

Service instructions
for contractors

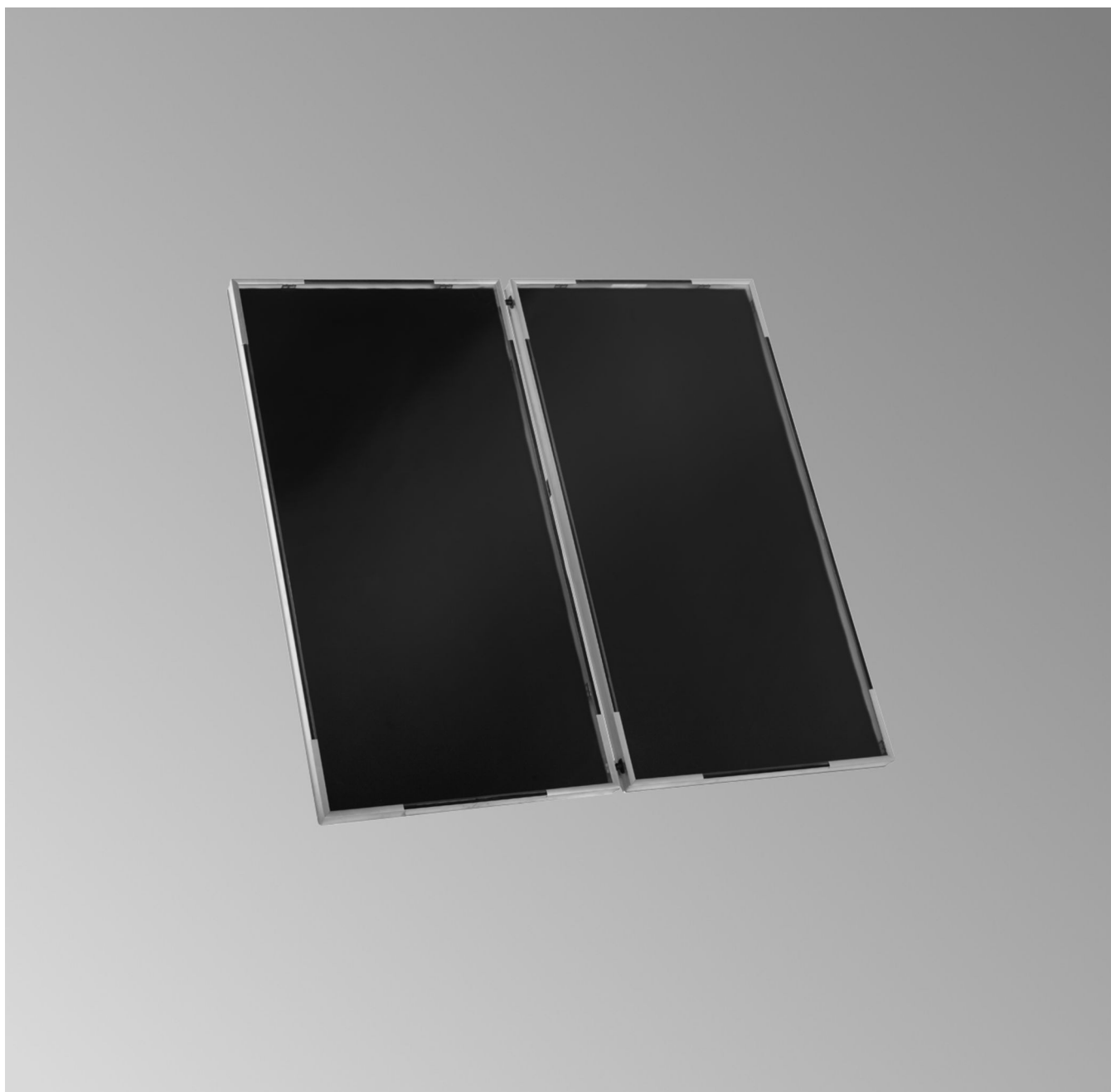
VIESMANN

Vitosol-F/-FM
Type SVK, SVKA, SVKF, SVKG

For applicability, see the last page



VITOSOL-F/-FM



Safety instructions

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 intended for authorised contractors.

