Solar systems solutions

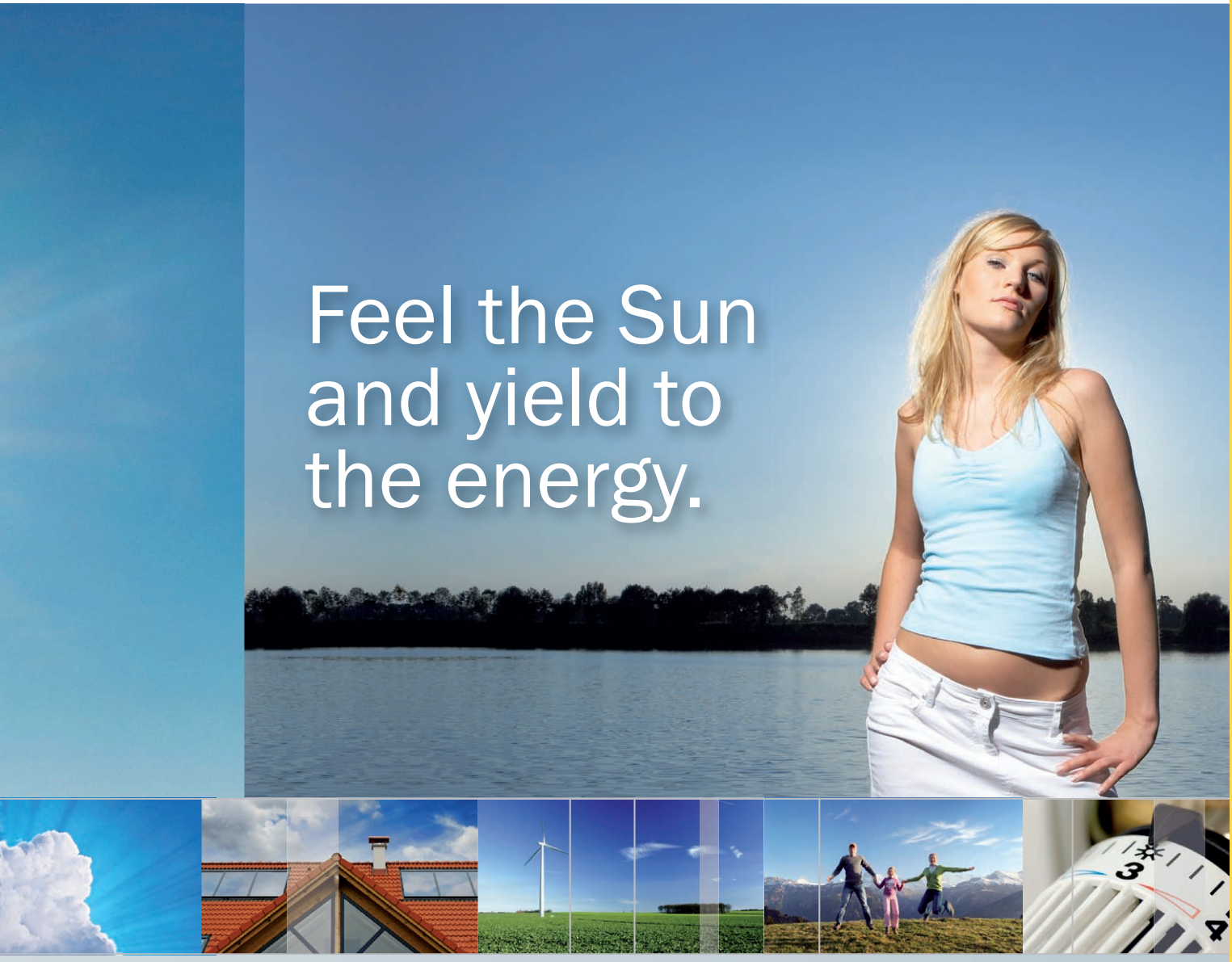
Horia

The Sun **doesn't issue any bills**

Your specialist for **solar energy systems**

Oil, natural gas and electricity are getting more expensive each and every day. Therefore, the time has come to start utilising solar energy. Solar energy is the cleanest renewable source of energy; it doesn't incur costs and is accessible to everyone. There's no limit to its amounts.

- **A source of energy free of cost**
- **Inexhaustible source of energy**
- **Environmentally friendly energy**



Feel the Sun and yield to the energy.

More and more people all over the world are deciding to make use of solar energy in order to prepare sanitary hot water and heat their homes. Sunlit Slovenia provides ideal conditions to utilize solar energy in a modern way in private houses, hotels, homes, public buildings and industrial applications.

- **Ideal environment**
- **Modern innovative solutions**
- **Many options for utilization**

Hidria

The image **of development**

Your specialist for **solar energy systems**

Hidria is a Slovenian global corporation focusing on development and selling the systems for air-conditioning, heating and ventilation, automotive and handheld power tools industries. Hidria's newest solutions are innovative solar systems

- **Competent co-workers**
- **Own development centres**
- **We implement the highest technical requirements**

Hidria's **high-capacity** solar power solutions

Hidria is introducing high-capacity turn-key systems solar solutions for the preparation of sanitary hot water and auxiliary heating. They are distinguished by easy assembly, easy usage, simple maintenance and a long lifespan. Innovative solutions guarantee a high return on the system and an economic rate between price and efficiency.

- **Simple planning and dimensioning**
- **High energy efficiency**
- **We jointly choose a system that suits your needs**

System for preparation of sanitary hot water ECO

Type of Solar Enery Collector		Number of persons	1–3	1–3	2–4	4–5	6–7	10–15	15–20
			Storage tank size Volume (l)						
			200	300	300	500	500	1000	1000
SI-SOL 2.0 TI		Set designation	**ECO 200/2 TI**	**ECO 300/2 TI**	**ECO 300/3 TI**	**ECO 500/4 TI**	**ECO 500/5 TI**	**ECO 1000/6 TI**	**ECO 1000/8 TI**
		Code	19550400	19550401	19550402	19550403	19550404	19550405	19550406
		Pieces	2	2	3	4	5	6	8
		Surface (m^2)	4	4	6	8	10	12	16
SI-SOL 20 2C		Set designation	**ECO 200/2 2C**	**ECO 300/2 2C**	**ECO 300/3 2C**	**ECO 500/4 2C**	**ECO 500/5 2C**	**ECO 1000/6 2C**	**ECO 1000/8 2C**
		Code	19550407	19550408	19550409	19550410	19550411	19550412	19550413
		Pieces	2	2	3	4	5	6	8
		Surface (m^2)	3.68	3.68	5.52	7.36	9.2	11.04	14.72
SI SOL 20 2V		Set designation	**ECO 200/2 2V**	**ECO 300/2 2V**	**ECO 300/3 2V**	**ECO 500/4 2V**	**ECO 500/5 2V**	**ECO 1000/6 2V**	**ECO 1000/8 2V**
		Code	19550414	19550415	19550416	19550417	19550418	19550419	19550420
		Pieces	2	2	3	4	5	6	8
		Surface (m^2)	4.62	4.62	6.93	9.24	11.55	13.86	18.48

ECO solar energy system

Sanitary hot water

The ECO solar energy system is intended for the preparation of sanitary hot water for households of all sizes. The system enables us to take advantage of thermal solar energy in an economic and cost effective way

SANITARY HOT WATER THROUGH THE SUN

High cost effectiveness

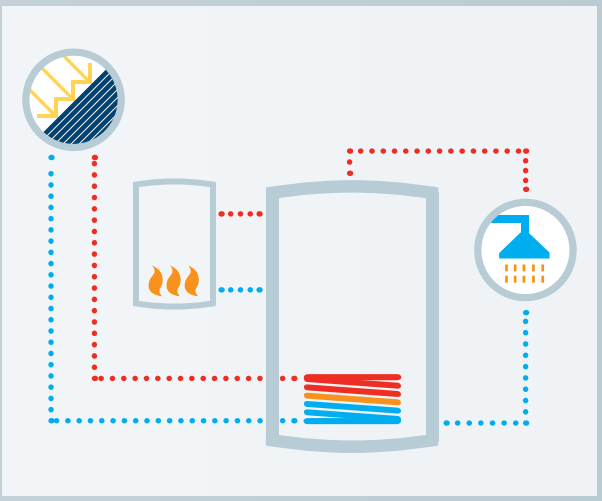
Investment in the use of sanitary hot water prepared with solar energy yields fast returns. You start saving from the first day following the investment which guarantees you a short period on returns. The sun doesn't issue any bills.

The optimal choice for subsequent assembly

Assemble without undue effort. The perfect solution for pre-existing installations – renovated as well as old buildings.

