

Leading solar technology in Europe for over 10 years



Sun. Day and Night.

From Consolar



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Heat from the Sun - modern solar technologies and improved quality of life



The outlook is sunny! Modern solar equipment means that use of solar energy is no longer limited to just providing hot water but can also be used to support space heating. It is simple and efficient, and best of all, the energy comes from the most reliable energy provider in the world, delivered free, for use in

our homes. Even when there is no direct sunshine the sun's rays are still delivering plenty of energy. Traditional energy sources such as oil and gas are becoming scarce and more expensive so the climate is ripe for being enterprising. You can save on all your heating costs and at the same time reduce CO₂ emissions. That's how to enjoy a sunny future.



Solar collectors: Solar thermal(left) and solar electricity (right) on the same building

One Sun - Two Energy Systems

There are two principle ways to collect solar energy: one produces electricity, and the other produces heat.

Electricity from the Sun.

This type of system, using photovoltaic modules, produces electricity from sunlight - mostly for direct input to the electricity grid. These systems can usually convert up to 15% of the insolation (radiated solar energy) into electricity. They require a very large roof area to produce a useful amount of energy.

Heat from the Sun

Energy collected by solar thermal equipment can be used to provide heat for hot water, or can be used in a combination system to provide space heating support.

Using solar thermal energy as the primary source of heat means you can be more independent of rising oil and gas prices. As fuel costs rise, the savings from solar thermal systems will increase. Solar thermal technologies are mature and very efficient solar thermal collectors can convert 70% or more of the solar insolation to useful heat.

A solar thermal system for an average family house needs from three to 12 square metres of collector area - a relatively small area of the roof. The heat collected is used in the house to heat water, and with larger collector areas it is usually possible to connect to your existing space heating system. If your boiler is old and needs replacing, new condensing boilers, or even better, wood pellet boilers are available.

Condensing boilers are more efficient than conventional boilers due to the fact that they can extract more heat from the fuel.

Solar Systems and Conventional Boilers

The higher solar input between April and September means there is little requirement for the boiler to run to provide any hot water that may be required. Most demand will be met by the solar system, saving money and CO₂ emissions. In a solar combined system energy savings will be achieved year round because of the base solar thermal input.

Solar-Pellet Boiler Systems

Modern wood burning boilers are clean, efficient and better for the environment than oil or gas boilers. The fuel they burn can be regrown and absorbs the CO₂ emitted when it is burnt. This makes combining solar and efficient wood burning the optimum combination. Wood burning boilers can be fuelled by logs, pellets or chips.

When using a wood boiler in conjunction with a solar thermal system there are two stages of benefit.

Stage 1:

A small hot water solar thermal system means that the wood boiler is rarely used for three seasons of the year.

Stage 2:

It is not only in summer that there is less need for the boiler to run. In the winter boiler start-ups are significantly reduced because of the buffering provided by the thermal store. (The ability of the thermal store to supply all the small demands without the need for the boiler to start). Using the solar thermal store saves plenty of wood. Wood is almost CO₂ neutral compared with fossil fuels. Wood pellet and chip boilers usually have a fully automatic control and fuel feed system.

Saving Money, Saving the Environment

Saving Energy and Money

In the average size house the bulk of domestic energy consumption is used in water and space heating (85%). Three quarters of this energy is used for space heating, a quarter is used for domestic hot water. The remaining portion of the total energy (15%) is the electric portion.

There are two ways of using solar thermal heat. Firstly a system for hot water provision (lower diagram, right hand column) can give savings of around 5 - 15% of the total annual energy (60% plus of the hot water). Alternatively a system combining hot water and heating support (lower diagram, left hand column) can give savings of 15 - 40% of the annual hot water and space heating costs. Even greater percentage savings can be made in low energy or passive solar heated houses. The graph represents an average installation.

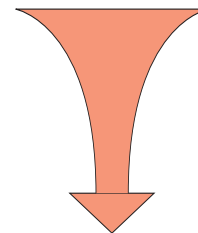
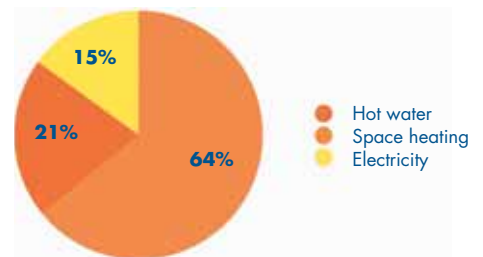
Largest Savings in Retrofitting Older Houses

The largest potentials for savings are where the energy use is greatest, so installing solar thermal systems in older buildings makes economic and environmental sense.

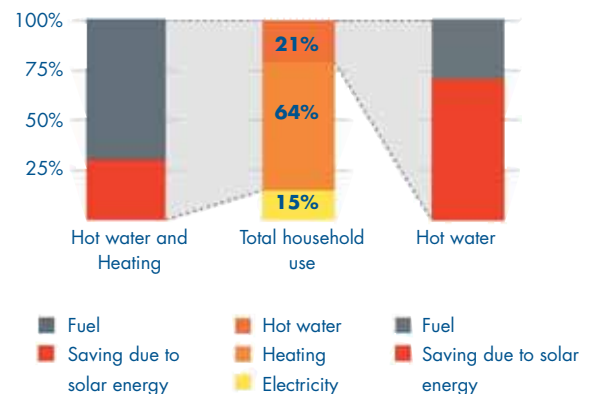
Is Installing Solar Equipment Worth While?

