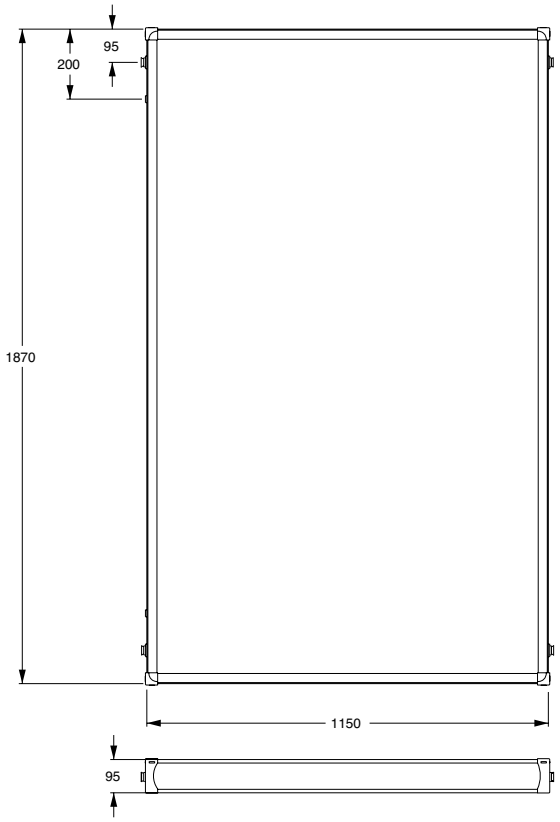
Cross section

Solar panel

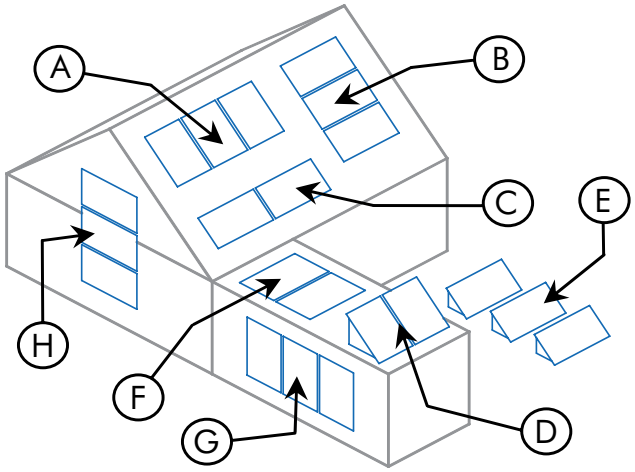
Technical specification

Gross collector area	2.17m²
Absorber area	**2.008m²**
Length	1870mm
Width	1150mm
Height	95mm
Weight (empty)	34.5Kg
Liquid content	1.7 litres
Glass	3.2mm Low iron structured saftey glass
Zero loss collector efficiency	**80.1%**
Heat loss coefficient	**a1: 3.83 W/m²K**
	a2: 0.0159 W/m²K²
Stagnation temperature	202°C
Absorber material	Aluminium
Peak Power	1540W
Gap between multiple collectors	90mm
Absorption	95%
Emission	5%
Connections	Double O-ring fitting
Transmission of glass	91.5%
Max operating pressure	10 bar

Items above shown in **bold** are important when adjusting SAP's default values.



Reference	Comment	On roof	In roof
A	Standard solution	✔	✔
B	Standard solution	✔	✘
C	Possible using multiple basic kits but with additional piping effort requiring additional components	✔	✘
D	Standard solution	✔	✘
E	Possible using multiple basic kits but with additional piping effort requiring additional components	✔	✘
F	Not permitted	✘	✘
G	Possible with additional parts supplied by customer	✔	✘
H	Possible with additional parts supplied by customer	✔	✘

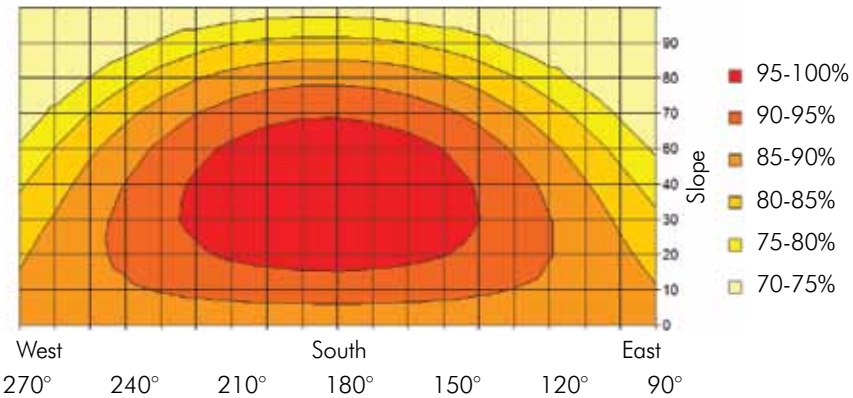


Panel Orientation

The orientation of the collector is important to ensure as much sunlight as possible is captured. The optimum positioning for Dimplex solar thermal collector panels is on a south facing roof at a slope of 35° from horizontal.

