

Service instructions
for contractors

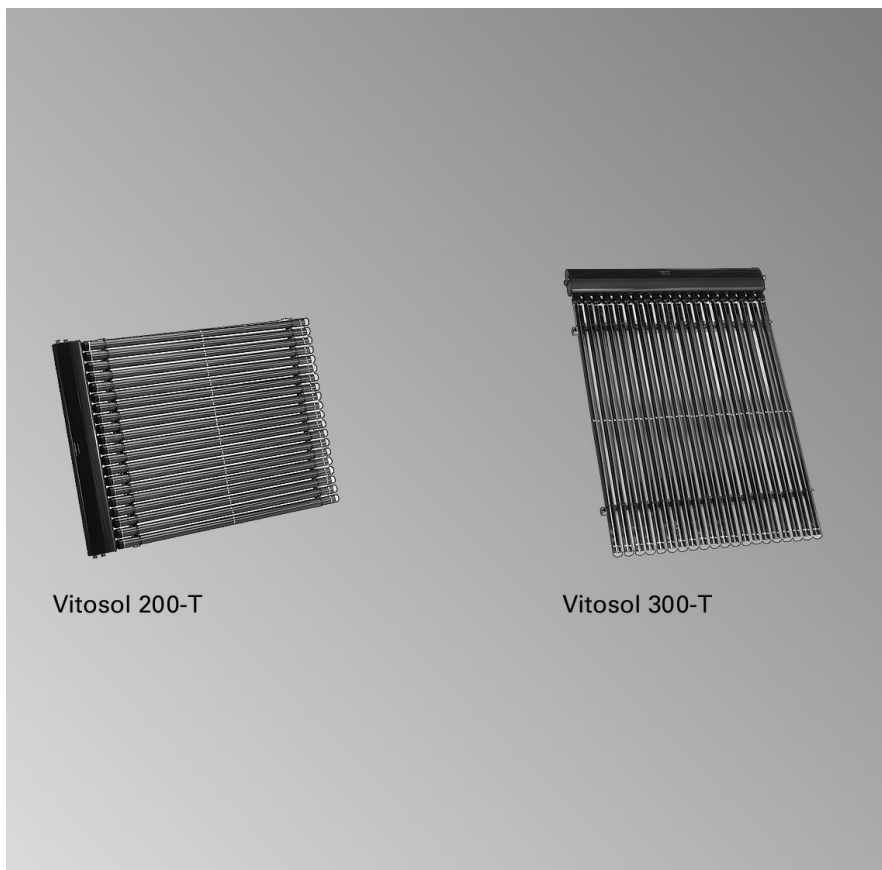


Vitosol 200-T, 300-T

For applicability, see the last page



VITOSOL 200-T, 300-T



Vitosol 200-T

Vitosol 300-T

Safety instructions



Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained



Please note

This symbol warns against the risk of material losses and environmental pollution.

Note

Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.

- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations.
- all current safety regulations as defined by DIN, EN, DVGW, VDE and all locally applicable standards

Working on the system

- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.



Please note

Electronic modules can be damaged by electrostatic discharges.

Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work



Please note

Repairing components that fulfil a safety function can compromise the safe operation of your heating system.

Replace faulty components only with original Viessmann spare parts.

Safety instructions (cont.)

Ancillary components, spare and wearing parts



Please note

Spare and wearing parts that have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications or conversions can compromise safety and may invalidate our warranty.

For replacements, use only original spare parts supplied or approved by Viessmann.

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Steps - commissioning, inspection and maintenance

For further information regarding the individual steps, see the page indicated

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Further details regarding the individual steps