The question of whether installing solar equipment pays is one that is often asked. The answer is yes, but how quickly is heavily dependent on future energy prices, whether it be from fossil fuels or from renewable sources. However if we are to make a difference to CO₂ emissions and reduce our personal daily labour input, then solar must be the way forward.

Average Domestic Energy Use



Possible savings for combination space heating and hot water systems (left) or purely hot water systems (right)



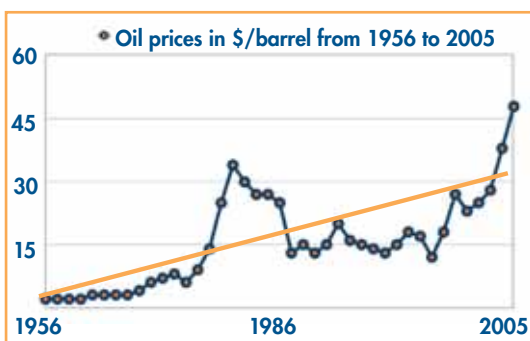


Solar thermal systems from Consolar combine ecology and economy. This is financial investment that makes sense.

Rising Fuel Prices

The pay back period for solar equipment depends on how fuel prices develop. Over the last 10 years oil prices have risen by an average of 10% a year. Recently this rate of increase has accelerated even more.

If prices continue to rise in this way, or even - as the experts predict - rise even faster, any solar equipment installed will very soon have paid for itself. As well as the immediate energy cost savings the working life span of



the boiler will be extended through use of solar thermal energy. In summer especially, when the boiler is operating less efficiently, the solar thermal system will provide almost all of the hot water required.

Grants available in the UK

There are grants available for solar water heating systems installed by a registered installer. As this information continually changes check www.consolar.co.uk or www.greenshop-solar.co.uk and follow the links for up to date information.

The sun is the source of all of our energy, it should be the starting point for the energy used in buildings.

The future challenge is to use energy ONLY from renewable sources.

The 2005 report from The Environmental Change Institute states that the CO₂ emissions from dwellings can be reduced by 60%. Solar water heating is a significant part of this.

“A responsible developer WILL include solar in their buildings” - Roger Budgeon

The Complete Solar Thermal System

Collectors

The solar collector is designed to turn solar insolation into heat at all times of the year and not only in direct sunlight. There are two different types of solar thermal collector: flat plate and evacuated tube.

Flat Plate Collectors

Flat plate collectors look like large roof windows. Behind the glass pane is what is known as a selective absorber. The highly selective lamination converts significantly more solar insolation into heat than a simple lamination, resulting in higher energy savings, especially in autumn, winter and spring.

Evacuated Tube Collectors

Evacuated tube collectors consist of glass tubes in which the insolation is converted into heat. Mirroring behind the tubes concentrates the energy.

The vacuum in the tubes reduces any heat loss to a minimum. Therefore evacuated tubes can deliver significantly more heat in colder air temperatures than flat plate collectors.

Idling Safety

It is important with both types of collector that the components are protected from damage during idling periods in the summer. Idling problems can arise due to long periods of high solar input and low thermal demand, such as householders summer holidays. Systems that are not designed to deal with this situation run the risk of overheating, and this can then lead to component failure and additional maintenance.

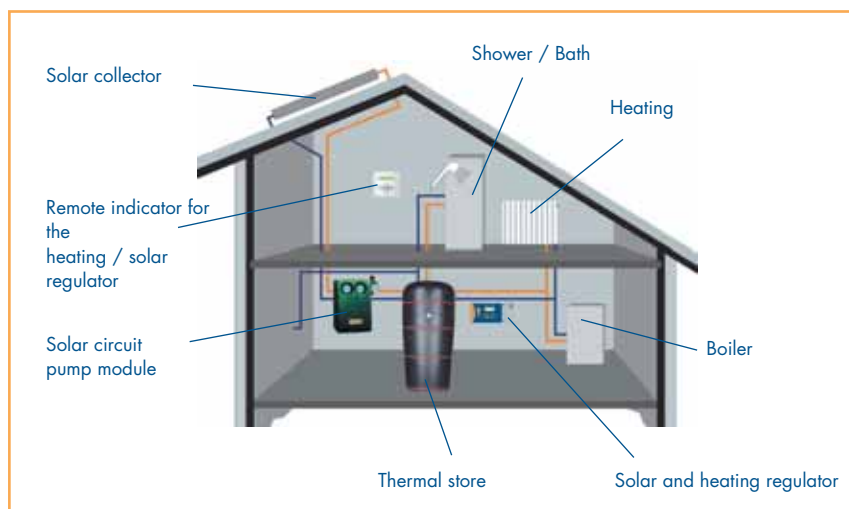
Heat Storage

The central component of a solar thermal system is the heat store. Heat from the solar collectors is transferred, via pipework, to the water in the store. The main function of the store is efficient storage of solar heat for as long as possible, and then efficiently delivering the heat for heating the hot water and/or the space heating system.

Transfer of solar heat to the water in the store is usually achieved using a heat-exchanger. The water in the solar circuit usually contains antifreeze which prevents the pipes from freezing up in winter. An efficient solar heat-exchanger enables a particularly high heat transfer to the store. This does not

automatically mean high energy output, here efficiency losses could be caused by the mixing of colder and warmer store water.

