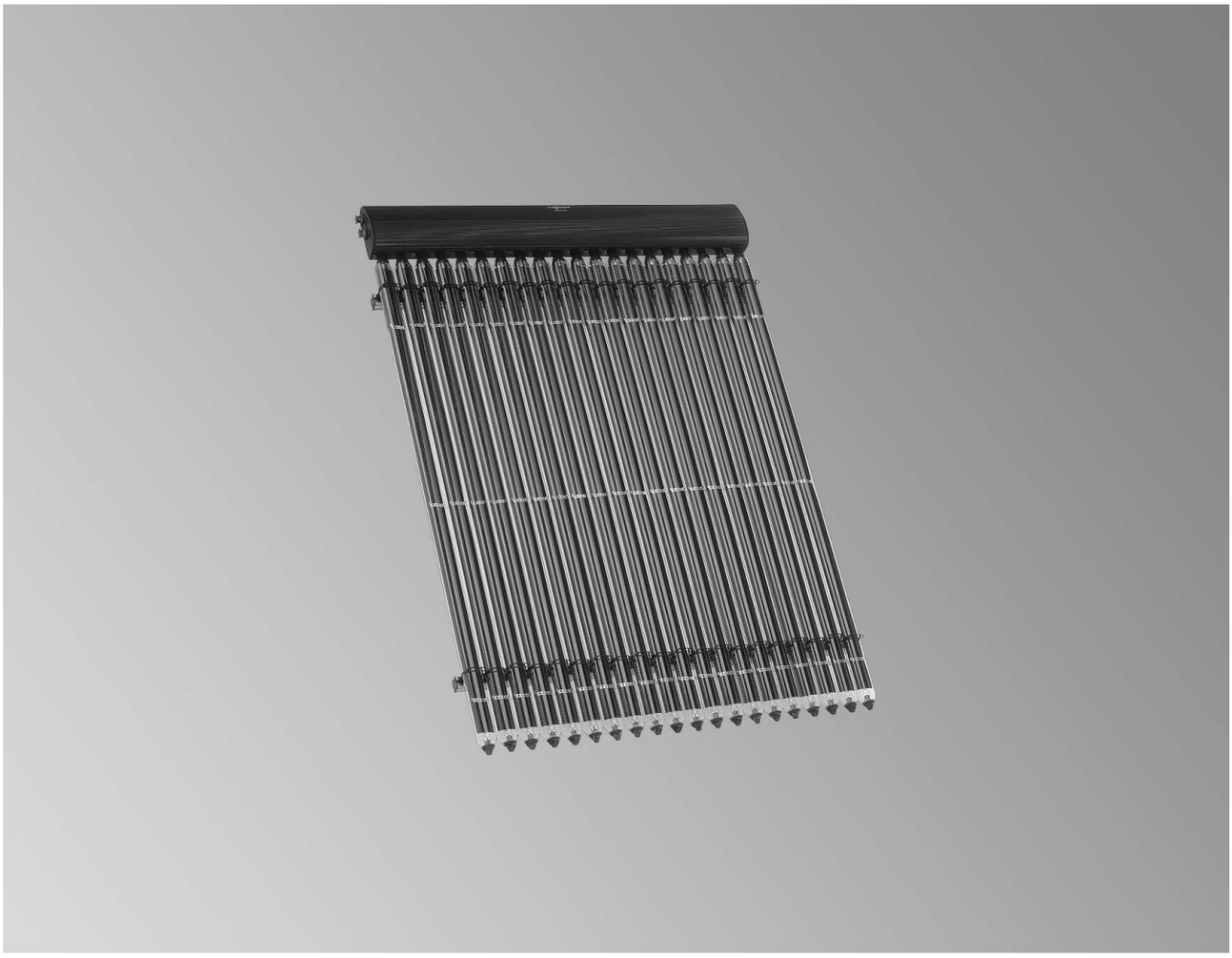
VIESMANN

VITOSOL 300-T

Vacuum tube collector based on the heat pipe principle
for the exploitation of solar energy