- 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 to be observed

- National installation regulations
- Statutory regulations for the prevention of accidents
- Statutory regulations for the protection of the environment
- Codes of Practice of the relevant trade associations
- All relevant safety regulations as defined by DIN, EN, DVGW, VDE and locally applicable standards
 - Ⓐ ÖNORM, EN and ÖVE
 - ⒸH SEV, SUVA, SVTI, SWKI and SVGW

Working on the system

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



Please note

Electronic assemblies can be damaged by electrostatic discharge. Prior to commencing work, 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 system. Replace faulty components with genuine Viessmann spare parts.

Auxiliary components, spare and wearing parts



Please note










Spare and wearing parts that have not been tested together with the system can compromise its function. Installing non-authorised components and making 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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Symbols

| Symbol | Meaning |
|---|---|
|  | Reference to other document containing further information |
|  | Step in a diagram: The numbers correspond to the order in which the steps are carried out. |
|  | Warning of material losses and environmental pollution |
|  | Live electrical area |
|  | Pay particular attention. |
|  | <ul style="list-style-type: none"> Component must audibly click into place. or Acoustic signal |
|  | <ul style="list-style-type: none"> Fit new component. or In conjunction with a tool: Clean the surface. |
|  | Dispose of component correctly. |
|  | Dispose of component at a suitable collection point. Do not dispose of component in domestic waste. |

The steps in connection with commissioning, inspection and maintenance are found in the "Commissioning, inspection and maintenance" section and identified as follows:

| Symbol | Meaning |
|---|-------------------------------------|
|  | Steps required during commissioning |
|  | Not required during commissioning |
|  | Steps required during inspection |
|  | Not required during inspection |
|  | Steps required during maintenance |
|  | Not required during maintenance |

Intended use

The collectors provide central heating backup and solar backup for DHW heating. They are only intended to be installed and operated in sealed systems that comply with EN 12976 and EN 12977, with due attention paid to the associated installation, service and operating instructions. Only operate the collectors with heat transfer medium approved by the manufacturer.

Intended use presupposes that a fixed installation in conjunction with permissible, system-specific components has been carried out.

Commercial or industrial usage for a purpose other than heating a building or DHW shall be deemed inappropriate.

Any usage beyond this must be approved by the manufacturer in each individual case.

Incorrect usage of the collectors or the installation system or incorrect operation is prohibited (e.g. the collectors being opened by the system user, failure to observe the installation instructions). Failure to observe these instructions can change functions, endanger life and limb of the user or third parties and will result in an exclusion of liability. Incorrect usage also applies if components in the system are modified from their intended use (e.g. through direct DHW heating in the collector).

Adhere to statutory regulations, especially concerning the hygiene of potable water.

Product information

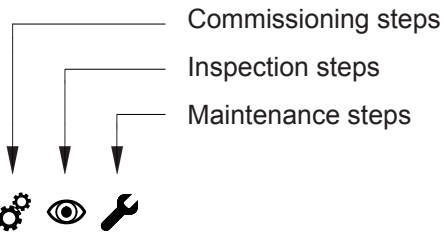
Vitosol-F/-FM are high performance flat-plate collectors.

Universal application, for flat and pitched roofs, or free-standing.

For heating DHW, heating water and swimming pool water via a heat exchanger.



Steps - commissioning, inspection and maintenance



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Checking pressure conditions, adjusting the expansion vessel pre-charge pressure if necessary

This process **cannot** be carried out while the solar thermal system is in operation.

1. Cover the collectors with tarpaulins.
2. Determine the charge pressure:
 - Solar thermal system pressure = system pressure
 - System pressure + 0.1 bar pressure reserve for venting
3. Determine the pre-charge pressure of the expansion vessel:
 - Value for system pressure minus 0.3 bar for hydraulic seal
4. Check the pre-charge pressure and adjust if required.
 - The **solar service case** (accessories) contains a pressure gauge.
5. Enter the values in the table below (for subsequent inspection and maintenance work).

