Solar Technology

CPC and Sunnyline collectors

- Solar collectors
- System technology
- Fresh water technology

- Powerful products
- Modern design
- Low emissions

Hot water treatment • Solar heating
Swimming pool heating • Process heat
Intelligent control

Everything under control with the eco manager-touch control center

Wood heating
Oil heating
Gas heating
Heat pump

Weatherman-function
**eco manager-touch**

thinks along with you by measuring and controlling!

The change in outside temperatures are considered to ensure your own personal comfort indoors. If the boiler is combined with a solar system, the burner will only start if the thermal energy supplied by the solar system is insufficient. Unnecessary burning is avoided.

The **eco manager-touch** is very simple to use. It provides individual adjustment options and a perfectly tuned heating system.

The intelligent control  
**eco manager-touch**

When it comes to your everyday comfort, the controller is very important. You determine when, where and how hot.

- 7" VGA colour touch display guarantees simple, logical operation. Powerful microprocessor with power-sawing standby mode
- 1 standard heating circuit
  - 3-point heating circuit curve
  - with 3 moduls expandable up to 8 (optional).
- 1 domestic hot water charging circuit, expandable up to 4.
- Fresh water module with or without circulation pump adjustable via expansion module (optional).
- Up to 2 x 3 or 4 x 2 adjustable solar circuits (optional) - also suitable for high efficiency pumps.
- Possibility for visualisation on smartphones, tablets and PCs! Info messages via e-mail by Ethernet interface or via SMS on your mobile phone.
- Weatherman-function: indicates good weather, the boiler essentially goes back to sleep, even if temperatures are still cool in the mornings. This is because, if sunshine is expected, the system knows solar energy will heat the buffer cylinder shortly afterwards.
In just 3 hours, the sun supplies enough energy to cover the annual energy needs of the entire population of the earth.

The potential of solar energy is thus greater than the sum of all other renewable energy sources together. Both diffuse and direct sunlight (solar radiation) can be used for energy generation.

The average annual global radiation in Central Europe totals approx. 950 to 1,500 kWh/m².

It would be ideal if the collector always faced south

The irradiation angle of the sun on the collector surface changes continually with the earth's movement. This means that the majority of the sun's rays strike the collector at an angle. The positioning of the collectors therefore plays an important role when designing the solar energy system.
Always south would be ideal

Solar irradiation during the course of the day
The theoretically optimum orientation would be exactly to the south in order to be able to use the solar irradiation throughout the day. As the conditions in the early morning hours are less favourable to the use of solar energy (morning mists, cooler air temperatures), a deviation of approx. 10° to the south-west is recommended. As a result, the poorer conditions in the morning are deliberately not used, but the late afternoon sun can be utilised longer and under better conditions.

A heart of copper
The heart of any collector is the absorber which converts the incident sun rays into heat. SOLARFOCUS uses only copper absorbers which are coated with a highly selective layer. Thanks to the crystalline surface of the coating, around 95% of the sun rays are absorbed.

Airtight and watertight design of SOLARFOCUS CPC collectors
In contrast with conventional flat plate collectors, the CPC collector has an airtight and watertight construction. When heated, the air inside expands and the pressure is relieved via a special pressure relief valve. When the collector cools down again, a partial vacuum is created and the solar safety glass is supported over a large area by the reflectors.

The airtight and watertight design without ventilation holes and rivets prevents any soiling of the absorbers, provides permanent protection for the inside of the collector and guarantees constant energy yields for years to come.

Standard flat plate collector:
Dirt deposits reduce the collector yield

SOLARFOCUS CPC collector:
Sealed construction guarantees consistently high energy yields for decades
CPC-collector – the advantages

The collector is exposed to environmental influences such as wind, rain, dirt, UV radiation, snow loads and extreme variations in temperature over a period of decades. It is therefore all the more important that only high-quality materials are used that can withstand these adverse conditions. Materials such as wood, plastic and rubber do not offer the necessary resistance in the long term.