These losses can be minimised using an efficient stratification system within the store.





Solar houses providing domestic district heating in Lörrach Stetten



Multi-family house in Frankfurt am Main, Germany



Installing solar equipment is child's play



A one family house with facade array

The Consolar Thermal Store.

With Consolar Stores the volume of store water remains contained within the store and is only used as a medium to store thermal energy. The energy is transferred in and out using high efficiency heat exchange coils.

An important aspect of any heat store is water hygiene. In systems with large volume tanks which provide solar support for space heating and hot water provision, there could be a risk from legionnaire's disease. This risk can be increased when combined with long idling periods. For this reason, safer hot water systems have only a small volume of heated water and use the continuous-flow heater principle, heating the water as it passes through a heat exchanger within the store (see also page 13).

The efficiency increase through the stratification effect is enhanced by delivering the heated water to the top and guiding the cooled water to the bottom of the store. This separation of cold and hot water ensures the maximum thermal efficiency and simultaneously makes sure the solar heated reservoir water is available for immediate use. This results in less frequent boiler firing and maximum energy conservation.

Retro-fitting Solar Thermal Systems

Solar thermal systems can be designed to suit almost any requirement, reducing the annual energy demand and lowering the CO₂ emission.

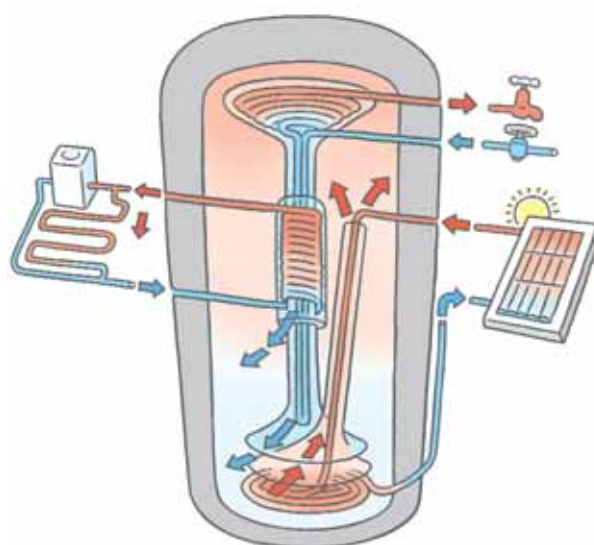
In the illustrations here and the information on the following pages we introduce the new technology that Consolar thermal systems offer. As a specialist solar thermal manufacturer with over 15 years development experience Consolar offer a wide spectrum of particularly efficient solar thermal systems for almost any situation.

These systems are specifically designed to **Save energy and reduce CO₂ emissions** with low maintenance solutions, developed and successfully proven.

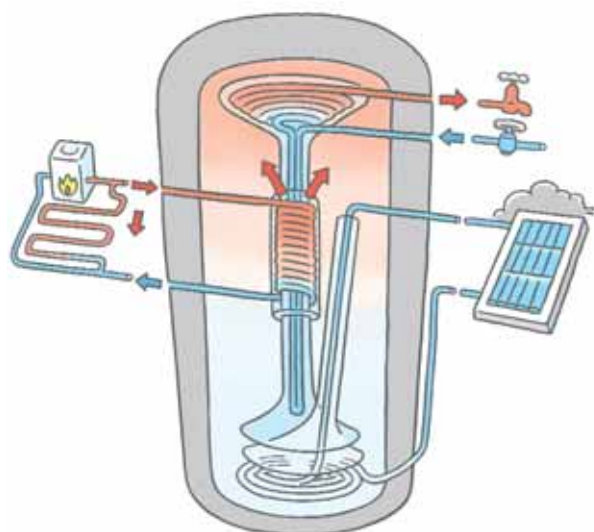


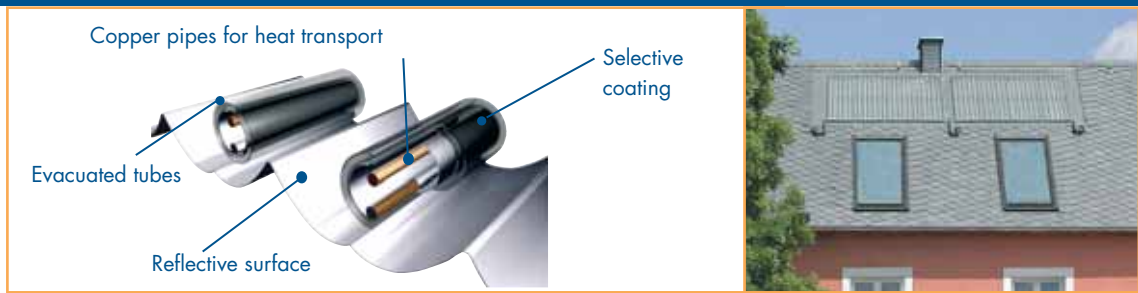
Legionella under the microscope

Charging the store with Solar Energy



Charging with the boiler





In-line roof mounted TUBO 12

TUBO 12 CPC - the Evacuated Tube Collector

**patent
protected**

Maximum Collector Yields

With the TUBO 12 the highest efficiency is achieved with good heat yields even in the winter months. The compact design of the collector and the vacuum between the inner and outer tubes ensure negligible heat loss, achieving high efficiencies even with a relatively small roof area covered.

