

SOLARCHOICE



HRS hevac
products for life

SOLAR SOLUTIONS FOR HOT WATER



WELCOME TO HRS SOLARCHOICE

Why Solar?

The benefits of choosing to install a solar powered hot water system are significant when viewed through a long-term lens. It is a great investment with the eventual return being risk free (unlike stocks and shares). This return will also increase in-line with the increase in gas and electricity prices in the future, giving you more incentive to make the initial investment.

How is the thermal collector made?

The HRS SolarPlate flat plate solar thermal collector consists of a copper pipe structure, fitted to a flat absorber plate. The absorber plate is highly efficient due to the plate being superficially treated with a 'TiNOX' titanium layer. Solar collectors depend on solar radiation. They are efficient only when the sun is shining. The TiNOX absorber is different: it works efficiently even when the sky is cloudy. It works all the time: summer, autumn, spring and winter. The absorber plate on standard flat plate solar thermal collectors are generally painted black and are far less efficient than the SolarPlate absorber plate. Although a black surface is most efficient at absorbing solar radiation and converting it to heat, it is also highly efficient at re-radiating long wave infrared heat back out. These losses reduce collector efficiency. The collector structure is manufactured from stainless steel and the collector base is manufactured from weather resistant aluminium with 40mm wool rear insulation. The glass cover is highly transparent, made from low-iron, tempered glass

How does the process work?

The SolarPlate flat plate collector captures the solar energy by employing the 'green-house' effect. The glass cover of the collector permits up to 90% of the visible sunlight to enter the collector. When this light passes through the glass cover, the frequency of the light is decreased to a lower energy level. When the light hits the absorber plate, the light is absorbed as heat. The combination of the frequency change and the TiNOX surface on the plate captures the maximum amount of energy. As the absorber plate heats up, it begins to radiate energy as infrared or heat radiation. The glass cover traps the heat in the collector as the glass is essentially opaque to infrared waves, thus increasing the temperature and heating the water in the copper tube assembly. The heated water is then pumped to a coil (heat exchanger) within the storage vessel. When the solar-heated water drops below a certain temperature the solar pump stops circulating the water. The controls system switches to the gas or electric boiler to heat the water, as in a conventional system which heats the stored water by a separate coil in the vessel.



A SolarChoice Package Consists of

- The required number of solar panels
- A suitably sized storage vessel with twin coils
- A pump & valve set
- A solar accumulator/expansion vessel
- A digital temperature controller
- Panel connection kits (to suit the panels)
- A solar specification automatic air vent
- Fixing kit (refer to page 7)

Refer to page 3 for sizing & package details

Why choose HRS SolarChoice?

SolarChoice offers you the choice of purchasing single items or a complete package. Please refer to the diagram on the page 4 to find out what components are supplied as a package or as separate items. SolarChoice only offers the best quality products and extremely attractive prices. With the latest design, you can guarantee you will be using one of the best solar panels on the market offering a high efficiency in solar collection.

The SolarStor storage tanks supplied are manufactured from the best materials and are extremely reliable. Fitted with the latest safety equipment and the best of finishes, our customers can be assured their hot water is heated using a safe and economical process.

Sizing SolarChoice Solar Kits

Quite simply, HRS recommend one panel per 2 people in each household (Approximately 1m² per person). Please refer to the table below for the recommended SolarStor size.

Number of People	Kit Reference	Recommended Qty SolarPlate Panels	Recommended Model of SolarStor	SolarStor Capacity (Litres)
4	Solarchoice 2	2	S2230	230
6	Solarchoice 3	3	S2350	350
8	Solarchoice 4	4	S2450	450
10	Solarchoice 5	5	S2600	600



SOLARPLATE SOLAR COLLECTORS

SOLARPLATE SOLAR COLLECTOR TECHNICAL FEATURES

Gross Surface Area	1.96m ²
Absorber Surface Area	1.87m ²
Length	1985mm
Width	985mm
Thickness	77mm
Weight	36 kg
Capacity	1 Litre
Absorber Coating	TiNOX
Absorption Factor	95 ± 2%
Emissions	5 ± 2%
Tin Temperature	Approx. 180°C+ Room Temperature
Maximum Working Pressure	6 Bar
Certification	EN 12975-2/2001 No. C804

