

Hoval SolKit® 250 & 500
High-performance
solar systems for
DHW generation.



Hoval

The sun is an inexhaustible source of precious thermal energy that we can now harness. Today, with global warming a reality, every opportunity for energy conservation has to be taken. Eco-friendly domestic hot water generation, thanks to the sun and...

the Hoval SolKit®.



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RENEWABLE ENERGY GRANTS

Four words that sum up the Hoval SolKit®: Ecological Efficient Economical Reliable



Ecological

The revolutionary Hoval SolKit® makes it possible to meet almost the total energy demand needed for domestic hot water generation. It does this using the most ecological of all sources of energy: the sun.

Efficient

Thanks to the revolutionary LowFlow technology, which adjusts to the climate, the Hoval SolKit® is able to achieve very high energy yields. Even on the coldest days the solar system can gain enough energy to produce hot water. With four people living in one household the Hoval SolKit® can produce up to 81% of the annual DHW demand using solar energy.

Economical

“Not viable and uneconomical”, that’s the preconceived opinions shared by many about solar energy. A prejudice that can be set aside for good with the Hoval SolKit®. Its very modest price and the low installation costs ensure that the Hoval SolKit® is not only the most eco-friendly, but also the most economical form of DHW generation.

Reliable

All components used in the Hoval SolKit® are selected for high durability and are perfectly matched within the Hoval SolKit® system, ensuring it works efficiently and reliably.

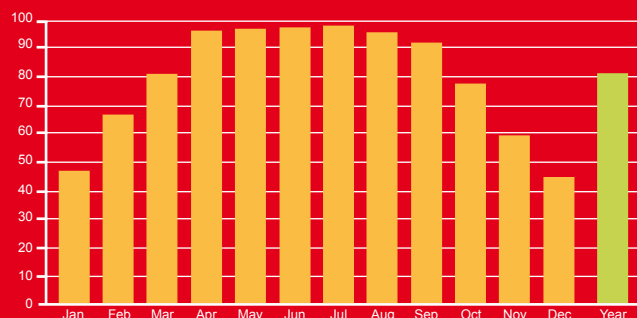


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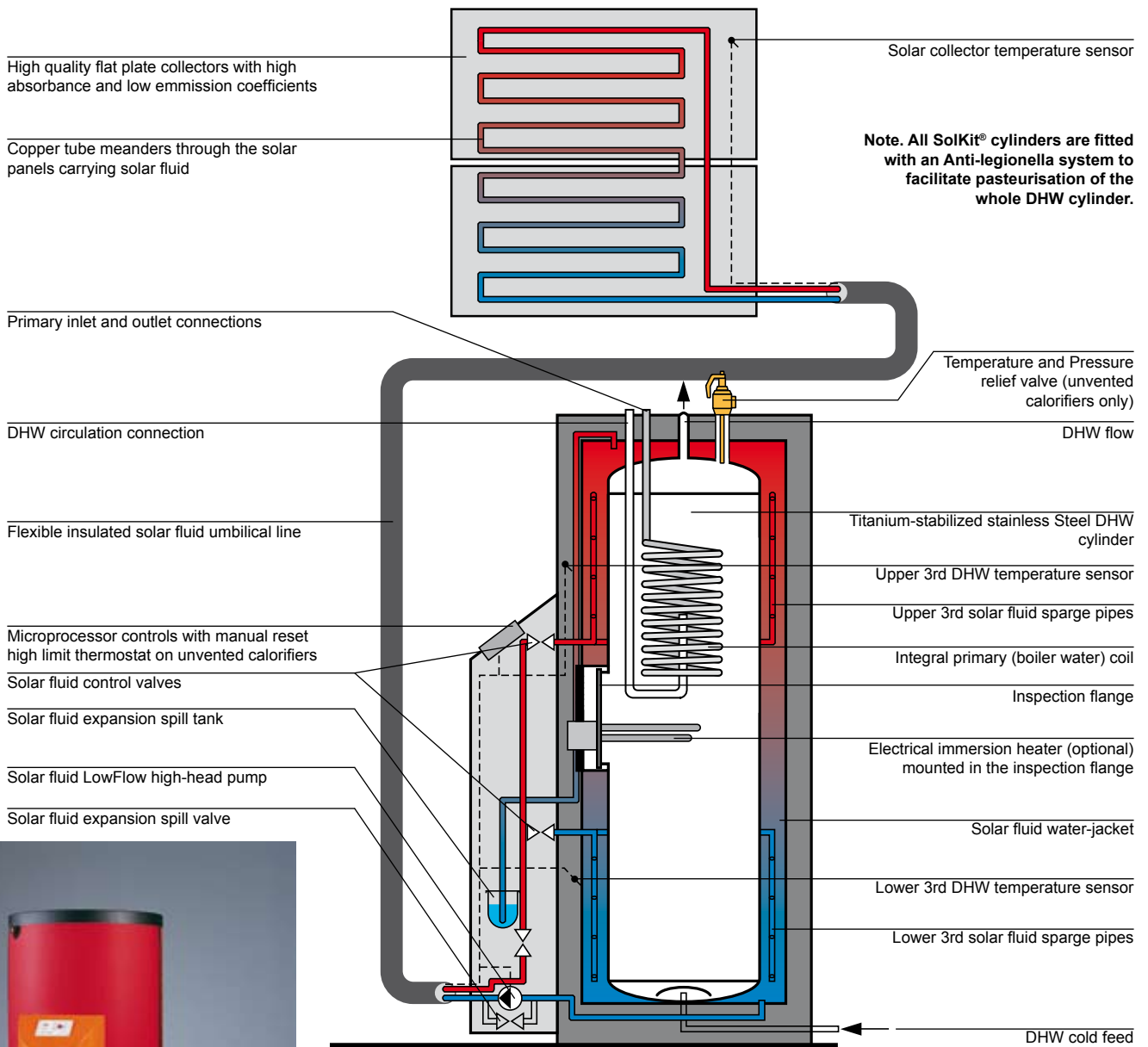
The Hoval SolKit® is listed on the clearskies renewable energy grants scheme.

The Hoval SolKit® can cover up to 81% of your annual energy demand with its revolutionary LowFlow technology. During the summer months almost all of the hot water is heated by the energy from the sun. Yield figures calculated using Polysun 3.

Typical yearly solar coverage for hot water in a one family house in the UK.



The Hoval SolKit®: A highly efficient use of solar energy.



Hoval SolKit® DHW storage cylinder. Behind its thick thermal insulation the SolKit® stores the domestic hot water in a way that promotes the highest levels of solar yield. Hot solar fluid is initially directed into the upper 3rd of the water jacket, this ensures solar-heated domestic hot water is always available whenever possible. Once the upper section of the cylinder is up to temperature, the SolKit® microprocessor controls redirect the solar fluid towards the lower 3rd of the calorifier to heat the whole contents of the cylinder (**250 or 470 litres**).