Collector tray (1)
- The 1.5 mm tight welded aluminium tray without ventilation holes forms the “foundation”.
- The airtight and watertight design without ventilation holes and rivets protects the inside of your collector for decades.

Absorber (2)
- The highly selective coated copper absorber impresses with a solar absorption rate of approx. 95% and a thermal emission rate of approx. 5%.
- The floating absorber coated on both sides guarantees maximum energy yields.

Reflector (3)
- The cylindrical, high-gloss rolled, galvanically anodized pure aluminium reflector concentrates the penetrating solar radiation onto the vertically installed absorber ship.
- The cylindrical, mirror-finish rolled, galvanically anodised pure aluminium reflector bundles the incidental sun rays onto the vertically installed absorber strip.
- The reflectors in the tray are protected against environmental influences, thereby guaranteeing a long service life.
- No wear of the coating. Optimum light bundling by the cylindrical form of the CPC reflector. As a result, the diffuse fraction of the light is also absorbed (Kdiff = 0.87).

Solar safety glass (4)
- 4 mm low iron content prism structured solar safety glass
- Very high light permeability for high yields, impact and hail-resistant

Special seal (5)
- Permanently elastic UV-protected special seal
- Connects the tray, the glass and the glass holding strip.
- Diffusion-proof. Prevents the ingress of moisture and dirt.

Glass holding strip (6)
- Anodised aluminium special profile.
- A UV and weathering-resistant aluminium profile instead of a rubber seal ensures the protection of the glass edges. Guarantees the lasting connection of glass and tray.

Flush-sealing connections (7)
- 1/2” external thread with flat seal
- The surface seals on the inside and outside of the tray are fastened plane-parallel with brass nuts and hermetically seal the tray against environmental influences. No rubber or plastic seals susceptible to weathering. Simple hydraulic connection of the collectors.
Negative pressure relief valve (8)
- When the air inside the collector is warmed for the first time, the air expands and a positive pressure is created. The valve opens and the air can escape. When the air cools again, the valve closes and a negative pressure is created inside the collector. The reflectors support the glass pane on the tray.
- No corrosion inside the collector caused by aggressive ambient air.
- No exchange between inside and outside air, and hence no convectional heat losses.
- No condensation, and therefore no destruction of the highly absorber coating.

Annular gap air vent (9)
- The annular gap air vent is located in the distributor pipe of the collector.
- The annular gap air vent allows the solar collectors connected in series to be easily vented!

Exclusively made of high quality and heat-resistant materials!

- No ventilation bores
- No plastic
- No wood
- No insulation
- No rubber seals
The reflector principle

Each ingenious invention is based on a simple principle
The angle of the sun on the collector surface changes continually with the Earth’s movement.
A standard flat-plate collector reaches its optimum efficiency when the sunlight hits the absorber directly at an angle of 90°. However, this means that the majority of the sun’s rays will strike the collector at an angle.

Concentration in flat, weak radiation
Due to its CPC geometry, the collector can still achieve usable temperatures even with weak sunlight at a low angle of incidence.

- Based on the cylindrical design of the CPC reflector, the diffused part of the light is also absorbed (Kdiff = 0.87).
- This is important during the transitional period (spring and autumn), since up to 80 % of the sun’s rays penetrate at an angle.
- Normal flat-plate collectors are irradiated from a single side and must be insulated on the back of the absorber to minimise heat loss. The CPC collector absorber is irradiated from both sides. Due to this double-sided irradiation, there is effectively no blind side to the absorber which would otherwise represent a net heat loss area.
- The small absorber strip of the CPC collector also provides quick heating.

Your boiler will have a longer break due to the efficient use of the sun!
The angle factor is the ratio of the optical efficiency from the current angle of entry to the vertical entry.
The cylindrical shape of the CPC reflector allows it to absorb even diffuse light. Angle factor at 30° angle deviation = 1.10.