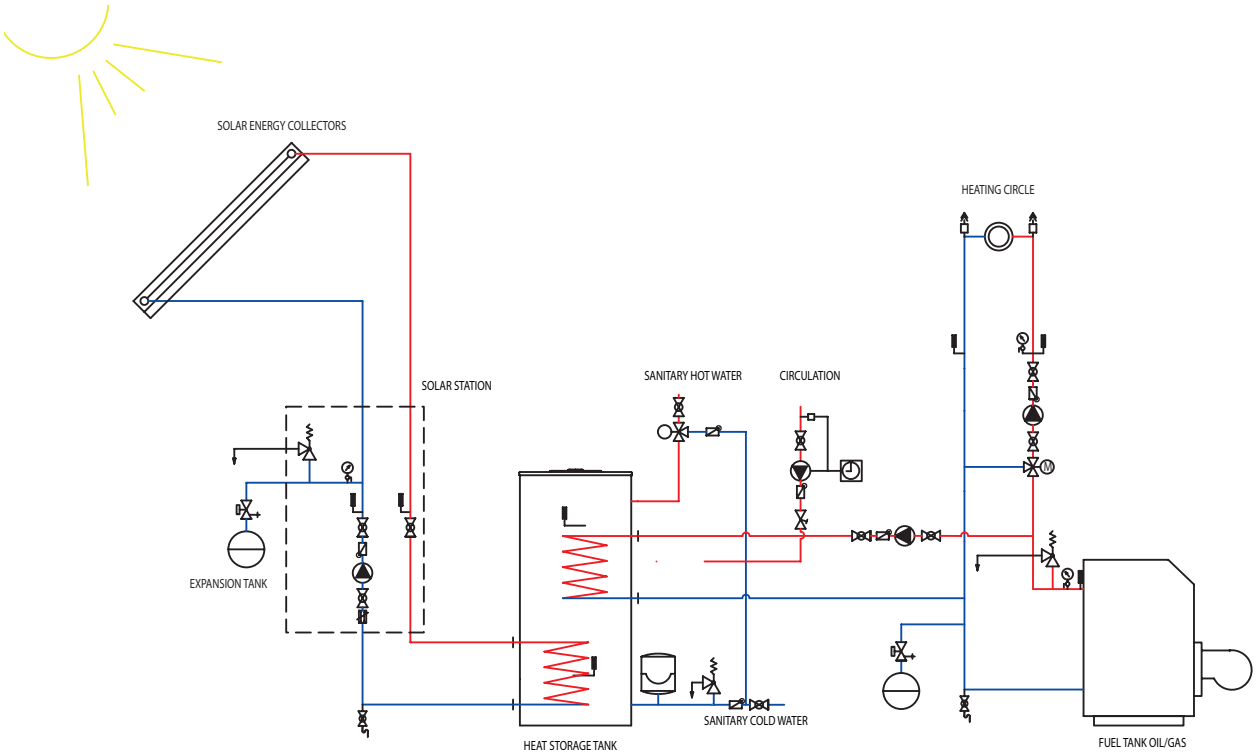
The ECO system includes:

- **Solar energy receivers**
- **Fixing elements**
- **An enamelled solar heater**
- **A circulation station with regulation**
- **An expansion tank**
- **Antifreeze liquid**
- **All-purpose fixing**
- Optional: - **Stainless steel connection pipes**
  - **Electric heater**

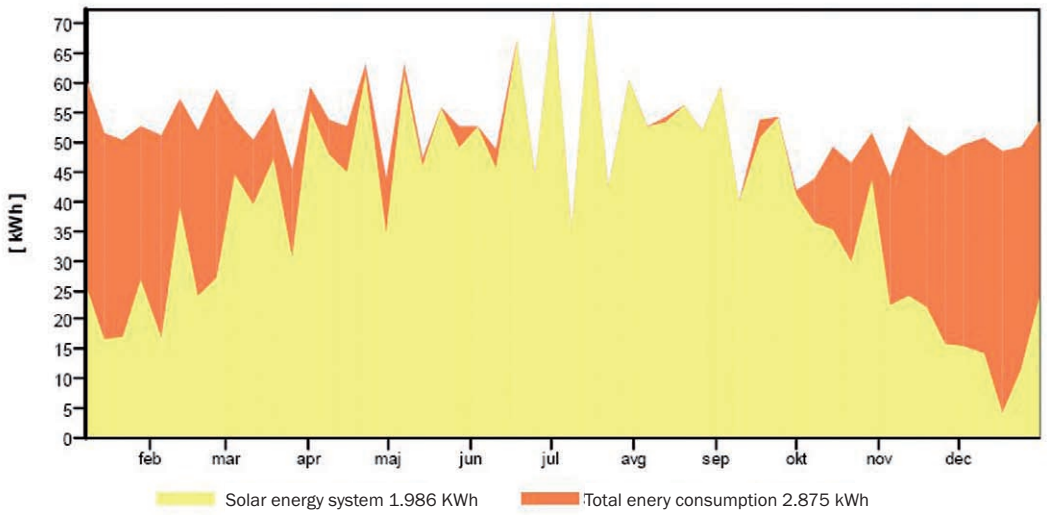


An example of an ECO system (2-4 persons)
With ECO solar systems up to 70% of the energy costs for preparation of sanitary water can be saved.

An example of a hydraulic solar energy system



Estimated energy demand covered with the solar energy system



ECO XL solar energy system

Sanitary hot water

The ECO XL solar energy system is intended for the preparation of sanitary hot water for larger buildings. The system enables us to take advantage of thermal solar energy in an economic and cost effective way.

SANITARY HOT WATER THROUGH THE SUN

High cost effectiveness

Investment in the use of sanitary hot water prepared with solar energy yields fast returns. You start saving from the first day following the investment which guarantees a short period on returns. The sun doesn't issue any bills.

The optimal choice for subsequent assembly in the buildings with substantial demand on sanitary hot water and preparation of hot process water.:

hotels, bungalows, tourist camps, tourist farms

The ECO XL system includes:

- **XL solar energy receivers**
- **A systems water heater**
- **A circulation station with control**
- **An expansion tank**
- **Antifreeze liquid**
- **All-purpose fixing**
- Optional: **Connection pipes of stainless steel**
  An electric heater

Excellent from any perspective

Let Hidria select your solar energy system. We calculate and dimension your system. Book your non-binding consultancy appointment and cut your operating costs immediately.

Combined system COMBI

Number of persons			do 5	do 6	do 8	do 10
			Storage tank size Volume (l)			
			800	800	800	1000
Type of Solar Enery Collector	SI-SOL 2.0 TI	Set designation	**COMBI 800/6 TI**	**COMBI 800/7 TI**	**COMBI 800/8 TI**	**COMBI 1000/8 TI**
		Code	19550421	19550422	19550423	19550424
		Pieces	5	6	7	7
		Surface (m^2)	10	12	14	14
	SI-SOL 20 2C	Set designation	**COMBI 800/6 2C**	**COMBI 800/7 2C**	**COMBI 800/6 2C**	**COMBI 1000/8 2C**
		Code	19550425	19550426	19550427	19550428
		Pieces	6	7	8	8
		Surface (m^2)	11.04	12.88	14.72	14.72
	SI SOL 20 2V	Set designation	**COMBI 800/5 2V**	**COMBI 800/6 2V**	**COMBI 800/7 2V**	**COMBI 1000/7 2V**
		Code	19550429	19550430	19550431	19550432
		Pieces	5	6	7	7
		Surface (m^2)	11.55	13.86	16.17	16.17

COMBI solar energy system

Sanitary hot water + auxiliary heating

The solar energy system COMBI for the preparation of sanitary hot water and auxiliary heating is intended for one or two-apartment houses. The innovative module prepares sanitary hot water when you need it and therefore it is always fresher and more hygienic and available in sufficient quantities.

AN INNOVATIVE FLOW-THROUGH PREPARATION OF HOT SANITARY WATER

Almost no maintenance
A well thought through compact module assembly with but few elements that are subject to wear and tear. Due to the water's lower temperatures there's no accumulation of scale.

Quick and economic assembly
Due to the compact turn-key implementation the assembly is quick and simple. The unit can be fixed to the storage tank or the wall.

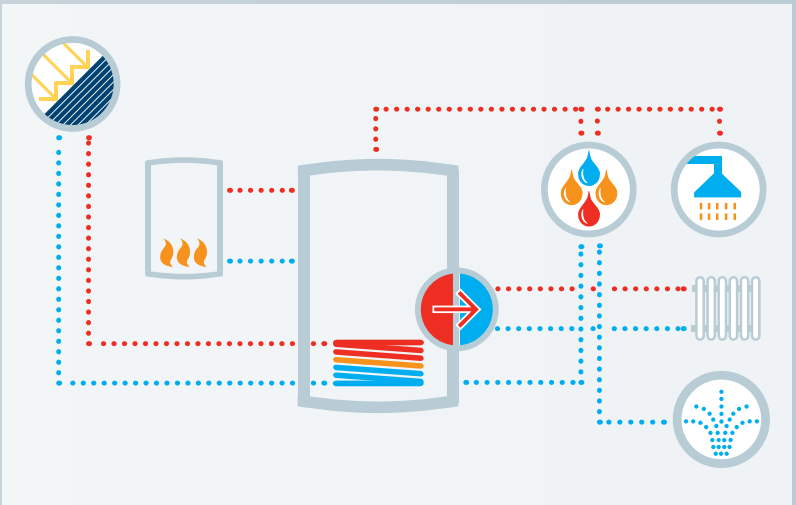
Hygienic sanitary hot water
Due to the small amount of standing water at low temperatures there is no danger of legionella.

Constant temperature of sanitary hot water
The patented 3-way valve and patented system of premixing hot water from the storage tank ensure that there is no oscillation of the sanitary hot water temperature.

Optimal energy usage
The water returning to the storage tank cools down to almost cold-water temperatures. This enables thermal layering in the storage tank and optimal energy usage.