Features of SolarPlate panels

- Highly efficient TiNOX absorber coating
- Copper absorber with copper water passages
 - Durable & weather resistant stainless steel and aluminum frame
 - Low profile at 77mm thick
 - Tempered glass with optimal light transmission
 - Full complement of custom mounting hardware is available
 - Skylight appearance with an attractive marine-blue finish
 - Long lasting, easy to assemble & install and also disassemble without cutting or unsoldering
 - In accordance with EN12975-2/2001 no. C804

ABSORBER

Copper collector and copper pipe structure welded to the absorber plate

Copper Collector Pipe	Ø22mm x 0.8mm Wall
Copper Pipe Structure	Ø6mm x 0.5mm Wall
Connections	4 off ¾" BSP
Absorber Plate	0.2mm Copper with TiNOX Coating

SOLAR GLASS

Low-iron content and highly transparent glass specific for solar collectors

Transfer Coefficient	>95 ± 2%
Measurements	1975mm x 975mm x 3.2mm Thick
Gasket Type	Hermetic Sealing

REAR INSULATION

40mm Mineral Wool

TYPICAL INSTALLATIONS

The diagram below represents an example of an advanced solution for domestic water & central heating production. Hot water is produced by the solar system which is integrated with the system boiler for non sunny periods. Our condensing system boiler, as standard, is fitted with an integral 3-port control valve to divert the primary water between the cylinder and the central heating system, saving on external pipework and controls.