- The vertical installation of the absorber allows the use of the inclined penetrating light.
- The small absorber strip designates a small heat radiating surface and therefore less heat loss (radiator principle).
- At the same time the small absorber strips of the CPC collector ensure rapid heating due to increased concentration.
Technical data

<table>
<thead>
<tr>
<th>Structure</th>
<th>S1</th>
<th>S1K</th>
</tr>
</thead>
<tbody>
<tr>
<td>L = length [cm]</td>
<td>240</td>
<td>212.5</td>
</tr>
<tr>
<td>W = width [cm]</td>
<td>115.5</td>
<td>115.5</td>
</tr>
<tr>
<td>H = height [cm]</td>
<td>6.5</td>
<td>6.5</td>
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<tr>
<td>Surface area [m²]</td>
<td>2.8</td>
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<tr>
<td>Aperture area [m²]</td>
<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Content [l]</td>
<td>1.6</td>
<td>1.4</td>
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<tr>
<td>Weight (empty) [kg]</td>
<td>55</td>
<td>50</td>
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<tr>
<td>Heat loss factor [W/(m²K)], [W/(m²K²)]</td>
<td>A1 = 3.3 / A2 = 0.012</td>
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<tr>
<td>Conversion factor (according to aperture area)</td>
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<td>Incidence angle modifier 30° / 50°</td>
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<tr>
<td>Diffusion factor [Kdiff]</td>
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</tr>
<tr>
<td>Heat capacity [J/m²K]</td>
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<tr>
<td>Flow rate [l/m²h]</td>
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<tr>
<td>Pressure lost at 20°C and 50 l/m²h [mbar/m²]</td>
<td>4.1</td>
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</tr>
<tr>
<td>Glass cover</td>
<td>Solar safety class</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure [bar]</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

TESTED ACCORDING TO EN 12975-1 and -2
Subject to technical changes

CPC-collector – the benefits at a glance

- 10-year guarantee against condensation
- No insulation in the collector
- Only high-quality materials
- Perfect exploitation of light at a low incident angle
- 87% diffusion factor
- Simple hydraulic connection
- Suitable for all installation variants
- Flat construction
- Universal application: Swimming pool heating, DHW preparation, heating support
Sunnyline – the flat plate collector

The collector is exposed to environmental influences such as wind, rain, dirt, UV radiation, snow loads and extreme variations in temperature over a period of decades. It is therefore all the more important that only high-quality materials are used that can withstand these adverse conditions. Materials such as wood, plastic and rubber do not offer the necessary resistance in the long term.

Collector tray (1)
- The 1.5 mm tight welded aluminium tray forms the “foundation”.
- The high-quality finishing protects the inside of your collector for decades to come.

Absorber (2)
- The highly selective coated full-area copper absorber impresses with a solar absorption rate of approx. 95% and a thermal emission rate of approx. 5%.
- The floating absorber unit (blue-line absorber plate and copper heat transfer medium pipework are welded ultrasonically) guarantees the highest energy yields.
- Perfect appearance.

Solar safety glass (3)
- 4 mm low iron content prism structured solar safety glass.
- Very high light permeability for high yields, impact and hail-resistant.

Special seal (4)
- Permanently elastic UV-protected special seal.
- Connects the tray, the glass and the glass holding strip.
- Diffusion-proof. Prevents the ingress of moisture and dirt.

Glass holding strip (5)
- Anodised aluminium special profile.
- A UV and weather-resistant aluminium profile instead of a rubber seal ensures reliable protection of the glass edges. Guarantees the lasting connection of glass and tray.

Flush-sealing connections (6)
- 1/2” external thread with flat seal.
- The surface seals on the inside and outside of the tray are fastened plane-parallel with brass nuts and hermetically seal the tray against environmental influences. No rubber or plastic seals susceptible to weathering. Simple hydraulic connection of the collectors.

Backign insulation (7)
- 50 mm low-binder mineral wool.
- Thanks to the low binder content in the mineral wool, the insulation releases practically no gases on exposure to heat.

