

Flat plate solar collectors for the harnessing of solar energy
Panels with 25 ft.²/2.32 m² absorber surface

Technical Data Manual

Part Nos. and Pricing: see Price List



VITOSOL 100-F Model SV1 and SH1

Flat plate solar collectors

for vertical or horizontal installation
on sloped and flat roofs

To produce domestic hot water, or to supplement
low-temperature heating systems or swimming pools
via a heat exchanger



Meets the requirements of the German "Blue Angel"
certificate of environmental excellence to RAL UZ 73.



Certified in accordance with Solar Keymark testing
requirements.

Product Information

Vitosol 100-F

Models SV1, SH1

The benefits at a glance:

- High performance at an **attractive price**.
- Collector surface area: 25 ft²/2.32 m² for **horizontal or vertical installation**.
- **High efficiency** through selectively coated absorber, integrated piping and extremely effective thermal insulation.
- Flexible connection pipes facilitate **short installation times**.
Up to twelve collectors can be quickly installed in series using a convenient plug-in system.
- **Durable, corrosion resistant construction** using materials such as aluminum, copper and stainless steel, as well as 3.2 mm hail-resistant low-iron solar glass and non-degrading thermal insulation.
- **Permanently sealed and high stability** through all-around folded aluminum frame and endless glass seal.
- **Universal application:** on flat and sloped roofs, on top of roof coverings, or for freestanding installations.
- **Quality tested** to Solar Keymark testing requirements. Meets the requirements of the German "Blue Angel" certificate of environmental excellence.



Construction and function

The main component of the Vitosol 100-F is the black chrome coated copper absorber. It ensures high absorption of solar radiation and low emission of thermal radiation. A meander-shaped copper pipe, through which the heat transfer medium flows, is permanently embedded into the absorber. The heat transfer medium channels the absorber heat through the copper pipe. The absorber is encased in a highly insulated collector housing, which minimizes collector heat losses. The high quality thermal insulation provides temperature stability and is free from gas emissions.

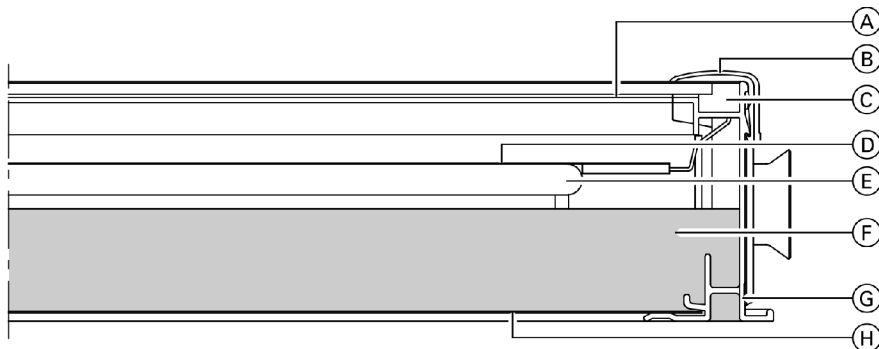
The cover consists of a solar glass panel with a very low iron content, thereby reducing reflection losses. The solar glass is 3.2 mm thick, making it very resistant to weather influences. The glass is set into the collector frame with a continuous

profiled seal, preventing water from penetrating into the collector. This ensures a long and reliable service life for all internal components.

The collector housing consists of a non-coated aluminum frame into which the solar glass is permanently sealed.

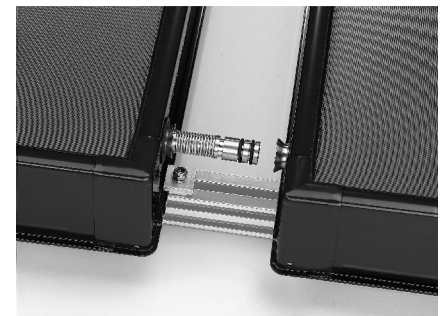
Up to twelve collectors can be joined quickly and easily to form a single collector array. For this, the standard equipment includes flexible connection pipes, sealed with O-rings (see picture below).

