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Redland

GUIDE TO ROOFING SYSTEMS

PAGES 64-67



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For more information on Redland visit www.barbourproductsearch.info

SOLAR WATER HEATING SYSTEMS



ST 6 Solar Water Heating System




ST 4 Solar Water Heating System

ST 4 and ST 6 Solar Water Heating Systems

The ST 4 and ST 6 solar water heating systems harness the power of the sun to provide environmentally friendly hot water. The hot water generated reduces the energy demand on the conventional boiler system.

- A correctly sized Solar Water Heating System can generate up to 70% of the household hot water requirement.
- Fully integrated roof solution, providing superb aesthetics.
- Market-leading wind uplift security and weathertightness (flashings integrated to the panels).
- Redland 15 year Roof System Guarantee.
- Designed to comply with BS 6399-2:1997 and BRE Digest 489(2004) for wind loading and BS 476-3:2004 for resistance to external fire spread. Fully tested in accordance with pr EN 15601 for wind-driven rain.

Specification Support

 SOLAR HOT WATER SYSTEM SPECIFICATION AND PERFORMANCE
www.redland.co.uk/ecomaster or call 08708 702595

 GUARANTEED ROOF SPECIFICATION
www.redland.co.uk/specmaster or call 08708 702595

 PRODUCT VISUALISER
www.redland.co.uk/viewmaster



Our Solar Water Heating Systems are easy to install



SOLAR WATER HEATING SYSTEMS

Working Principles

The sun's heat is collected, stored and used when needed.

A typical Solar Water Heating System layout is shown detailing the various components.

An electronic controller constantly compares the temperature of the liquid in the panel with the temperature of the water in the cylinder. When the temperature difference equals a pre-defined value, the liquid is circulated through the panel and the lower coil in the cylinder, heating the water in the cylinder in the same way as a central heating boiler.

A conventional heating system is still required to supplement the solar panels for those periods of the year when there is not enough sun.

Redland Specific Products

Solar Water Heating Panel – Flat Plate aluminium box with a glass covering, dark in colour to help absorb heat and fully-insulated inside to minimise heat loss. The panels possess integrated flashings (side gutters, upper and lower gutter, front apron flashing) to ensure that the roof is weathertight.

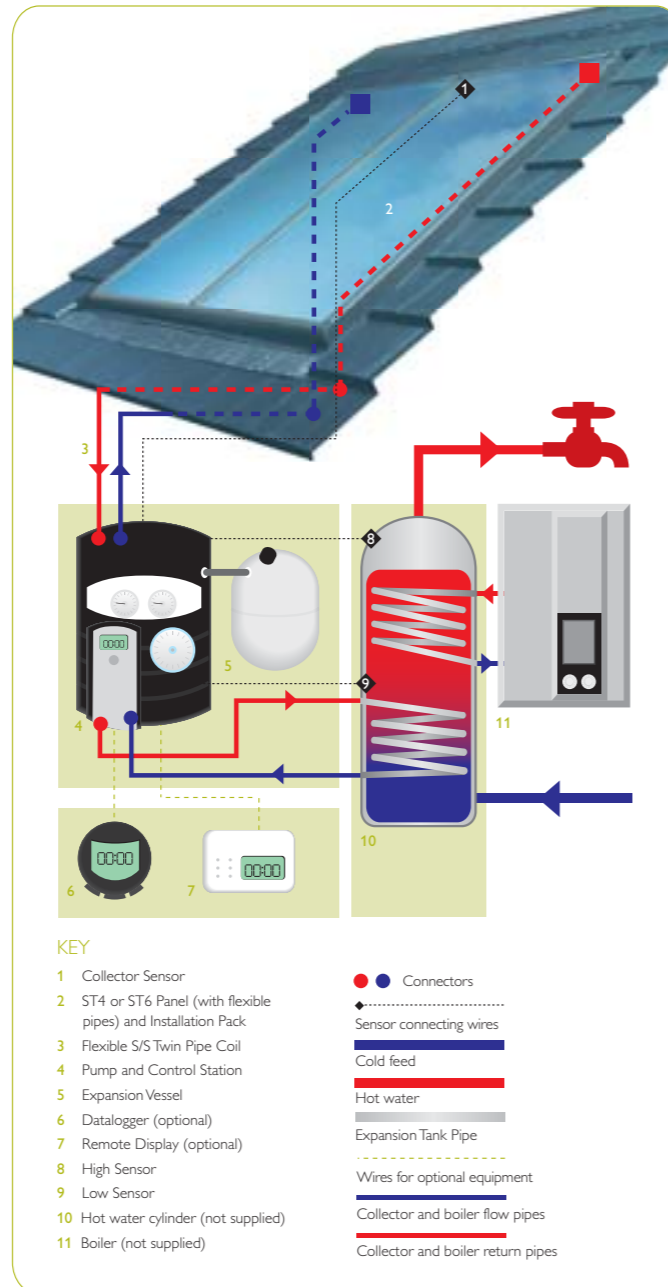
Two panel sizes are available. Panels can be connected together. The system performance is directly proportional to the panel surface area.