Solar thermal collectors are highly versatile and can successfully be orientated either east of west facing and only lose 20% of the maximum captured energy.

Change in performance due to panel orientation



Roof mounting options

All the roof mounting options in the Dimplex range are simple and effective. Options are available for a range of roof coverings, including plain or corrugated tiles, slates or flat roofs. Options for on-roof or roof integrated are provided.

Integrated

- Protrudes less than 60mm from roof covering.
- Sleek profile, mounted flush with roof.
- Back panel forms a weatherproof, integral part of the roof structure.
- Available for slate or tiles.
- Rapid installation with its unique back plate mounting enabling tiling to be completed before installing the collector.

Integrated with flashing kit

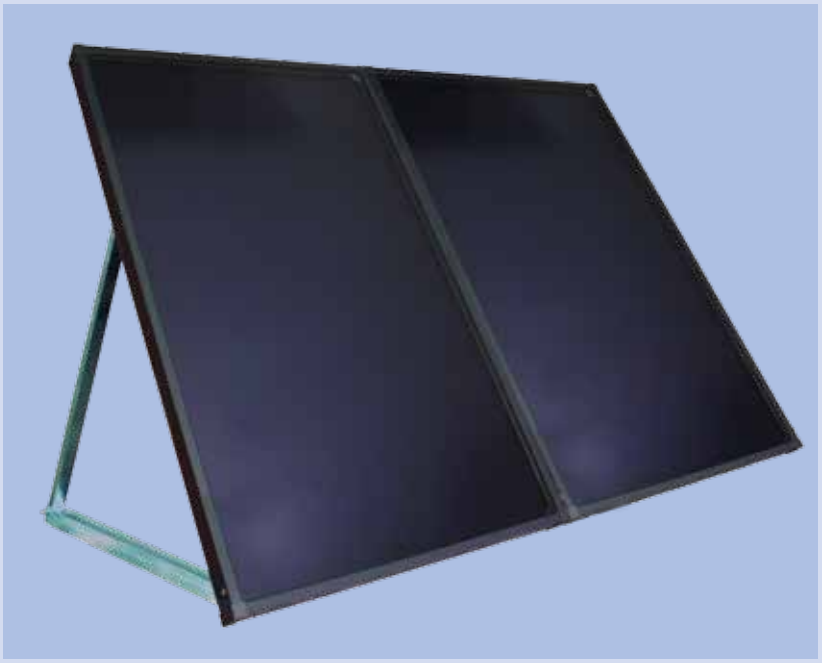
- For integrated collectors, an additional edge flashing that hides the pipes going into the roof and covers the gap between panels is available.

Free-standing

- Either landscape or portrait orientation.
- Suitable for flat ground or flat roofs.
- Panels can be mounted at 30° to 60°.
- Extra bracing available for areas where extreme wind and snow loadings are a concern.

Integrated

Integrated with flashing kit



Free-standing shown with optional SOLRKFBB

On-roof mounting system

The on-roof system uses 4 brackets fixed to the rafters of the roof. A mounting bar is attached to the brackets making it easy to fix the collectors on the roof.

- Protrudes less than 200mm from the roof covering, meeting permitted development planning requirements in England and Wales.
- Allows rapid installation with minimal adjustments to the existing roof.
- Flexible mounting system adaptable to the positioning of rafters.
- Can be mounted landscape or portrait.
- Collector angle is the same as the roof.

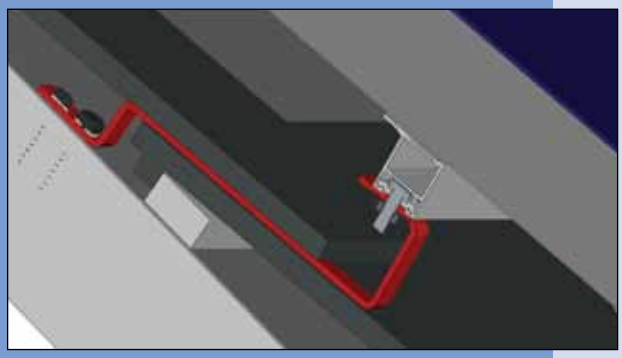
Roof hooks

There are 3 types of roof hook available, each for a different roof type. They are attached to the rafters which supports the collector's weight. The hooks are designed to be used with minimal adjustments to the tiles. Weatherproofing is achieved by the tile overlaying the roof hook.

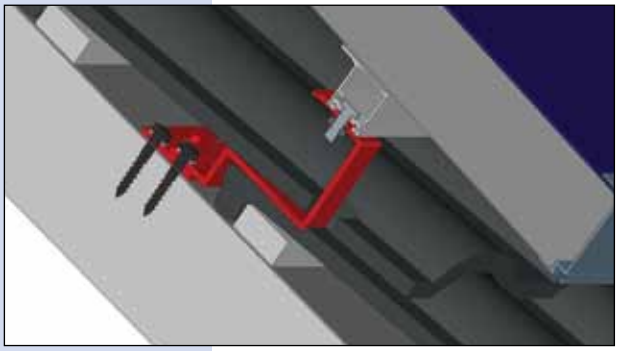
The plain tile hook, corrugated tile hook and slate hook each have a different profile for use with different tile thicknesses and profiles. The use of the correct hook is important to keep the collector close to the roof and to ensure that the collectors' weight is distributed correctly.