Innovative LowFlow technology leads to higher solar output. The low mass flow rate of solar fluid through the system leads to two major benefits. The first is it promotes the highest solar fluid temperatures leaving the solar collectors. This is then fed into the calorifier at different levels to ensure energy is always transferred, either to pre-heat the cold water or generate hot water. Secondly, the electrical power required to run the integral pump is negligible. Both of these benefits result in the highest levels of efficiency.



SolKit® - controls efficiency. The heat available from the solar panels and also within the DHW cylinder are continuously monitored by the unit's clever microprocessor controls. This ensures that primary water from the heating system is only used when absolutely necessary. Therefore, the percentage of non-solar energy used to generate hot water is considerably reduced. It also prevents excessive temperatures in the solar and DHW systems being reached.



Installation in one day. The SolKit® solar system has been designed with the installer in mind. One flexible umbilical line connects the solar collectors to the calorifier. Solar fluid flow and return pipes as well as the cable for the solar collector temperature sensor are contained within a single insulated umbilical line. This makes piping-up the SolKit® solar system very simple. The umbilical lines are supplied in 15, 20 and 25 metre lengths to suit your application.



Series 1. On pitched roof version (models 111 to 153)



Series 2. In pitched roof version (models 211 to 253)



Series 3. Flat roof version (models 311 to 343)

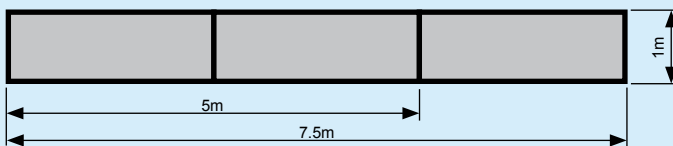


Series 4. On wall version (models 411 to 453)

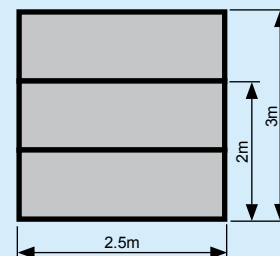
Hoval SolKit® flat plate solar collectors can be mounted in four basic ways (as detailed above) so you can be sure Hoval have a solution that meets your energy requirements and is in-keeping with the aesthetics of your building. Very efficient, extremely robust, reliable and practically maintenance-free, the SolKit® solar collectors are sure to give you piece of mind. The Hoval SolKit® solar system is supplied with either two or three 2.4m² (gross area) flat plate solar collectors, depending on your hot water demands.

Flat plate collector configuration

Horizontal configuration
available on all SolKit® systems.



Vertical configuration only
available on series 1 and 2 Solkit® systems.



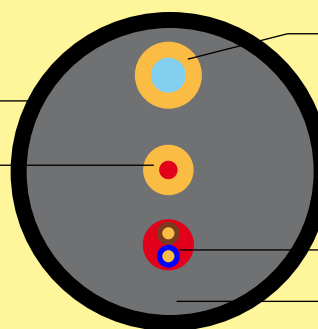
Outstanding design - down to finite detail. Every aspect of the SolKit® solar system has been considered and designed to ensure maximum efficiency. All the components within the SolKit® package have been engineered to promote solar gain, whilst reducing heat losses and auxiliary energy consumption. Take the flexible umbilical connection line (right) as an example.

It's not just a flex!

Diameter of umbilical = 70mm

Protective braiding

Located in the centre of the insulation to minimize heat losses, the 8mm flow pipe carries the hot solar liquid from the solar panels to the calorifier. The solar fluid becomes less viscous as its temperature increases due to its Newtonian-fluid properties. This enables a smaller diameter pipe to be used and this subsequently reduces its surface area, which in turn lowers the heat loss through the pipe.



Cooler solar fluid (often below ambient) is carried back to the solar panels through a larger 10mm pipe. By this time the solar energy has been transferred into the calorifier and so heat losses in the umbilical line are insignificant, hence its outer location.

Solar panel sensor cable

High grade thermal insulation

Description / Specification

Hoval SolKit® Solar System

A complete solar system for DHW heating suitable for various sized houses and commercial dwellings. Consisting of either a 250 or 470 litre storage calorifier with 2 or 3 flat plate solar collectors (250 litre only with 2 collectors).

High performance flat plate solar collectors

Working on the LowFlow principle to maximize solar fraction whilst minimizing power consumption during DHW generation, every SolKit has either 2 or 3 high performance flat plate solar collectors. These are constructed from copper tubes, which are completely soldered to a copper heat absorber plate and coated with a highly selective material to enhance the absorbing properties. To minimize energy losses each flat plate collector is fitted with a special two-layer thermal insulation and a prismatic structured, anti-reflective, front glass panel. This is all assembled within a lightweight aluminium frame. Each collector has a gross collector surface area of 2,4 m² and an absorber surface area of 2,1 m².

The design and manufacture of the collector encompasses performance, reliability and durability for trouble-free operation during a long life span.

The panels are suitable for installation on or in pitched roofs, on flat roofs, or on the wall.

Flexible connection line

The flexible umbilical line connecting the flat plate collectors to the DHW cylinder comes in 15, 20 and 25 metre lengths as standard. It comprises: a nylon braided, thermally insulated sleeve carrying the flow and return copper pipes and also the collector sensor cable. This allows the installer to quickly and easily connect the solar collectors to the DHW calorifier within the property.

DHW Calorifier

DHW storage is held within either a 250 or 470 litre, high grade stainless steel cylinder (grade 1.4571) and is surrounded by the solar fluid within a water-jacket.

The cylinder is complete with an inspection flange positioned half way up its shell, which can be fitted with an optional boss for an electrical immersion heater.

Within the upper section of the DHW cylinder there is a primary coil permitting rapid heat-up via the heating system as back up / support. There are two solar fluid entry points into the calorifier water jacket and one exit point at low level.

A smart digital controller utilizes three temperature sensors, one in the solar collectors and two positioned at different heights within the DHW calorifier to compare the solar fluid and DHW temperatures. It then controls a series of valves to ensure the solar fluid enters the cylinder at the right level to maximise heat transfer and solar gain.

If the calorifier is not up to temperature and the solar fluid leaving the panels is hotter than the DHW at the top of the cylinder, the upper control valve is opened. Once the sensor at the top of the cylinder reaches its set point the hot solar fluid is redirected lower down in the cylinder until the whole of its contents is up to the set temperature. At this point the pump stops and the solar fluid expansion spill valve opens. This causes the solar fluid in the collectors to vapourize and subsequently forces the solar

fluid (at the calorifier) into the expansion spill tank. This automatically drains down the solar collectors to prevent them overheating, which avoids them getting damaged.

At times when energy from the sun is lower and subsequently the temperature sensed at the solar collectors is lower than the top of the cylinder (but higher than the bottom) the solar fluid is directed towards the bottom of the water jacket where it is used to pre-heat the cold feed water. When the solar fluid temperature at the flat plate solar collectors is lower than the temperature at the bottom of the cylinder the pump shuts down until the solar fluid temperature rises above the temperature within the cylinder.

