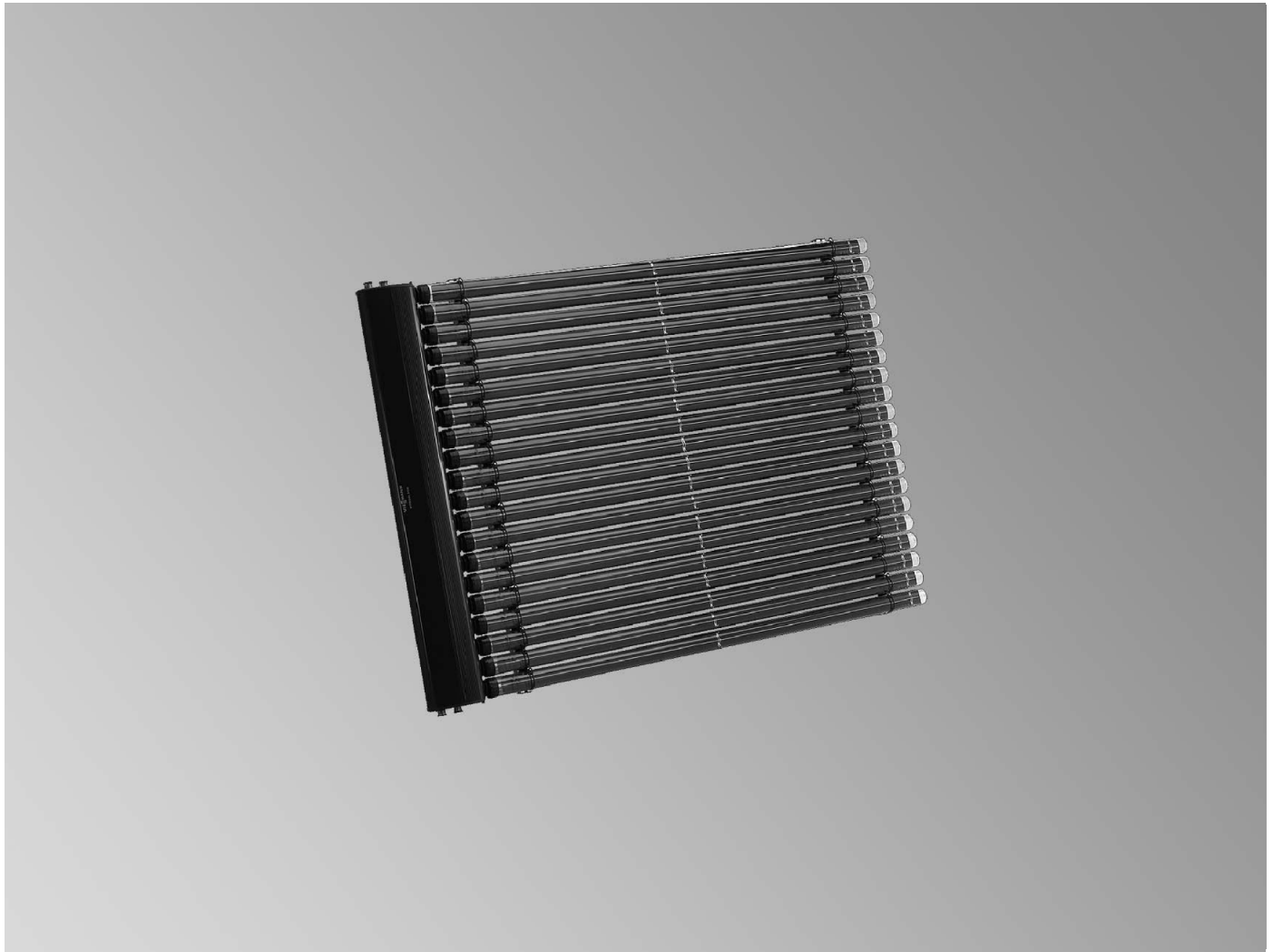


## Technical Data Manual

Model Nos. and Pricing: see Price List



### VITOSOL 200-T Model SD2A

#### Vacuum tube solar collector

for vertical, horizontal or angled installation on sloped or flat roofs, as well as walls and freestanding installations.