Annular gap air vent (8)
- The annular gap air vent is located in the distributor pipe of the collector.
- The annular gap air vent allows the solar collectors connected in series to be easily vented!
Exclusively made of high quality and heat-resistant materials!

- Full-area copper absorber
- No plastic
- No wood
- No rubber seals
### Technical data

<table>
<thead>
<tr>
<th>Structure</th>
<th>Sunny 28</th>
<th>Sunny 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>L = Length [cm]</td>
<td>240</td>
<td>178.5</td>
</tr>
<tr>
<td>W = Width [cm]</td>
<td>115.5</td>
<td>115.5</td>
</tr>
<tr>
<td>H = Height [cm]</td>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Surface area [m²]</td>
<td>2.77</td>
<td>2.1</td>
</tr>
<tr>
<td>Aperture area [m²]</td>
<td>2.5</td>
<td>1.82</td>
</tr>
<tr>
<td>Content [l]</td>
<td>1.3</td>
<td>1.08</td>
</tr>
<tr>
<td>Weight (empty) [kg]</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Heat loss factor [W/(m²K)], [W/(m²K²)]</td>
<td>A1 = 3.4 / A2 = 0.011</td>
<td></td>
</tr>
<tr>
<td>Conversion factor (aperture area)</td>
<td>0.78</td>
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</tr>
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<td>Flow rate based on [l/m²h]</td>
<td>20 - 70</td>
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<tr>
<td>Pressure lost at 20°C and 50 l/m²h [mbar/m²]</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Glass cover</td>
<td>Solar safety glass</td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure [bar]</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

**TESTED ACCORDING TO EN 12975-1 and -2**

Subject to technical changes

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**Sunny line flat plate collector – the benefits at a glance**

- 10-year warranty
- Strictly high-quality materials
- Welded aluminium tray: Provides the best possible protection for the inside of the collector for decades to come. Highly selective full-area copper absorber
- 50 mm insulation for high efficiency, 4 mm low iron content solar glass, solar transmission 92%
- Suitable for all installation variants (roof-integrated, on-roof, free-standing, wall mounted, etc.)
- Universal application: Swimming pool heating, DHW preparation, heating support
- Low installation costs
- Simple hydraulic connection
Planning/design of a solar system

<table>
<thead>
<tr>
<th>Persons and Intended Use</th>
<th>Collector Area</th>
<th>Storage Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ca. 5.0 m²</td>
<td>300 liters DHW tank</td>
</tr>
<tr>
<td></td>
<td>ca. 5.6 m²</td>
<td>300 - 400 litres DHW tank</td>
</tr>
<tr>
<td></td>
<td>ca. 8.4 m²</td>
<td>300 - 500 litres DHW tank</td>
</tr>
<tr>
<td></td>
<td>ca. 14.0 m²</td>
<td>800 litres Hyko Thermal Store</td>
</tr>
<tr>
<td></td>
<td>ca. 16.8 m²</td>
<td>1000 litres Hyko Thermal Store</td>
</tr>
<tr>
<td></td>
<td>ca. 22.4 m²</td>
<td>1500 litres buffer store and 400 litres DHW tank</td>
</tr>
</tbody>
</table>

These design recommendations should assist you in planning your system. The assumed values are for guidance only. Important parameters, such as hot water consumption, roof incline and aspect must be given individual consideration during the planning phase. The house energy index and type of heating are decisive in determining the coverage for partial solar heating installations.

SOLARFOCUS, thanks to hundreds of standard schematics, can aid in your system, from conception and design to inception.
### System technology

**Plug-IN Domestic Hot Water Tank** with solar plant for hot water treatment

- DHW tank with pre-fitted pump set and solar control unit
- Dual coil solar storage tank
- Also available with high efficiency pump

### YOUR benefits

- Simple assembly
- Read-to-use DHW tank
- Avoid assembly errors with the pre-assembled solar control unit and pump set.