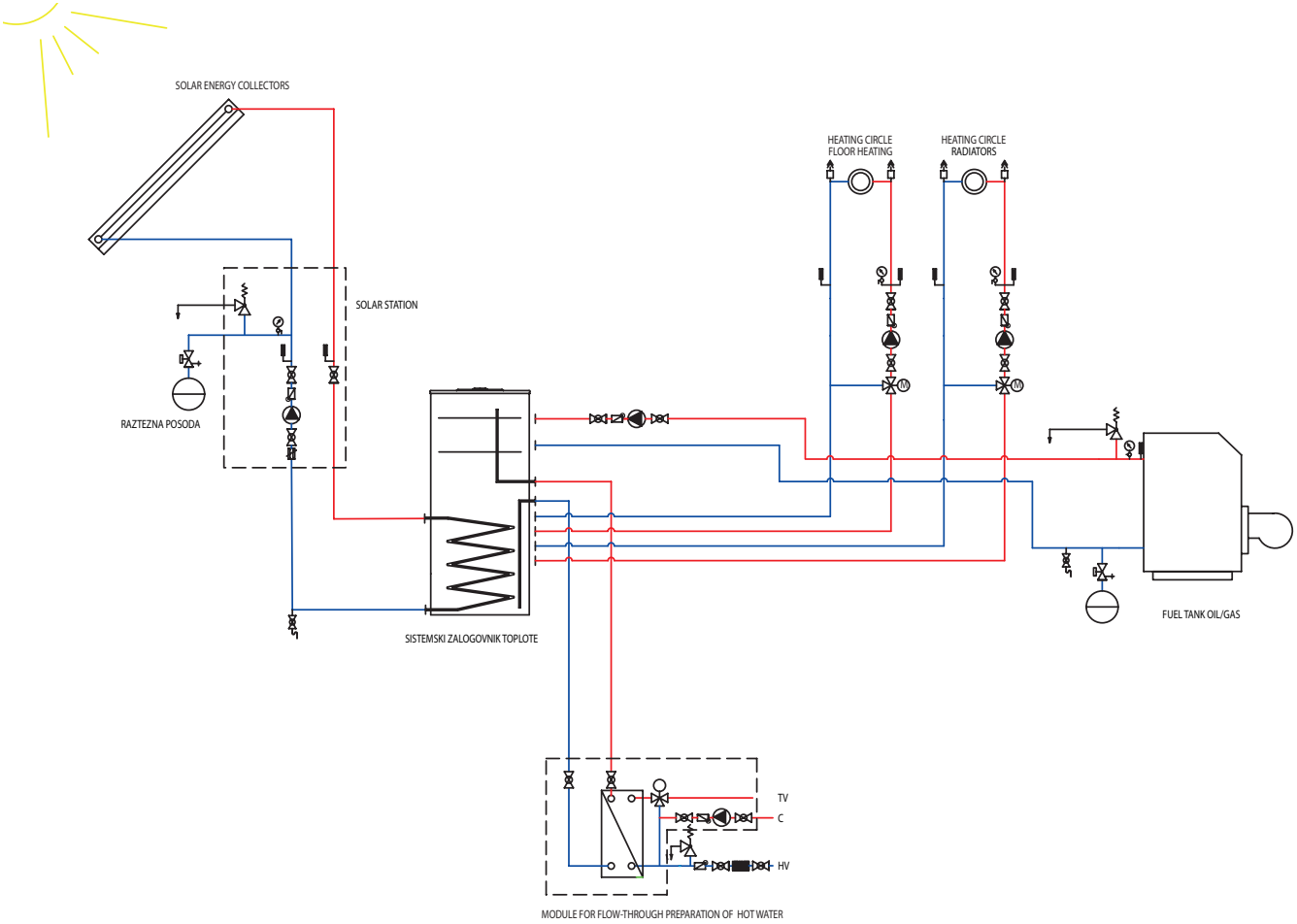
The COMBI system includes:

- **Solar energy receivers**
- **Systems heat storage tank**
- **Module for flow-through preparation of sanitary hot water MMPV 30**
- **A circulation station with regulation**
- **An expansion tank**
- **Antifreeze liquid**
- **All-purpose fixing**
- Optional: **Connection stainless steel pipes**
  Electric heater

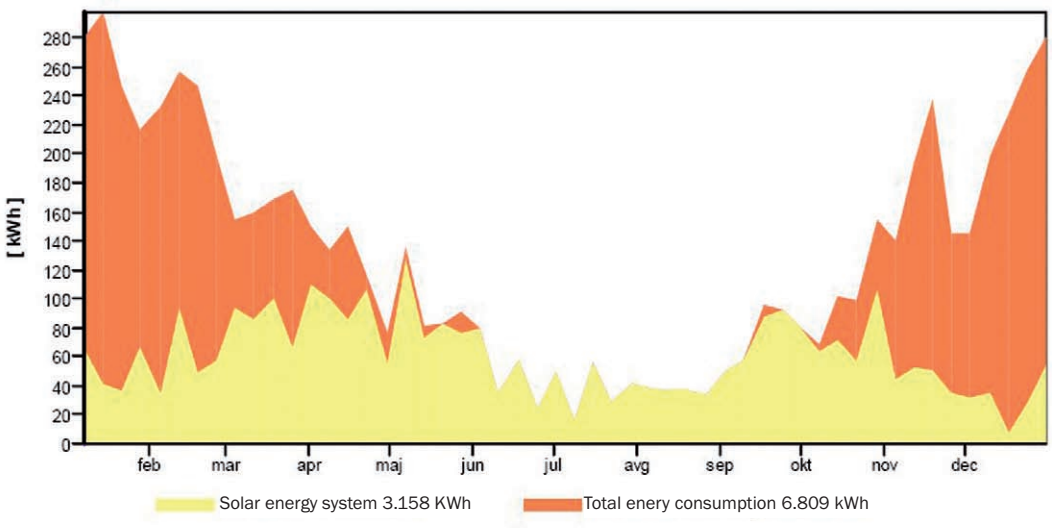


An example of the solar energy system COMBI (for up to 5 persons)
With the COMBI solar energy system your savings for the preparation of sanitary water can be up to 70% and up to 30% of energy savings for the heating.

An example of the hydraulic connection of the solar energy system



Estimated energy demand covered with the solar energy system



COMBI XL solar energy system for hotels

Sanitary hot water + and auxiliary heating

This compact system is intended for buildings with a high demand for sanitary hot water. Such an individual system covers the need for sanitary hot water in the summer season, providing enough heat for heating in the transitional period and is a support for heating during the winter.

THERMAL LAYERING TECHNIQUE

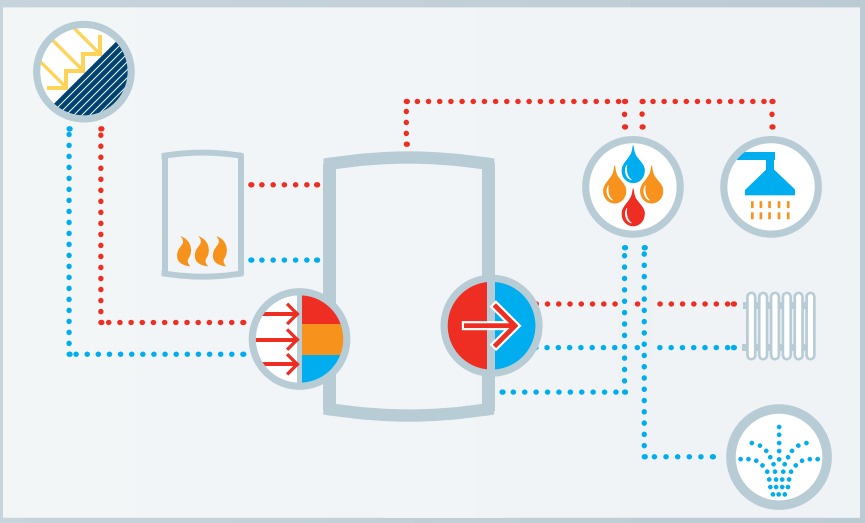
Energy efficiency:
With thermal layering in the storage tank the energy efficiency of solar work is greatly improved. The large thermal distance and regulated number of rotations on the pump increase efficiency even further.

Reliabilty:
The thermal layering module has an integrated by-pass which is a reliable antifreeze protection for the system.

Simple assembly:
The solar circle, the layering module and the heat storage tank are fully separated and their maintenance can be carried our separately. The assembly is simple and quick due to pre-designed modules

The COMBI XL System includes:

- **XL Solar energy receivers**
- **A system heat storage tank**
- **A module for flow-through preparation of hot water MPPV 150/225**
- **MLS XL thermal layering module**
- **An expansion tank**
- **Antifreeze liquid**
- **All-purpose fixing**



Excellent from any perspective!

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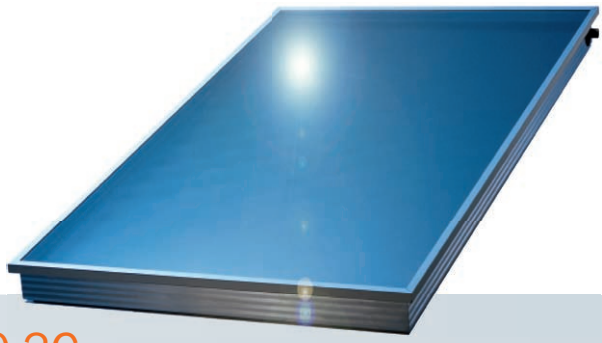
SI-SOL flat Solar Energy Collector



Description of SI-SOL 2.0 TI and SI-SOL 20 2C

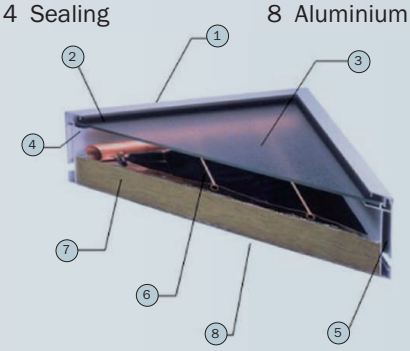
- The frame of SEC is made of aluminium profiles, light anodized.
- The reverse side is made of aluminium metal sheet
- The upper side is made of highly transparent tempered glass containing low level of iron which causes the requested greenhouse effect.
- Absorber is made of copper tube coil, copper and aluminium plate with highly selective TINOX coating which enables functioning even in the cloudy weather.
- Thermal insulation is made of rock wool protected with laminate film.
- Sealing is made of EPDM rubber resistant to weather conditions and UV-rays.
- More solar receivers are connected together with ermeto connections attached to every SEC. In SI-SOL 20 2C version, the connection elements (screw nuts) are integrated. That all contributes to the excellent efficiency of solar radiation for water heating or water with antifreeze additives and a solid construction, which defies all weather conditions.