Cleaning, testing for leaks and filling the solar thermal system

- **Never** drain the system with a vacuum pump.
 - Check the system for leaks:
The collector in its cold state must be subject to a positive pressure of at least 1.0 bar. At a static head of 10 m, this would result in a system pressure of 2.0 bar.
1. Cover collectors where necessary.
Open any installed shut-off gates or valves by hand. Open the non-return valves when using a Solar-Divicon: Flow/return: Turn the thermometer clockwise through 45 °.
 2. Close the shut-off valve of the fill valve and open the drain valve.
 3. Flush the system via the return connections. Fill and flush the system with heat transfer medium via the fill valve.
Flush using a high-speed pump over an open container and continue until no air remains in the collector system. Correct commissioning can only be guaranteed with a system that is completely free of air. Now close the drain valves on the fill valve, open the shut-off valve and check the system for leaks. Observe the permissible operating pressure.
Pressure must not drop for at least half an hour.
- Notes**
- A heat transfer medium containing glycol can be damaged if it is exposed to temperatures above 170 °C for a prolonged period (stagnation). Temperatures in excess of 200 °C result in a slow thermal breakdown of the 1.2-propylene glycol that can be recognised by the darkening of the heat transfer medium.
Furthermore, it can result in the solar circuit suffering from sludge and hard deposits, particularly in conjunction with other contaminants (cinder, swarf) and air.
 - Ensure that the system is properly cleaned, filled and ventilated after installation.
 - After filling the system with the heat transfer medium, ensure that the system is properly vented and that heat is transferred inside the system, i.e. that longer periods of stagnation are prevented.
 - Blow-off and drain lines must terminate in an open container, that is capable of collecting the total capacity of the collector.

Further details regarding the individual steps (cont.)

Checking the expansion vessel and the system pressure

1. Drain the system. For this, close the cap valve on the expansion vessel (if installed) and reduce the pressure.
2. If the pre-charge pressure of the expansion vessel is lower than the set value, top up with nitrogen until the pre-charge pressure equals the set value.
Static head (top edge of collector to expansion vessel): m
Set pre-charge pressure of the expansion vessel:
 $0.7 \text{ bar} + 0.1 \times \text{static head in m}$
 $0.7 \text{ bar} + 0.1 \times \text{..... m} = \text{..... bar}$
3. Top-up heat transfer medium until the system pressure is 0.3 to 0.5 bar higher than the set pre-charge pressure of the expansion vessel (create a safety water seal in the expansion vessel).
The **safety water seal** should be $0.005 \times$ liquid content of the complete system, but no less than **3 litres**.
Liquid content of the system = content of pipes + content of collectors + content of the indirect coil of the DHW cylinder and safety water seal for the expansion vessel.

Checking the electrical connections

Check the tightness of the electrical plug-in connectors and cable grommets; check cables for damage.

Starting the heating system

Observe operating instructions of installed components.

Further details regarding the individual steps (cont.)

Ventilating the solar thermal system

1. Open the air vent valve.
Vent the circulation pumps. For this, adjust the circulation pumps to their maximum speed, switching the pump ON and OFF several times (a ventilated pump runs almost silently) through a relay test (manual operation).
Repeat the ventilation process **until the float in the flow meter** of the Solar-Divicon holds a constant position when the pump is running (highest pump rate).
2. Set required flow rate above output rate of the circulation pump (see following tables for approximate set values).
Read the value on the underside of the float.
3. Repeat the ventilation process after the system has been operational for several days.
4. Always shut off the air vent valve after ventilation.

Note

If the system pressure drops, top-up the heat transfer medium in the cold state and ventilate again.

Note

Air can be recognised in the flow rate indicator (float moves).

Adjustable flow rates

The details in the following tables do not take the pipe pressure drop into account.

Further details regarding the individual steps (cont.)
**Low-flow operation, 25 l/(h·m²),
Vitosol 300-T**

Collector area in m ²	Throughput in l/min
2	0.8
3	1.2
4	1.6
5	2.0
6	2.5
7	3.0
8	3.3
9	3.8
10	4.0
11	4.5
12	5.0
13	5.5
14	5.8
15	6.2
16	6.6
17	7.0
18	7.5
19	8.0
20	8.3
24	10.0
30	12.5
36	15.0
40	16.7

**High-flow operation, 60 l/(h·m²),
Vitosol 200-T, 300-T**

Collector area in m ²	Throughput in l/min
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
24	24
30	30

**High-flow operation, 40 l/(h·m²),
Vitosol 200-T**

Collector area in m ²	Throughput in l/min
11	7.3
12	8.0
13	8.6
14	9.3
15	10.0
16	10.6
17	11.3
18	12.0
19	12.6
20	13.3
24	16.0
30	20.0

Further details regarding the individual steps (cont.)

Checking the switching function of the solar control unit



Solar control unit installation and service instructions

Shutting down the system



Please note

To prevent equipment damage, cover the collectors before any work on the components of the solar thermal system begins. Mixing the heat transfer medium with water reduces the frost and corrosion protection. Only flush the system with the specified heat transfer medium. **Never** mix "Tyfocor LS" with other heat transfer media.