A connection kit with clamping ring fittings enables the collector array to be quickly connected to the pipes of the solar circuit. The collector temperature sensor is installed in the solar circuit flow using a sensor well set.



- (A) Solar glass cover, 0.13"/3.2 mm thick
- (B) Cover angle made from aluminum
- (C) Pane seal
- (D) Copper absorber
- (E) Meander-shaped copper pipe

- (F) Thermal insulation made from mineral fiber
- (G) Non-coated aluminum frame sections
- (H) Back panel made from aluminum-zinc coated sheet steel



Collector may not be exactly as shown.

Technical Data

Model - Vitosol 100-F		SV1	SH1
Total surface area	ft. ² / m ²	27.0 / 2.51	27.0 / 2.51
Absorber surface area	ft. ² / m ²	25.0 / 2.32	25.0 / 2.32
Aperture ^{*1}	ft. ² / m ²	25.1 / 2.33	25.1 / 2.33
Dimensions ^{*2}			
Width	inches	41 ¾	93 ¾
	mm	1056	2380
Height	inches	93 ¾	41 ¾
	mm	2380	1056
Depth	inches	2 ¾	2 ¾
	mm	72	72
Optical efficiency ^{*3}	%	74.3	74.3
Heat loss coefficient	U ₁ W/(m ² ·K)	4.16	4.16
	U ₂ W/(m ² ·K ²)	0.0124	0.0124
Thermal capacity	kJ(m ² ·K)	6.4	6.4
Weight	lb / kg	94.8 / 43	94.8 / 43
Fluid capacity (heat transfer medium)	USG	0.44	0.62
	ltr	1.67	2.33
Maximum working pressure ^{*4}	psig	87	87
	bar	6	6
Maximum stagnation temperature ^{*5}	°F / °C	430 / 221	430 / 221
Connection	inches	¾	¾
	mm	22	22
Requirements for installation surface and anchorage	Roof construction with adequate load capacity for prevailing wind forces		

^{*1} Important for system design considerations.

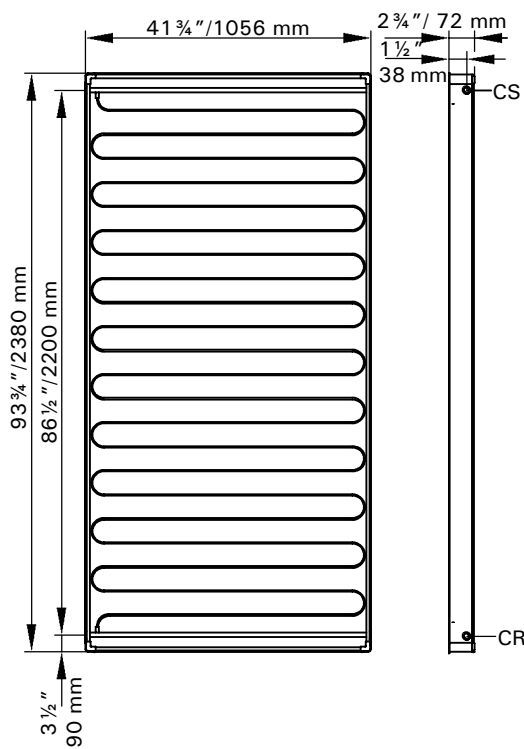
^{*2} Dimensions rounded to the nearest ¼ inch.

^{*3} Based on absorber surface area.

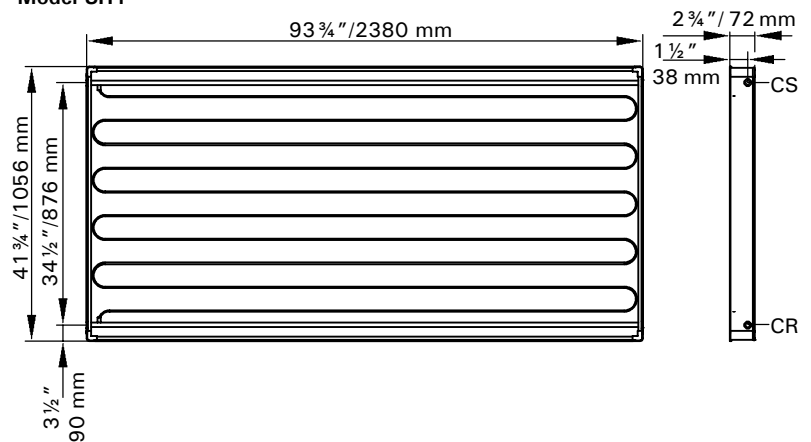
^{*4} In sealed systems, operating pressure of at least 22 psig + 0.45 psig x static head (ft.) / 1.5 bar + 0.1 bar x static head (m) must be present in the collectors in cold condition.