Coach bolts

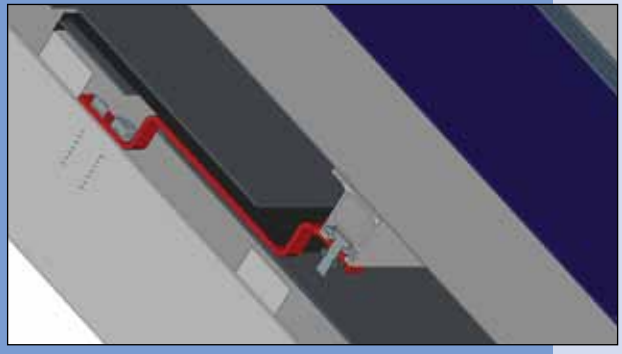
Coach bolts are fixed straight through the roof into the rafter below. The hole is sealed with rubber washers to prevent water ingress. The use of coach bolts gives a quick and neat installation, ideal for use with sheet metal roofs.



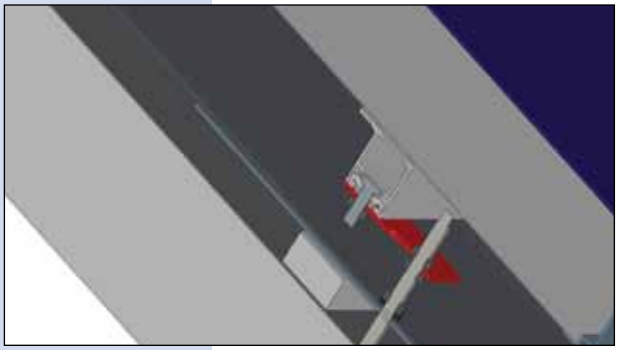
Plain tile hook



Corrugated tile hook



Slate hook



Coach bolts

SCxn Solar Unvented cylinders

The SCxn cylinder transfers the solar energy from the heat transfer fluid to the mains pressure water and stores it until it is needed. If there isn't enough sunshine to fully heat the hot water, a back-up heat source (electric immersion heater or boiler) will bring the water up to the correct temperature.

Unvented hot water systems provide a range of benefits:

Benefits for the user

- Mains pressure hot water.
- Fast filling baths.
- Powerful invigorating showers.
- Simultaneous supply of water to all bathrooms.
- No cold water storage tank required, freeing up valuable space.
- Long life low maintenance hot water supply.

Benefits for the installer

- Duplex steel inner cylinder with 25 year guarantee.
- Tough plastic leather grain external coating resists scratching.
- 60mm of CFC-free foam injected insulation providing excellent heat retention characteristics.
- No anode – reduces service requirements.
- 3kW incoloy 825 immersion(s) for longer life.
- Light weight and easy handling to site.
- Water inlet diffuser prevents cold and hot water mixing.
- Includes all the necessary safety equipment required by governing legislation.

SCxnsi with optional immersion cover

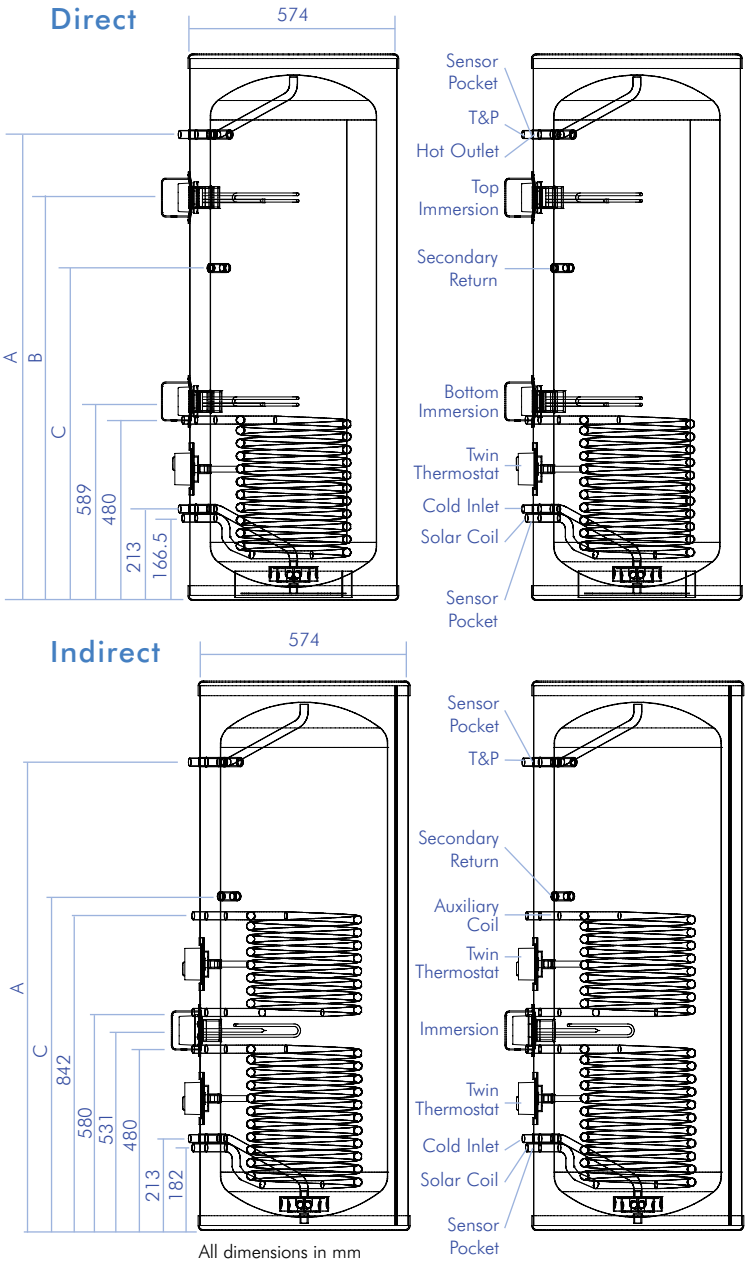
kiwa approved product
UK WATER SUPPLY REGULATIONS