Electrically isolate the system (e.g. at a separate MCB/fuse or the main isolator) and safeguard against unauthorised reconnection.

Checking the frost protection temperature and the pH value of the heat transfer medium

Check the frost protection temperature of the "Tyfocor LS" heat transfer medium with a Viessmann antifreeze tester or the manual refractometer in the solar service case (accessory).

Check the pH value using the pH strip in the solar service case (accessory).

Checking the thermal insulation of the pipes

Check the thermal insulation of the pipes for positioning and damage and adjust if required. Replace any damaged parts.

Note

The thermal insulation of external pipes must be resistant to temperature and UV rays. The insulation must be protected against attack from small animals and birds (e.g. metal sheath).

Parts list Vitosol 200-T, type SD2A

When ordering spare parts:

Quote the part and serial no. (see type plate) and the item no. of the required part (as per this parts list).

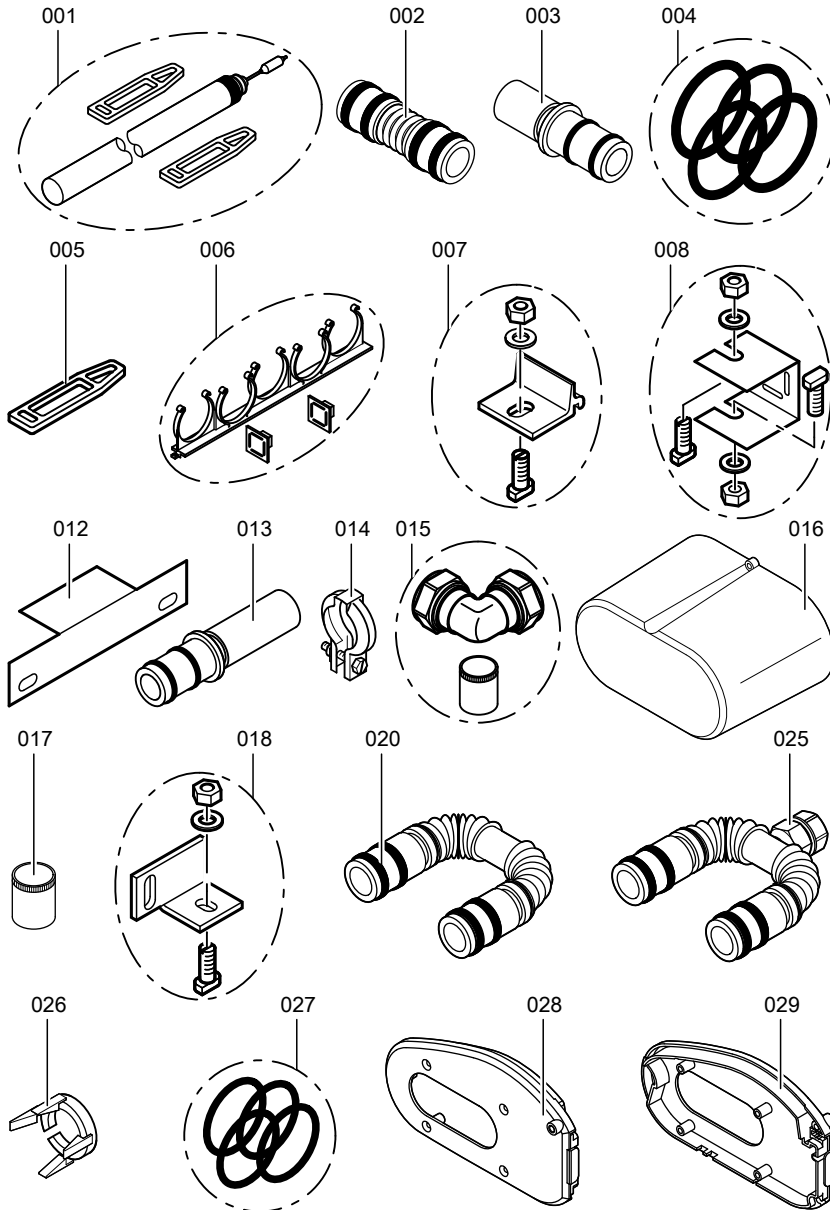
Obtain standard parts from your local supplier.