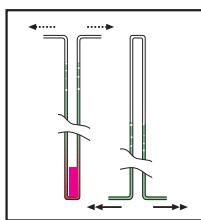
Quality and Working Life

The design of the TUBO 12 is the result of over 20 years of practical experience. The materials used are chosen to meet the highest

quality requirements to ensure a long working life for your solar thermal installation. The housing for collector connections is made from high quality

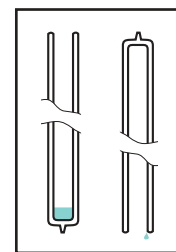
stainless steel and the pipework in the tubes is a special copper-nickel alloy. Both withstand long periods of use at high temperatures. Normal copper pipes have a tendency for corrosion (scaling) at high temperatures. The glass tubes have especially thick walls and individually undergo strict quality testing. The downward facing connections of the collector have two main advantages: Firstly, the condensation which accumulates in particular weather conditions, can drain directly downwards out of the tubes, which means that the tubes will not burst due to frost. Secondly, it

Conventional Evacuated Tube Collectors: the antifreeze vapourises slowly and its quality is broken down quickly



Downward leading connections: rapid emptying of the collector leads to a longer working life

Conventional Evacuated Tube Collectors: condensation can burst the pipes



TUBO 12: Safe from freezing in winter, any condensation can simply drain away

ensures the rapid emptying of the collector tubes at high temperatures and extends the life of both the antifreeze and the collector.

Environment

The frameless, flat construction of the collectors uses less materials and correspondingly less energy in manufacture.

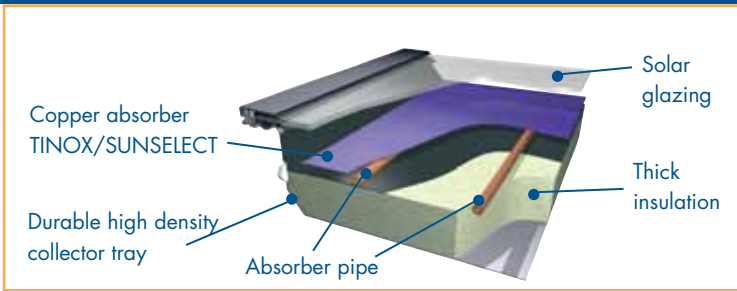
Flexible Installation, Good Design

Small modules allow for different mounting applications (horizontal, vertical, roof mounting, flat roofs, facade mounting) catering for a variety of architectural integration possibilities. The TUBO 12 at 55mm, is the thinnest solar collector on the market (Consolar research).

Easy Installation

The 18kg module weight and practical measurements make installation quick and easy. There is no need for a crane, the TUBO 12 will fit through any roof window or can be easily carried up a ladder or tower.

The Consolar Guarantee for the TUBO 12 covers against high temperature corrosion (scaling) for 5 years.



In-line roof mounted PLANO

PLANO 26 - the Flat Plate Tray Collector

Higher Collector Yields

The PLANO 26 is a particularly efficient flat plate collector. The highly transparent solar glazing unit always ensures a high level of solar insolation captured by the collector. The highly selective lamination of the TINOX/SUNSELECT absorber efficiently converts the insolation into heat.

The especially thick insulation, 60mm, reduces heat losses to a minimum so that all the heat arrives at the thermal store. In the spring and autumn, the PLANO 26 exhibits exceptional heat yields for a flat plate collector.

Quality and Working Life

The most widely available flat plate collectors on the market are often either glued or riveted at the frame edges. After a few years of operation at high summer temperatures these types of collectors are no longer weather, or air tight. This can result in a drop in efficiency and output.

Consolar has developed a different design for the PLANO 26. The sealed aluminium tray reliably protects the absorber and the insulation against the weather for many years of operation, thereby ensuring a long term, high annual energy yield.

New Collector Tubing

The tubes within the PLANO 26 use the newest developments in solar collector research. If the collector reaches very high temperatures in summer the solar liquid is forced quickly and completely out of the collector. This extends the working life of the antifreeze and the collector.

Environment

The high quality TINOX/SUNSELECT laminate used in the PLANO 26 is applied in an environmentally sensitive process, and because of its efficiency produces a particularly high heat yield.

The cheaper black chrome absorbers are considerably less efficient, especially when solar insolation is lowest in the important extended winter season. Their manufacture gives rise to environmentally damaging materials, and requires a considerably longer time to repay the energy used in their manufacture than for modern laminates.

Flexible Installation

PLANO 26 collectors are available as verticle or horizontal models. The tray means that the solar collectors will always look good on the roof. The collector can be installed in, or on a normal sloping roof, or on a flat roof. It is usually possible to find a solution that will provide an attractive installation.



Consolar provide a 10 year Guarantee for the PLANO 26.