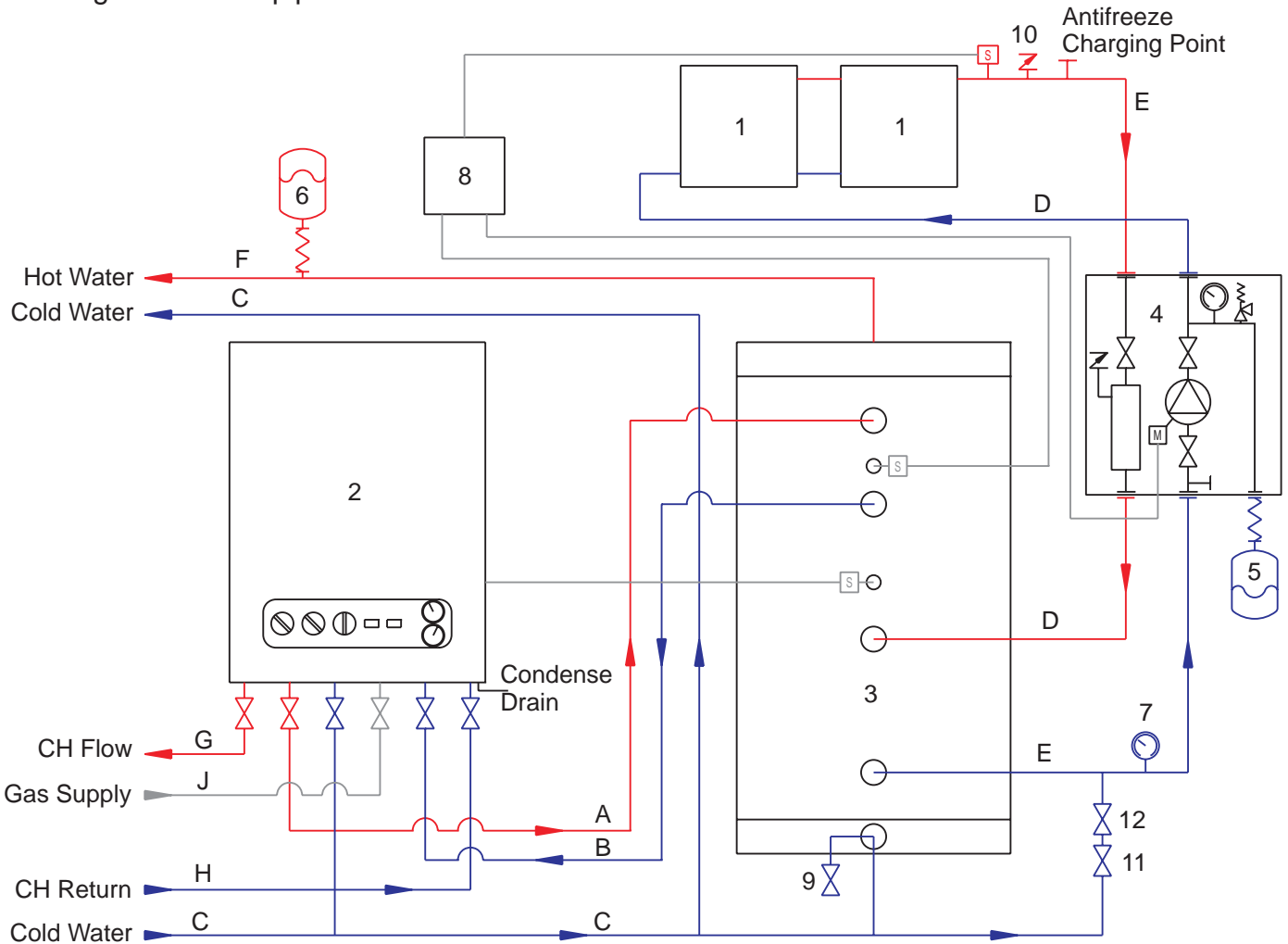


Fig. 1 - Advanced Installation of a typical solar & boiler system

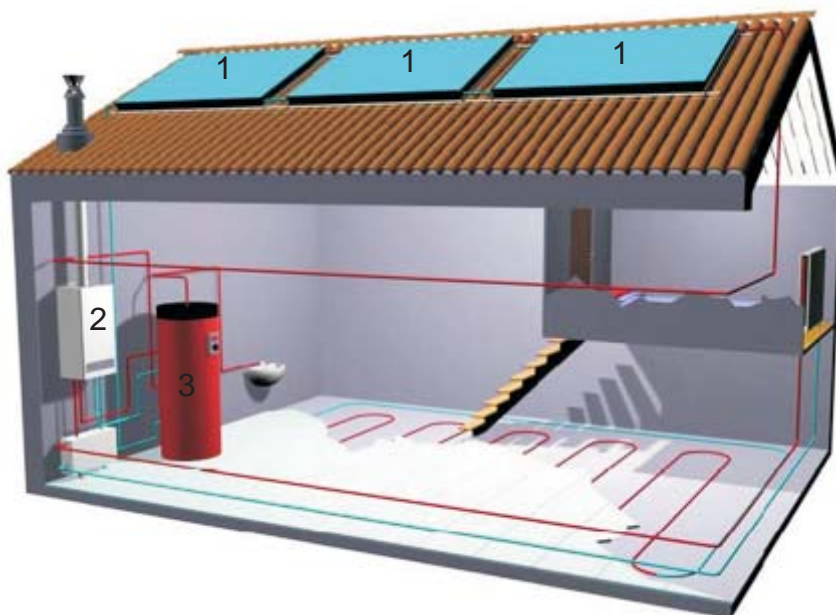


Fig. 2 - Typical Installation showing the main components

Key:

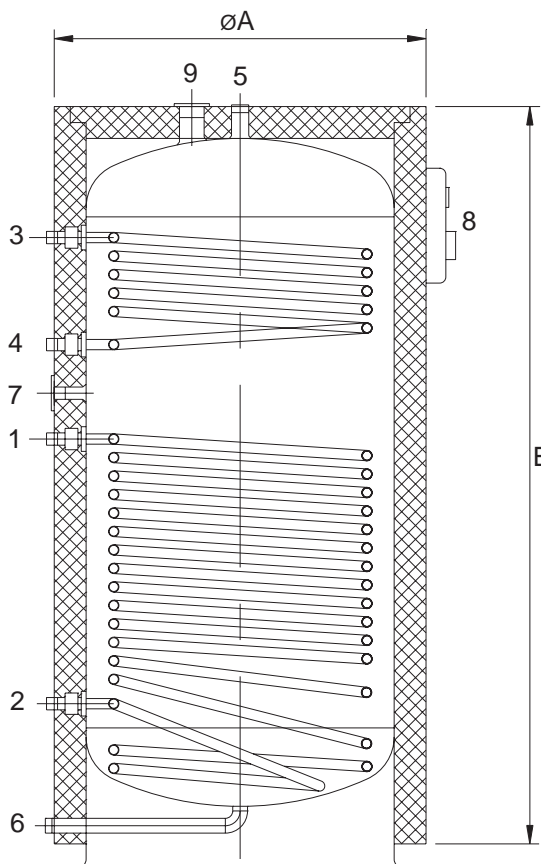
Ref	Description
A	Primary Boiler Flow Line
B	Primary Boiler Return Line
C	Cold Water Feed Line
D	Primary Solar Flow Line
E	Primary Solar Return Line
F	Domestic Hot Water Line
G	Central Heating Flow Line
H	Central Heating Return Line
J	Gas Supply Line
1	SolarPlate Solar Panels
2	System Boiler
3	SolarStor Cylinder
4	Pump & Valve Set
5	Solar Expansion Vessel
6	System Expansion Vessel
7	Pressure Gauge
8	Temperature Controller
9	Cylinder Drain
10	Solar Air Vent
11	Ball Valve
12	Ball/Stop Valve

HRS SOLARSTOR STORAGE CYLINDERS

The HRS SolarStor vessels are a range storage cylinders for use in conjunction with the SolarPlate solar collection panel, ranging from 160 litre to 1400 litre capacity. All our vessels are manufactured from stainless steel 316 for a long life and are fitted with dual stainless steel heat exchanger coils. The lower coil is for connection to the solar source and the upper to the system boiler. The lower coil has a unique design where that the bottom of the coil is much lower than in a normal cylinder design, reducing the amount of cold water in the tank and also reducing the risk of the vessel containing legionella.

All our vessels have a maximum working pressure of 6 BarG and are supplied complete with factory fitted thermostat and thermometer. The vessels are insulated with mineral wool and encased in a heavy duty polyurethane cladding.

Model	Capacity (Litres)	Solar Coil			Primary Coil			Dimensions (mm)		Connections (BSP)			
		Coil Surface Area m ²	Coil Capacity (Litres)	Output (kW)	Coil Surface Area m ²	Output (kW)	Output L/Hr, 10/60°C	ØA	B	1,2	3,4	5	9
S2160	160	0.63	4	3.0	0.63	28.1	483	590	1200	1"	1"	1"	1¼"
S2230	230	1.16	8	5.7	0.63	28.1	483	590	1600	1"	1"	1"	1¼"
S2350	350	2.05	15	10.4	1.16	53.6	922	690	1685	1"	1"	1"	1¼"
S2450	450	2.05	15	10.5	1.16	53.6	922	690	2085	1"	1"	1"	1¼"
S2600	600	2.68	18	14.3	1.16	53.6	922	850	1785	1"	1¼"	1"	1¼"
S2800	800	2.68	18	14.3	1.16	53.6	922	850	2285	1"	1¼"	1"	1¼"
S21000	1000	3.38	23	18.8	1.27	59.8	1023	1050	1930	1"	1½"	1"	1¼"
S21400	1400	3.38	23	18.8	1.81	86.9	1485	1050	2405	1"	1½"	1"	1¼"



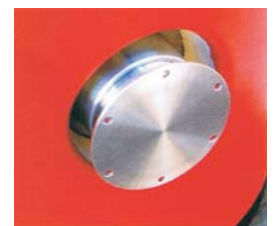
Key:

1. Solar Coil Inlet
2. Solar Coil Outlet
3. System Boiler Coil Inlet
4. System Boiler Coil Outlet
5. Hot Water Outlet
6. Cold Water Inlet & Drain
7. Secondary Return (¾" BSP)
8. Thermometer & Stat
9. Safety Valve Connection

All models can be supplied complete with unvented kits to suit pressurised systems where required. Please contact our sales department for further details.