### Table: Specifications

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Diameter without insulation</th>
<th>Diameter with insulation</th>
<th>Total height</th>
<th>Upper heating coil</th>
<th>Lower heating coil</th>
<th>Weight</th>
<th>Tilted height</th>
<th>El. screw-in heating 6/4” possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 l</td>
<td>500 mm</td>
<td>600 mm</td>
<td>1794 mm</td>
<td>0.8 m²</td>
<td>1.52 m²</td>
<td>148 kg</td>
<td>1892 mm</td>
<td>✔</td>
</tr>
<tr>
<td>400 l</td>
<td>600 mm</td>
<td>700 mm</td>
<td>1591 mm</td>
<td>1.0 m²</td>
<td>1.81 m²</td>
<td>159 kg</td>
<td>1738 mm</td>
<td>✔</td>
</tr>
<tr>
<td>500 l</td>
<td>600 mm</td>
<td>700 mm</td>
<td>1921 mm</td>
<td>1.27 m²</td>
<td>1.95 m²</td>
<td>230 kg</td>
<td>2044 mm</td>
<td>✔</td>
</tr>
</tbody>
</table>
Hygienic combined tank „HYKO” with solar plant for hot water treatment in continuous flow mode and heating support

- Combined buffer tank (optional with two coils) for heating support and hot water preparation
- Stratified charging pipe for the heating return flow
- Stratified separation plate

**YOUR benefits**

- Low cost, low space requirement for hot water treatment and solar heating support
- Hygienic domestic hot water preparation with continuous flow mode
- Simple, efficient system hydraulics
- Serves as a storage tank for solar and biomass energy

**NOTICE:**
The grey-shaded area on the diagram, the return booster module with mixer motor for buffer/DHW tank charging is integrated into the pellet elegance (standard).

**Everything from one supplier**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Diameter without insulation</th>
<th>Diameter with insulation</th>
<th>Total height</th>
<th>Upper heating coil</th>
<th>Lower heating coil</th>
<th>Weight</th>
<th>Tilted height</th>
<th>El. screw-in heating 6/4” possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 l/R</td>
<td>700 mm</td>
<td>900 mm</td>
<td>1700 mm</td>
<td>1.2 m²</td>
<td>1.8 m²</td>
<td>145 kg / 158 kg</td>
<td>1670 mm</td>
<td>✔</td>
</tr>
<tr>
<td>800 l/R</td>
<td>790 mm</td>
<td>990 mm</td>
<td>1760 mm</td>
<td>1.8 m²</td>
<td>2.4 m²</td>
<td>170 kg / 192 kg</td>
<td>1740 mm</td>
<td>✔</td>
</tr>
<tr>
<td>1000 l/R</td>
<td>790 mm</td>
<td>990 mm</td>
<td>2090 mm</td>
<td>2.4 m²</td>
<td>3 m²</td>
<td>202 kg / 232 kg</td>
<td>2100 mm</td>
<td>✔</td>
</tr>
<tr>
<td>1250 l/R</td>
<td>950 mm</td>
<td>1200 mm</td>
<td>2100 mm</td>
<td>2.4 m²</td>
<td>3 m²</td>
<td>234 kg / 273 kg</td>
<td>2100 mm</td>
<td>✔</td>
</tr>
<tr>
<td>1500 l/R</td>
<td>1000 mm</td>
<td>1250 mm</td>
<td>2125 mm</td>
<td>2.4 m²</td>
<td>3.6 m²</td>
<td>272 kg / 308 kg</td>
<td>2215 mm</td>
<td>✔</td>
</tr>
</tbody>
</table>
**System technology**

**Buffer tank** with solar thermal system and fresh water module for external hot water in continuous flow mode and heating support

- Buffer tank with 2 coils
- Hygienic domestic hot water preparation with external module
- Ideal in connection with a biomass boiler
- Stratified charging pipe for the heating return flow
- Stratified separation plate

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**YOUR benefits**

- Serves as a storage tank for solar and biomass energy
- Low space requirement
- Simple, efficient system hydraulics