Available 2007

The most efficient hot water solar thermal system in Europe*

COAX - The very best in Solar Hot Water Provision

Solar thermal systems for providing hot water offer an efficient low investment introduction to using solar energy. In recent years it seems there have been only relatively minor advances in the technology of solar thermal systems for hot water provision. Now, with the COAX system, Consolar has introduced several considerable improvements which set new standards and bring greater benefits to our customers.



of heat to the store. Significantly more solar heated water is available through the combination of these specific design details. To put it another way, you will need a smaller collector area for the same solar energy gains. Saving you more on the

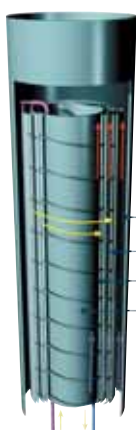
installation cost and more energy in the long term,

Quality, Working Life and Reliability

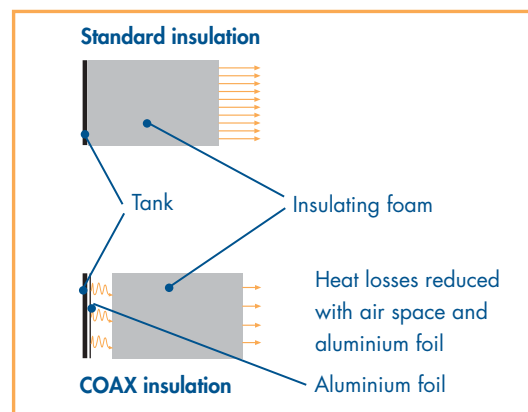
The materials used are notable for their environmental sustainability and durability. The LEEPS (aluminium and polystyrene) foam is much more environmentally friendly than the

Efficiency and Economy

The design of the new patent protected coaxial solar heat-exchanger is three times more efficient than conventional heat-exchangers. For example the solar heated liquid entering the store is cooled to a temperature that is only between one and five degrees higher than the lower temperature of the water in the delivery region of the store, giving maximum efficiency. It is almost as if the mains water were to be heated directly in the solar collector. This coupled with only a small electricity demand from the pump and low pipework heat losses, enable a very high collector yield and an almost complete transfer



The patent protected heat-exchanger of the COAX conveys three times as much solar heat to the thermal store as conventional heat-exchangers do, under the same conditions.



Consolar provide a 5 year guarantee for the COAX system



Various collector mounting methods: roof, facade and flat roof mounting



The Coax 200 is only 1 metre high, ideal for the smaller house

widely used PU (polyurethane) foams for example. The solar heat-exchanger is made from high quality stainless steel and can be removed, if required, through an opening in the thermal store floor. There are no moving parts in the store to fail. All components have been thoroughly tried and tested.

Hard Water - No Problem

The COAX system will also work well when installed in hard water areas. Long term test results show that lime scale doesn't stick to the heat-exchanger because of its design. The scale will fall to the bottom and can easily be removed. So the solar thermal energy can be enjoyed without worry.

Compatibility and Compactness

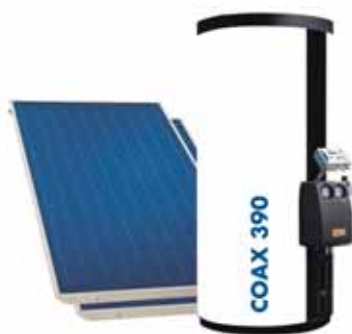
COAX systems are compatible with most boiler types. The System Controller runs the complete installation, but if required it can have an optional remote control panel, so it can be operated from a more convenient place in the home.

The Coax is available as the Coax 390 and for the installations where space is limited and the heat demand is lower the Coax 200 is recommended.

Note: The Coax will not be available in the UK until 2007.

*efficiency rating based on Consolar hot water system research 2005.

The System Controller and the CON-SOLARSTATION are mountable directly on the COAX, saving space and installation time.



The PLANO-COAX Package



The TUBO-COAX Package

Consolar Performance of the highest Standard - our combination hot water system

SOLAR PURE - peace of mind with clean water



SOLAR PURE is a new generation of solar thermal systems for single family houses. The system will simply provide hot water or will, in addition, also support space heating. SOLAR PURE sets new standards in efficiency, compact design, easy installation and environmental sustainability.

Efficiency and Economy

SOLAR PURE is so enormously efficient because the system doesn't use a solar heat-exchanger. The thermal store water is pumped directly through the solar collector which results in the solar energy yield being considerably higher than that of other flat plate solar thermal systems. In the mornings, as the collector is heated up by the sun, the pump switches on and fills the solar circuit and collector. The heated water returns to the upper region of the thermal store. Since the heat exchanger for the hot water supply is at

the top of the tank the heat can be used immediately and there is no need for the boiler to start up.

In the evenings, or when the store is fully heated, the pump stops, the warm water in the collector drains back into the thermal store. The system cannot overheat, larger collector areas can be used without overstressing the system. With conventional solar thermal systems the pressurised collector circuit remains full of fluid and must be designed to minimise overheating occurrence..

The insulation of the SOLAR PURE thermal store is up to 150mm thick around the upper regions of the tank. This promotes very low heat losses and ensures that the thermal store conserves the heat for many days.

Calculation of the combination of these design features, effects energy savings of 10% or more than in conventional systems.

Installation Times

The components of the SOLAR PURE are pre-installed, this enables a saving of up to one and half days installation time and costs.

Quality, Working Life and Reliability

The predecessor system (the CONUS) on which the SOLAR PURE is based, has been well proven having been installed in thousands of systems over the last 10 years. The tank and pipework are very durable as they are made from hot water resistant and corrosion-free synthetic materials. No solar

Consolar provide a 5 year guarantee for the SOLAR PURE system.



Water in its purest form. SOLAR PURE works highly efficiently and entirely without chemicals.



The Federal German Environment Foundation is supporting several Consolar projects

The patented high performance heat-exchanger for the provision of continuous-flow hot water.



liquid except pure water flows through the solar collector so there is no need to carry out regular testing of the liquid.