Auxillary heating takes place automatically during three set time zones or can be activated manually at the unit.

Thermal insulation (80mm thick on 250 litre and 100mm thick on 470 litre cylinder) made from soft polyurethane foam (CFC free) with an outer casing made of polystyrol keeps standing losses to a minimum.

The calorifier is supplied with integrated solar fluid circulation pump, pipework, expansion spill tank, drain valve, and connections for flow and return, as well as integral solar control and stylish designed casing.

Volume of DHW storage: 250 or 470 litre

Operating pressure:

DHW: 6 bar (test pressure 12 bar)

Solar fluid: pressure free (test pressure 0.5 bar)

Primary coil: 10 bar (test 13 bar)

Operating temperature:

Heating / Domestic hot water: max. 95°C

Solar fluid

The SolKit® is supplied with 75 litres of pre-mixed heat transfer fluid for the solar circuit. This has a propylene glycol base, which ensures the solar system will not freeze even on the coldest days.

Smaller containers for top-up purposes are recommended and available on request.

Unvented system kits

The Hoval SolKit® can be installed in both open-vented and unvented domestic hot water systems. Should you wish the SolKit® can be fed from a cold water booster set or straight from the cold water mains. In both instances Hoval can provide an optional unvented system kit for your system.

	Volume (Litres)	
	250	470
The standard kit comprises:		
• Strainer	¾"	1"
• Pressure reducing valve	¾"	1"
• Double check valve	¾"	1"
• Expansion vessel	24 litre	60 litre
• Expansion relief valve & tundish	¾"	¾"
• T & P relief valve (factory fitted) with tundish (loose)	¾"	¾"

The standard kits are sized to suit the output of the calorifier, so should you require to balance hot and cold water services, larger or separate pressure reducing valves may be required.

A manual reset thermostat is fitted to stop the flow of both auxillary and solar fluid entering the calorifier if there is a high temperature lockout.



Hoval SolKit® Solar System

Installation Type	Type of collector	Collector surface	
		Gross m ²	Absorber m ²

Series 1 on-roof

(111-113)	Flat plate	4,8	4,2
(121-123)	Flat plate	4,8	4,2
(141-143)	Flat plate	7,2	6,3
(151-153)	Flat plate	7,2	6,3

Series 2 in-roof

(211-213)	Flat plate	4,8	4,2
(221-223)	Flat plate	4,8	4,2
(241-243)	Flat plate	7,2	6,3
(251-253)	Flat plate	7,2	6,3

Series 3 flat-roof

(311-313)	Flat plate	4,8	4,2
(341-343)	Flat plate	7,2	6,3

Series 4 on-wall

(411-413)	Flat plate	4,8	4,2
(441-443)	Flat plate	7,2	6,3
(421-423)	Flat plate	4,8	4,2
(451-453)	Flat plate	7,2	6,3

Quality-tested by the Swiss Federal Office of Energy (SPF)
University of Rapperswil, Switzerland
SPF test number: S 035



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Clearskies product register numbers:
ST1110 & SC2103

Technical data

Hoval SolKit® - Solar Collector		flat plate collector		
• Collector	Type	Single glazed, Low-Flow direct solar-selectiv		
• System of heat transfer		0,95		
• Coating of absorber		0,08		
• Absorption value (α)		MTI / Cr-Ni on Copper		
• Emission value (ϵ)				
• Type of coating / Material				
• C_0	%	83,4		
• $C_1^{(1)}$	W/m ² K	3,82		
• $C_2^{(1)}$	W/m ² K ²	0,0093		
• KCH_1		0,93		
• KCH_2		0,93		
• Maximum stagnation temperature	°C	176		
• Dimensions	mm	2460 x 970 x 102		
• Weight	kg	40		
• Capacity	Litres	1,2		
Solar system				
• Number of collectors		2	3	
• Gross area	m ²	4,8	7,2	
• Absorber surface area	m ²	4,2	6,3	
• Operating pressure (max.)	bar	10	10	
• Operating temperature (max.)	°C	110	110	
• Volume flow of solar circuit	l/h	55	80	
• Dimensions approx.				
Collector, horizontal configuration	mm	5000 x 1000 x 110	7500 x 1000 x 110	
Collector, vertical configuration	mm	2500 x 2000 x 110	2500 x 3000 x 110	
• Weight approx. (total)	kg	80	120	
• Weight (Concrete ballast re: mounting on flat roof)	kg	3 x 62,5	4 x 62,5	
Hoval SolKit® Calorifier				
<i>Type of calorifier</i>		250-4	500-4	500-6
• Output using primary coil at 82°C, DHW from 10 to 60°C ⁽⁴⁾	litres / hour	289	289	289
• Output using primary coil at 82°C, DHW from 10 to 60°C ⁽⁴⁾	litres / 10 minutes	148	176	176
• Design		Special water-jacket storage		
• Material		stainless steel, titanium-stabilized (1.4571)		
• Heatable capacity (with solar system)	Litres	250	470	470
• Heatable capacity (with primary coil)	Litres	125	160	160
• Heatble capacity (with electrical immersion heater)	Litres	135	200	200
• Operating pressure max./test pressure	solar circuit DHW heater	not relevant and/or pressure-free system		
	bar	6/12	6/12	6/12
• Temperature of DHW max. ⁽²⁾	°C	90	90	90
• Thermal insulation (soft polyurethane foam)	mm	80	100	100
• Thermal conductivity (λ)	W/mK	0,039	0,039	0,039
• Standing losses qB at 60°	W	70	70	70
• Dimensions				
without insulation	mm	1900 x Ø 490	1940 x Ø 590	
with insulation	mm	1900 x Ø 650	1940 x Ø 790	
Weight (Dry)	kg	101	126	126
<i>Heater coil (integral)</i>		smooth pipe / stainless steel		
• heating surface	m ²	0,8	0,8	0,8
• Capacity (Heating water)	Litres	4,5	4,5	4,5
• Flow resistance water ⁽³⁾	z-Value	48	48	48
• Operating pressure / test pressure	bar	10 / 13	10 / 13	10 / 13
• Operating temperature	°C	90	90	90
<i>Solar assembly group</i>				
Electrical data				
• Voltage/Frequency	V/Hz	230/50	230/50	230/50
• Operating current max.	A	0,15	0,15	0,15
• Fuse Protection	A (slow)	10	10	10
Connection line (umbilical)				
Double tube with thermal insulation, outer diameter Ø	mm	70		
• Copper tube, outer diameter Ø	mm	8/6,4 bzw. 10/8,4		
• Cross section of sensor cable	mm ²	1,5		
Heat transfer medium				
• Total capacity of plant	litres	Propylene glycol 34% / complete desalted water 66% 75		
Electrical immersion heater (optional)				
• Voltage/Frequency	V/Hz	1ph / 230V / 50Hz		
• Power consumption	kW	3,0 or 6,0		