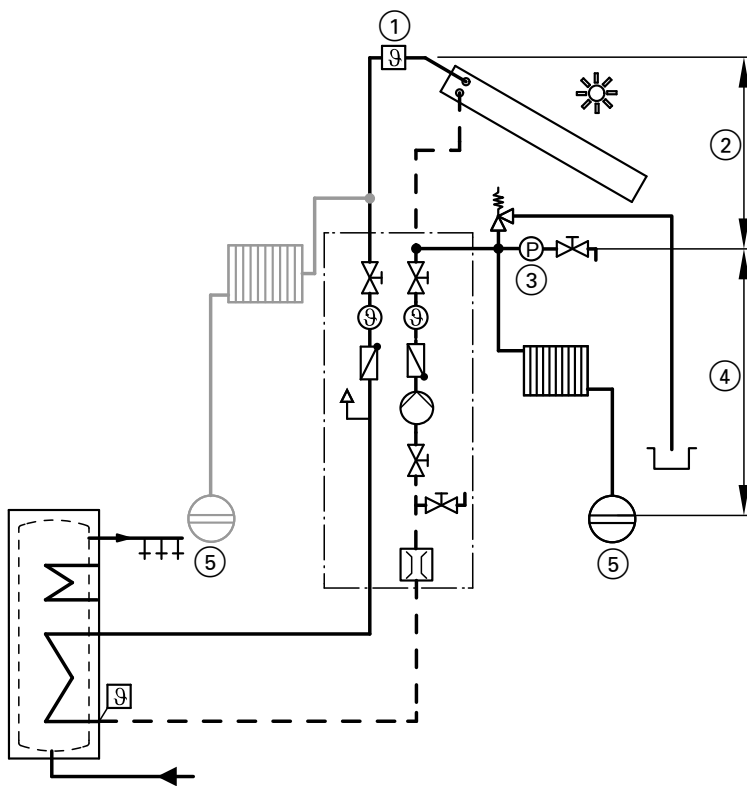


Fig. 1



Checking pressure conditions, adjusting the... (cont.)

The following values result at 10 m static head (example)

| | | Vitosol-FM | Vitosol-F |
|---|---|-------------------------|-------------------------|
| ① | Solar thermal system pressure | 3.0 bar | 1.0 bar |
| ② | Supplement, static head 0.1 bar/m | 1.0 bar | 1.0 bar |
| ③ | System pressure (pressure gauge) | 4.0 bar | 2.0 bar |
| | Pressure reserve for venting | + 0.1 bar | + 0.1 bar |
| | Charge pressure | 4.1 bar | 2.1 bar |
| | System pressure (pressure gauge) after venting | 4.0 bar | 2.0 bar |
| | Deduction for hydraulic seal | - 0.3 bar | - 0.3 bar |
| ④ | Supplement per m of height difference between pressure gauge and expansion vessel | 0.1 bar x 1 m = 0.1 bar | 0.1 bar x 1 m = 0.1 bar |
| ⑤ | Pre-charge pressure, expansion vessel | 3.8 bar | 1.8 bar |
| | Note <i>Record the "pre-charge pressure" on the expansion vessel.</i> | | |



Checking the function of the safety equipment

Check the safety valve:

- Response pressure
- Correct installation, with discharge pipe



Checking the electrical connections

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



Filling, flushing and checking the solar thermal system for leaks

! **Please note**
Filling and commissioning the solar thermal system without first safeguarding the heat transfer results in thermal stress.
Cover the collectors and keep them covered until regular heat transfer has been ensured.

- Accessories for flushing and filling the solar thermal system:
 - **Flushing and filling device** (filling trolley and charging station)
These contain a high speed pump with a high pump rate, a filter and a container for heat transfer medium.
 - **Fill valve set**, consisting of shut-off valve, drain and fill valve.
- Flush the solar thermal system with heat transfer medium. Otherwise there is a risk that residual water from flushing may become mixed with the heat transfer medium. This would alter the properties of the heat transfer medium.
- Flush brazed copper pipes very thoroughly. Any residual scale may compromise the operation of the solar thermal system.