Technical data

Code	999555300	19550200
Model	**SI-SOL 2.0-TI**	**SI-SOL 20 2C**
Dimensions	2050x1050x100 mm	1730x1170x83 mm
Absorption surface	2 m^2	1,84 m^2
Mass		
– empty	44 kg	39 kg
– filled with water	45,4 kg	40,5kg
Quantity of liquid in SEC	1,4 l	1,5 l
Frame SEC	anodized Al	anodized Al
Absorber coating	Highly selective coating	Highly selective coating
Thickness of tempered glass	4 mm	3,2 mm
Thickness of insulation	40 mm	40 mm
Max. temperature at standstill	188 °C	234 °C
Permitted working pressure	7 bar	10 bar
Efficiency SEC	700 W/ m^2	710 W/ m^2
Connection	Φ22	1''

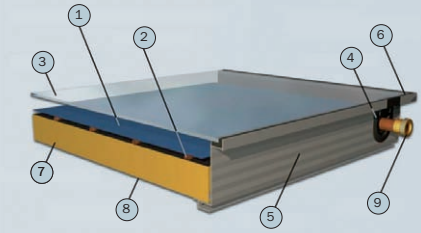
Components SI- SOL 2.0-TI

1 Fixing profile
2 Sealing
3 Tempered glass
4 Sealing
5 Housing
6 Absorber
7 Insulation
8 Aluminium plate



Components SI- SOL 20 2C

1 Absorber
2 Tube coil
3 Tempered glass
4 Flange
5 Al housing
6 UV-resistant two-component adhesive
7 Insulation
8 Aluminium plate
9 Connection



Application

The solar energy collectors (SEC) are used for the preparation of sanitary hot water, as auxiliary heating with other energy sources in buildings (conventional heating systems, heat pumps), heating of water in outdoor and indoor swimming pools, heating of greenhouses and drying of agricultural produce (lumber).

Types, versions

We offer three types of the solar energy receivers. The solar energy collectors SI-SOL 2.0 TI and SI-SOL 20 2C are intended for installation on the roof while the SEC SI-SOL 20 2V is intended for incorporation within the roof level.

Description of SI-SOL 20 2V

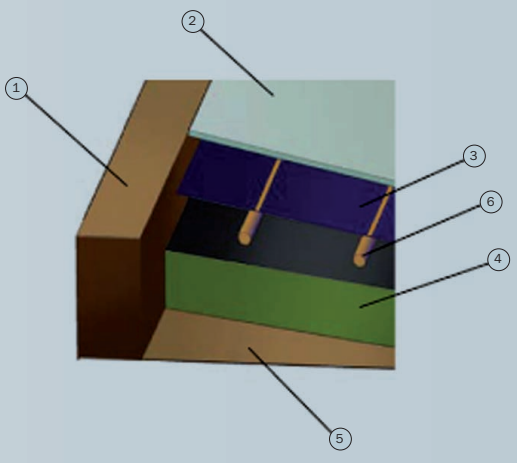
- SEC SI-SOL 20 2V is intended for mounting within the roof level.
- A copper absorber with highly selective TINOX coating, ultrasound soldered
- The highly transparent tempered glass which can be exchanged independently from the frame,
- The sealing is made of EPDM rubber resistant to weather conditions and UV-rays.
- Quick and effective hydraulic connection of more SEC by means of U-connection element
- The frame consists of 27mm thick lamella-plate of pine wood connected with finger joint technique.
- The frame is additionally fixed with wooden screws.
- The reverse side is made of 4mm thick masonite.
- The thermal insulation is made of rock wool.

Technical data

Šifra	19550211
Model	**SI-SOL 20 2V**
Dimensions	2170x1170x100 mm
Absorption surface	2,31 m^2
Mass	59 l
Quantity of liquid in SEC	1,3 l
Frame SEC	27 mm thick lamella-plate of pine wood
Thickness of tempered glass	4 mm
Thickness of insulation	40 mm
Max. working temperature	180 °C
Permitted working pressure	10 bar
Recommended working flow rate	15 – 40 l/h/ m2
Efficiency SEC	710 W/ m^2
Connection	DN 22

Components SI-SOL 20 2V

1 Housing of pine wood
2 Tempered glass
3 Absorber
4 Insulation
5 Reverse side cover
6 Tube coil

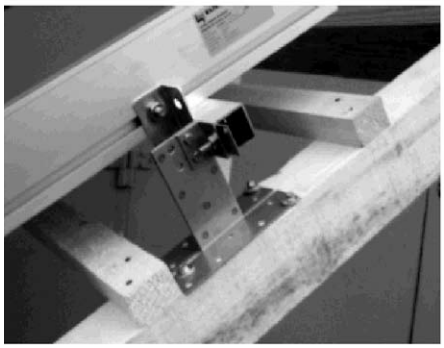


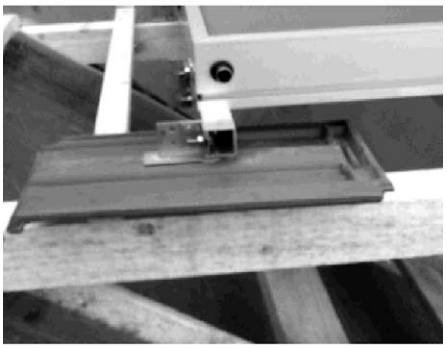
Support Construction for Roof Installation

The SEC can be installed on a roof, within a roof, in a garden, on a terrace, balcony ... The support set for installation on the roof consists of an all-purpose roof supports suitable for different rooftops and support construction that both enable stability, tightness, durable solidness and is corrosion resistant. The construction is easy to assemble, constructions to fix from 1 to 6 SEC.

SI-SOL 2.0 TI - All purpose installation 0°

Code	Number of SEC	Dimensions	Surface
999505325	2 SSE	2,355 x 2,05 m	4,83 m^2
999505326	3 SSE	3,490 x 2,05 m	7,15 m^2
999505327	4 SSE	4,625 x 2,05 m	9,48 m^2
999505328	5 SSE	5,670 x 2,05 m	11,62 m^2





SI-SOL 20 2C - All purpose installation 0°

Code	Number of SEC	Dimensions	Surface
19550221	1 SSE	1,19 x 1,73 m	2,06 m^2
19550222	2 SSE	2,39 x 1,73 m	4,13 m^2
19550223	3 SSE	3,61 x 1,73 m	6,25 m^2
19550224	4 SSE	4,82 x 1,73 m	8,34 m^2
19550225	5 SSE	6,03 x 1,73 m	10,43 m^2
19550226	6 SSE	7,24 x 1,73 m	12,53 m^2

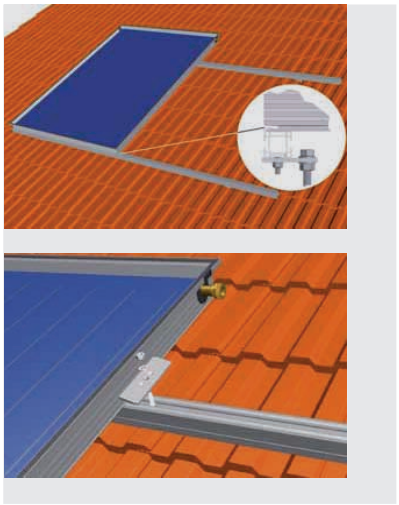
SI-SOL 20 2C - All purpose installation 45°

Code	Number of SEC	Dimensions	Surface
19550227	1 SSE	1,19 x 1,73 m	2,06 m^2
19550228	2 SSE	2,39 x 1,73 m	4,13 m^2
19550229	3 SSE	3,61 x 1,73 m	6,25 m^2
19550230	4 SSE	4,82 x 1,73 m	8,34 m^2
19550231	5 SSE	6,03 x 1,73 m	10,43 m^2
19550232	6 SSE	7,24 x 1,73 m	12,53 m^2

SI-SOL 20 2C - Installation in the rooftop

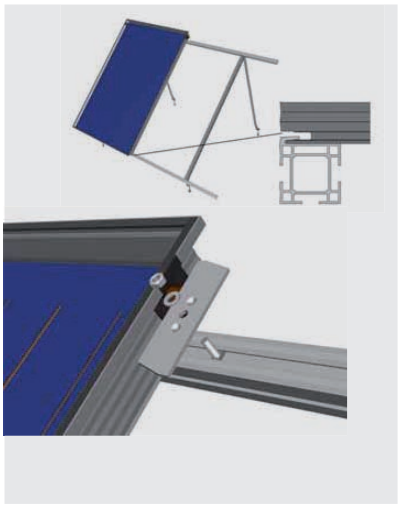
Code	Number of SEC	Dimensions	Surface
19550233	1 SSE	1,19 x 1,73 m	2,06 m²
19550234	2 SSE	2,39 x 1,73 m	4,13 m²
19550235	3 SSE	3,61 x 1,73 m	6,25 m²
19550236	4 SSE	4,82 x 1,73 m	8,34 m²
19550237	5 SSE	6,03 x 1,73 m	10,43 m²
19550238	6 SSE	7,24 x 1,73 m	12,53 m²

All purpose installation 0°



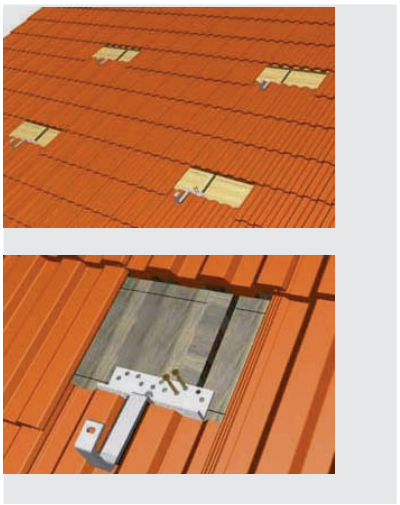
The fixing runs parallel to the roof. The assembly battens are affixed to through the tile-cover with screws.