(1) Collector constant

(2) using pre-programmed stop temperature

(3) Flow resistance in mbar = (m³/h)² x z

(4) Output figures assume no solar gain

**Maximum Chloride content in the domestic hot water = 100mg/litre
(Up to 250mg/litre acceptable with the use of optional non-sacrificial anode)**

SolKit® Series 1



Hoval SolKit® Series 1 - for assembly on a pitched roof

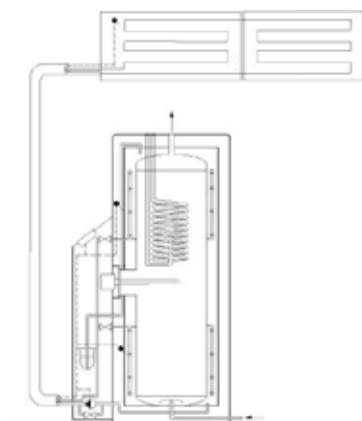
Hoval SolKit® Series 1 solar systems are suitable for mounting on a tiled pitched roof and consist of:

- high efficiency flat plate solar collectors with interconnecting pipes
- roof assembly kit including mounting brackets etc
- 250 or 470 litre storage calorifier with pre-assembled pump / pipework and pre-wired solar controls
- flexible thermally-insulated umbilical connection line
- heat transfer fluid for solar circuit

Hoval SolKit® with flat plate collectors for installation on the roof

Collector horizontal configuration

Minimum roof pitch 20°

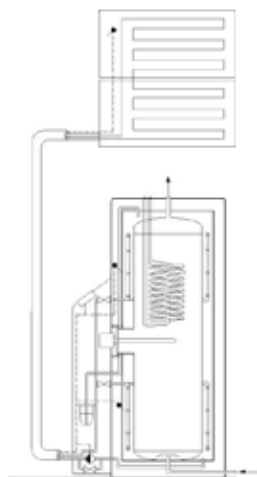


Hoval SolKit® Type	Q	F m²	SolKit® Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(111)	2	4,8	250-4 & 500-4	15	8000470A	8000470
(112)	2	4,8	250-4 & 500-4	20	8000471A	8000471
(113)	2	4,8	250-4 & 500-4	25	8000472A	8000472
(141)	3	7,2	500-6	15	-	8000479
(142)	3	7,2	500-6	20	-	8000480
(143)	3	7,2	500-6	25	-	8000481

Q: Quantity of collectors
 F: Collector gross surface area
 L: Length of umbilical

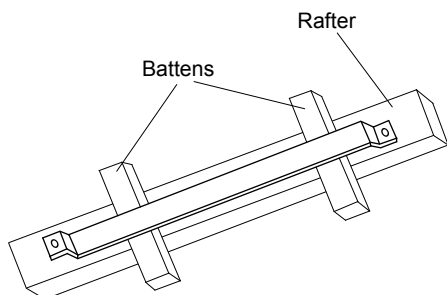
Collector vertical configuration

Minimum roof pitch 20°



Hoval SolKit® Type	Q	F m²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(121)	2	4,8	250-4 & 500-4	15	8000473A	8000473
(122)	2	4,8	250-4 & 500-4	20	8000474A	8000474
(123)	2	4,8	250-4 & 500-4	25	8000475A	8000475
(151)	3	7,2	500-6	15	-	8000482
(152)	3	7,2	500-6	20	-	8000483
(153)	3	7,2	500-6	25	-	8000484

Q: Quantity of collectors
 F: Collector gross surface area
 L: Length of umbilical



Optional fixing brackets are available for installation on a slate / plain tile roof. Please refer to the Accessories section for further details.

SolKit® Series 2



Hoval SolKit® Series 2 - for assembly within a pitched roof

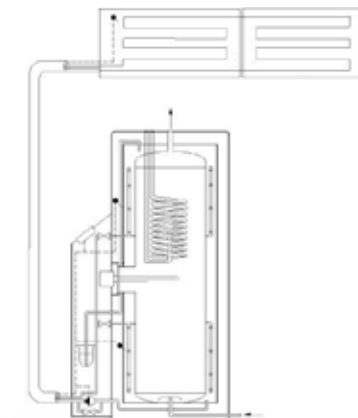
Hoval SolKit® Series 2 solar systems are suitable for mounting within a tiled pitched roof and consist of:

- high efficiency flat plate solar collectors with interconnecting pipes
- roof assembly kit including flashing etc
- 250 or 470 litre storage calorifier with pre-assembled pump / pipework and pre-wired solar controls
- flexible thermally-insulated umbilical connection line
- heat transfer fluid for solar circuit

Hoval SolKit® with flat plate collectors for installation in the roof

Collector horizontal configuration

Minimum roof pitch 30°

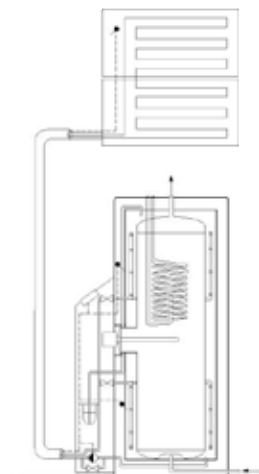


Hoval SolKit® Type	Q	F m ²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(211)	2	4,8	250-4 & 500-4	15	8000485A	8000485
(212)	2	4,8	250-4 & 500-4	20	8000486A	8000486
(213)	2	4,8	250-4 & 500-4	25	8000487A	8000487
(241)	3	7,2	500-6	15	-	8000491
(242)	3	7,2	500-6	20	-	8000492
(243)	3	7,2	500-6	25	-	8000493

Q: Quantity of collectors
F: Collector gross surface area
L: Length of umbilical

Collector vertical configuration

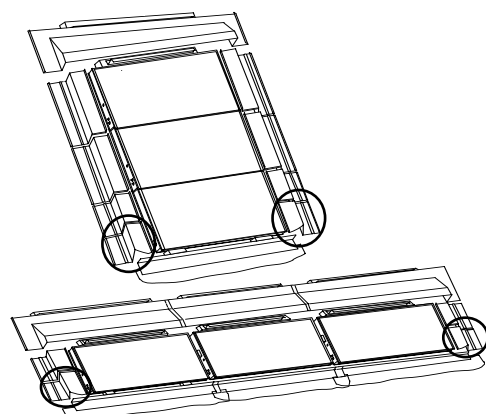
Minimum roof pitch 30°



Hoval SolKit® Type	Q	F m ²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(221)	2	4,8	250-4 & 500-4	15	8000488A	8000488
(222)	2	4,8	250-4 & 500-4	20	8000489A	8000489
(223)	2	4,8	250-4 & 500-4	25	8000490A	8000490
(251)	3	7,2	500-6	15	-	8000494
(252)	3	7,2	500-6	20	-	8000495
(253)	3	7,2	500-6	25	-	8000496