Water Hygiene

The SOLAR PURE thermal store is fitted with the Consolar high performance heat-exchanger which heats the water as it flows through.

The low volume of only three litres within the heat-exchanger, means that the bacteria which cause legionnaire's disease cannot multiply and therefore the water quality is always good. When an entire family take showers continuously, one after the other the heat-exchanger can still comfortably heat the water.

Compatibility and Compactness

The SOLAR PURE will be compatible with most boilers. The Consolar controller manages the solar equipment as well as the heat transfer to the space heating. The solar pump is, like the controller, fixed directly to the thermal store. Only the solar circuit pipework needs connecting to complete the installation. The system is so compact that it only takes up one square metre of floor space.

Environment

Most other systems use an antifreeze/glycol mixture in the solar circuit but with the SOLAR PURE this is not necessary. The insulation is equally very environmentally friendly as the foam has very good



SOLAR PUR 10.2 square metre system

environmental qualities in comparison with PU foam which is often used. The development of the SOLAR PURE has been supported by the Federal German Environment Foundation because of its particular environmental qualities.

In cases where SOLAR PURE is not suitable, it is possible to install a comparable system using the CONUS 502 incorporating a solar heat-exchanger in a sealed system with antifreeze.

The most efficient combination system - according to independent testing

SOLUS II - The Combination System for Maximum Energy Saving

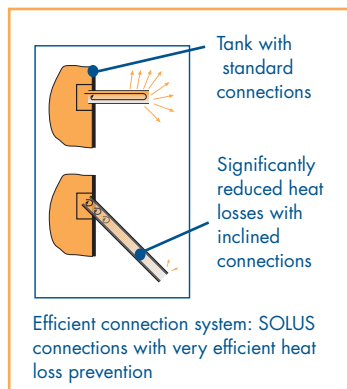
The Consolar SOLUS II series is the classic example of high performance solar thermal supported heating systems. Over 12,000 systems using this technology have been installed all over Europe in the last 10 years.

For a single house, shared affordable housing, a mansion or a hotel - this versatile system can be integrated anywhere. It is possible to combine the Solus11 thermal store system with all types of heating systems, including oil, gas, batch boilers (straw or wood), wood pellet boilers, and heat pumps.

Efficiency and Economy

In an independent German consumer goods test (Stiftung Warentest) the SOLUS system with the earlier TUBO 11 CPC (superseded by the TUBO12) achieved the highest system efficiency results. No other system achieved even a closely comparable result.

The high performance, patented Consolar heat-exchanger works so that the solar heated water in the inflow pipe is guided to the top of the tank where it can be used immediately. This means that the boiler will remain off for longer in comparison with conventional buffer stores and more hot water can be continuously drawn.



Less Bulk, More Performance

This system design provides simultaneous availability of heat for both hot water and space heating in one thermal store, reduces the size of the system and saves space. Even more important is that the excellent efficiency of the SOLUS thermal store means that it only loses half the heat of a system consisting of a separate buffer and solar store.

In order to reduce the heat losses to a minimum, the SOLUS system is fitted with patented high performance insulation. SOLUS thermal stores will hold solar heat, if it isn't used, for several days due to the quality of this insulation.

Water Hygiene

There is no danger of the bacteria which cause legionnaire's disease incubating in the hot water supply because of the low volume contained within the heat-exchanger.

Compatibility and Compactness

SOLUS systems are compatible with nearly all boiler systems. The Consolar System Controller can be used to control the boiler and the heating system, as well as the solar equipment. Using an efficient system controller it is often possible to save even more energy than when using separate conventional space heating regulators and solar controllers.

Consolar provide a 5 year guarantee for the SOLUS system.



The SOLUS II buffer system, especially in conjunction with the TUBO 12 CPC evacuated tube collector, works outstandingly well in the winter too.

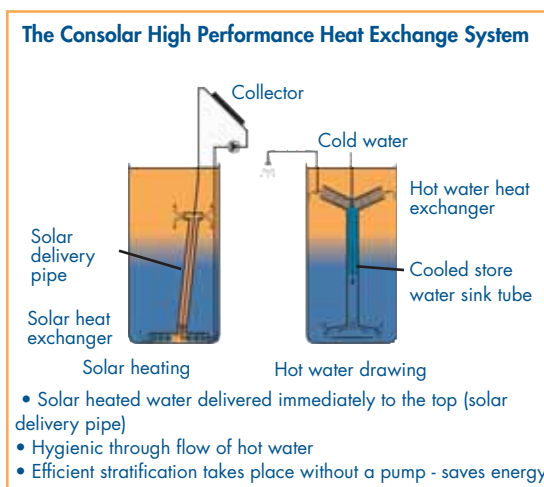
Environment

The Consolar system not only leads the field in the independent consumer goods (Stiftung Warentest) testing for system efficiency, but the embodied energy pay back period was also the shortest. (That is the time it takes for the solar thermal system to produce the amount of energy used in its manufacture.) This is confirmation of the very efficient use of materials and the high performance capability of the system, making it the choice for minimal environmental impact.

Manufacture, use of materials and packaging as well as environmental quality also achieved the result "very good".

The Comfort Line

Good hot water delivery and high energy saving is possible with the Comfort line. The Comfort line has all the same connection possibilities as the Comfort Pro range but has a lower output hot water heat exchanger for smaller demands.