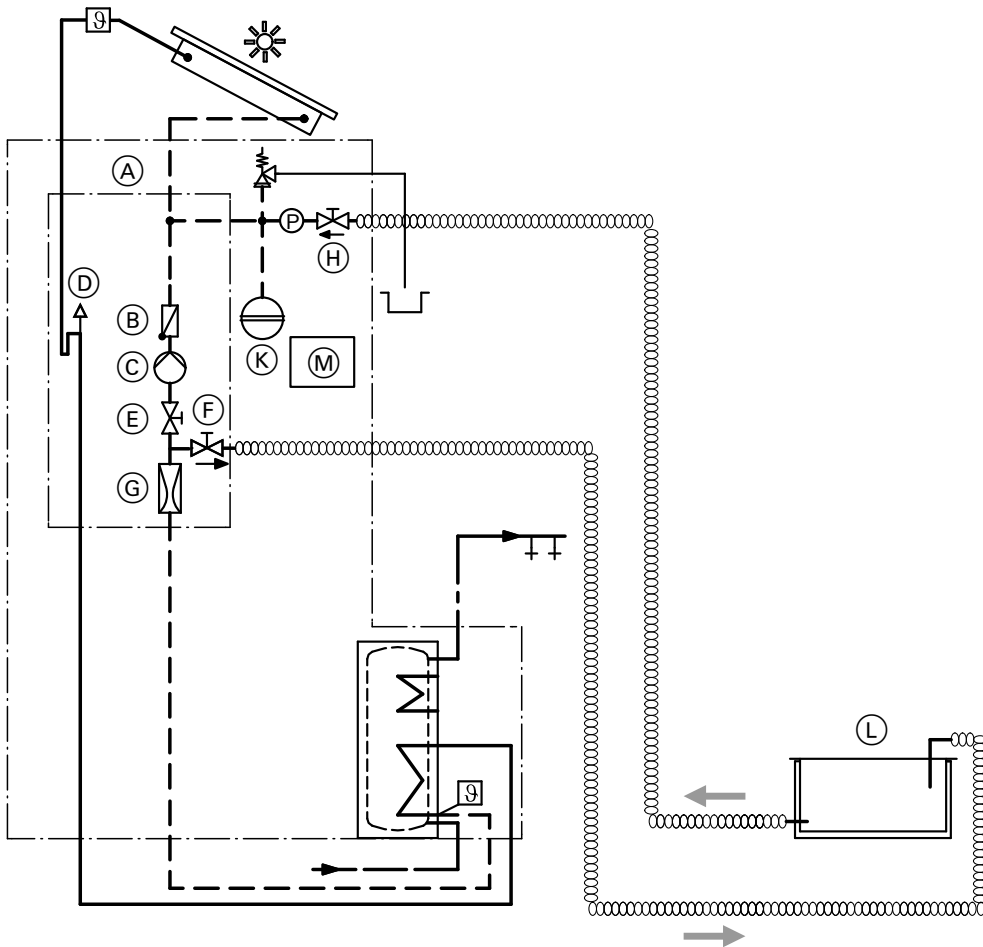


Fig. 2

- | | |
|---|---------------------------------|
| (A) Solar-Divicon | (F) Drain valve |
| (B) Non-return valve | (G) Flow indicator |
| (C) Solar circuit pump | (H) Fill valve |
| (D) Air separator | (K) Expansion vessel |
| (E) Shut-off valve (adjusting screw above flow indicator (H)) | (L) Flushing and filling device |
| | (M) Solar control unit |

1. Close shut-off valve (E): Use a screwdriver to turn the slot on the adjusting screw to position "S".

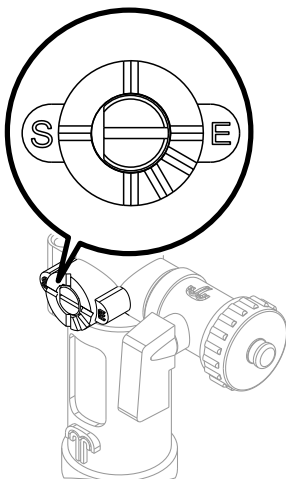


Fig. 3

2. Connect the hoses of flushing and filling device (L) to drain valve (F) and fill valve (H).
3. Fill the container of flushing and filling device (L) with heat transfer medium.
4. Open drain valve (F) and fill valve (H).
5. Start the charge pump of flushing and filling device (L).