^{*5} The stagnation temperature is the temperature which applies to the hottest point of the collector at a global radiation intensity of 3412 Btu/h / 1000 W when no heat is conducted by the heat transfer medium.

Model SV1



Model SH1



Legend

CR Collector return (inlet)

CS Collector supply (outlet)

Standard Equipment/Accessories

Heat transfer medium

Tyfocor non-toxic heating liquid for solar heating systems with active anti-corrosion and anti-ageing protection.

Frost protection: to -31°F / -35°C
 Specific gravity at 68°F / 20°C: 1.032 to 1.035 g/cm³ to ASTM D 1122

Viscosity at 68°F / 20°C: 6.5 to 8.0 mm²/s to DIN 51562

pH value: 7.5 to 8.5 to ASTM D 1287

Color: transparent, blue-green

Container: 5.3 USG / 20 ltr in a disposable container

Standard equipment

Vitosol 100-F, Models SH1 and SV1 come fully assembled in shrink-wrap packaging and ready to be connected.

Accessories

Accessories (individually packed, depending on order):

- Mounting hardware with technical literature
- Interconnection pipes with insulation
- General connection set
- Sensor well set
- Solar Divicon (pumping station for the collector circuit)
- Automatic air vent with air separator
- Fast air vent valve with tee and shutoff valve
- System filling manifold
- Solar hand pump
- Solar expansion tank
- Heat transfer medium

Mounting hardware

The mounting hardware consists of components required for the relevant method of installation, such as:

Roof brackets, mounting plates, mounting rails, connecting elements for mounting rails, clamping bolts, screws and nuts.

General connection set

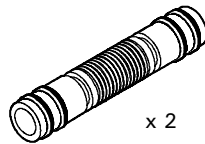
Required to connect solar collector to system piping. One set required per collector array - max. 269 ft² / 25 m².

Part No. 7248 240

Pipe connection set

Required to connect multiple solar collectors.

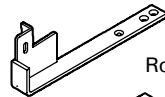
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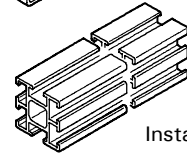
x 2

Sloped roof hardware

Required for mounting collector directly onto shingled roof. Raises collector 3 1/2" / 889 mm above the roof.



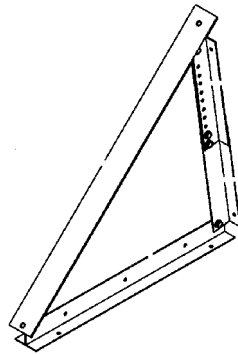
Roof bracket



Installation rail

Flat roof hardware

Required for freestanding, flat roof installations.



Solar Divicon

Preassembled pumping station for solar collector circuit.

Includes: 3-speed pump (2 sizes), pressure gage, 2 thermometers, 2 ball valves, pressure relief valve, flow meter, 2 flowcheck valves, air separator, system fill manifold, and foam insulation cover.

Part No. 7134 799 (for DN20)

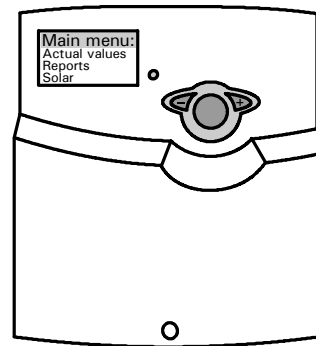
7134 800 (for DN25)



Vitosolic 200

Electronic differential temperature control for solar heating.

Part No. 7134 552



Please note

Viessmann offers complete solar heating system combi packages, as well as comprehensive design support in order to facilitate the component selection process.

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