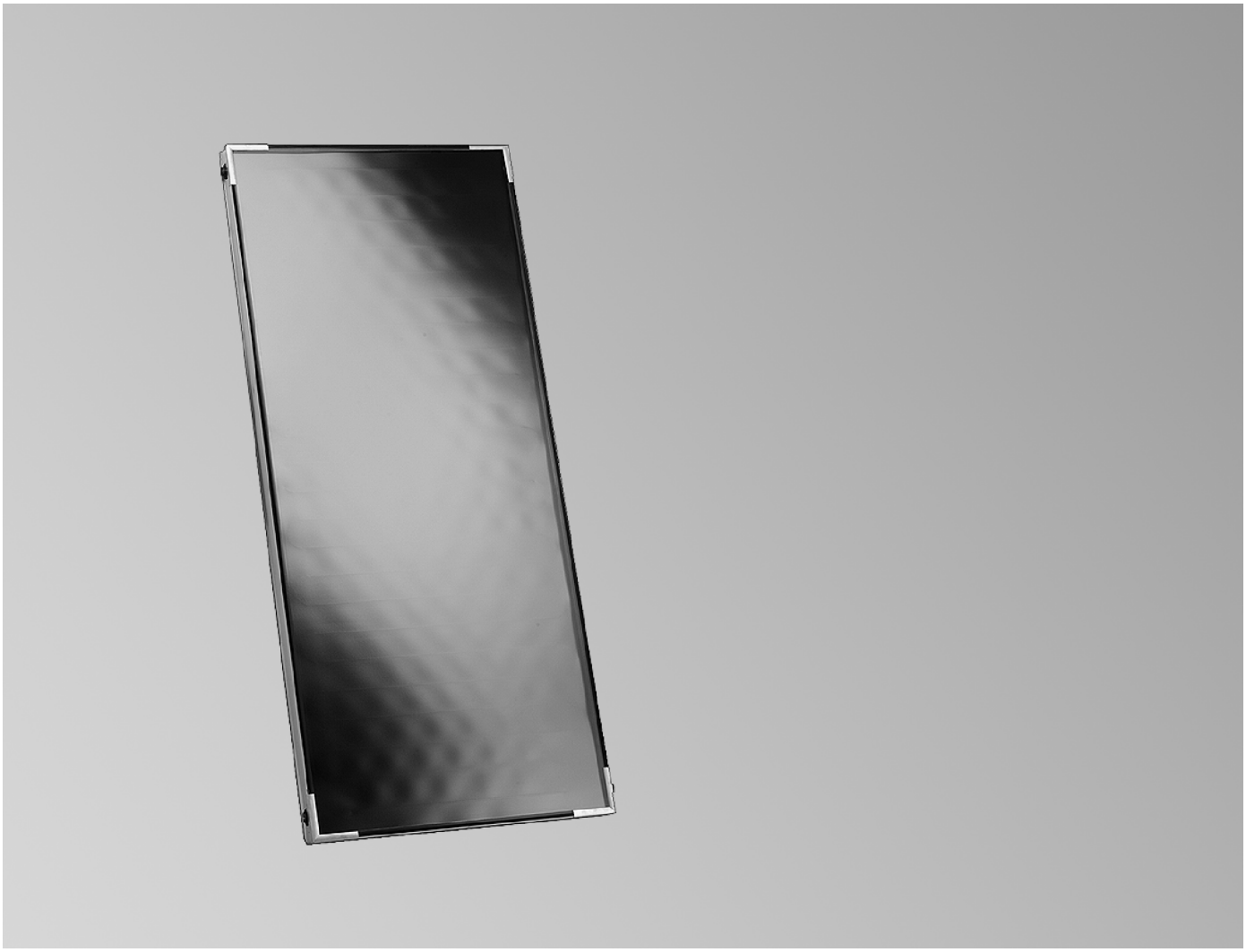
VIESMANN

VITOSOL 100-F

Flat plate solar collectors for the harnessing of solar energy
Panels with 25 ft.^{2} (2.32 m^2) absorber surface

Technical Data Manual

Part Nos. and Pricing: see Price List



VITOSOL 100-F Model SV1B and SH1B

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

Listed by CSA International as complying with the Energy Efficiency Verification Service requirements

Certified in accordance with SRCC OG-100.

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

Certified in accordance with Solar Keymark testing requirements.