To produce domestic hot water, or to supplement low-temperature heating systems or swimming pools via a heat exchanger, as well as the generation of process heat.



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 DIN ISO 9001.



SPF quality seal from the Solar Energy Testing and Research Institute in Rapperswil, Switzerland.

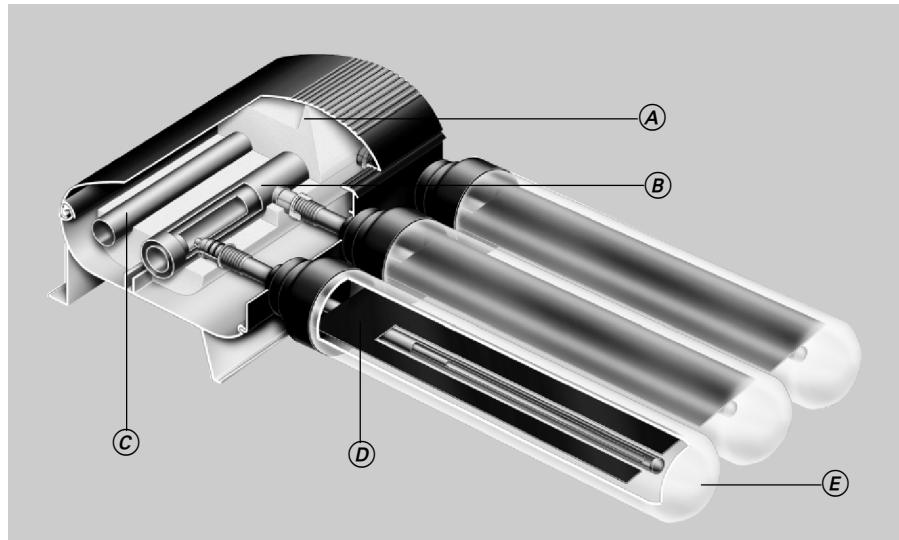
## Product Information

### Vitosol 200-T

Model SD2A

#### The benefits at a glance:

- **Highly efficient**, direct flow vacuum tube collector c/w Sol-titanium coated absorber for high solar energy utilization.
- **Universal application** through vertical or horizontal installation in any location, either on rooftops or on walls.
- **Easy, safe and reliable connection** of the individual tubes through an innovative plug-in system.
- The absorber areas integrated inside the vacuum tubes are **not susceptible to contamination**.
- **Tubes can be rotated** for optimum orientation towards the sun, thereby maximizing the energy yield.
- **Highly effective thermal insulation** of the header casing for minimum thermal losses.
- **Easy assembly** through the Viessmann mounting system and flexible corrugated stainless steel plug-in connectors.
- **The supply and return connection** on one side of the manifold casing minimizes the effort required to connect the pipework.
- **Attractive collector design**, manifold casing in RAL 8019 (brown).



#### Legend

- Ⓐ Highly effective thermal insulation
- Ⓑ Coaxial distribution pipe
- Ⓒ Return pipe
- Ⓓ Selective surface coated copper absorber
- Ⓔ Evacuated glass tube

*Vitosol 200-T - direct flow vacuum tube collector: ideal for installation in any location.*

#### Construction and function

Vitosol 200-T vacuum tube collector is available in the following versions:

- 2 m<sup>2</sup> / 22 ft.<sup>2</sup> with 20 tubes
- 3 m<sup>2</sup> / 33 ft.<sup>2</sup> with 30 tubes

The Vitosol 200-T can be installed on sloped roofs, flat roofs, on walls and as a freestanding collector.

On sloped roofs the collectors may be positioned in line (tubes at right angles to the roof ridge) or across (tubes parallel to the roof ridge).