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**Capacity** | **Diameter without insulation** | **Diameter with insulation** | **Total height** | **Upper heating coil** | **Lower heating coil** | **Weight** | **Tilted height** | **El. screw-in heating 6/4” possible**
---|---|---|---|---|---|---|---|---
500 l /R | 650 mm | 850 mm | 1700 mm | --- | 1.2 m² | 103 kg | 1670 mm | on request
800 l /R | 790 mm | 990 mm | 1760 mm | --- | 1.8 m² | 130 kg | 1740 mm | on request
1000 l /R | 790 mm | 990 mm | 2090 mm | --- | 3.0 m² | 156 kg | 2090 mm | on request
1250 l /R | 950 mm | 1200 mm | 2060 mm | --- | 3.0 m² | 189 kg | 2090 mm | on request
1500 l /R | 1000 mm | 1250 mm | 2200 mm | --- | 3.6 m² | 210 kg | 2210 mm | on request
500 l /2R | 650 mm | 850 mm | 1700 mm | 1.2 m² | 1.8 m² | 131 kg | 1670 mm | on request
800 l /2R | 790 mm | 990 mm | 1760 mm | 1.6 m² | 2.4 m² | 169 kg | 1740 mm | on request
1000 l /2R | 790 mm | 990 mm | 2090 mm | 2.4 m² | 3.0 m² | 204 kg | 2090 mm | on request
1050 l /2R | 790 mm | 990 mm | 2200 mm | 2.4 m² | 3.0 m² | 209 kg | 2170 mm | on request
1250 l /2R | 950 mm | 1200 mm | 2060 mm | 2.4 m² | 3.0 m² | 240 kg | 2090 mm | on request
1500 l /2R | 1000 mm | 1250 mm | 2200 mm | 2.4 m² | 3.6 m² | 254 kg | 2210 mm | on request
**Buffer tank** with solar thermal system, solar stratified charging module and fresh water module for external hot water in continuous flow mode and heating support

- Buffer storage tank for large-scale solar energy systems
- With external two-zone solar stratified charging module
- Hygienic domestic hot water preparation with external module
- Ideal in connection with a biomass boiler
- Stratified charging pipe for the heating return flow
- Stratified separation plate

### YOUR benefits
- Serves as a storage tank for solar and biomass energy
- Energy is supplied only when required
- Avoids unnecessary boiler start-ups and low-load operation - longer service life for the boiler and a higher solar coverage rate for your solar energy system

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**Everywhere from one supplier**

Optionally with fresh water module or DHW tank

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Diameter without insulation</th>
<th>Diameter with insulation</th>
<th>Total height</th>
<th>Upper heating coil</th>
<th>Lower heating coil</th>
<th>Weight</th>
<th>Tilted height</th>
<th>El. screw-in heating 6/4(^{\circ}) possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 l/PS/SPS</td>
<td>650 mm</td>
<td>850 mm</td>
<td>1700 mm</td>
<td>---</td>
<td>---</td>
<td>79/90 kg</td>
<td>1670 mm</td>
<td>on request</td>
</tr>
<tr>
<td>800 l/PS/SPS</td>
<td>790 mm</td>
<td>990 mm</td>
<td>1760 mm</td>
<td>97/112 kg</td>
<td>1740 mm</td>
<td>on request</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 l/PS/SPS</td>
<td>790 mm</td>
<td>990 mm</td>
<td>2090 mm</td>
<td>---</td>
<td>---</td>
<td>114/132 kg</td>
<td>2090 mm</td>
<td>on request</td>
</tr>
<tr>
<td>1050 l/PS/SPS</td>
<td>790 mm</td>
<td>990 mm</td>
<td>2200 mm</td>
<td>---</td>
<td>---</td>
<td>---/126 kg</td>
<td>2170 mm</td>
<td>on request</td>
</tr>
<tr>
<td>1250 l/PS/SPS</td>
<td>950 mm</td>
<td>1200 mm</td>
<td>2060 mm</td>
<td>146/162 kg</td>
<td>2090 mm</td>
<td>on request</td>
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<tr>
<td>1500 l/PS/SPS</td>
<td>1000 mm</td>
<td>1240 mm</td>
<td>2210 mm</td>
<td>163/182 kg</td>
<td>2210 mm</td>
<td>on request</td>
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<td>2000 l/PS</td>
<td>1100 mm</td>
<td>1340 mm</td>
<td>2440 mm</td>
<td>225/--- kg</td>
<td>2450 mm</td>
<td>on request</td>
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<tr>
<td>3000 l/PS</td>
<td>1250 mm</td>
<td>1490 mm</td>
<td>2720 mm</td>
<td>280/--- kg</td>
<td>2705 mm</td>
<td>on request</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000 l/PS</td>
<td>1400 mm</td>
<td>1640 mm</td>
<td>2900 mm</td>
<td>431/--- kg</td>
<td>2910 mm</td>
<td>on request</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000 l/PS</td>
<td>1600 mm</td>
<td>1840 mm</td>
<td>2995 mm</td>
<td>---</td>
<td>---</td>
<td>501/--- kg</td>
<td>3010 mm</td>
<td>on request</td>
</tr>
</tbody>
</table>
Solar stratified charging module - SLM 20-150 with or without fast charging mode: with high-efficiency pump