Filling, flushing and checking the solar... (cont.)

6. Observe the fluid level in the container and top up with heat transfer medium if necessary to prevent any air entering the solar circuit. Leave the fill pump of flushing and filling device (L) running until no more air bubbles rise to the top of the container (at least 20 to 30 min).

Note

Briefly open shut-off valve (E) towards the end of the flushing process: Use a screwdriver to turn the slot on the adjusting screw above the flow rate indicator to the vertical position. Any air remaining in the return is eliminated.

7. Close drain valve (F). Let the charge pump of flushing and filling device (L) run until the required charge pressure is reached.

Note on eliminating residual air

Even after thorough ventilation, some dissolved air will still remain in the heat transfer medium. This will be released as the temperature rises, and will be discharged via air separator (D).

8. Close fill valve (H) and switch off the charge pump of flushing and filling device (L). The pressure must not drop for at least 30 minutes.

9. Open shut-off valve (E): Use a screwdriver to turn the slot on the adjusting screw above the flow rate indicator to the vertical position.

10. Vent the circulation pump. Select manual mode. Open the air vent valve on air separator (D). Leave the circulation pump running **until the float in the flow rate indicator** holds a constant position while the pump is running.

Note

If there is air in the system, the float will oscillate.



Determining the flow rate and adjusting it if required

Check the flow rate at the top edge of the float.

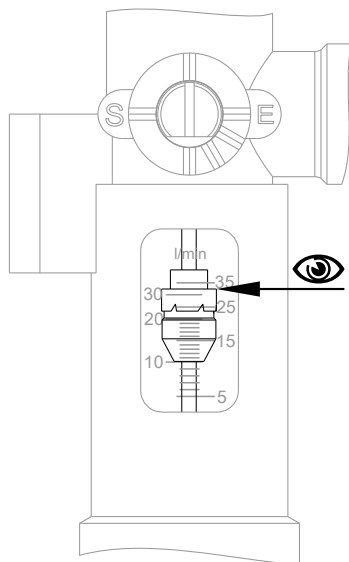


Fig. 4

Adjust the setting via shut-off valve (E) (adjusting screw above the flow rate indicator).
Set flow rate at: 3 to 4 l/min

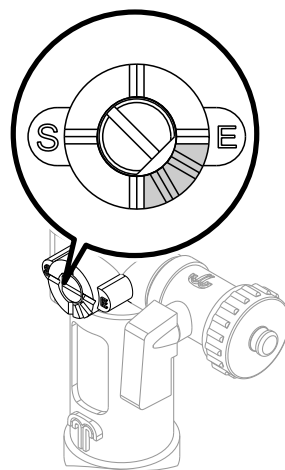


Fig. 5



Commissioning the system

Close the air vent valve on air separator (D).



Observe operating instructions of installed components.



Checking the switching function of the solar control unit



Solar control unit installation and service instructions



Checking and replacing the heat transfer medium if required

- The heat transfer medium provided is a liquid based on 1,2-propylene glycol with a pH value of 9.0 to 10.5 and frost protection down to:
 - -28 °C, Tyfocor LS
 - -12 °C, Mediterráneo
 - -47 °C, Arctic
- Monitor the operating condition of the medium as part of the annual service of the solar thermal system by the heating contractor.
- The pH value and frost protection temperature can be checked with the **solar service case** (accessories).



Solar service case operating instructions

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

- Manufacturer:
TYFOROP CHEMIE GmbH
Anton-Rée-Weg 7
D - 20537 Hamburg
Email: info@tyfo.de
Internet: www.tyfo.de
1. Check the pH value of the heat transfer medium using the pH strip in the solar service case. The colour of the pH strip indicates the approximate value. If the value is below 7.5, replace the heat transfer medium.

Information on replacing the heat transfer medium

The heat transfer medium can be mixed with Tyfocor G-LS.

Never mix with water or third party media.

2. Check the frost protection temperature of the heat transfer medium with an antifreeze tester or the manual refractometer in the solar service case.