- **DHW heating systems:**  
The collectors may be positioned vertically (tubes vertical, relative to the roof ridge) or horizontally (tubes parallel to the roof ridge).
- **Systems to back up space heating:**  
The collectors should be installed horizontally (tubes parallel to the roof ridge). This will positively influence the stagnation characteristics.

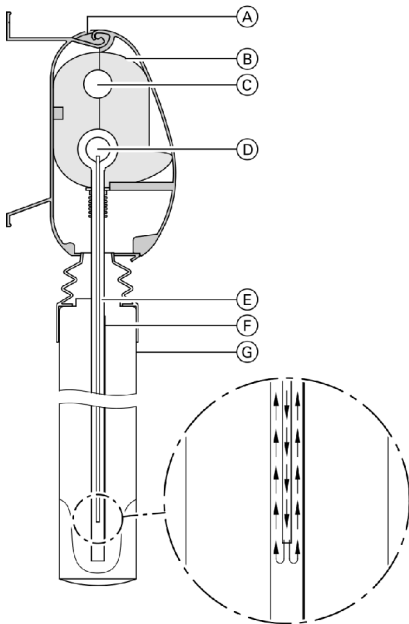
The vacuum in the glass tubes ensures optimum thermal insulation. Convection losses between the glass tube and the absorber are almost completely eliminated. This enables even low solar radiation levels to be utilized.

Each vacuum tube contains a Sol-titanium coated copper absorber. It ensures a high absorption of solar radiation and low emissions of thermal radiation.

A coaxial heat exchanger pipe, through which the heat transfer medium flows, is laser-welded to the copper absorber. The heat transfer medium absorbs heat from the absorber via the heat exchanger pipe.

To fully utilize the available solar energy, every vacuum tube is able to pivot so that the absorber can be turned towards the sun. Tubes can be rotated a maximum of 25°. Up to 15 m<sup>2</sup> / 165 ft.<sup>2</sup> of collector absorber area can be joined in series to create a single collector array (collectors arranged in series should be of the same size). For this purpose, the standard delivery includes flexible connecting pipes with O-rings. The supply and return pipes integrated into the manifold casing enable the connection of the solar supply and solar return pipes of several collectors on one side.

A connection set with clamping ring fittings enables the collector array to be easily connected to the pipes of the solar circuit. The collector temperature sensor is installed in a sensor well in the supply pipe of the solar heating circuit.



- Ⓐ Connecting casing
- Ⓑ Melamine epoxy foam insulation
- Ⓒ Return pipe
- Ⓓ Coaxial manifold and distributor pipe
- Ⓔ Coaxial heat exchanger pipe
- Ⓕ Absorber
- Ⓖ Evacuated glass tube

Technical Data

Model		SD2A, 2m <sup>2</sup>	SD2A, 3m <sup>2</sup>
Number of tubes		20	30
Gross area	ft. <sup>2</sup> / m <sup>2</sup>	30.98 / 2.88	46.5 / 4.32
Absorber surface area	ft. <sup>2</sup> / m <sup>2</sup>	21.6 / 2.01	32.5 / 3.02
Aperture area <sup>*1</sup>	ft. <sup>2</sup> / m <sup>2</sup>	23 / 2.14	34.8 / 3.23
<b>Dimensions</b>			
Width (a)	inches / mm	55 ¾ / 1418	83 ¾ / 2127
Height (b)	inches / mm	80 ½ / 2043	80 ½ / 2043
Depth (c)	inches / mm	5 ½ / 143	5 ½ / 143
Optical efficiency <sup>*2</sup>	%	78.9	79.1
Heat loss coefficient	U <sub>1</sub> W/(m <sup>2</sup> ·K)	1.36	1.14
	U <sub>2</sub> W/(m <sup>2</sup> ·K <sup>2</sup> )	0.0075	0.0070
Thermal capacity	kJ(m <sup>2</sup> ·K)	9.4	9.4
Weight	lbs / kg	134.5 / 61	208 / 94.6
Fluid capacity (heat transfer medium)	USG	1.11	1.64
	ltr	4.2	6.2
Maximum working pressure <sup>*3</sup>	psig	87	87
	bar	6	6
Maximum stagnation temperature <sup>*4</sup>	°F / °C	563 / 295	563 / 295
Connection Ø	inches	¾	¾
	mm	22	22
Space requirement for flatroof installations	ft. <sup>2</sup> / m <sup>2</sup>	approx. 15.6 / 1.45	approx. 20.5 / 1.9
Requirements for installation surface and anchorage	Roof construction with adequate load capacity for prevailing wind forces		