Datasheet

Part numbers and prices: see pricelist



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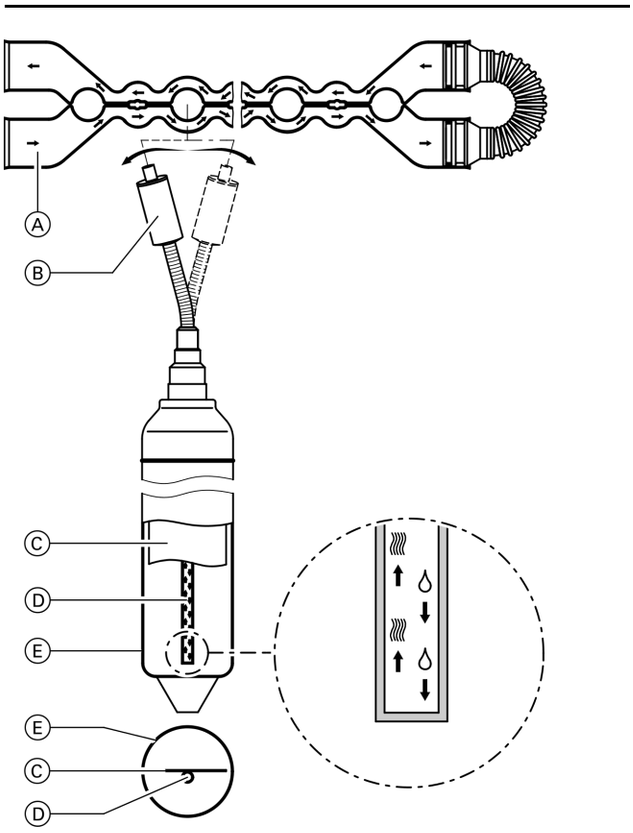
VITOSOL 300-T Type SP3

Vacuum tube collector
For heating DHW, for central heating backup and swimming pool water heating via heat exchangers as well as for the generation of process heat.
For installation on pitched roofs and freestanding on flat roofs.

Product description

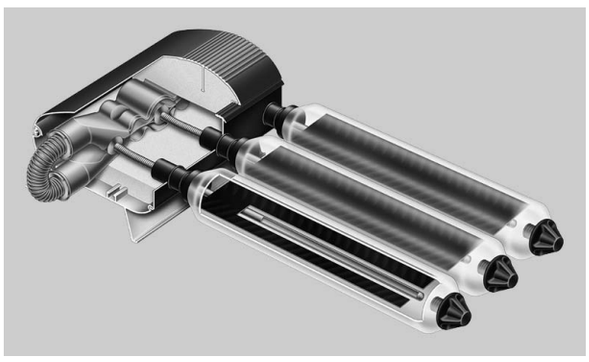


Ⓐ Dual-pipe heat exchanger
Ⓑ Condenser
Ⓒ Absorber
Ⓓ Heat pipe
Ⓔ Evacuated glass tube

The Vitosol 300-T vacuum tube collector is available in the following versions:
- 2 m^2 with 20 tubes
- 3 m^2 with 30 tubes.

The Vitosol 300-T can be installed on pitched roofs or freestanding on flat roofs.
A Sol-titanium coated copper absorber is built into each vacuum tube. It ensures high absorption of solar radiation and low emission of thermal radiation.
A heat pipe filled with an evaporator liquid is arranged on the absorber. The heat pipe is connected to the condenser via a flexible connection. The condenser is installed inside a "Duotec" dual-pipe heat exchanger.
This involves a so-called "dry connection", i.e. the tubes can be rotated or replaced even when the installation is filled and under pressure.
The heat is transferred from the absorber to the heat pipe. This causes the liquid to evaporate. The vapour rises into the condenser. The heat is transferred to the passing heat transfer medium by the dual-pipe heat exchanger containing the condenser that causes the vapour to condense. The condensate flows back into the heat pipe and the process is repeated.
The angle of inclination must be at least 25° to guarantee a circulation of the evaporator liquid in the heat exchanger.
Deviations from the south can be partially compensated by rotating the vacuum tubes.
Up to 6 m^2 collector surface area can be joined to form a single collector array. For this purpose, the standard delivery includes flexible connecting pipes with O-rings.
A kit with locking ring fittings enables the collector array to be readily connected to the pipes of the solar circuit. The collector temperature sensor is installed in a sensor mounting on the flow pipe in the header casing of the collector.

Benefits



- Highly efficient vacuum tube collector based on the heat pipe principle for high operational reliability.
- The absorber surfaces with Sol-titanium coating that are integrated into the vacuum tubes, are not susceptible to contamination.
- Efficient heat transfer through fully encapsulated condensers and dual-pipe Duotec heat exchanger.
- Vacuum tubes can be rotated for optimum orientation towards the sun, thereby maximising the energy yield.
- Highly effective thermal insulation of the header casing for minimum heat losses.
- The integral temperature limiter regulates the heat flow at very high collector temperatures.
- Easy installation through the Viessmann assembly and connection systems.
- Attractive collector design, header casing in RAL 8019 (brown).