Q: Quantity of collectors
F: Collector gross surface area
L: Length of umbilical

Optional lower side flashing set for installation in a slate / plain tile roof



Hoval SolKit® Type	Cat No.
All SolKit® series 2 models	6005206

SolKit® Series 3

Hoval SolKit® Series 3 - for assembly on a flat roof

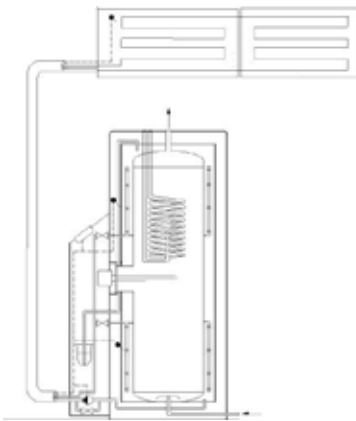


- Hoval SolKit® Series 3 solar systems are suitable for mounting on a flat roof and consist of:
- high efficiency flat plate solar collectors with interconnecting pipes
 - roof assembly kit including angled mounting brackets etc
 - 250 or 470 litre storage calorifier with pre-assembled pump / pipework and pre-wired solar controls
 - flexible thermally-insulated umbilical connection line
 - heat transfer fluid for solar circuit

Hoval SolKit® with flat plate collectors for installation on a flat roof

Collector horizontal configuration

Inclination of collector 45°



Hoval SolKit® Type	Q	F m ²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(311)	2	4,8	250-4 & 500-4	15	8000497A	8000497
(312)	2	4,8	250-4 & 500-4	20	8000498A	8000498
(313)	2	4,8	250-4 & 500-4	25	8000499A	8000499
(341)	3	7,2	500-6	15	-	8000503
(342)	3	7,2	500-6	20	-	8000504
(343)	3	7,2	500-6	25	-	8000505

Q: Quantity of collectors

F: Collector gross surface area

L: Length of umbilical

SolKit® Series 4



Hoval SolKit® Series 4 - for assembly on a wall

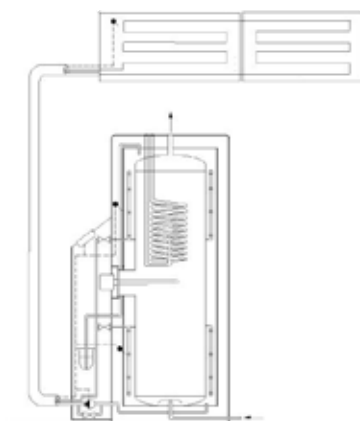
Hoval SolKit® Series 4 solar systems are suitable for mounting on a wall and consist of:

- high efficiency flat plate solar collectors with interconnecting pipes
- wall assembly kit including angled brackets etc
- 250 or 470 litre storage calorifier with pre-assembled pump / pipework and pre-wired solar controls
- flexible thermally-insulated umbilical connection line
- heat transfer fluid for solar circuit

Hoval SolKit® with flat plate collectors for wall mounting

Collector horizontal configuration

Inclination of collector 45°



Hoval SolKit® Type	Q	F m ²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(411)	2	4,8	250-4 & 500-4	15	8000506A	8000506
(412)	2	4,8	250-4 & 500-4	20	8000507A	8000507
(413)	2	4,8	250-4 & 500-4	25	8000508A	8000508
(441)	3	7,2	500-6	15	-	8000509
(442)	3	7,2	500-6	20	-	8000510
(443)	3	7,2	500-6	25	-	8000511

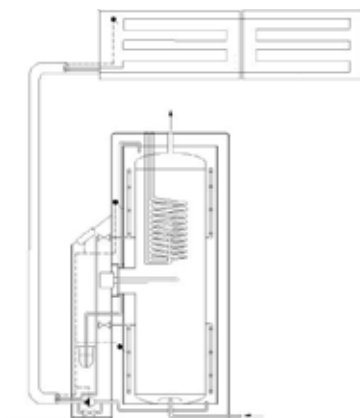
Q: Quantity of collectors

F: Collector gross surface area

L: Length of umbilical

Collector horizontal configuration

Inclination of collector 60°



Hoval SolKit® Type	Q	F m ²	Calorifier Type	L m	250-4 SolKit® Cat No.	500-4 & 500-6 SolKit® Cat No.
(421)	2	4,8	250-4 & 500-4	15	8000512A	8000512
(422)	2	4,8	250-4 & 500-4	20	8000513A	8000513
(423)	2	4,8	250-4 & 500-4	25	8000514A	8000514
(451)	3	7,2	500-6	15	-	8000515
(452)	3	7,2	500-6	20	-	8000516
(453)	3	7,2	500-6	25	-	8000517

Q: Quantity of collectors

F: Collector gross surface area

L: Length of umbilical

Accessories

Solkit® accessories Roof clamps for installation of flat plate collectors on a pitched roof

Hoval set of roof clamps for:

Slates / plain tile / decorative tile roof

suitable for Hoval SolKit® Type	Q	F m ²	Collector arrangement	Part No.
(111-113)	2	4,8	1	6002 626
(121-123)	2	4,8	2	6002 627
(141-143)	3	7,2	1	6002 628
(151-153)	3	7,2	2	6002 626

Fibre cement sheet / metal corrugated roof

suitable for Hoval SolKit® Type	Q	F m ²	Collector arrangement	Part No.
(111-113)	2	4,8	1	6002 773
(121-123)	2	4,8	2	6002 629
(141-143)	3	7,2	1	6002 773
(151-153)	3	7,2	2	6002 631

Metal roof

suitable for Hoval SolKit® Type	Q	F m ²	Collector configuration	Part No.
(111-113)	2	4,8	1	6002 632
(121-123)	2	4,8	2	6002 632
(141-143)	3	7,2	1	6002 634
(151-153)	3	7,2	2	6002 634

Fitting set:

Additional brackets to increase the angle of inclination of the SolKit® flat plate collectors by 20°. Possible only for the on pitched roof, horizontally configured collectors. Suitably for all sets of roof clamps.

suitable for Hoval SolKit® Type	Q	F m ²	Collector configuration	Part No.
(111-113)	2	4,8	1	2007 177
(141-143)	3	7,2	1	2007 178