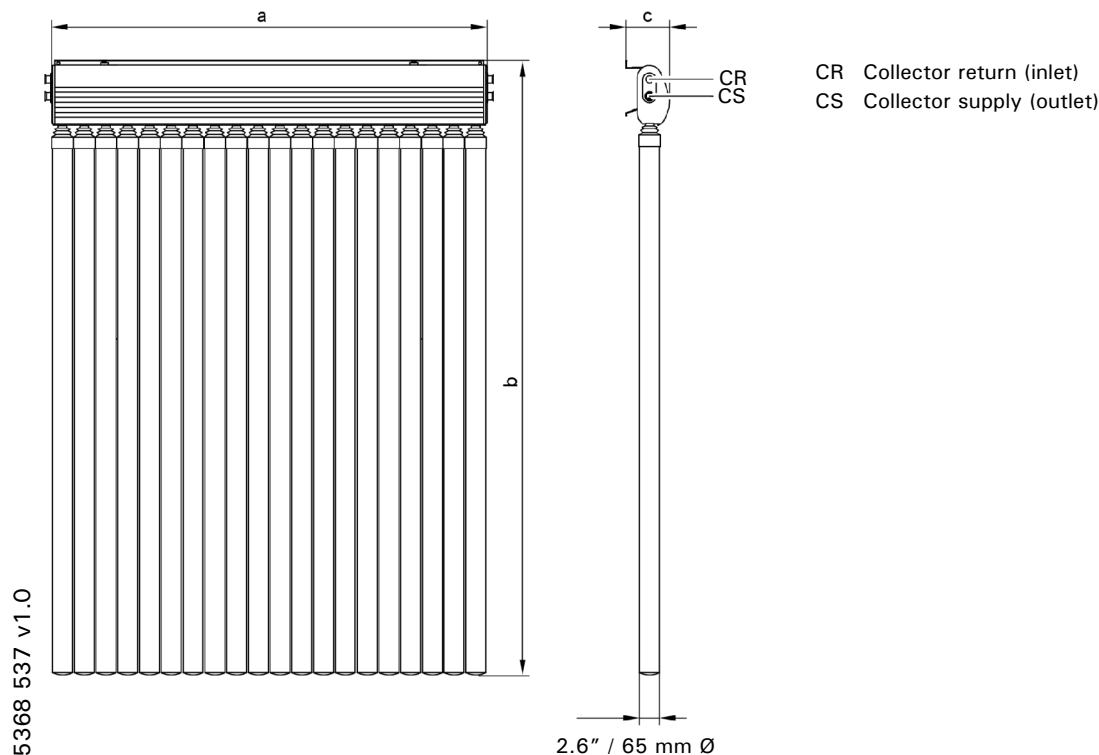
<sup>\*1</sup> Used when sizing the system.

<sup>\*2</sup> Based on the absorber surface area.

<sup>\*3</sup> In a cold, sealed unvented system, the collectors must be pressurized to at least 22 psig / 1.5 bar.

<sup>\*4</sup> 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 drawn off by the heat transfer medium.

All dimensions, efficiency and heat loss coefficients listed are from ISFH performance test reports.