Ordering parts

The following details are required when ordering parts:

- Serial no. (see type plate on the collector)
- Position number of the part

Parts lists

Parts list

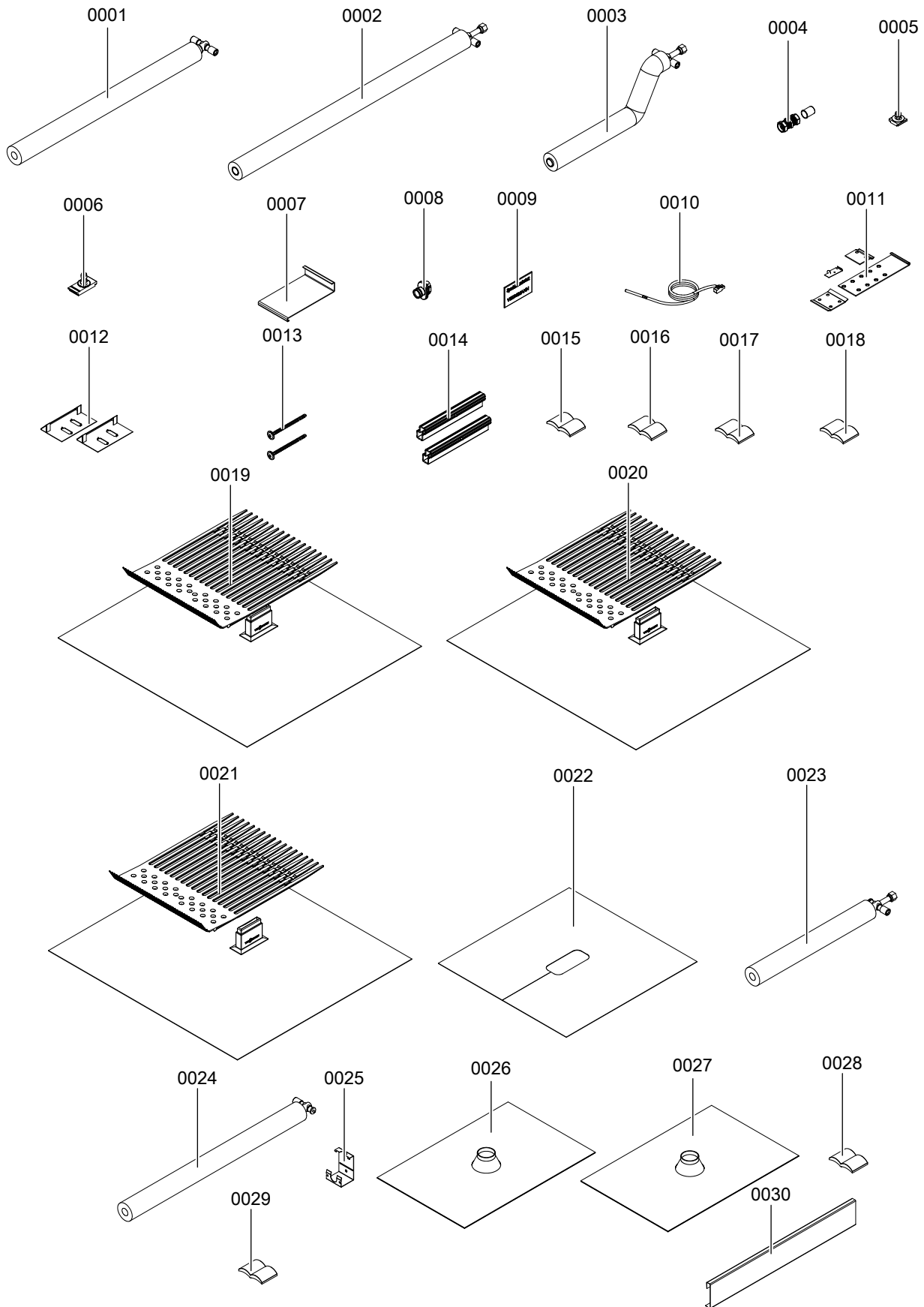


Fig. 6

Parts list (cont.)