CE

25 year cylinder guarantee

Technical specification

Materials	
- inner cylinder	Duplex stainless steel
- outer cylinder	Dove grey leather grain coated steel
- inlet/outlet	Stainless steel
- coils	Corrugated stainless steel
- insulation	60mm PU foam (GWP=1, ODP=0)
Maximum operating conditions	
- potable water temperature	70°C
- heating water temperature	95°C
- operating pressure	6bar
Cold water supply	
- minimum dynamic pressure	1.5bar
- maximum pressure	25bar
- minimum flow rate	15 l/min
Connections	
- cold water inlet	22mm stainless steel
- hot water outlet	22mm stainless steel
- secondary return	½"F BSP
- coil flow and return	22mm stainless steel
- sensor pocket	½"F BSP
Coil specification	
- auxiliary surface area [m²]	0.75
rating [kW]	17
- solar surface area [m²]	1.1
rating [kW]	–
Immersion heater	
- direct	2
- indirect	1
Thermostatic control	
- direct input	- integral immersion heater thermostat and cut out
- indirect input	- external twin thermostat and cut out
Safety components	
- pressure reducing valve and strainer	3bar
- expansion relief valve	6bar
- temperature and pressure relief valve	7bar / 90°C
- factory pressure test	10bar



All dimensions in mm

Performance

Product	Total storage capacity (litres)	Auxiliary heated volume (litres)	SAP heat loss factor	Dedicated solar volume (litres)	Overall height (mm)	Weight when empty (Kg)	Expansion vessel size (litres)	Dimension A (mm)	Dimension B (mm)	Dimension C (mm)	Heat-up time (mins)	Reheat time (mins)	Calculated heat loss in 24h (kWh)
SCxn175sd	175	90	0.915	85	1242	44	18	1017	846	803	20	14	1.43
SCxn215sd	215	130	1.324	85	1485	52	18	1259	1087	879	24	17	1.76
SCxn255sd	255	170	1.540	85	1753	59	25	1527	1355	1057	29	20	1.86
SCxn305sd	305	220	1.810	85	2029	69	25	1804	1631	1196	34	24	2.02
SCxn175si	175	80	0.915	95	1242	48	18	1017	-	774	18	13	1.43
SCxn215si	215	120	1.324	95	1485	56	18	1259	-	1116	22	16	1.76
SCxn255si	255	160	1.540	95	1753	63	25	1527	-	1029	25	19	1.86
SCxn305si	305	205	1.810	95	2029	73	25	1804	-	1167	30	22	2.02

*The Auxiliary heated volume is the amount of water heater by either the Auxiliary coil or the immersion heater.

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.
- Holiday function and anti-freeze function.

SOLCU1

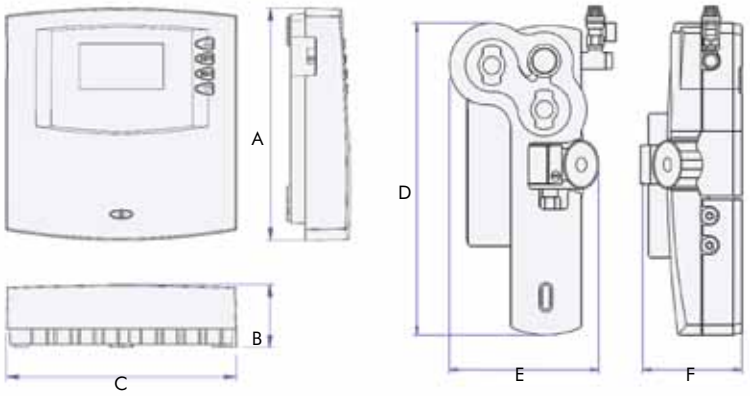
- For use with a single array of panels with one storage tank.
- 3 inputs and 1 output.

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 SOLFM15 or SOLFM25 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.



Engineering drawing of controller and pumpstation

Dimensions

Product	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
SOLCU1	137	38	134	-	-	-
SOLCU2	170	46	170	-	-	-
SOLCU3	170	46	170	-	-	-
SOLPU1	-	-	-	520	260	170
SOLPU2	-	-	-	535	260	170

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.