# Standard Equipment

## Standard Equipment

The following are packaged in separate cartons:

- Insulated distribution header with installation rails and Technical Literature
- Vacuum tubes (10 per box)

Accessories (individually packaged, depending on order):

- Mounting accessories
- Connecting pipes with insulation
- General connection set
- Solar-Divicon (pumping station for collector circuit)
- Differential solar control
- Air separator
- Fast air vent valve, comes with shut off
- Solar hand pump
- Solar expansion tank
- Heat transfer medium
- Antifreeze tester
- Set of spare parts (assortment of small parts which may be misplaced during installation of collectors)

### Heat transfer medium

Tyfocon non-toxic liquid for solar heating systems with active anti-corrosion and anti-aging protection.

*Frost protection:* to -31°F / -35°C

*Specific gravity*

*at 68°F / 20°C:* 1.032 to 1.035 g/cm<sup>3</sup> to ASTM D 1122

*Viscosity*

*at 68°F / 20°C:* 6.5 to 8.0 mm<sup>2</sup>/s to DIN 51562

*pH value:*

7.5 to 8.5 to ASTM D 1287

*Color:*

transparent, blue-green

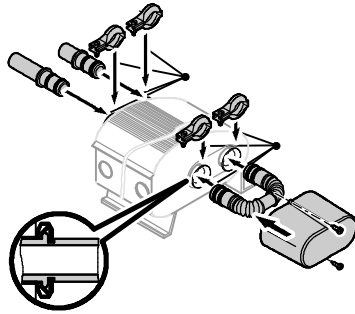
*Container:*

5.3 USG / 20 ltr in a disposable container

## Accessories

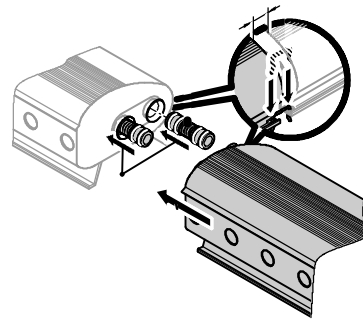
### General connection set

Required to connect solar collector to system piping. One set required per collector array.



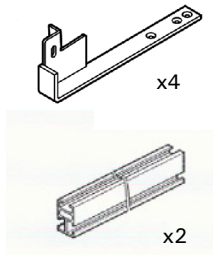
### Pipe connection set

Required to connect multiple solar collectors.



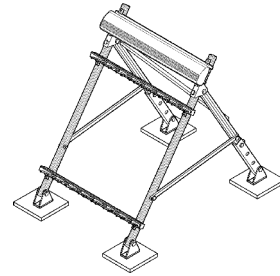
### Flush mount hardware kit

Required for direct-mounting of the collector to a sloped roof or wall. Available in vertical or horizontal tube mounting versions.



### Flat roof hardware

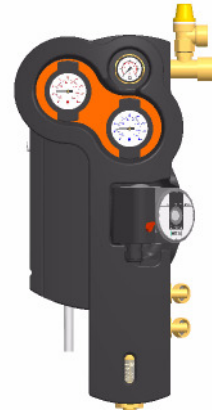
Available in angled or flat mounting versions.



### Solar-Divicon

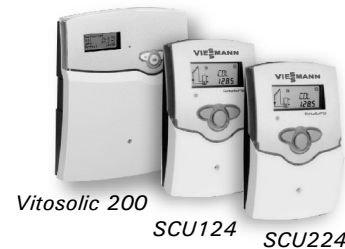
Preassembled pumping station for solar collector circuit.

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. Available in large and small capacity versions.



### Solar controllers

Three models of electronic differential temperature controls for solar heating are available.



Viessmann Manufacturing Company (U.S.) Inc.  
45 Access Road  
Warwick, Rhode Island • 02886 • USA  
1-800-288-0667 • Fax (401) 732-0590  
www.viessmann-us.com • info@viessmann-us.com

Viessmann Manufacturing Company Inc.  
750 McMurray Road  
Waterloo, Ontario • N2V 2G5 • Canada  
1-800-387-7373 • Fax (519) 885-0887  
www.viessmann.ca • info@viessmann.ca

Printed on environmentally friendly (recycled and recyclable) paper.



Technical information subject to change without notice.

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