All purpose installation 45°



Fixing at 45°; optional adjustment of tilt.

Installation behind the roof top



The fixing runs parallel to the roof. The assembly battens are affixed the roof-hooks.

Roof fixing construction

Required surface on the roof for SEC

SI-SOL 20 2V – Fixing in the roof level

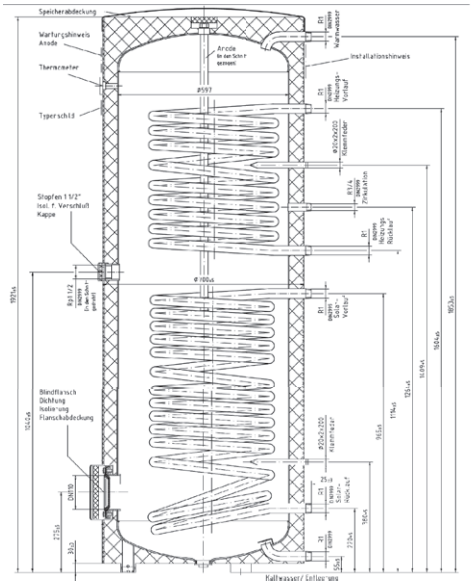
Code	Number of SEC	Dimensions	Surface
19550450	1 SSE	1,47 x 3,12 m	2,5 m²
19550451	2 SSE	2,64 x 3,12 m	5 m²
19550452	3 SSE	3,81 x 3,12 m	7,5 m²
19550453	4 SSE	4,98 x 3,12 m	10 m²
19550454	5 SSE	6,15 x 3,12 m	12,5 m²
19550455	6 SSE	7,32 x 3,12 m	15 m²

Basic fixing set in the roof

Extended fixing set in the roof

Solar heat storage tank

The solar heat storage tanks for sanitary hot water are enamelled, with two-tube heat exchangers, possible connection of electric heater and insulated with FCK-free polyurethane.



Code		19550061	19550062	19550063	19550064
Model	**unit**	**HT 200**	**HT 300**	**HT 500**	**HT 1000**
Capacity	l	192	295	470	995
Diameter	mm	540	600	700	1010
Height	mm	1432	1834	1961	2025
Tip-over height	mm	1530	1892	2044	2135
Weight	kg	85	106	160	275
Connection size	R	3/4	1	1	1
Cold water	mm	55	90	55	103
Hot water	mm	1370	1725	1523	1905
Connection size	R	1	1	1	1
Supply SEC	mm	688	954	965	884
Return SEC	mm	193	254	220	296
Connection size	R	1	1	1	1
Heating supply	mm	1148	1424	1601	1423
Heating return	mm	788	1064	1114	1153
Connection size	R	3/4	3/4	3/4	3/4
Ciriculation	mm	901	1179	1264	1243
Sensors fixing	mm	282	403	380	411
	mm	1013	1289	1409	1333
Shut-off flange	mm	248	324	275	387
	mm	Φ 110	Φ 110	Φ 110	Φ 180
Electric heater connection	R	6/4	6/4	6/4	6/4
	mm	738	1013	1040	1025
Capacity of solar tube heat exchanger ($T_{vstopna}$ = 45 °C, $T_{izstopna}$ = 10 °C)	m^2	0,95	1,55	1,90	2,45
	kW	31	48	65	75
	l/h	760	1170	1590	1870
	l	6,4	10,8	13,3	17,1
Capacity of heating tube heat exchanger ($T_{vstopna}$ = 45 °C, $T_{izstopna}$ = 10 °C)	m^2	0,7	0,8	1,3	1,12
	kW	24	26	40	32
	l/h	550	630	970	760
Insulation width	mm	45	50	50	80
Energy loss in stand-by mode during 24 hours	kWh	2,3	2,1	3,0	4,8
Max. working pressure					
Heat exchanger	bar	10	10	10	10
Heat tank	bar	10	10	10	10
Max.working temp.					
Heat exchanger	°C	110	110	110	110
Heat tank	°C	95	95	95	95

SZT systems heat storage tank

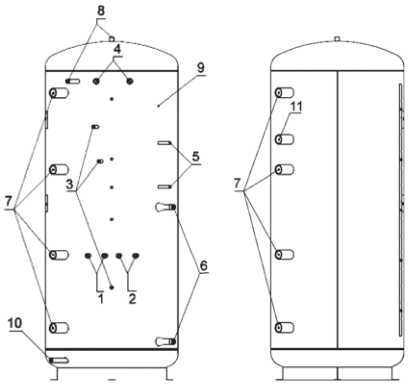
The Hidria's systems heat storage tank – SZT is intended for all purpose heating systems. It enables us to build compact heating systems that with their way of thermal layering offer the preparation of fresh sanitary water, high and low temperature heating. A module for the preparation of hot water and the heating modules as well are mounted directly onto the tank which reduces pipelines in the heating room, required space, assembly time and error tasks.

- **High quality and long lifespan**
- **A smooth and highly efficient tube heat exchanger**
- **Thermal layering with dividing metal sheets**
- **Connection points for the fresh hot water module and heating modules**
- **An optimized insulation jacket with insulation covers for unused connections**

An optimal combination with different types of the heating systems:

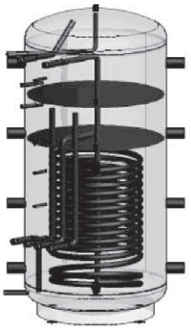
- A thermal solar system
- A heat pump
- A solid fuel tank
- A pellets-fuel tank
- A gas-fuel tank
- An oil-fuel tank

Code	19550071	19550072
Model	**SZT 800**	**SZT 1000**
Warm sanitary water zone	215 l	280 l
Warm water zone	120 l	120 l
Insulated diameter	1000 mm	1000 mm
Non-insulated diameter	790 mm	790 mm
Insulated height	1825 mm	2110 mm
Non-insulated height	1755 mm	2040 mm
Tip-over non-unsulated height	1788 mm	2068 mm
Weight	160 kg	180 kg
Thickness of flexible foam insulation	100 mm	100 mm
Toplotna prevodnost izolacije (λ)	0,041 W/mK	0,041 W/mK
Heat conductivity insulation	3 bar	3 bar
Permitted working pressure	10 bar	10 bar
Permitted working temperature	95 °C	95 °C
Permitted working temperature of solar heat exchanger	110 °C	110 °C
Surface of solar heat exchanger	2,5 m^2	3 m^2
Volume of solar heat exchanger	16,5 l	19,8 l
Diameter of heat temperature quiver	15 mm	15 mm
Sensor connection height of warm santary water	1350mm	1510 mm
Sensor connection height of heating water	1230 mm	1300 mm
Sensor connection height of solar heat exchanger	490 mm	550 mm



Components of SZT

1 Low-temperature heating connections
2 High-temperature heating connections
3 Immersion quiver
4 Connection of flow through module for preparation of sanitary hot water
5 Fixing points
6 Connections for solar section
7 Tank connections
8 Vent
9 Systems heat tank – SZT
10 Release - emptying



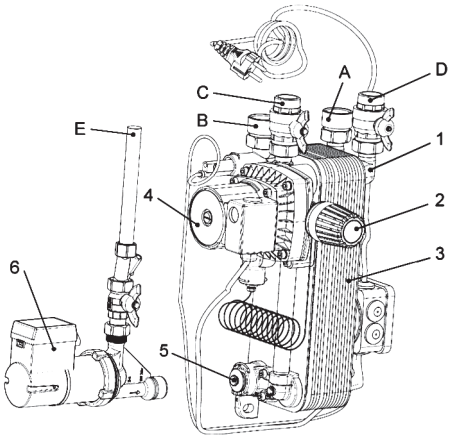
MPPV module for flow-through preparation of sanitary hot water

Hygienic sanitary hot water without temperature oscillations and in sufficient amounts.

- **Almost no maintenance**
- **Quick assembly, low spatial requirements**
- **Hygienic water**
- **Constant water temperature**
- **Optimal energy usage**

Connection of optional circulation pump

Designation and type	Article code
MPPV – Module for flow-through preparation of hot water	19550086
MPPVCP – Circulation pump	19550101
Adapter for circulation pump	19550111
Pressure controller for cascade connection	19550171



Components MPPV

1 Control valve
2 Temperature selection
3 Heat exchanger
4 Filling pump
5 Connection of the circulation pump
6 Circulation pump

Technical data:

Dimensions	
Width	400 mm
Height	820 mm
Depth	290 mm
Insulation	EPP
Weight	20 Kg
Connections	
A cooling water supply	G1
B hot water for house distribution	G1
C hot water from the tank	G1
D water return to the tank	G1
E circulation	G1/2
Capacity	30 l/min
Minimal working temp.	2 °C
Maximal working temp.	95 °C
Maximal working pressure	
Sanitary water	10 bar
Heating water	3 bar
Module filling pump	230V/50Hz Rotations no. 2200 min-1 Power: 95 W Current: 0,4 A
Circulation pump	230V/50Hz Power: 25 W Current: 0,1 A

Heating module

It is intended for low- as well as high-temperature heating. The perfected technology makes use of heating an optimal way and includes an easily adjustable mixing.