- Pre-assembled for quick and easy installation.
- Compact design makes good use of space and is fully insulated.
- Variable pump speed control for maximum efficiency.
- Incorporates a pressure relief valve, two non-return valves, flow meter and two flush and fill connections for quick and easy installation.
- SOLPU1 – flow rates 1 to 20 l/min, 6m head.
- SOLPU2 – flow rates 5 to 40 l/min, 7m head.

Pump station

Accessories

The Dimplex range of solar accessories has been specially selected to cope with the higher temperatures and pressures that can occur in a solar thermal system.

Pre-insulated flexible hose

Available in 10 or 15m 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 collector.

Flush and fill pump

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

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.

Feed though tile

For on-roof installations the feed through tile allows access through the roof for the pipe work whilst maintaining the integrity of the roof covering.

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.

Thermostatic mixing valve

22mm thermostatic mixing valve for use with domestic hot water and the SCx solar cylinders.

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.

Full technical details on these products is available on www.dimplex.co.uk/solar

SOLFH
flexible hose

SOLHTTK heat transfer medium test kit

SOLFFP Flush and fill pump

SOLFTT Feed through tile

Sizing guide

The Dimplex package has been grouped into easy to select kits. Simply, follow the 4 easy steps below, ticking one box at each stage.

Step 1 – Select the cylinder

Based on the number of people living in the property and their water consumption at 45°C in 24 hours, select the size of the domestic hot water cylinder.

Choose either:

- Direct (one solar coil with electric immersion heater back up)
- Indirect (one solar coil and one coil for connection to a secondary heating source)

Step 2 – Select the 1st fix kit

Based on the amount of hot water required select the number of solar panels. Once this is decided, choose the method of roof fixing.

Step 3 – Select the 2nd fix kit

The hydraulic kit contains everything that is required inside the property, apart from the interconnecting pipes.