| Pos. | Part |
|-------------|---|
| 0001 | Connection (tee) |
| 0002 | Connection (tee) with sensor well |
| 0003 | Connection (tee) with sensor well, S-shape |
| 0004 | Locking ring fitting with support sleeves |
| 0005 | Clamping bracket (short), complete |
| 0006 | Clamping bracket (long), complete |
| 0007 | Mounting plate |
| 0008 | Meander outlet |
| 0009 | Special valve grease |
| 0010 | Collector temperature sensor NTC |
| 0011 | Fixing set for roof integration |
| 0012 | Support brackets for rafter hooks |
| 0013 | Wood screws, 8 x 120 (2 pce) |
| 0014 | Rail connector |
| 0015 | Installation instructions for above roof installation of 2 collectors |
| 0016 | Installation instructions for roof integration of 2 collectors |
| 0017 | Service instructions |
| 0018 | Operating instructions |
| 0019 | Rafter anchor seal, brown |
| 0020 | Rafter anchor seal, black |
| 0021 | Rafter anchor seal, red |
| 0022 | Flashing for EPDM seal |
| 0023 | Connection (tee) with sensor well, 1 collector |
| 0024 | Connection (tee) without sensor well, 1 collector |
| 0025 | Locking bracket |
| 0026 | Rafter flange seal, black |
| 0027 | Rafter flange seal, red |
| 0028 | Installation instructions for above roof installation of 1 collector |
| 0029 | Installation instructions for roof integration of 1 collector |
| 0030 | Lower casing, SVKA |



Scope of inspection

Scope of inspection

The solar thermal system should be inspected once a year to ensure operational reliability.

In addition to this, a visual inspection of all essential components (e.g. collectors and pipework) is recommended every 3 to 5 years.

- Vent the solar thermal system.
- Compare system operating pressure with the set value. If the values are different, check the expansion vessel.
- Check the heat transfer medium.
- Start circulation pumps manually if necessary (listen for noises).
- Compare flow rate with set value.
- Check thermostatic mixing valve (if installed).
- Check plausibility of the solar parameters subject to the current insolation level (e.g. flow and return temperatures at the thermometers; collector and cylinder temperatures at the solar control unit).

Only check the safety valve if there are visible signs of it being open (e.g. deposits, drips).

Specification

| Type | | SVKF, SVKG | SVK, SVKA |
|---|----------------|------------|-----------|
| Absorber area | m ² | 2.01 | 2.01 |
| Aperture area | m ² | 2.02 | 2.02 |
| Collector efficiency η_{col} at a temperature differential of 40 K | | 59.8 | 61.8 |
| Max. stagnation temperature | °C | 150 | 192 |
| Permiss. operating pressure | bar | 6 | 6 |
| Content, heat transfer medium | l | 1.21 | 1.21 |

Declaration of conformity

Vitosol-F/-FM, type SVK, SVKA, SVKF and SVKG

We, Viessmann Werke GmbH & Co. KG, D-35107 Allendorf, declare as sole responsible body that the named product complies with the provisions of the following directives and regulations:

| | |
|-------------|--|
| 2014/35/EU | Low Voltage Directive |
| 2014/30/EU | EMC Directive |
| 97/23/EC | Pressure Equipment Directive |
| 2009/125/EC | Simple pressure vessels |
| 2010/30/EU | Energy Labelling Framework Directive |
| 811/2013 | EU Regulation "Energy Efficiency Label" |
| 813/2013 | EU Regulation "Energy Efficiency Requirements" |

Applied standards:

EN 1991-1-1:2002+AC:2009
EN 1991-1-3:2003
EN 04/01/1991:2005
EN 12975-1:2006+A1:2010 or ISO 9806:2013 to Solar-KEYMARK

In accordance with the following directives, this product is designated with 

Allendorf, 01 July 2016

Viessmann Werke GmbH & Co. KG



Authorised signatory Manfred Sommer

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 an assembly according to article 3 (2), subject to the installation of at least one pair

The pressure vessel was tested without fitted equipment (safety equipment).

The pressure vessel must be equipped in accordance with current national regulations prior to installation and commissioning.

For the energy assessment of heating and ventilation equipment to DIN V 4701-10 as required by the EnEV, when determining system values for the product **Vitosol**, the **product characteristics calculated as part of EC type testing according to the Efficiency Directive** can be used (see specification table).



Applicability

Serial No.:

7637806

7637809

7637812

7637813

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