- **Integrated non-return valve**
- **Integrated temperature quivers**
- **Universal for various temperature controllers**
- **Adjustable constant return mixing**

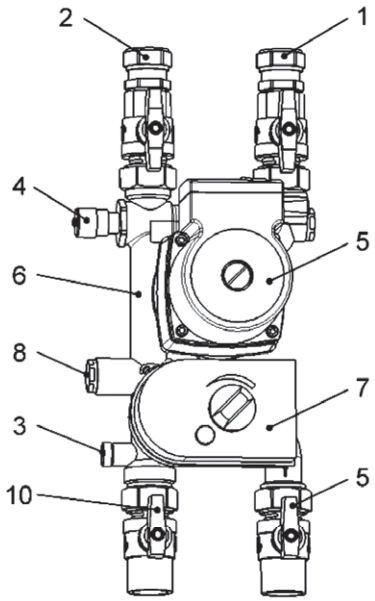
Designation and type	Article code
NTM – low-temperature module	19550091
VTM – high-temperature module	19550092
NVM – low-high temperature module	19550093

Technical data:

Dimensions	
Width	400 mm
Height	570 mm
Depth	230 mm
Insulation	EPP
Weight	6 kg (per unit)
Working pressure	max. 3 bar
Medium	Heating water
Temperature of heating water	max. 115 °C
Outlet heat vmax 1 m/s	Kvs 4,0 m^3/h
Δt = 10 K	9 kW
Δt = 20 K	16 kW
Connections	
On tank's side	G1 flat sealing
On heating side	Rp3/4

Components NTM, VTM, NVM

1 Spherical valve on the supply side of the heating circle
2 Spherical valve on the reverse side of the heating circle
3 Interlock
4 Flow control valve
5 Circulation pump
6 Three-way mixing valve, kvs 4,0 m3/h
7 Motor drive 230 V, 210s
8 By-pass damper
9 Spherical valve on the supply side of the tank
10 Spherical valve on the reverse side of the tank

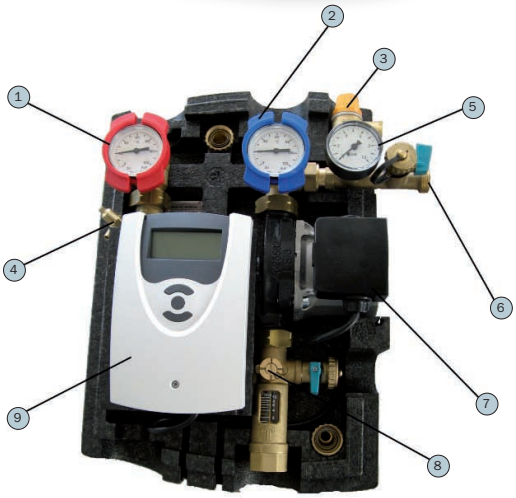


Solar station

The solar station includes all elements to operate the solar section of the system. It includes a control for two heating circles, a solar pump, a fill-tap with an integrated non-return valve, a 6 bar solar relief valve, a thermometer, a manometer and a venting and filling section.

- **Higher coverage due to mixing**
- **Adjustable mixing unit**
- **Integrated non-return valve and connectors for solar system refilling**

Designation and type	Article code
Hidria SP	19550161



Components SOLAR STATION

1. Spherical valve for reverse flow with integrated interlock and thermometer
2. Inflow spherical valve with interlock and thermometer
3. Safety valve 6 bar
4. Air-jet release with manual valve
5. Manometer
6. Connection to expansion tank
7. Circulating pump
8. Flow rate display 1 - 10 l/min with flush and close functions
9. Controller Hidria SOL

Technical data:

Dimensions	
Width	330 mm
Height	570 mm
Depth	230 mm
Insulation	EPP
Heat conductivity	0,038 W/mK
Weight	7 kg
Control	Hidria SOL
Nominal diameter	DN 15
Connections to SEC	Rp3/4
Connections to the tank	Rp3/4
Expansion tank	G3/4
Medium	Water with max. 50% propylene-glycol
Maximal working temp. on supply	140 °C
Maximal working temp. on reverse	120 °C
Working pressure	max. 6 bar
Pump supply	230 V / 50 Hz
Power	min. 34 W (1 step) max. 82 W (3 steps)

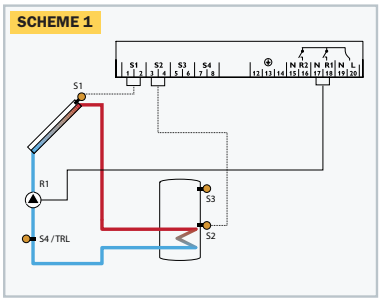
Hidria SOL controller

A controller has pre-programmed basic programmes, integrated rotations control and heat counter.

- **Lit function display**
- **Up to 4 temperature sensors Pt 1000**
- **2 optional settings for rotation rates**
- **9 basic pre-programmed systems**
- **Heat balance display**
- **Functional system control**
- **Settings and control can be performed via the service program**

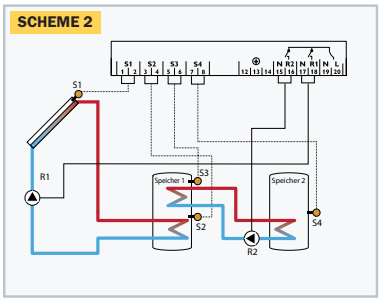
Designation and type	Article code
Hidria SOL – Control for two heating circles	19550 141

SCHEME 1



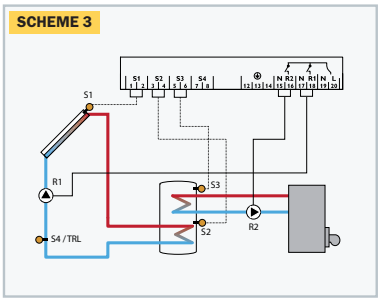
Standard solar system with 1 heat storage tank, 1 pump and 3 sensors

SCHEME 2



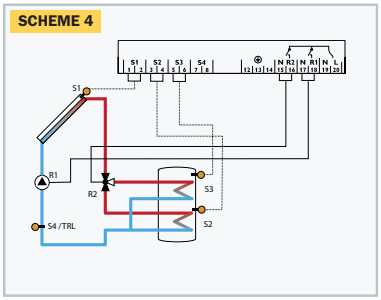
Solar system and heat exchange with existing heat tank and 1 heat storage tank, 4 sensors and 2 pumps

SCHEME 3



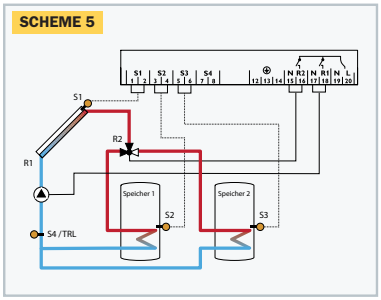
Solar system and auxiliary heating with 1 heat tank, 3 sensors and auxiliary heating of sanitary water

SCHEME 4



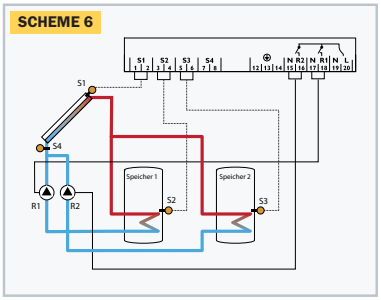
Solar system and thermal layering in the heat tank with 1 heat storage tank,3 sensors, 1 solar pump and 3-way valve for thermal layering

SCHEME 5



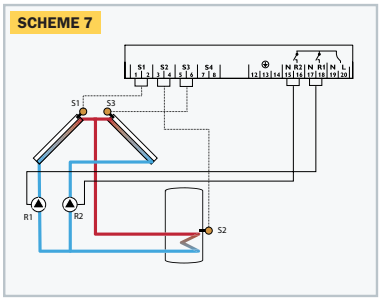
2 heat storage tanks for the solar power system with switch valves with 2 storage tanks, 3 sensors, 1 solar pump and 3-way valve

SCHEME 6



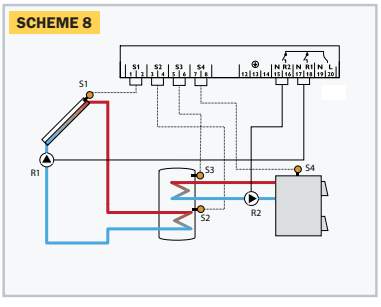
2 heat storage tanks for solar energy system with 2 switch pumps, 2 heat storage tanks, 3 sensors, 2 solar pumps

SCHEME 7



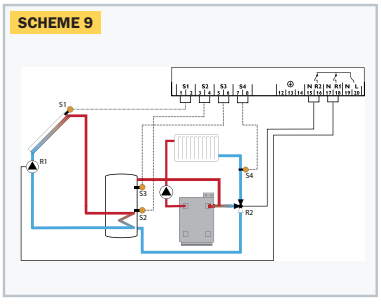
Solar system for east-west oriented roof, 1 heat storage tank, 3 sensors and 2 pumps

SCHEME 8



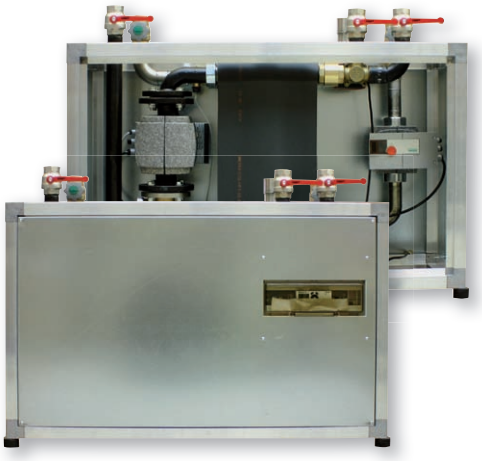
Auxiliary solar energy system with heat tank for solid fuel with 1 heat storage tank, 4sensors, 1 solar pump and 1 pump for auxiliary heating

SCHEME 9



Solar system with returned heat with 1 heat storage tank, 4 sensors, 1 solar pump, 3-way valve for the heat return from the heating circle

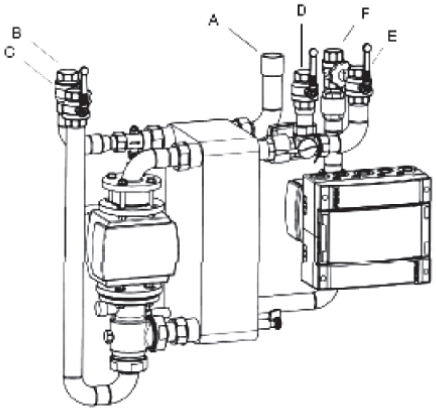
XL module for flow-through preparation of hot water



This convenient unit for hot water is ideal for hotels, kindergartens, schools and homes.