Comfort Pro Line

The Comfort Pro has an extra hot water heat-exchanger. This increases the efficiency of the hot water delivery, giving a higher flow rate.

In order to achieve the highest possible energy savings the

insulation of the Comfort Pro line is fitted with a special aluminium foil, which further reduces heat losses. When the boiler is initially fired an automatic valve directs the water to the middle of the thermal store, then to the hotter water regions when at full temperature.

Both lines of the SOLUS series are available with flat plate or evacuated tube collectors.



The TUBO-SOLUS package



The PLANO-SOLUS package

Everything is under control



The latest technology has been used to develop the solar and heating regulators of the Consolar CONTROL series, for maximum energy savings.

One control, without unnecessary extension modules, manages the solar equipment and, if required, the entire boiler and heating system with up to three heating circuits. Significantly greater energy savings can be obtained by regulation of the whole system by one controller rather than using separate boiler and solar regulators. The Consolar SYSTEM CONTROLLER is specially designed to do this.

Easy Operation

With the external control panel of the TR-CONTROL the efficiency of the heating and solar systems can be checked. Temperatures and energy savings can be seen at a glance.

A range of functions for more efficiently

managed energy saving are available in the Consolar System Controller. These go far beyond those of conventional system controllers and can also be programmed by the installer.

Energy Savers Cover their Costs

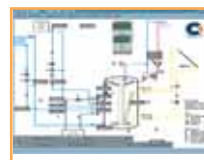
Particularly effective solar delivery, supported by stratification in the thermal store and time control of different functions enables optimal energy management in the home. The CONTROL series 6 and 7 regulators allow precise to the minute, or degree energy saving functions, which in addition to the energy savings from the solar thermal system, can save several percent of the heating costs.

Computer Interface

Once the solar thermal system is operational

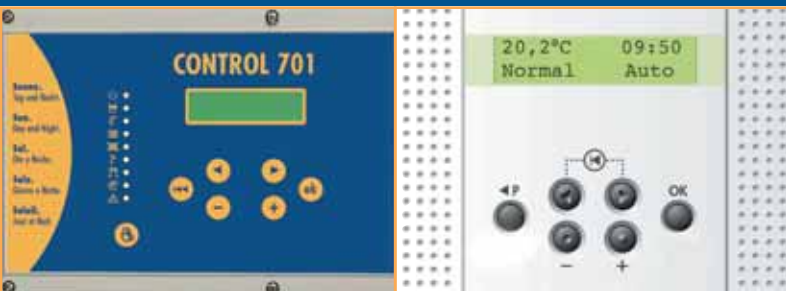


many users want to know how much energy they are actually saving. This is no problem with the optional computer interface with the largest CONTROL regulator. Temperatures can be followed directly on the computer, and data can be recorded and



exported.

In the evenings, or even weeks later, it can be displayed exactly when and how much energy the solar thermal system has harvested.

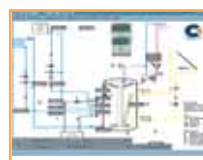
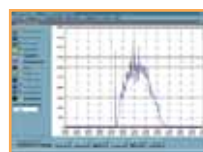


Good Advice

Expert Advice on Consolar Technology

Find out more about Consolar's advanced energy saving solutions either from our installers, contact Consolar UK direct or see us at one of the many shows and exhibitions around the country. An expert will then be able to advise you on roof orientation, connection to your existing or proposed new heating system and space heating support possibilities.

In the UK millions of boilers will need replacing over the next few years. This is a good opportunity to install a solar thermal system to reduce fuel costs and emissions at the same time.



Experienced in High Performance Solar Technology

Consolar components are tested by the leading national and international institutions.



ITW



Since its establishment in 1994 Consolar has come a long way. Through consistent innovation and development, Consolar can offer its customers a range of products with exceptional performance.

Thermal Store Technology:

optimum water hygiene, exceptionally efficient heat-exchanger with naturally circulating stratification and high performance insulation.

Collector Technology:

exceptionally strong, durable and summer-safe collector construction.

Control Technology:

cleverly designed, flexible and easy to use. Consolar products lead the market by using the best quality materials.

Satisfied Consolar Customers

Over 15,000 systems have been installed all over Europe using Consolar technology. Consolar works with the leading institutions in Europe to carry out extensive testing of all components. Last but not least, we get the most important feedback from our customers.



Consolar regularly scores highly in evaluation of quality, system efficiency and reliability, together with after sales service and customer satisfaction. The recipe for success is working closely with

our customers from the development stage onwards. The importance of system efficiency and the integration with existing heating systems are two aspects highlighted by customers and accepted by Consolar.



Environmentally Friendly Production

Everything must be right in the production process too. The 5000 m² Consolar building in Lörrach has been renovated to a low-energy standard using especially thick insulation. Using both passive and active solar gain, and a wood chip boiler system makes sure that the building has an environmentally friendly and CO₂ neutral heat supply.

Environmental sustainability of the materials used and the shortest possible transport routes to our suppliers are further important sustainability criteria, ensuring minimal emissions are caused in our operation.