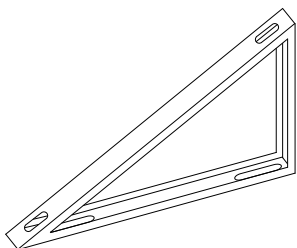
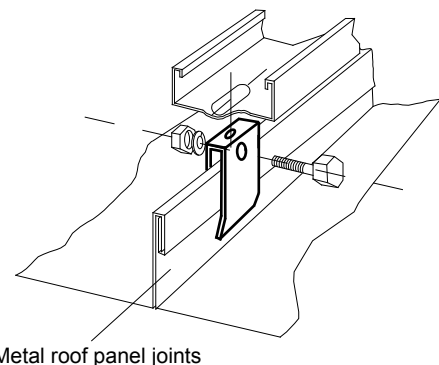
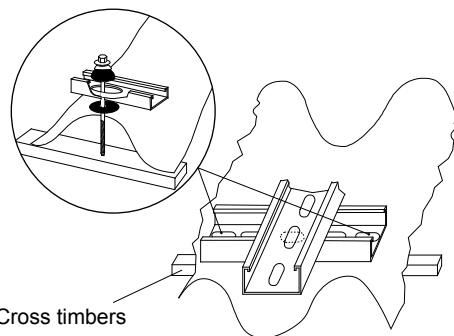
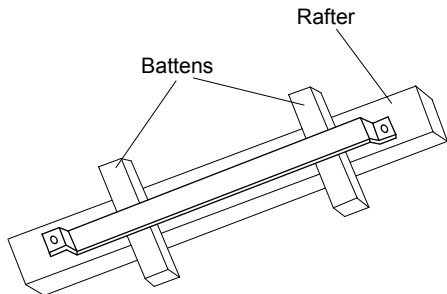
Q: Quantity of collectors
F: Collector gross surface area
1: horizontal configuration
2: vertical configuration

Casing for the umbilical line at the flat plate collector

for arrangement of 2 or 3 collectors with 4,8 and 7,2 m² gross surface area (horizontally configured) **Part No.** 6002 635

for arrangement of 2 collectors with 4,8 m² gross surface area (vertically configured) 6002 636

for arrangement of 3 collectors with 7,2 m² gross surface area (vertically configured) 6002 637









Accessories

For all types of collector

Roof execution	Part No.
Unit made of copper for the installation of the Hoval SolKit® umbilical line into the roof space.	
<i>Tiled roof</i> Dimension 780 x 330 mm	6002 638
<i>Fibre cement sheet / metal corrugated roof</i> Dimension 1000 x 450 mm	6005 205

Accessories

	<p>Electrical anode FSA-402 Non-sacrificial anode protection (requires special inspection flange)</p>	60000038
	<p>Electrical immersion heater HBY3/16/CS/2T 3,0 kW complete with control thermostat (+5°C to +80°C) and high temperature limit stat (95°C) within light weight mild steel with nylon finish enclosure (IP66) Length 406 mm with 50mm inactive Heating output 3,0 kW Power supply; 230V / 1ph / 50Hz</p>	240621
	<p>Electrical immersion heater HBY6/16/CS/2T 6,0 kW complete with control thermostat (+5°C to +80°C) and high temperature limit stat (95°C) within light weight mild steel with nylon finish enclosure (IP66) Length 406 mm with 50mm inactive Heating output 6,0 kW Power supply; 230V / 1ph / 50Hz or 415V, 3ph / 50Hz / 4 wire STAR</p>	240622
	<p>Inspection flange lid with 1½" immersion heater boss.</p>	2002 205
	<p>Thermostatic blender for service water TM200-3/4" to prevent high water temperatures at the tap. Brass housing, with protection from return flow in cold and warm water inlet. Mixing temperature adjustable. Connection R ¾".</p>	2005 915
	<p>Heat transfer medium (Replacement) Propylene glycol, 34% / complete desalted water 66%. 25 Litre container</p>	2002 226A



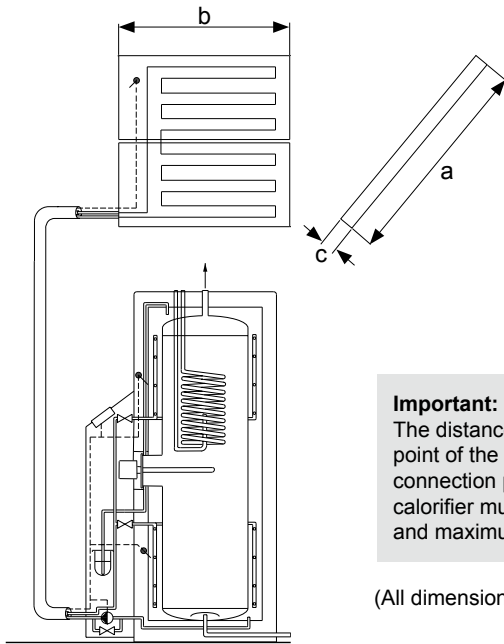
Commissioning must be carried out by a Hoval service engineer or approved installer. This is a condition of the warranty.

For commissioning and other services please contact our Hoval service department.
e-mail: service@hoval.co.uk
direct dial: 01636 593413

Dimensions / Space requirements

Hoval SolKit® flat panel solar collectors

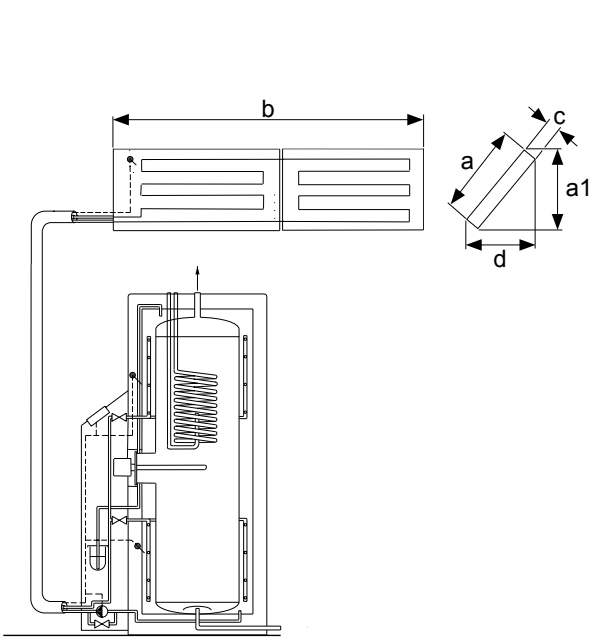
Arrangement
vertical configuration



Important:
The distance between the highest point of the solar panels and the connection point on the SolKit® calorifier must be minimum 1.5m and maximum 15m.

(All dimensions in mm)

Arrangement
horizontal configuration

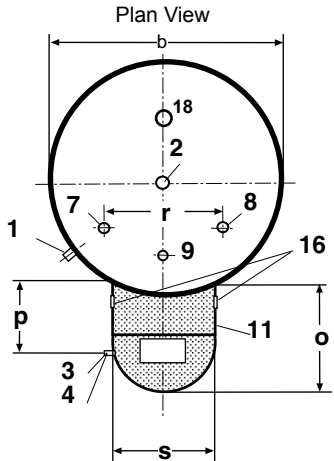
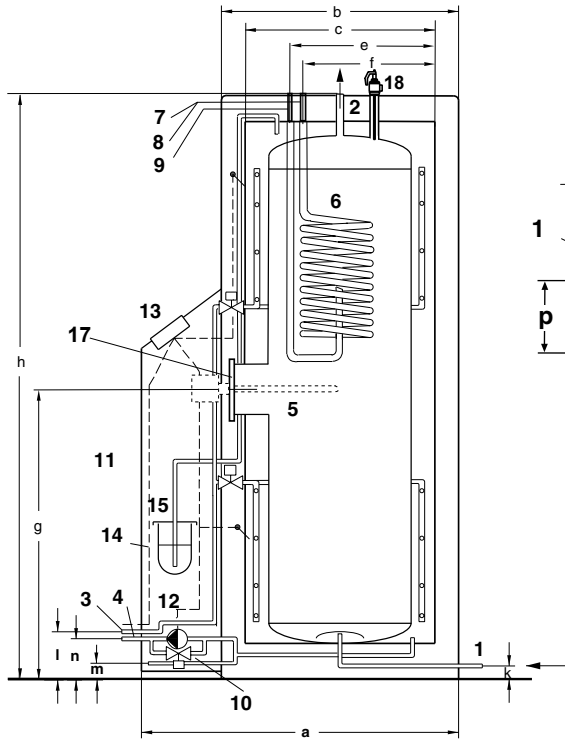