Vitosol 100-F

Models SV1B, SH1B

The benefits at a glance:

- **High performance** flat plate collector at an attractive price, thanks to a highly-efficient selectively-coated copper absorber.
- **Suitable for many residential or commercial applications** with vertical or horizontal versions available. Best suited for DHW or pool heating.
- **Rugged, high-quality construction** using impact-resistant low-iron solar glass, copper piping and absorber, aluminum frame 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 or freestanding, vertical or horizontal installations, connect up to 12 collectors in one array for commercial or residential systems.
- **Fast installation** with flexible connection pipes and quick-connect fittings. Prefabricated collector mounting hardware ensures easy connection to roofs.
- **Maximum system performance and reliability** with a full range of solar system components designed to integrate seamlessly.
- **Certified** to the Solar Rating and Certification Corporation (SRCC) OG-100 Standard. CSA Energy Efficiency Verification.
- **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.

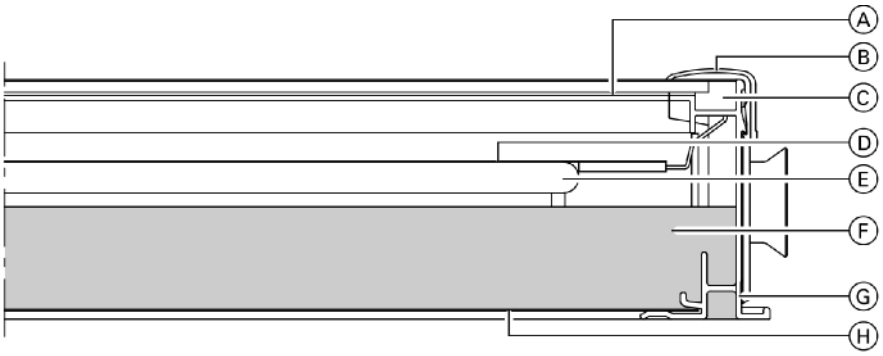
The cover consists of a solar glass panel with a very low iron content, thereby reducing reflection losses. The solar glass is 3.2 mm thick, making it very resistant to weather influences.

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.

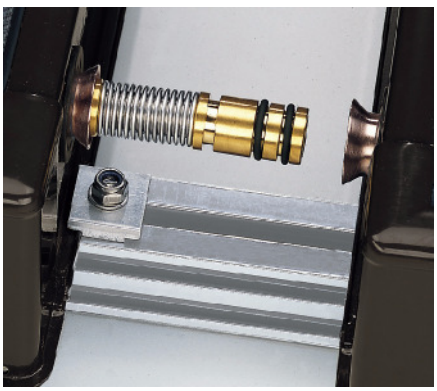
The collector housing consists of a one-piece non-coated aluminum frame into which the solar glass is permanently sealed.

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.



Ⓐ Solar glass cover, 0.13" (3.2 mm) thick
Ⓑ Aluminum cover strip
Ⓒ Continuous glass seal
Ⓓ Copper absorber sheet
Ⓔ Meander-shaped copper pipe
Ⓕ Thermal insulation made from mineral fiber
Ⓖ Non-coated aluminum frame sections
Ⓗ Back panel made from aluminum-zinc coated sheet steel



Flexible interconnection pipes

Technical Data

Model - Vitosol 100-F		SV1B	SH1B
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	41¾	93¾
	mm	1056	2380
Height	inches	93¾	41¾
	mm	2380	1056
Depth	inches	2¾	2¾
	mm	72	72
Optical efficiency **3*	%	75.4	75.4
Heat loss coefficient U_1	W/(m^2 · K)	4.15	4.15
U_2	W/(m^2 · K^2)	0.0114	0.0114
Thermal capacity	kJ(m^2 · K)	4.5	4.5
Weight	lb (kg)	96.8 (43.9)	96.8 (43.9)
Fluid capacity	USG	0.44	0.62
(heat transfer medium)	L	1.67	2.33
Maximum working pressure **4*	psig	87	87
	bar	6	6
Maximum stagnation temperature **5*	°F (°C)	395 (196)	395 (196)
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.*