The unique design reduces the risk of the legionella bacteria growing in the tank



Optional DN100 inspection cover

HRS SolarChoice packages are pre-sized solar packaged units supplied complete with all necessary accessories. They are specially designed to offer maximum flexibility and meet any requirement for domestic and commercial use of solar energy.

Features and Advantages

Complete. Each package is supplied with the accessories shown tabulated below as standard.





Flexible. A wide variety of combinations available (varying the number of collectors, cylinder size etc)

Pre-Sized. The packages are pre-sized for your benefit, offering the easiest solutions in selection.

Quality Product. HRS Package solar systems are manufactured using the highest quality materials and are in accordance with all relevant laws and standards.

As a result of the 40 years of experience in exploiting solar energy, HRS package systems can guarantee environmental protection and customer satisfaction for efficient and reliable solar systems.

Standard accessories supplied with each HRS packaged solar system

Pump/valve assembly comprising: 3-speed pump, thermometer, safety valve, deaerator, connection for the solar expansion vessel and drain	
18 litre solar plus expansion vessel	
Two-sensor controller	
Solar standard automatic air vent	
Panel connector fittings (Can be specified as left or right handed)	









Standard Controller Details



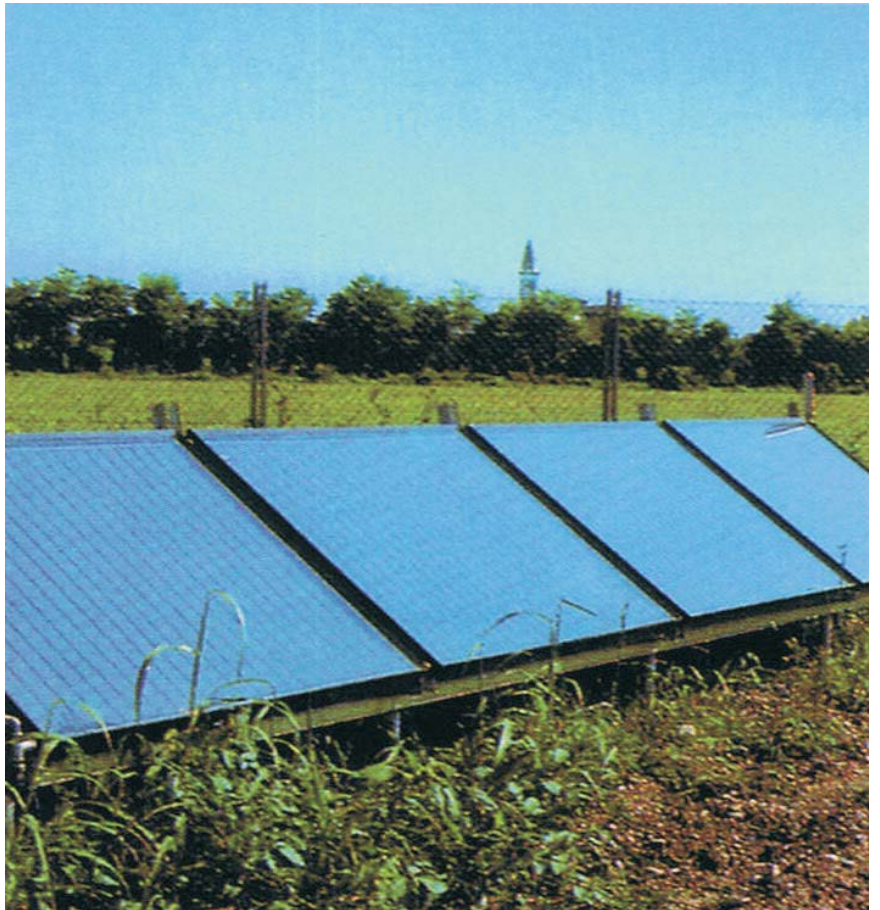
The solar controller has been designed specially for solar heating systems to allow the user to select the temperature required at the hot water cylinder. Using the temperature difference, the controller automatically runs the pump to transfer heat from the solar collector to the coil in the tank. The controller constantly regulates temperature and operates by monitoring the differences in the pre-set temperatures of individual sensors within the system. If the sensor on the solar collector exceeds the temperature of the sensor in the storage tank, the controller activates the pump and the heat is pumped to the vessel which ensures the pump only runs when the benefit is available.