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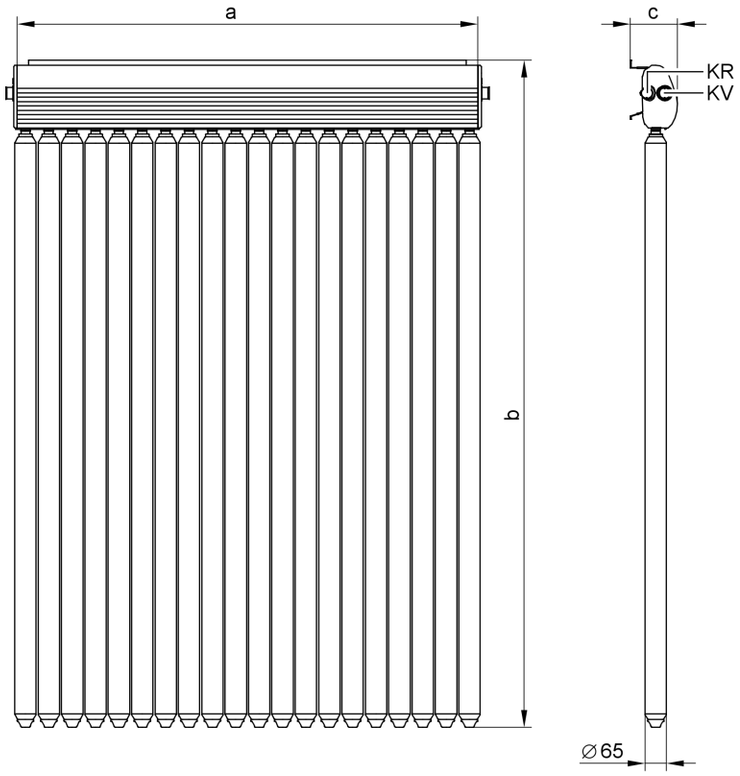
Specification

Specification

Type		SP3, 2 m²	SP3, 3 m²
Number of tubes		20	30
Gross area*1	m^2	2.88	4.32
Absorber area	m^2	2.05	3.07
Aperture area*2	m^2	2.11	3.17
Dimensions			
Width a	mm	1418	2127
Height b	mm	2031	2031
Depth c	mm	143	143
Optical efficiency*3	%	81.5	78.4
Heat loss correction value k_1*3	$W/(m^2 \cdot K)$	1.43	1.36
Heat loss correction value k_2*3	$W/(m^2 \cdot K^2)$	0.0076	0.0045
Heat capacity	$kJ/(m^2 \cdot K)$	5.4	5.4
Weight	kg	51	76
Liquid content (heat transfer medium)	litres	1.2	1.8
Permissible operating pressure*4	bar	6	6
Max. idle temperature*5	°C	150	150
Connection	Ø mm	22	22
Requirements of base structure and fixings		to counteract prevailing wind forces; roof structure able to be sufficiently loaded	



KR Collector return
KV Collector flow

**1 Decisive when applying for subsidies.*

**2 Decisive when sizing the system.*

**3 Relative to the absorber surface area.*

**4 In a cold, sealed system, the collectors must be pressurised to at least 1 bar.*

**5 The idle temperature is the temperature that occurs at the hottest part of the collector at 1000 W global radiation strength if no heat is drawn off.*

Delivered condition

Packed in separate cartons:
- Vacuum tubes, 10 pce. per packing unit
- Header casing with mounting rails

Viessmann offers complete solar heating systems with Vitosol 300-T (packs) for DHW heating and/or central heating backup (see pack pricelist).

Accessories

Packed separately, subject to order:
- The fixing sets contain the components required for the relevant method of installation:
  - Timber
  - Roof hooks
  - Mounting plates
  - Mounting rails
  - Clamping brackets, screws, nuts
- Connection pipes with thermal insulation
- Connection set with product documentation
- Spare parts set (assortment of small parts that may be lost during the collector installation)
- Solar-Divicon (pump station for the collector circuit)
- Solar pump line (for a second pump circuit)
- Connection line, 24 m long
- Installation set for connection line to the DHW cylinder
- Air separator
- Quick-acting air vent valve with tee and locking ring fitting
- Locking ring fitting (with or without air vent valve)
- Connection lines, 1.0 m long, 2 pce.
- Solar flow and return line
- Fill valve
- Filling station
- Manual solar fill pump
- Solar expansion vessel with shut-off valve
- Pre-cooling vessel
- Frost protection gauge
- Heat transfer medium
  Non-toxic liquid for solar heating systems with active anti-corrosion and anti-ageing protection
- Solar service case

Specification - heat transfer medium

Frost protection:	to -28 °C
Density at 20 °C:	1.032 to 1.035 g/cm^3 to ASTM D 1122
Viscosity at 20 °C:	4.5 up to 5.5 mm^2/s to DIN 51562
pH value:	9.0 to 10.5 to ASTM D 1287
Colour:	transparent, violet fluorescent
Container:	25 or 200 litres in a non-returnable container

Tested quality

This collector meets the requirements of the "Blue Angel" certificate of environmental excellence to RAL UZ 73.
Tested in accordance with Solar-KEYMARK.
CE designation according to current EC Directives.

Printed on environmentally friendly, chlorine-free bleached paper

Subject to technical modifications.

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