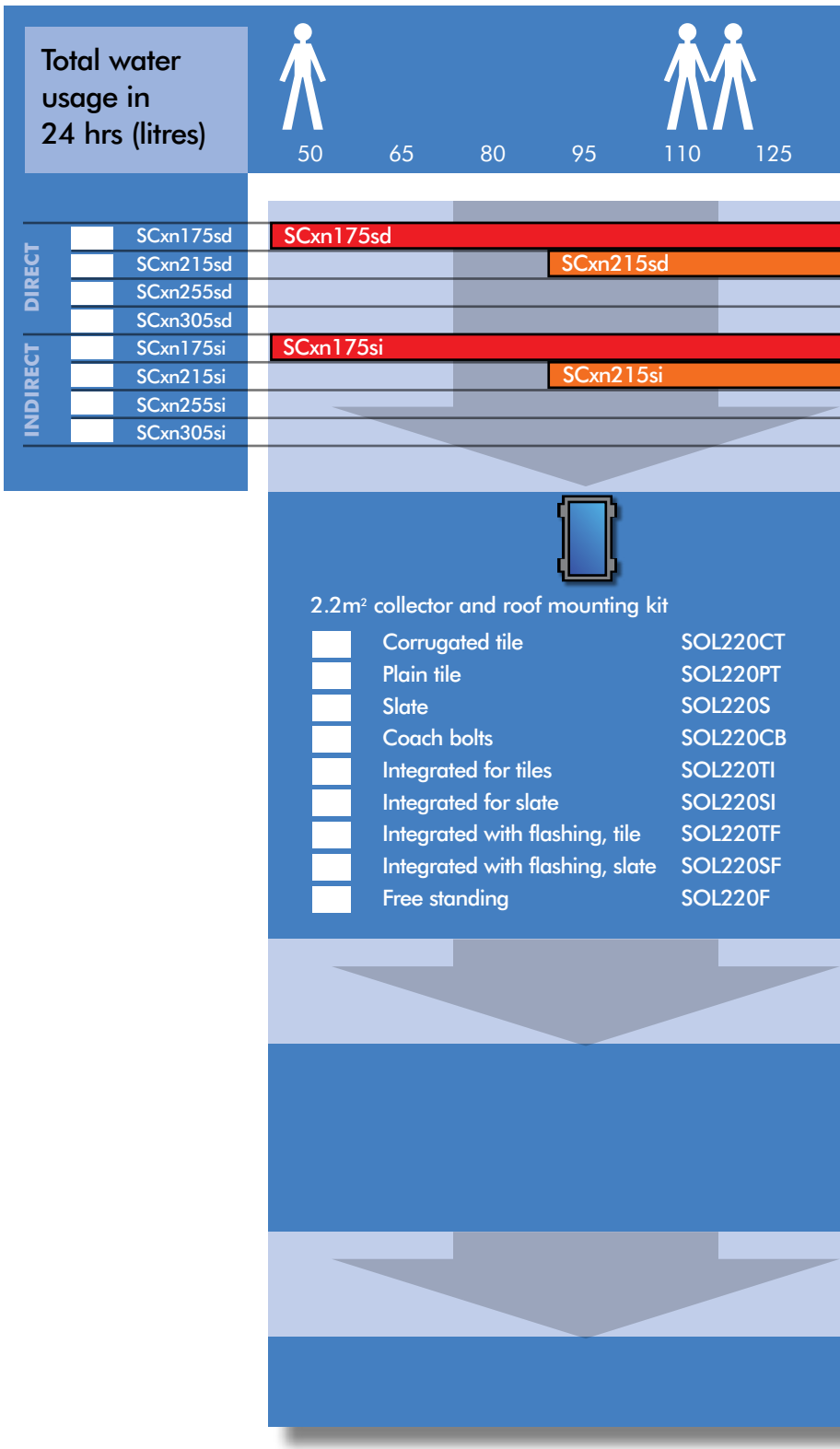
Step 4 – Select the accessories

Also, don't forget to order accessories to help speed up installation such as:

- flexible hoses.
- flush and fill station.
- feed through tiles.
- thermostatic mixing valves.

Hot water usage guide lines

Kitchen Sink	2 to 7 litres/meal
Washing Machine	20 litres/cycle
Dishwasher	2.5 litres/meal
Hand washing	1 litre/person per use (40°C)
Bath	55 litres/bath
Showers	6 litres/minute
Cleaning	10 litres/sink
Hairdressing	10 litres/shampoo



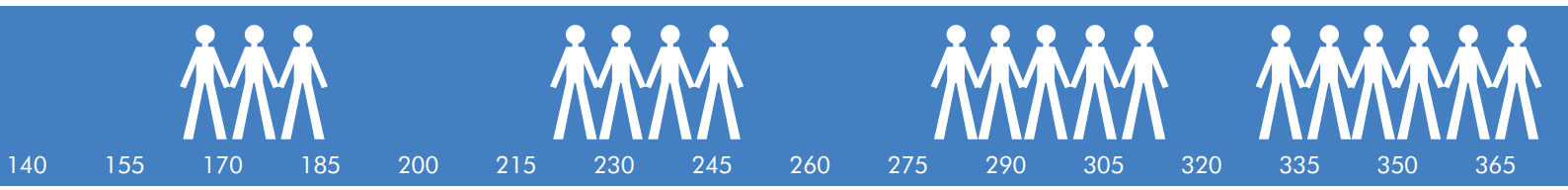
2.2m² collector and roof mounting kit

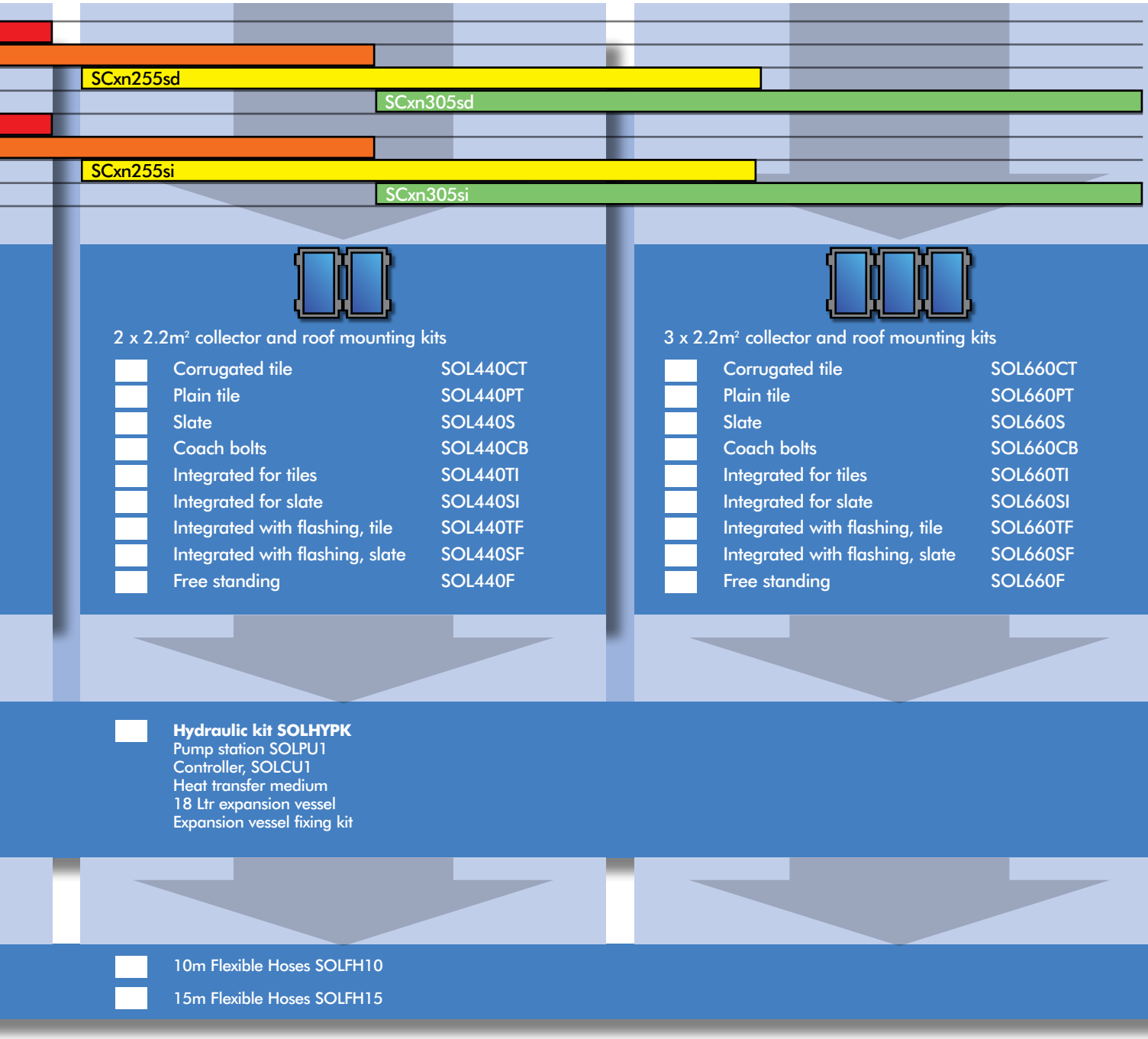
Corrugated tile	SOL220CT
Plain tile	SOL220PT
Slate	SOL220S
Coach bolts	SOL220CB
Integrated for tiles	SOL220TI
Integrated for slate	SOL220SI
Integrated with flashing, tile	SOL220TF
Integrated with flashing, slate	SOL220SF
Free standing	SOL220F