SOLARPLATE SOLAR PANEL INSTALLATION ACCESSORIES

Kit Reference	Qty	Pitched Roof	Flat Installation
Solarchoice 2	1	KIT 2T or KIT 2TZ or KIT 20	KIT 2P
Solarchoice 3	1	KIT 3T or KIT 3TZ or KIT 21	KIT 3P
Solarchoice 4	2	KIT 2T or KIT 2TZ or KIT 20	KIT 2P
	1	KIT KV2	KIT KV2
Solarchoice 5	1	KIT 2T+KIT 3T or KIT 2TZ+KIT 3TZ or KIT 20+KIT 21	KIT 2P + KIT 3P
	1	KIT KV2	KIT KV2

	Code	
KIT 2T (Standard Supply ***) Metal bracket and pivot for fixing TWO panels to a roof	605201100	 
KIT 3T (Standard Supply ***) Metal bracket and pivot for fixing THREE panels to a roof	605201101	
KIT 2TZ (Standard Supply ***) Metal bracket and under tile bracket for fixing TWO panels to a roof	605201102	
KIT 3TZ (Standard Supply ***) Metal bracket and under tile bracket for fixing THREE panels to a roof	605201103	 
	Code	
KIT 2P Metal frame for installation of TWO panels on a flat surface with 45° angle	907261930	
KIT 3P Metal frame for installation of THREE panels on a flat surface with 45° angle	907261931	
KIT 20 Metal frame and pivots for fixing TWO panels to a roof with a 20° angle from the roof pitch	605201104	 
KIT 21 Metal frame and pivots for fixing THREE panels to a roof with a 20° angle from the roof pitch	605201105	
KIT KV2 Brass connection kits for the panels (Available left-handed or right-handed)	907261935	

*** - Fixing kit supplied depends on qty of panels and type of roof fixing required. Details to be supplied with order.



heat exchangers

HRS Heat Exchangers S.L.U.
 C/ Castillo de la Concepción, 14. Pol.Ind. San Martín.
 Apto. Correos 382. 30564 Lorquí, Spain
 Tel: +34 968 657 157 Fax: +34 968 676 166
 Web: www.hrs-heatexchangers.com E-mail: info@hrs-he.com



international

HRS International Ltd.
 10-12 Caxton Way
 Watford, Herts WD18 8JY, United Kingdom
 Tel: +44 1923 232 335 Fax: +44 1923 230 266
 Web: www.hrs.co.uk E-mail: mail@hrs.co.uk



heat exchangers

HRS Heat Exchangers Ltd.
 10-12 Caxton Way
 Watford, Herts WD18 8JY, United Kingdom
 Tel: +44 1923 232 335 Fax: +44 1923 230 266
 Web: www.hrs.co.uk E-mail: mail@hrs.co.uk



hevac

HRS Hevac Ltd.
 10-12 Caxton Way
 Watford, Herts WD18 8JY, United Kingdom
 Tel: +44 1923 232 335 Fax: +44 1923 230 266
 Web: www.hrshevac.co.uk E-mail: angela@hrs.co.uk



process technology

HRS Process Technology, Inc.
 5035 N. 55th. Ave., Suite 6. Az 85301 Glendale, United States.
 Tel: +1 602-938-1123 Fax: +1 602 942 4204
 E-Mail: carlos@hrs-americas.com



process systems

HRS Process Systems Pvt. Ltd.
 201/202 Karan Selene, 851, Bhandarkar Institute Road
 Pune 411 004. Maharashtra. India
 Tel: +91 202295 3528 Fax: +91 202295 3529/1718
 Web: www.hrsasia.co.in E-mail: cthe@hrsasia.co.in