- **Pump with adjustable number of rotations**
- **Programmable circulatory operation**
- **Control return to different zones according to temperature**

Designation and type	Article code
MPPV 150 ECO	19550082
MPPV 225 ECO	19550083



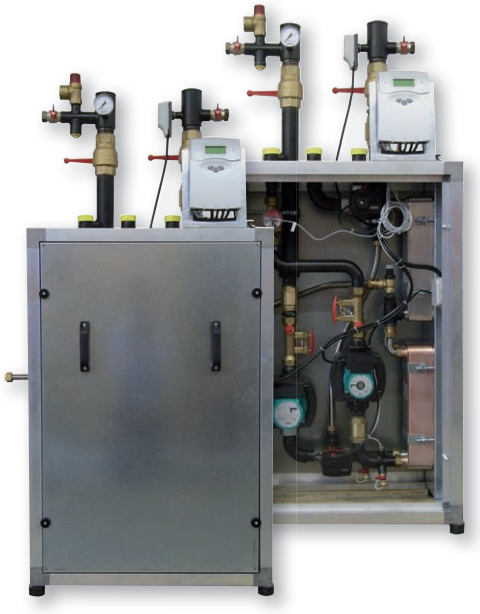
Technical characteristics:

Model	MPPV 150 ECO	MPPV 225 ECO
Dimensions		
Width	1.170 mm	1.170 mm
Height	750 mm	750 mm
Depth	420 mm	420 mm
Weight	153 kg	175 kg
Connections		
A Cold water from water supply	6/4'' IT	6/4'' IT
B Hot water for distribution in the building	6/4'' IT	6/4'' IT
C Hot water from the tank	6/4'' IT	6/4'' IT
D Returned cold water to the tank	6/4'' IT	6/4'' IT
E Returned hot water to the tank	6/4'' IT	6/4'' IT
F Circulation	5/4'' IT	5/4'' IT
Housing	galvanized steel sheet	galvanized steel sheet
Capacity at the heated water temp. 40 °C	150 l/min	225 l/min
Capacity at the heated water temp. 55 °C	100 l/min	150 l/min
Heat exchanger capacity (with insulation)	315 kW	475 kW
Sanitary hot water temperature at part load	58 – 60 °C	58 – 60 °C
Sanitary hot water temperature at full load	55 °C	55 °C
Temperature of hating water in the tank	60 – 100 °C	60 – 100 °C
Return to the tank	Return to two levels	Return to two levels
Module filling pump	230 V / 50 Hz	230 V / 50 Hz
Power	0,29 kW	0,6 kW
Maximal current	1,32 A	2,7 A
Pump rotations no.	4800 min-1	4600 min-1
Module circulation pump	230 V / 50 Hz	230 V / 50 Hz
Power	0,29 kW	0,29 kW
Maximal current	1,32 A	1,32 A
Pump rotations no.	4800 min-1	4800 min-1
Minimal working temperature	2°C	2°C
Maximal working temperature	95°C	95°C
Maximal working pressure / sanitary water	10 bar	10 bar
Maximal working pressure / heated water	3 bar	3 bar

Module for thermal layering

The thermal layering module enables thermal layering in storage tank connected to the solar power system. This ensures the preparation of sanitary hot water even after only a short sunny period.

Designation and type	Article code
MTS 120	19550 131
MTS 200	19550 132



Technical data:

Model	MTS 120	MTS 200
Dimensions		
Width	825 mm	825 mm
Height	1710 mm	1710 mm
Depth	415 mm	415 mm
Solar pipe connection		2'' - galvanized
Pipe connection with the storage tank		6/4'' – galvanized
Weight	85 kg	95 kg
Connections		
Upper filling connection into the storage tank	6/4'' IT	6/4'' IT
Bottom filling connection into the storage tank	6/4'' IT	6/4'' IT
Return from the storage tank	6/4'' IT	6/4'' IT
Solar supply (from SEC)	2'' IT	2'' IT
Solar return (into SEC)	2'' IT	2'' IT
Expansion tank	1'' IT	1'' IT
Drain pipe of the safety valve	5/4'' IT	5/4'' IT
Drain pipe of the safety valve	1'' flat sealing	
Housing	galvanized sheet steel with 20 mm insulation	
Range primary/secondary (6K)	60°C – 35°C	29°C – 54°C
Flow rate primary/secondary (6K)	0,663/0,575 kg/s	1,106/0,958 kg/s
Pressure drop primary/secondary (6K)	26 kPa	22 kPa
Power of heat exchanger	60 kW	100 kW
Solar pump	230 V / 50 Hz	230 V / 50 Hz
Power	0,4 kW	0,4 kW
Maksimal current	2,02 A	2,02 A
Rotatons no. of pump	2600 min-1	2600 min-1
Maksimal working pressure	113 kPa	113 kPa
Filling reservoir pump	230 V / 50 Hz	230 V / 50 Hz
Power	0,177 kW	0,177 kW
Maksimal current	0,85 A	0,85 A
Rotations no. of pump	2660 min-1	2660 min-1
Maksimal working pressure	39 kPa	39 kPa
Components		
Antifreeze thermostat	35°C	35°C
Flow rate meter	20 – 70 l/min	20 – 70 l/min
Calorimeter	20 – 70 m3/h	20 – 70 m3/h
Shut off valve	5/4''	5/4''
Safety valve	6 bar, 1'' – 5/4''	6 bar, 1'' – 5/4''
Manometer	0 – 10 bar	0 – 10 bar
Operation controller		
Minimal working temp.	2°C	2°C
Maximal working temp.	95 °C	95 °C
Maximal working pressure/sanitary water	6 bar	6 bar
Maximal working pressure/heating water	3 bar	3 bar

Accessories

Expansion tank

Soldered expansion tanks are made of quality steel sheet. The rubber membrane absorbs pressure oscillations in the system. It is resistant to the usual antifreezers and anticorrosive protection. The tanks are CE-certified. The size of the tank depends on the number of the incorporated solar energy receivers and the length of the connection pipes in the system.

Designation and type	Article code
S18 - Volume: 18 l; max.pressure 6 bar	19550 151
S25 - Volume: 25 l; max.pressure 6 bar	19550 152
S33 - Volume: 33 l; max.pressure 6 bar	19550 155
S40 - Volume: 40 l; max.pressure 6 bar	19550 156
S50 - Volume: 50 l; max.pressure 6 bar	19550 153
S100 - Volume: 100 l; max.pressure 6 bar	19550 154

Antifreeze protection

The liquid medium for heat transmission in the solar energy systems guarantees excellent antifreeze and anticorrosion protection. It protects against aging and lime building and improves efficiency. The liquid is biodegradable and made on the basis of the acceptable propylene-glycol and inhibitors.

Unit	Article code
1 Liter	19550181

Freezing temperature at different mixing ratios:

Freezing temp. °C	Antifreeze vol. %	Water vol. %
- 10	25	75
- 15	30	70
- 18	35	65
- 23	40	60
- 28	45	55
- 35	50	50
- 52	60	40

A tool box with testing equipment

OA tool box description:	Article code
It contains: manometer, pipette, testing glass, manual refractor, air-vent key, ph-indicator papers, digital multimeter, compass	19550 186