YOUR benefits
- Optimum energy utilisation through stratified charging of the buffer storage tank
- Minimum effort required for assembly
- Delivered ready for connection

Legend:
1. Solar circuit pump
2. Solar circuit flow
3. "Plug-and-play" wiring
4. Wall mounting
5. Solar circuit pressure gauge
6. Solar circuit safety valve
7. Flow regulator
8. Filling port
9. Solar circuit return
10. Solar circuit flow
11. 3-way motorised switching valve
12. Shut-off ball valve
13. 3-circuit controller
14. Venting valve
15. Buffer tank charging
16. Heat exchanger return from buffer tank
17. Flow regulator
18. Solar circuit return
19. Plate-type heat exchanger
20. Flow heat exchanger to buffer tank
21. 3-way motorised valve buffer return

✓ For optimum charging of the buffer storage tank on two levels
✓ From 20 m² - 150 m² collector area

Solar stratified charging module with fast charging mode

A) Solar stratified charging module with fast charging mode

B) Solartechnik-CPC-Sunnyline_EN_tedoc_04-02-2016_Layout 1  04.02.2016  14:35  Seite 18

Technical data, stratified charging modules

<table>
<thead>
<tr>
<th>Collector area</th>
<th>SLMHE 20</th>
<th>SLMHE 40</th>
<th>SLMHE 60</th>
<th>SLMHE 80</th>
<th>SLMHE 100</th>
<th>SLMHE 150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>up to 10</td>
<td>up to 20</td>
<td>up to 30</td>
<td>up to 40</td>
<td>up to 50</td>
<td>up to 65</td>
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<tr>
<td>Primary pump</td>
<td>15/1-7</td>
<td>15/1-7</td>
<td>15/1-11.5</td>
<td>15/1-11.5</td>
<td>25/1-11</td>
<td>25/1-11</td>
</tr>
<tr>
<td>Secondary pump</td>
<td>15/1-7</td>
<td>15/1-7</td>
<td>15/1-7</td>
<td>15/1-7</td>
<td>25/1-7</td>
<td>25/1-7</td>
</tr>
<tr>
<td>Buffer connections</td>
<td>3/4&quot;IT</td>
<td>3/4&quot;IT</td>
<td>1&quot;IT</td>
<td>1&quot;IT</td>
<td>1&quot;IT</td>
<td>1&quot;IT</td>
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<tr>
<td>Weight</td>
<td>Approx. 25</td>
<td>Approx. 30</td>
<td>Approx. 45</td>
<td>Approx. 55</td>
<td>Approx. 65</td>
<td>Approx. 85</td>
</tr>
</tbody>
</table>
Hot water – hygienic and comfortable

A freshwater module heats drinking water in accordance with the instant hot water principle, only when it’s needed. In contrast to a tradition hot water tank or boiler, water – which we need to live – is not used to store energy, and stored as hot water for hours or days at a time.