Installation

Type	Vertical Configuration						Horizontal Configuration									
	(2 panels, 4.2m³)			(3 panels, 6.3m³)			(2 panels, 4.2m³)					(3 panels, 6.3m³)				
	a	b	c	a	b	c	a	a1	b	c	d	a	a1	b	c	d
On pitched roof	2000	2500	110	3000	2900	110	1000		5000	110		1000		7500	110	
In pitched roof #	2400	2900	110	3400	2900	110	1400		5400	110		1400		7900	110	
Flat roof (45° inclination)							1000	910	5000	110	1000	1000	910	7500	110	1000
Wall (45° inclination)							1000	750	5000	110	760	1000	750	7500	110	760
Wall (60° inclination)							1000	870	5000	110	590	1000	870	7500	110	590

Includes flashing set

Hoval SolKit®- storage calorifier

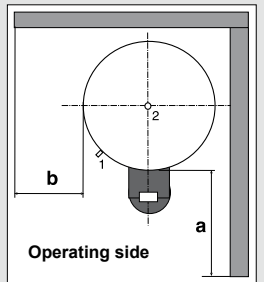


- 1 Cold feed Rp 1" (45° left in front)
- 2 DHW flow R 1"
- 3 Solar system connection from collector dia 8 mm
- 4 Solar system connection to collector dia 10 mm
- 5 Electrical immersion heater Rp 1 1/2" (option)
- 6 Primary coil (heating water)
- 7 Primary heating flow R 3/4"
- 8 Primary heating return R 3/4"
- 9 DHW Circulation R 1/2"
- 10 Solar circuit filling and emptying valve
- 11 Casing of solar pump and pipework (removable)
- 12 Pump for solar circuit
- 13 Microprocessor controller
- 14 Sensor cables
- 15 Solar fluid expansion dump tank
- 16 Electrical entry points
- 17 Inspection flange
- 18 3/4" Temperature and pressure relief valve

Space requirements

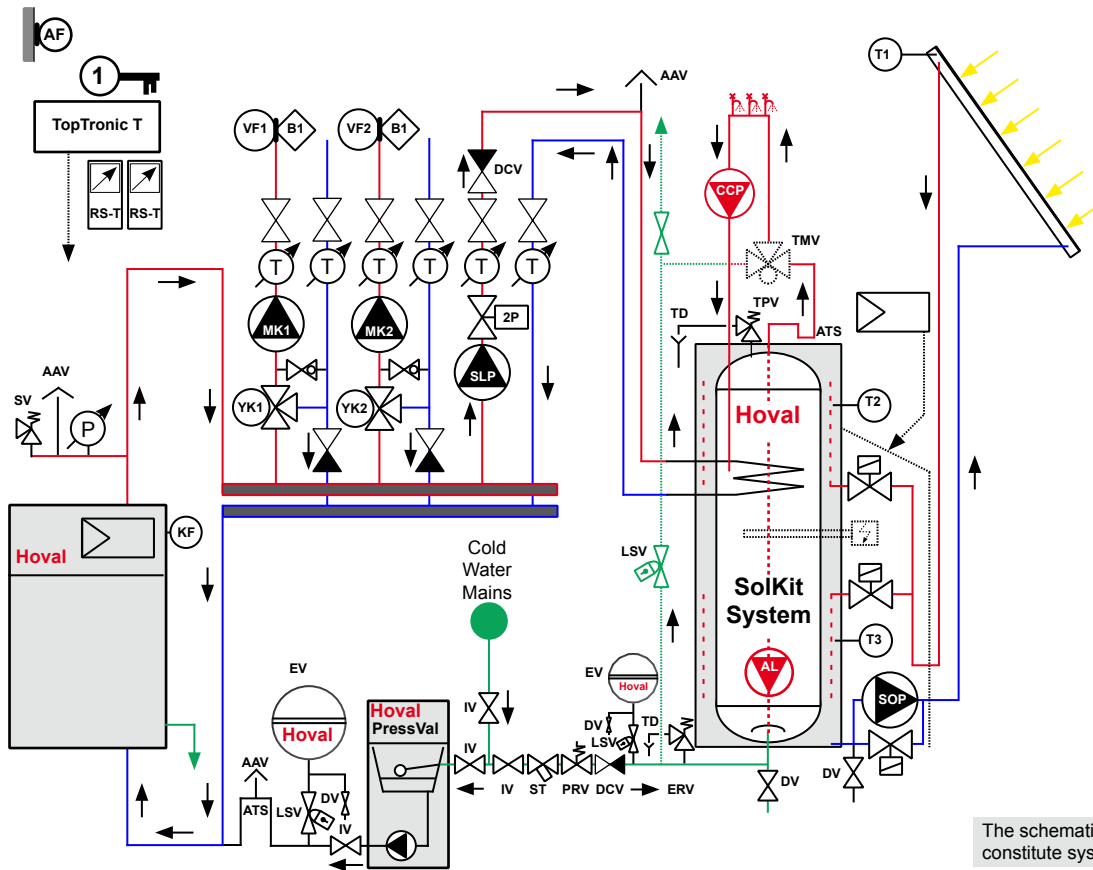
- The operating side must be well accessible.
- Wall distance for the installation and removal of an electric immersion heater: (a)
- Space requirement for assembly of insulation (b)

Type	a	b
(250-4 & 500-4/6)		≥ 600
either on the left or right		≥ 700



Type	a	dia b	dia c	e	f	g	h	k	l	m	n	o	p	r	s
(250-4)	920	650	490	423	373	944	1900	35	84	35	80	290	160	252	390
(500-4/6)	1060	790	590	473	423	944	1963	44	84	50	80	280	150	252	390

Installation Details



Key

RS-T	Room station
MK1	Pump mixing circuit 1
MK2	Pump mixing circuit 2
SLP	Calorifier loading pump
SOP	Solar circulation pump
CCP	DHW circulation pump
YK1	Actuator mixer 1
YK2	Actuator mixer 2
VF1	Flow sensor 1
VF2	Flow sensor 2
B1	Flow temperature thermostat
T1	Differential control sensor 1
T2	Differential control sensor 2
T3	Differential control sensor 3
KF	Boiler sensor
AF	Outdoor sensor
2P	2 port motorised valve
ATS	Anti-thermal siphon dip to prevent gravity circulation
TPV	T&P safety valve
TBV	Thermostatic mixing valve
ST	Strainer
PRV	Pressure reducing valve
DCV	Double check valve
LSV	Lock shield valve
ERV	Expansion relief valve
EV	Expansion vessel
IV	Isolation valve
DV	Drain valve
P	Pressure gauge
T	Thermometer
SV	Safety valve
AAV	Automatic air vent
TD	Tundish
AL	Anti-legionella system

The schematics are for guidance only and do not constitute system design.