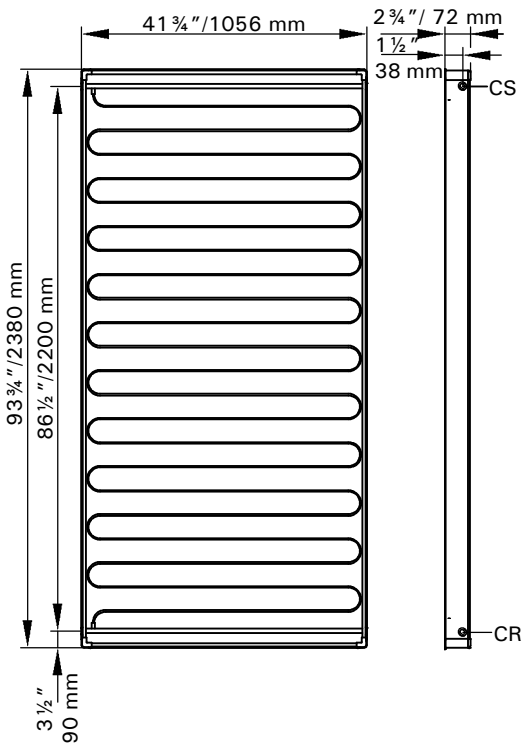
**2 Dimensions rounded to the nearest ¼ inch.*

**3 Based on absorber surface area.*

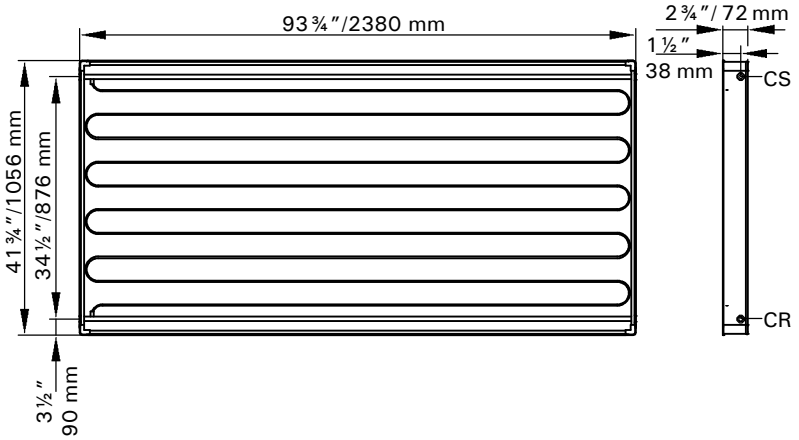
**4 In sealed systems, operating pressure of at least 15 psig + 0.45 psig x static head (ft.) / 1 bar + 0.1 bar x static head (m) must be present in the collectors in cold condition.*

**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 SV1B



Model SH1B



Legend
CR Collector return (inlet)
CS Collector supply (outlet)

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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/cm^3 to ASTM D 1122
Viscosity at 68°F (20°C):	6.5 to 8.0 mm^2/s to DIN 51562
pH value:	7.5 to 8.5 to ASTM D 1287
Color:	transparent, blue-green
Container:	5.3 USG (20 L) in a disposable container

Standard equipment

Vitosol 100-F, Models SH1B and SV1B come fully assembled in shrink-wrap packaging and ready to be connected.

Accessories

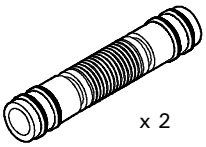
Accessories (individually packed, depending on order):
- Mounting hardware with technical literature
- Interconnection pipes with insulation
- General connection set
- Sensor well set
- Solar Divicon (pumping station for the collector circuit)
- Automatic air vent with air separator
- Fast air vent valve 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 ft^2 (25 m^2).
Part No. 7248 240

Pipe connection set
Required to connect multiple solar collectors.
Part No. 7248 239



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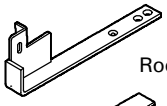
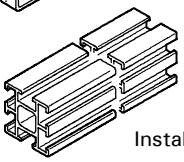
Sloped roof hardware
Required for mounting collector directly onto shingled roof. Raises collector 3½" / (889 mm) above the roof.

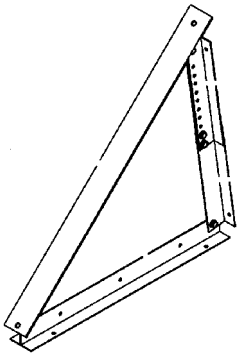


Roof bracket

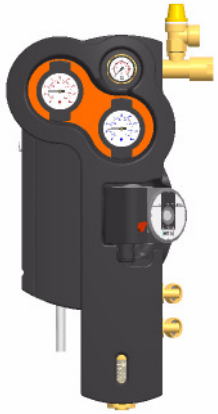


Installation rail

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)



SCU 124/224
Electronic differential temperature control for solar heating.

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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