Only when hot water is needed is it heated to the desired temperature with the aid of a stainless steel plate heat exchanger. Stockpiling over the course of days is now a thing of the past.

The energy for heating drinking water is supplied by a buffer tank, which can be heated by the different systems – by solar power systems as well as by a pellet boiler, wood-fired boiler, traditional oil/gas boiler, heat pumps or other systems. High-efficiency pumps ensure the right volume flow from the buffer to the stainless steel plate heat exchanger.

Fresh water modules $\text{FWM}^{\text{eco}}$, $\text{FWM}^{\text{konvent}}$ and $\text{FWM}^{\text{autark}}$

- Fresh water modules with high-efficiency pump
- The right solution for every requirement
- Output capacity 20 up to 50 l/min

When legionella fall on fertile ground

Accumulation of legionella ($L.\ pneumophila$) magnified with the aid of the electron microscope (TEM). One bacterium is approximately 0.003 mm long.

Image: Hans R. Gelderblom, Rolf Reissbrodt / Robert Koch Institute

Extensive information of fresh water modules can be found in the brochure „Fresh water modules“
For which Kind of Applications?
Areas of application for large-scale solar thermal systems: small businesses, industry, the catering and hotel industry, and the public sector

How to start?
Give us a call! Our friendly staff at the SOLARFOCUS Technical Support will be glad to assist you in planning and technical design of your large scale solar thermal systems.

San Tomas College, Lisbon (P)
- 64.4 m² CPC collectors
- Hot water preparation
Pay Back?
Large scale solar thermal systems today achieve pay back times of significantly under 10 years (with RHI or alike e.g. 2-7 years). With that such investments not only help to preserve and treat with care our environment, the energy produced essentially becomes free within a reasonably short period.
All our work is done by people for whom the environment and the use of renewable technology is a priority. All solar panels and biomass boilers are manufactured at SOLARFOCUS headquarters in St. Ulrich near Steyr.

THE PHILOSOPHY

Conscious sustainability
SOLARFOCUS is proud to shape the future in a way that serves people’s needs and at the same time preserves the environment.

Strong partners
Success requires strong partners. SOLARFOCUS passes on its extensive know-how directly to heating engineers and installers. This enables proper planning and optimal installation of the heating system is guaranteed.
INNOVATION – ECONOMY – QUALITY

SOLARFOCUS is shaping the future with products that serve people and help the environment!

SOLARFOCUS is concerned with the development, construction and distribution of solar and environmental technology products, with a focus on:

- Biomass heating,
- Solar thermal systems,
- Storage technology,
- Fresh water technology

SOLARFOCUS is one step ahead: thanks to ongoing research, development and cooperation with renowned research institutes and partners, we have been able to show dynamic company development. Our products are only available from specialist dealers across Europe. Ongoing training and seminars with our partners ensure that plant operators receive project-oriented advice and professional plant installation.

AWARDS such as:

- Young Entrepreneur’s Award
- Austrian Innovation Award 1995
- Golden „Pegasus“ Business Award
- Nominated for National Award for Innovation
- Voted Leading Upper Austrian Company for Brilliant Business Ideas
- Upper Austrian Environmental Protection Award
- „Energy Genie“ Innovation Award 2003
- „Haustechnik Award“ HVAC Award 2004
- „Energy Genie“ Innovation Award 2011
- „FORLENER“ Italian Innovation Award for energy-saving and eco-friendly technologies 2012
- Polish Innovation Award Zloty Medal® 2012 and 2013
- Slovenian Innovation Award 2014
- Best Business Award 2014
- UK Build It Award 2015

... and many more attest to our philosophy.
Innovative products, which protect the environment and relieve the purse.

Everything from one supplier
Solar systems – Biomass heating – Storage technology – Fresh water technology

Tested state-of-the-art technology – EN ISO 9001 certified