Ethics in Business

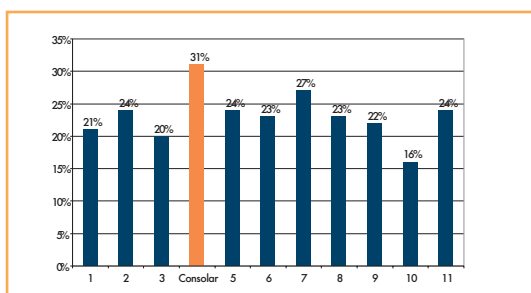
In 2005 Consolar GmbH won the prestigious German Ethics in Business Award. This award covers the environment, social and ethical ethos of the business and the trading partners.





Company Office in Frankfurt on Main

CO2 neutral production location in Lörrach



Independent Consumer Goods Testing confirmed Consolar's outstanding system efficiency

Sales Centre in Frankfurt

Our Europe wide sales start from Frankfurt on Main. This is where our installation partners are advised and trained and also where to find our systems advice and technical support teams.

Vision

The co-founders of Consolar are part of an initiative which support fair economic relationships in the developing world. Consolar strives for honest, humanly enriching relationships between colleagues, with our suppliers and especially with our customers.

Consolar in the UK

The parent company, **The Green Shop**, started supplying "products for a sustainable future" in the late 1980's. The market developed and "green" products became more mainstream.

In 2001, **Rainharvesting Systems Ltd** was established to deal with water saving and efficiency, and in 2004 **Greenshop Solar Ltd**

was set up to install solar systems and develop our involvement in energy efficiency and micro generation. In the same year **Auro UK (Natural Paints)** was created to import and distribute our fastest selling uncompromisingly natural paint range.

Greenshop Solar Ltd are now the sole distributors of **Consolar** products in the UK. **The Green Shop** has been involved in solar energy since 1992. We were originally drawn to Consolar products by their efficiency and versatility and as the relationship developed we discovered we support similar ethics and standards.

We believe the Consolar design and manufacturing philosophy, which puts environmental issues to the fore, has resulted in a range of products that are unique and superior to any others currently available.

Consolar on the web

To learn more about Consolar products visit www.consolar.co.uk where you will find literature available on most of the range. Documentation is continually being reviewed and developed so please check for the latest edition. Consolar's own website www.consolar.de will also contain information but usually only in German.

Please help us further!

Your opinions are important to us. If you have a project, questions, thoughts or ideas, do call or email, we would like to hear from you.



Consolar is a member of the committed German Federal Solar Industry Association www.bsi-solar.de



The Federal German Environment Foundation is supporting several Consolar projects



GREENSHOP-SOLAR



Rainharvesting Systems

System Overview

	COAX (8)	SOLAR PUR	SOLUS COMFORT	SOLUS COMFORT PRO					
System volume ¹⁾	200L	390L	490L	800L	1000L	560L	850L	1050L	2200L
Hot water requirements for ... people	1-3	2-6	2-6	2-7	2-7	2-7	2-8	2-10	2-10
Simultaneous use of ... showers or ... baths ²⁾	2S/1B	3S/2B	2S/1B	3S/1B	3S/1B	2S/1B	3S/2B	4S/2B	4S/2B
Required collector area Flat plate collectors in m ²	2.5-3	5-8	5-10.5	7-15.5	7-15.5	5-10.5	7-15.5	10-20	12-26
Required collector area Evacuated tube collectors in m ²	2-3	3-7.5	-	7-14	7-14	4.5-10	7-14	10-19	12-24
Especially high energy savings also in winter	■ ³⁾	■ ³⁾	■	■ ³⁾	■ ³⁾	■ ³⁾	■ ³⁾	■ ³⁾	■ ³⁾

Application possibilities:

Hot water provision	■	■	■	■	■	■	■	■	■
Solar support for space heating and hot water provision			■	■	■	■	■	■	■
Boiler buffering (e.g. for log fired stoves)				■	■	■	■	■	■

Heat sources besides solar:

Pellets, logs, oil, gas boilers with boiler buffering				■	■	■	■	■	■
Pellets, logs, oil, gas boilers without boiler buffering	■	■	■	■	■	■	■	■	■
Heat pumps						■	■	■	■
Electric immersion heaters	■	■	■ ⁴⁾	■	■	■	■	■	■

Solar heat-exchanger systems:

High performance low-flow solar heat exchanger	■								
Patented high performance stainless steel stratified store		■							
Patented high performance stratified store ⁵⁾				■	■	■	■	■	■
Direct heating of the thermal store water			■						

Hot water provision systems:

Patented high performance continuous flow heater			■	■	■	■	■	■	■
With additional heat exchanger						■	■	■	■
Simple de-scaling methods ⁶⁾	■ ⁷⁾	■	■	■	■	■	■	■	■

Patented high performance insulation system:

Polypropylene foam with air cushion			■						
PS foam with aluminium foil and air cushion				■ ⁸⁾	■ ⁸⁾	■	■	■	■
ALU-LEEPS foam with air cushion	■ ⁸⁾	■							

1) The high performance insulation and the exceptional heat exchanger technology enable direct comparison of Consolar thermal stores with others of much greater volumes

2) Refers to one heat exchanger. Parallel connection, for example in multi-family houses, will provide for an increased number of simultaneous showers or baths

3) In combination with TUBO evacuated tube collectors

4) It is not possible to retro-fit with an immersion heater after installation; please order at the time of ordering the entire system

5) Heated water saved to one of three zones via the cooled water dip tube

6) De-scaling methods are limited in tank-in-tank thermal stores and thermal stores with steel shaft pipes for heating the mains water

7) Without aluminium foil

8) Not available in the UK until late 2006.



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