Parts

- | | |
|--------------------------------|--|
| 001 Vacuum tube, complete | 014 Profile clip |
| 002 Connecting pipe | 015 Elbow fitting with support ferrule |
| 003 Connecting pipe (short) | 016 Thermal insulation cap, complete |
| 004 O-ring | 017 Support sleeve |
| 005 Retaining rubber | 018 Mounting bracket, complete |
| 006 Tube supports | 020 U-pipe |
| 007 Clamping bracket, complete | 025 U-pipe with air vent valve |
| 008 Locking profile, complete | 026 Tube clip |
| 012 Spacer | 027 O-ring |
| 013 Connecting pipe (long) | 028 Side cover, l.h. |
| | 029 Side cover, r.h. |
| | Parts not shown |
| | 009 Special grease |
| | 021 Installation instructions |
| | 022 Dismantling instructions |
| | 023 Service instructions |
| | 024 Operating instructions |

Parts lists

Parts list Vitosol 200-T, type SD2A (cont.)



Parts list Vitosol 300-T, type SP3A

When ordering spare parts:

Quote the part and serial no. (see type plate) and the item no. of the required part (as per this parts list).

Obtain standard parts from your local supplier.

Parts

- 001 Heat pipe vacuum tube, complete
- 002 Tube supports
- 003 Retaining clip
- 004 Retaining rubber
- 005 O-ring
- 006 U-pipe
- 007 Clamping bracket, complete

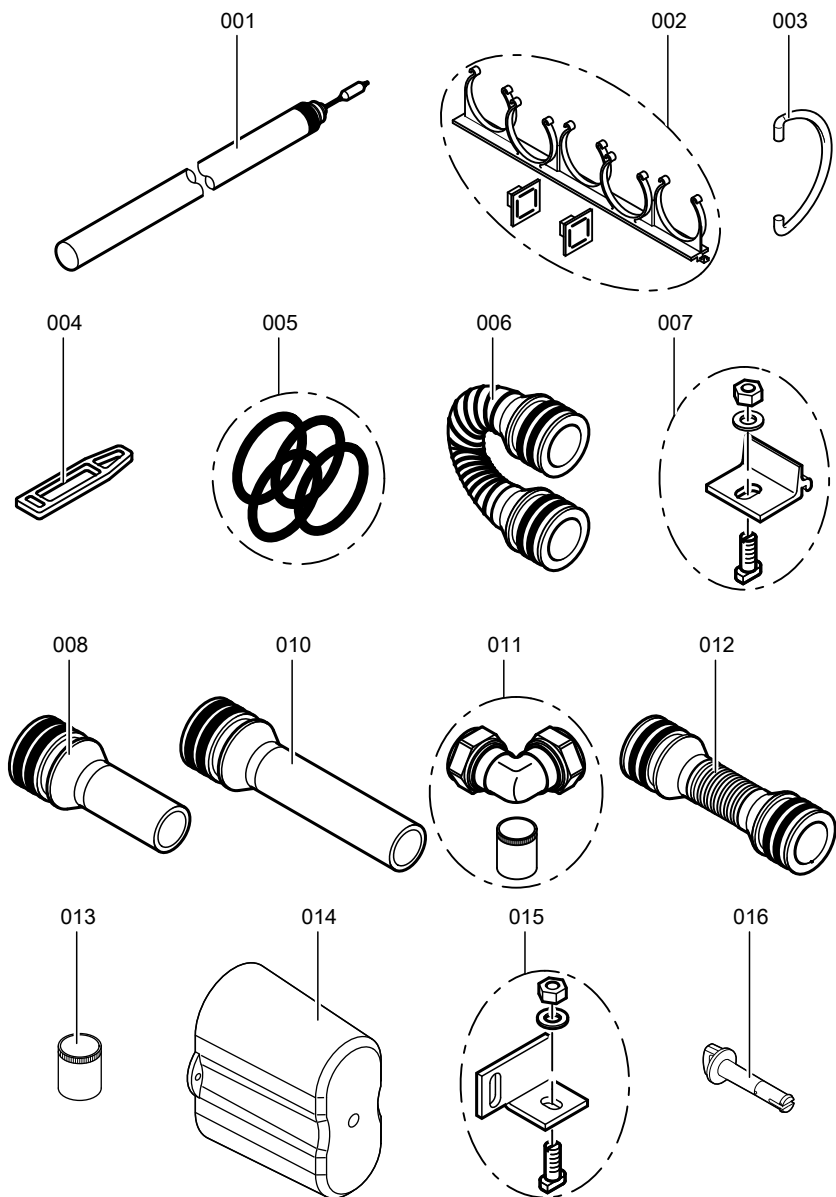
- 008 Connecting pipe (short)
- 010 Connecting pipe (long)
- 011 Elbow fitting with support ferrule
- 012 Connecting pipe
- 013 Support sleeve
- 014 Thermal insulation cap, complete
- 015 Mounting bracket
- 016 Fixing pin