Panel Installation Pack – Contains all parts required to perfectly integrate and securely fix the panel within the roof. One pack is required per panel.

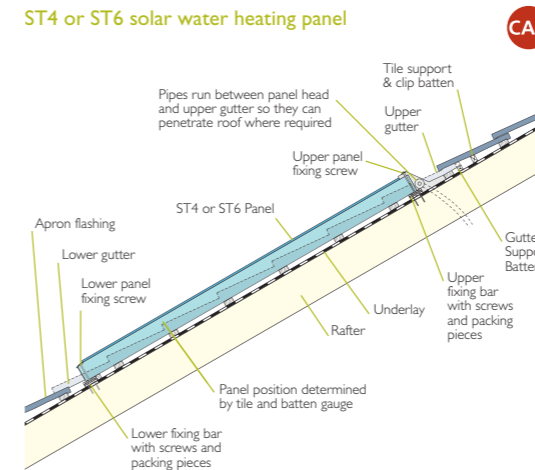
Panel Fixing Tool Pack – Contains the tools required when fixing the Panel Installation Pack, including screwdriver socket, driver bit and drill bit. The same pack can be used for fixing several panels.

Additional Components

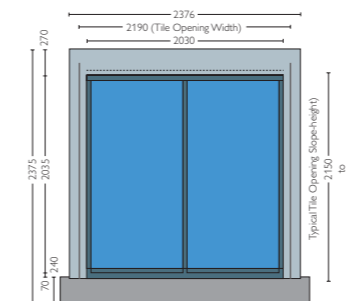
Redland can also specify and offer the components required for connecting the panel pipes to the hot water system, this includes, connectors, flexible pipes, pumps, control stations, remote displays, data loggers, expansion vessels and heating medium (antifreeze solutions).



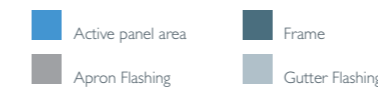
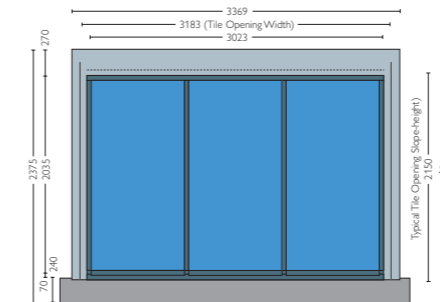
ST4 or ST6 solar water heating panel



Panel schematic of ST4



Panel schematic of ST6



Technical Data – Panel

Type	Flat plate collector
Absorber Material	Copper
Absorption - Ratio of transformation from short wave to long wave radiation (absorber).	> 93%
Heat emission - Ratio of radiation as heat losses (absorber)	< 5 %
Light transmission factor - Ratio of transmission through the solar-glazing visible light.	> 91 %
Radiation transmission factor - Ratio of transmission through the solar-glazing no visible light.	> 90 %
Total Radiation transmission - Ratio of transmission through the solar-glazing.	90%
Thermal capacity or thermal inertia - The quantity of heat required to raise the temperature of the absorber by one degree. A low value is advantageous in cloudy conditions.	4.9 kJ/(m ² K)
Panel Design Lifespan	25 years
Panel Performance Guarantee	10 years

Performance – Panel Performance

Nominal Panel Weight (empty)	
ST 4	120kg /panel
ST 6	180kg /panel
Installed Panel weight	
ST 4	27.6kg/m ²
ST 6	27.9kg/m ²
Maximum Rafter spacing	700mm

Technical Data – Roof Integration

Tile compatibility	Redland Slate and Profile ranges
Maximum roof pitch	Not more than the maximum tile pitch
Minimum roof pitch	22° and not less than the minimum tile pitch

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