Note: This guide assumes the panels are mounted on a south have shadows cast on them during the day, it may be necessary

Solar Thermal and Heat Pumps

To get the lowest possible carbon emissions, it is possible to combine solar thermal collectors with a heat pump. To achieve this you need the Dimplex heat pump hydraulic kit, which contains the SST25 Solar Station. Cylinders should be correctly sized for heat pump use. Please contact the Dimplex renewable technical team for further advice.





2 x 2.2m² collector 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 collector 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

Hydraulic kit SOLHYPK
Pump station SOLPU1
Controller, SOLCU1
Heat transfer medium
18 Ltr expansion vessel
Expansion vessel fixing kit

10m Flexible Hoses SOLFH10

15m Flexible Hoses SOLFH15

facing roof sloped at 35° with no shading. The solar fraction achieved will depend on a variety of factors including location. For different roofs or those that to increase the number of solar collectors.

Hydraulic kit for integration with heat pumps SOLHPHYPK
Solar heat exchanger, SST 25
Controller, SOLCU1
Heat transfer medium
18 Ltr expansion vessel
Expansion vessel fixing kit

Note: to be used in conjunction with Dimplex heat pump cylinder instead of Dimplex SCxn solar cylinder.

FAQ's

How effective is solar water heating in the UK?

If correctly specified and installed, solar water heating can be very efficient. About 4m^2 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 effectiveness 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/m^2 per year in Scotland and the North of England, to approximately 1,200 kWh/m^2 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/m^2 of solar radiation light 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° with 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 efficiency. The same applies to the angle of the roof which, provided it is pitched between 30° and 50°C, should still be suitable.

I've heard evacuated tube collectors are more efficient. Why would I consider a flat plate system?

It is true that evacuated tubes tend to provide a higher energy yield than flat plate systems in the spring/autumn time, however in the summer a correctly sized flat plate system will provide up to 100% of the hot water demand. Tubes generally also require slightly less roof space to yield the same amount of energy.

Benefits of flat plate systems however include lower initial cost, higher levels of robustness and lower maintenance. Flat plate systems also have the benefit of being able to be fully integrated into the roof line, which has a better appearance and also saves money on other roofing materials.

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.

What financial incentives are there for me to install a solar heating system?

The Low Carbon Building Programme funded by the Government offers homeowners up to £400 to assist with installing a solar energy system. What's more, a system that is installed by a heating professional attracts VAT at 5%.

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.

Grants and Finance

A number of grant schemes and financial incentives are available to help subsidise the cost of Dimplex renewable energy installations across the UK and Ireland.

Grants – UK Wide

Low Carbon Building Programme (Phase 1)
Open to households across the UK (except the Channel Islands and the Isle of Man), Phase 1 of the Low Carbon Buildings Programme demonstrates how energy efficiency and microgeneration can work hand in hand to create low carbon buildings. Grants of £400 or 30% of the relevant eligible costs are available to householders for the installation of solar thermal hot water.

For more information: www.lowcarbonbuildings.org.uk

Low Carbon Buildings Programme (Phase 2) – Extended
Phase 2 of the Low Carbon Buildings Programme provides grant funding for the installation of various microgeneration technologies – including solar thermal – by organisations in the UK public and not-for-profit sectors, including local authorities, housing associations, schools, colleges, community buildings, hospitals and registered charities. Organisations can apply for 50% of the cost of installing solar thermal technologies and the scheme is operating until April 2011.

For more information: www.lowcarbonbuildingsphase2.org.uk
or email lcbp@dimplex.co.uk

Grants – Scotland

Communities and Renewable Energy Scheme (CARES)
CARES provides capital grants for a range of renewable energy solutions of up to £150,000 for all legally constituted not-for-profit community organisations in Scotland.