Parts not shown

- 009 Special grease
- 017 Installation instructions
- 018 Dismantling instructions
- 019 Service instructions
- 020 Operating instructions

Parts lists

Parts list Vitosol 300-T, type SP3A (cont.)



Vitosol 200-T, type SD2A

		2 m ²	3 m ²
Absorber area	m ²	2.01	3.02
Aperture area	m ²	2.14	3.23
Optical efficiency η_0	%	78.9	79.1
Heat loss factor k_1	W/(m ² ·K)	1.36	1.10
Heat loss factor k_2	W/(m ² ·K ²)	0.0075	0.0076
Thermal capacity c	kJ/(m ² ·K)	10.0	10.1
Max. idle temperature	°C	295	295
Permiss. operating pressure	bar	6	6
Content, heat transfer medium	litres	3.8	5.8

Vitosol 300-T, type SP3A

		2 m ²	3 m ²
Absorber area	m ²	2.00	3.02
Aperture area	m ²	2.15	3.23
Optical efficiency η_0	%	80.9	80.4
Heat loss factor k_1	W/(m ² ·K)	1.37	1.33
Heat loss factor k_2	W/(m ² ·K ²)	0.0068	0.0067
Thermal capacity c	kJ/(m ² ·K)	8.5	8.4
Max. idle temperature	°C	273	273
Permiss. operating pressure	bar	6	6
Content, heat transfer medium	litres	1.2	1.8

Solar-Divicon (accessory)

Safety valve	6 bar, 120 °C
Max. operating temperature	120 °C
Permiss. operating pressure	6 bar

Specification

Heat transfer medium (accessory)

The heat transfer medium provided is a liquid based on 1.2-propylene glycol with frost protection down to -28°C .

Monitor the operating condition of the medium as part of the annual service of the solar thermal system by the heating contractor.

The solar service case (accessory) enables, amongst other things, the checking of the pH value and the frost protection temperature.

In some cases the manufacturer of the heat transfer medium may carry out a laboratory test of the medium, subject to arrangement.

TYFOROP CHEMIE GmbH

Anton-Rée-Weg 7

D - 20537 Hamburg

e-mail: info@tyfo.de

Internet: www.tyfo.de

Declaration of conformity

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, declare as sole responsible body, that the products

Vitosol 200-T and 300-T

conform to the following standards:

DIN 1055

EN 12975 to Solar-KEYMARK

In accordance with the following directives, these products are designated C€:

2006/95/EC

89/336/EEC

97/23/EC

Details according to the Pressure Equipment Directive (97/23/EC):

- Heated pressure equipment
 - Class I according to appendix II, diagram 5
 - Module A according to appendix III
 - Identification of individual devices with a content of less than 2 litres as assembly according to article 3 (2), subject to the installation of at least one pair
- The pressure device was tested without fitted equipment (safety assembly).
The pressure vessel must be equipped in accordance with current national requirements before installation and commissioning.

The **product characteristics determined as system values for the Vitosol product as part of EC type testing according to the Efficiency Directive** (see specification table) can be used for the energy assessment of heating and ventilation equipment to DIN V 4701-10.

Allendorf, 1. December 2008

Viessmann Werke GmbH&Co KG



pp. Manfred Sommer





Applicability

Applies to the following collectors:

Vitosol 200-T, type SD2A, 2 m²

Vitosol 200-T, type SD2A, 3 m²

Vitosol 300-T, type SP3A, 2 m²

Vitosol 300-T, type SP3A, 3 m²

Part no. SK00 857

Part no. SK00 858

Part no. SK01 430

Part no. SK01 431

Viessmann Werke GmbH&Co KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

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