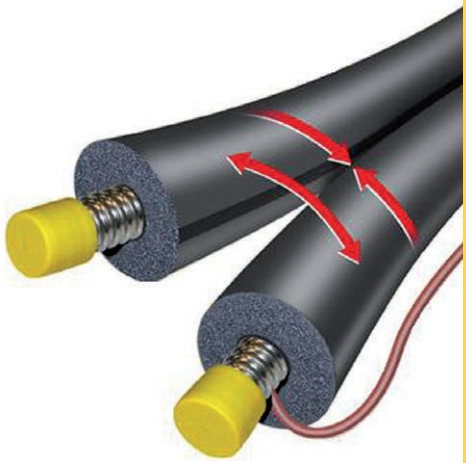
Filling pump

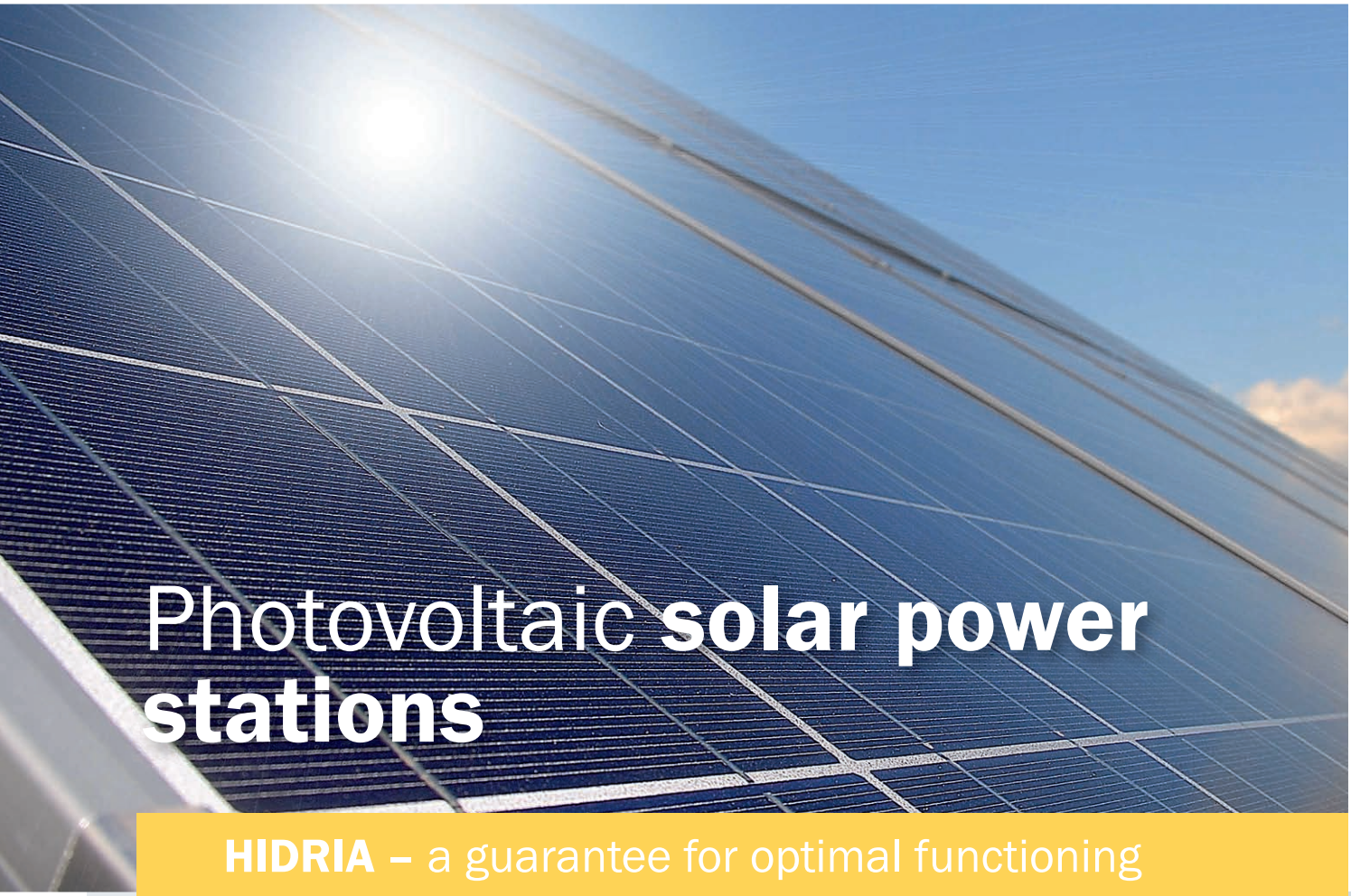
Description	Article code
Filling pump with tank, pipe and pressure pump, up to the height difference 50 m	19550 191

Flexible stainless-steel pre-insulated pipe

Flexible stainless-steel insulated against high temperatures. Supplied in pair with connections and cable to connect sensor.

Designation and type	Article code
DN16 x 2, length: 10 m	19550260
DN16 x 2, length: 15 m	19550261
DN16 x 2, length: 20 m	19550262
DN20 x 2, length: 10 m	19550263
DN20 x 2, length: 15 m	19550264
DN20 x 2, length: 20 m	19550265





Photovoltaic **solar power stations**

HIDRIA – a guarantee for optimal functioning of a solar power station

An investment in the solar power station is a profitable and safe investment with a state warranty which assures you not only the subsidy for the period of 15 years but also the regular payment for the delivered energy.

- **The Sun doesn’t issue any bills.**
- **Limitless source of energy without pollution.**
- **30 years lifespan.**

Quality “turn-key” solution for a solar power station!

Designing

- Consulting about location selection
- Calculation of expected yields
- Assistance in acquiring the approvals and bank guarantees

Planning and building

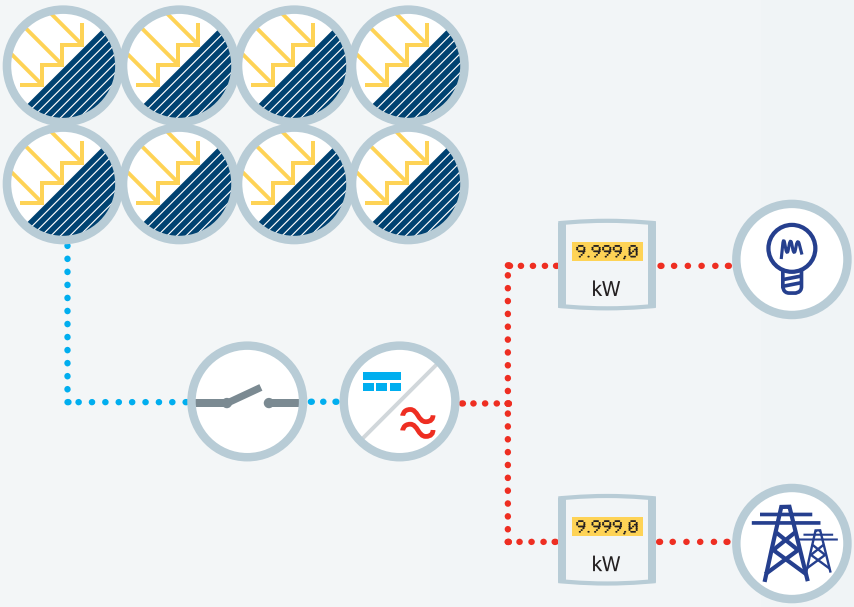
- An individual project outline
- Management of the project
- Supplying the components
- Professional installation

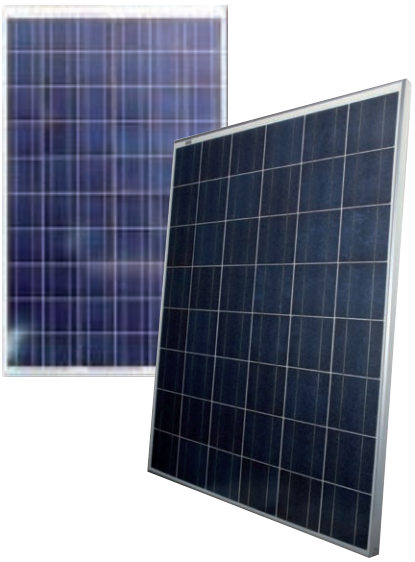
Start-up, servicing and maintenance

- Connection of a solar power station to the public distribution network
- Monitoring of the produced energy over the internet
- Control including maintenance and service

foto: SMA

Construction of the solar power station





Photovoltaic modules

Quality photovoltaic modules of the European origin guarantee safe investment in a solar power station. Upon customer's request, there are four different types of the photovoltaic modules available: poly-crystalline, mono-crystalline and amorphous.

Module surface for the power of 1kWp

- Mono- and polycrystalline module — 7 do8 m^2
- Amorphous – flexible — 17 do 19 m^2

Non-standard versions:

- Modules with transparent background
- Modules with a frame for a direct rooftop mounting
- Amorphous modules on foil or metal base for direct fixing

Construction

Aluminium construction for installation of the photovoltaic panels onto the building or stand-alone on the ground

Waterproof constructions for direct installation onto the rooftop

Customized versions of steel, galvanized or paint-coated constructions for projecting roofs, roofed parking places, ventilating facades...

Solar Montagesysteme SCHLETTER GmbH

mounting systems

Inverters

Inverters, made by the recognized manufacturers, are intended for conversion of continuous current into alternating current. In addition to the conversion of electric energy and synchronization with the electricity network they also enable monitoring of the produced electric power.

KACO new energy.

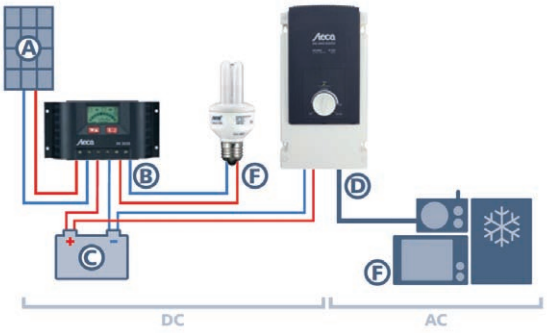
SMA

Fronius

Off-grid photovoltaic systems

Off-grid systems are intended for power generation in remote places far-off any power distribution networks and they are not connected to any of the public power distribution network for technical or economical reasons. As the source of energy is limited to the sun, those systems have to store their energy in batteries and supply power to the consumers during the night and in the sunless days. Smaller systems are designed with the systems voltage 12V (cottages, sailing boats).
For systems with larger energy consumption the voltage levels 24V and 48V are more appropriate. If the voltage level 230V/50Hz is required, an additional element – inverter is required, as for the regular network which converts continuous systems voltage (12,24 or 48V) into the alternating voltage 230V/50Hz.

- **Planning upon customer's requirements**
- **Individual approach**
- **Prepared sets**



A Photovoltaic module
B Solar filler
C Battery
D Inverter
F Consumer

Designing off-grid systems

The off-grid systems are designed on the basis of location of the object, power of consumers and operation of the system. The battery capacity has to cover nightly demand on energy and longer sunless period as well. The off-grid systems are also suitable for groups of far-off buildings such as small villages on the islands or remote homes.

A set consists of:

- **Poly-crystalline photovoltaic module (1507mm x 674mmx33mm)**
- **Filling controller with graphic display**
- **Battery**
- **Solar cable – 10 m**
- **Battery connection cable – 5 m**
- **Construction for mounting on the roof**

Code	19550 500	19550 501
Model	**SET OFF-GRID 120**	**SET OFF-GRID 240**
Photovoltaic module	120Wp (1x120Wp) poli-Si	240Wp (2x120Wp) poli-Si
Controller	STECA PR1010	STECA PR1515
Maximal load	10A	15A
Systems voltage	12V	12V
Battery capacity	130 Ah - gel	130 Ah - gel

Accessories

A voltage inverter is required to connect consumers to 230V.

Designation and type	Code
Voltage inverter 230V / 300W	19550 502
Voltage inverter 230V / 500W	19550 503

Your specialist for
solar energy systems

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