For more information: www.communityenergyscotland.org.uk/cares

Installer Training

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

Dimplex provides dedicated training courses for new installers, covering correct sizing and installation of the Dimplex solar products. 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.

Dimplex ACCREDITED Solar Installer

For more information: www.dimplex.co.uk/training
or email training@dimplex.co.uk

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 renewable energy 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 equipment will provide.

Benefits of the scheme include:

- Finances match funding for LCBP2 (or other grant schemes)
- 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

The Dimplex solution

for assisting Building Regulations Part L and Code for Sustainable Homes compliance

For many specifiers, in particular of flats and small terraced properties, the benefits of low capital costs, simple installation, faster building speeds and no pipework or flues means electric heating is frequently the preferred heating solution. With improvements in building insulation standards meaning that water heating has now overtaken space heating as the major energy consumer in the home, combining solar thermal with electric heating is an ideal way to drive down a property's carbon emissions to aid its Code for Sustainable Homes rating and Building Regulations compliance.

Part L compliance

For buildings containing multiple dwellings such as flats, it is possible to use a whole block methodology to demonstrate compliance. This has the benefit that flats within the block with the lower carbon dioxide emissions can be used to trade off against those with higher emission rates, meaning each individual unit does not have to comply, only the overall block.

RouteOne

This page is designed to give a quick overview of how Dimplex solar thermal can help with Part L and the code for Sustainable Homes. However, as part of our RouteOne solution we have a number of in-depth technical guides to help specifiers through this regulatory maze. Each guide focuses on achieving different levels of building efficiency through combinations of fabric, heating, hot water and ventilation strategies.

Maximising solar performance in SAP

The Dimplex solar range has been specially developed to provide a package that is optimised for both carbon saving and cost effectiveness. Specifically, the Dimplex flat plate collectors outperform the standard values assigned for solar within SAP, so it is important that SAP assessors take advantage of the high efficiency of the Dimplex collectors by adjusting SAP's default values.

Tips for improving your SAP score using Dimplex:

- Ensure an industry-recognised SAP software package is used, with the ability to allow finite adjustments to be made to default values, for example **NHER Plan Assessor**. Not all software packages allow adjustments to take advantage of products which perform better than SAP's defaults.
- To get the optimum collector area benefit, use the **absorber** rather than the gross area and change the default value in SAP to 2.008m^2 – Dimplex collectors have a larger net area than assumed by SAP.
- Change the default **zero loss collector efficiency** (η_0) from 0.75 to 0.1801, as again Dimplex collectors outperform the default assumptions made in SAP.
- Change the **heat loss co-efficient** (a_1) default value from 6 to 3.83. Dimplex collectors are significantly improved in this area.
- Ensure the solar cylinder details are entered correctly:
  - Enter the **total cylinder volume** where asked for the cylinder's solar capacity.
  - Check the manufacturer's details for the **auxiliary volume**. Do not enter the total cylinder volume for this which is a common mistake, as this relates to the volume of water that can be heated by electric heating.
  - the larger it is, the more direct energy SAP will assume is being used.

RouteOne solution

DuoHeat® radiator

EPX panel heater

These products are an ideal low cost electric heating solution to combine with solar thermal water heating.

Please visit www.dimplex.co.uk/routeone or ring 01489 773336 for copies of the guides.

SCxn standard unvented cylinders

The Dimplex SCxn cylinder will supply all the hot water required for the modern home, providing rapid filling baths and invigorating showers to en-suite bathrooms and other domestic appliances at the same time. The information provided here gives an overview of this range.

Full details can be found on our website at www.dimplex.co.uk/cylinders or in our comprehensive cylinders brochure which can be ordered via our website or by ringing 0845 600 5111.

Standard and slim-line cylinders

- Mains pressure hot water.
- No cold water storage tank required, freeing up valuable living space.
- Long life low maintenance hot water supply.
- Duplex steel inner cylinder with 25 year guarantee.
- Tough plastic leather grain external coating.
- No anode reduces service requirement.
- 60mm CFC-free foam injected insulation.
- Water inlet diffuser prevents cold and hot water mixing.

Commercial cylinders

The new range of bespoke commercial cylinders are designed to your specification to match your exact requirements.

- Choice of sizes available from 450 to 4000 litres
- Coil size and number – available in sizes from 14kW up to 140kW allowing integration of numerous different technologies.
- 3 types of threaded fitting available in a variety of sizes. The location of these fittings can be adjusted dependent on your design making the layout of your plant room simpler and neater.
- Optional temperature and pressure gauges.
- Supplied with safety kits including pressure reducing valves, expansion vessels, temperature and pressure release valves and tundish.

For more details contact our renewables design team on 0845 600 5111

SCxn standard cylinder

WRAS APPROVED PRODUCT

25 year cylinder 25 guarantee

GUARANTEE

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

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.

APPROVALS

Dimplex products are approved by the following 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

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 manufacturers instructions.

The Dimplex Range

Dimplex offers the widest range of electric space and water heating products in the world – nearly 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 for more information.

Heat pumps brochure

Range brochure

Commercial brochure

Fires brochure

CPD MEMBER Construction CPD Certification Service

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Comfort. By design

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