Guidlines

The following regulations and guidlines must be considered:

- Technical information and assembly instructions given by Hoval.
- Recommendations on hydraulic and control regulations given by Hoval.
- Requirements of the water condition: Total hardness > 10 mg/l Calcium Carbonate. pH-Value 8,3 - 9,5 and for plants with components from aluminum or non-ferrous metal 8,3 - max. 9,0 Oxygen < 0,1 mg/l.
- British and Local Authority Regulations.

Solar collector panels

- The minimum roof pitch of 25° for on roof, and 30° for in roof assembly should be met.
- Port for umbilical connection line: on the right and left side possible, however the right hand side is preferred.

Collector sensor

- Fit the solar panel sensor into the pocket in the collector This is then connected to the sensor cable in the umbilical using electrical terminals.

Umbilical connection line

- Select the shortest and most direct route possible between solar panels and the SolKit® calorifier.
- The 70mm dia umbilical connection line has a minimum bending radius of 150 mm, so care must be taken not to kink the pipes inside.
- Difference between the highest point of the solar panels and the point of connection to the SolKit® calorifier:
Minimum 1,5 m
Maximum 15 m
- The maximum length of the umbilical connection line of 25 m must not be exceeded.

- The connection line should be always run downwards from the solar panels.

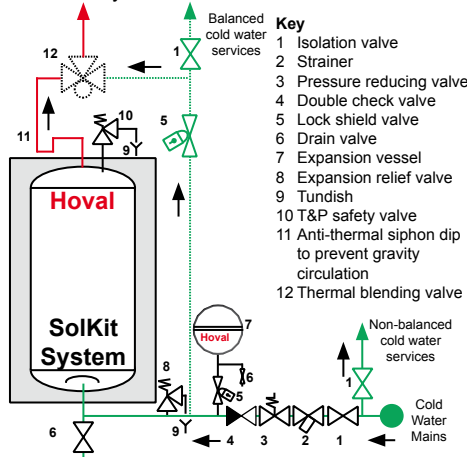
Hoval SolKit® calorifier

Place of assembly

- the installation area must be frost-protected.
- Ambient temperature 50 °C (max.)
- Suitable access around the unit is required.

Plumbing

- Electrical trace heating of the hot water distribution pipework is preferred as this will enhance solar fraction.
- The DHW flow pipework must be thermally insulated and an anti-gravity syphon must be installed (min. ≥ 200 mm).
- Maximum safety valve setting = maximum operating pressure.
- **Attention:** during times when demand for hot water is low, high DHW water temperatures can develop. Therefore a thermal mixing valve should be installed either at point of use, or as shown in the above schematic adjacent to the SolKit® cylinder.

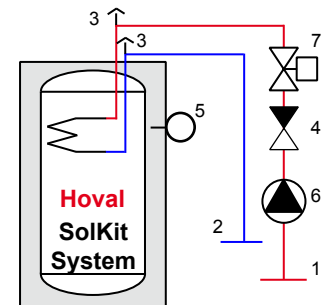


Electrical immersion heater

- A 3kW or 6kW electrical immersion heater can be fitted as an option in the inspection cover. The optional inspection cover with 1½" socket is required.

Primary coil (heating by boiler)

- Heating the DHW using the heating boiler(s) can be achieved through the integral primary coil in the SolKit® calorifier.
- The start signal for the boiler is volt-free and can be temporarily controlled by a 3 time program clock.
- Flow and return pipes are to be installed in such a way as to prevent back flow and gravity circulation.
- Install the automatic air vents in the highest point of the heating water pipes.



- 1 Flow
- 2 Return
- 3 Automatic air vent of primary pump
- 4 Check valve
- 5 Temperature controller (Built into Hoval SolKit® calorifier)
- 6 Calorifier loading pump
- 7 2 port motorised valve (for unvented systems)

Important:
The solar fluid must only be added at the time of commissioning.

Other associated products

The perfect complement: the Hoval SolKit® with one of Hoval's ecological, efficient, economical and reliable boilers.



Oil condensing to 26kW:
Hoval MultiJet®



Oil Condensing to 84kW:
Hoval UltraOil®



Gas condensing to 83kW:
Hoval TopGas®



Gas condensing to 1440kW:
Hoval UltraGas®



Gasifying log boiler to 50kW:
Hoval AgroLyt®



Wood pellet boilers to 70kW:
Hoval BioLyt®



Modul-Plus

The Modul-Plus calorifier is designed for the larger output Hoval boilers, but can also be used with other makes of commercial / industrial boilers. Seven model sizes cover a range of DHW outputs up to 10,000 litres/hr at 90°C primary feed. Modular construction allows a variety of options to suit plant room layouts.

Hoval Ltd

Northgate
Newark
Notts
NG24 1JN
Tel: (01636) 672711
Fax: (01636) 673532
e-mail: solarthermal@hoval.co.uk
Web Site: www.hoval.co.uk



Large Solar Projects

Hoval offer an extensive range of products including; non standard solar panels up to 10m², plate heat exchangers, pump sets, thermal stores, single and twin coil calorifiers, DHW buffer vessels, and controls to provide a customized package. Calculation software simulates expected solar gains and gives the system designer the ability to specify the best solution.



PressVal Micron

The PressVal Micron range of pressurisation units are compact microprocessor controlled units. Covering all system outputs from small commercial heating and chilled water systems, through to the very largest district heating schemes. Both single and twin pump units are available in wall-hung, free standing, skid mounted, or cabinet housed configurations. Volt free contacts for BMS interface provided as standard.

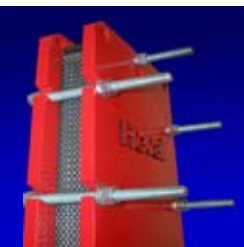


Plate heat exchangers

At the heart of Hoval's plate heat exchanger programme is the Hoval UltraPlate, which is available in two basic models; the UP-g gasketed and the UP-b brazed plate heat exchanger. The UltraFlow plate heat exchanger packages and UltraStore plate heat exchanger / buffer vessel packages embrace the advantages of the UltraPlate and provide the installer with an economic solution to meet their DHW needs.



By Appointment to
Her Majesty the Queen
Boiler Manufacturers & Engineers
Hoval Ltd Newark.



Conservation of energy - protection of the environment