

# Operating instructions



## Diaphragm safety valve – solar

**MSS**

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**CE** 0035

## 1 About these operating instructions

These operating instructions describe the diaphragm safety valve – solar "MSS" (also referred to as "product" in these operating instructions). These operating instructions are part of the product.

- You may only use the product if you have fully read and understood these operating instructions.
- Verify that these operating instructions are always accessible for any type of work performed on or with the product.
- Pass these operating instructions as well as all other product-related documents on to all owners of the product.
- If you feel that these operating instructions contain errors, inconsistencies, ambiguities or other issues, contact the manufacturer prior to using the product.

These operating instructions are protected by copyright and may only be used as provided for by the corresponding copyright legislation. We reserve the right to modifications.

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe these operating instructions or from failure to comply with directives, regulations and standards and any other statutory requirements applicable at the installation site of the product.

## 2 Information on safety

### 2.1 Safety messages and hazard categories

These operating instructions contain safety messages to alert you to potential hazards and risks. In addition to the instructions provided in these operating instructions, you must comply with all directives, standards and safety regulations applicable at the installation site of the product. Verify that you are familiar with all directives, standards and safety regulations and ensure compliance with them prior to using the product.

Safety messages in these operating instructions are highlighted with warning symbols and warning words. Depending on the severity of a hazard, the safety messages are classified according to different hazard categories.



## WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, can result in serious injury or equipment damage.

## NOTICE

NOTICE indicates a hazardous situation, which, if not avoided, can result in equipment damage.

In addition, the following symbols are used in these operating instructions:



This is the general safety alert symbol. It alerts to injury hazards or equipment damage. Comply with all safety instructions in conjunction with this symbol to help avoid possible death, injury or equipment damage.

## 2.2 Intended use

This product may only be used to discharge the following media from intrinsically safe solar heating systems for the purpose of providing protection against excess pressure:

- Water
- Water/Antifrogen mixtures
- Water/Tyfocor mixtures
- Liquids of fluid groups 1 and 2 (Pressure Equipment Directive, Article 9) which do not attack the materials used. Prior to installation, the resistance of the materials used to the liquid as well as the proper operation of the diaphragm safety valve in the liquid must be verified.

Any use other than the application explicitly permitted in these operating instructions is not permitted and causes hazards.

Verify that the product is suitable for the application planned by you prior to using the product. In doing so, take into account at least the following:

- All directives, standards and safety regulations applicable at the installation site of the product
- All conditions and data specified for the product
- The conditions of the planned application

In addition, perform a risk assessment in view of the planned application, according to an approved risk assessment method, and implement the appropriate safety measures, based on the results of the risk assessment. Take into account the consequences of installing or integrating the product into a system or a plant.

When using the product, perform all work and all other activities in conjunction with the product in compliance with the conditions specified in the operating instructions and on the nameplate, as well as with all directives, standards and safety regulations applicable at the installation site of the product.

## 2.3 Predictable incorrect application

The product must never be used in the following cases and for the following purposes:

- Operation when the discharge opening is shut off
- Media which attack the materials used
- Media that have an adverse effect on the proper operation of the product
- Media which cause pollution or deposits in the product
- Nominal pressures other than those indicated on the product
- Temperatures in excess of or below the permissible temperature of the medium

## 2.4 Qualification of personnel

Only appropriately trained persons who are familiar with and understand the contents of these operating instructions and all other pertinent product documentation are authorized to work on and with this product.

These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may be caused by using the product.

All persons working on and with the product must be fully familiar with all directives, standards and safety regulations that must be observed for performing such work.

## 2.5 Personal protective equipment

Always wear the required personal protective equipment. When performing work on and with the product, take into account that hazards may be present at the installation site which do not directly result from the product itself.

## 2.6 Modifications to the product

Only perform work on and with the product which is explicitly described in these operating instructions. Do not make any modifications to the product which are not described in these operating instructions.

## 3 Transport and storage

The product may be damaged as a result of improper transport or storage.

### NOTICE

#### **INCORRECT HANDLING**

- Verify compliance with the specified ambient conditions during transport or storage of the product.
- Use the original packaging when transporting the product.
- Store the product in a clean and dry environment.
- Verify that the product is protected against shocks and impact during transport and storage.

**Failure to follow these instructions can result in equipment damage.**

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## 4 Product description

### 4.1 Product identification (adhesive label)

The adhesive label is used to identify the product. The adhesive label shows the following data:

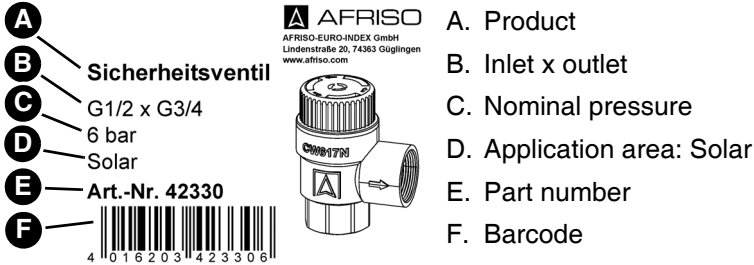


Fig. 1: Example of adhesive label on packaging

### 4.2 Function

When the solar liquid in the system heats up, it expands. The pressure in the system increases. When the maximum permissible pressure in the system is exceeded, the spring and the diaphragm integrated in the installed product are pressed back. Liquid is discharged until the pressure in the system has dropped below the maximum permissible pressure.

The heat capacity of the system to be safeguarded determines the inlet size of the product.

The inlet size, the outlet size, the nominal pressure and the application area are indicated on the cap of the product and on the adhesive label on the packaging.

### 4.3 Approvals, conformities, certifications

The product complies with:

- Pressure Equipment Directive (2014/68/EU)

Products whose valve outlet is greater than the valve inlet also have

- Type approval mark TÜV SV YY-2017.13.SOL  
"YY" represents the year of the approval.

## 4.4 Technical data

Parameter	Value	
	G $\frac{1}{2}$	G $\frac{3}{4}$
<b>General specifications</b>		
Dimensions (W x H x D)	48 x 60 x 35 mm	52 x 60 x 40 mm
Weight	Approx. 150 g	Approx. 180 g
Cap colour	Black	
Nominal pressure	1 ... 6 bar (see printing on cap)	
<b>Material</b>		
Housing	Brass CW617N	
Diaphragm	EPDM	
Cap	PA6	
<b>Ambient conditions</b>		
Temperature of the medium	-20 ... 160 °C	
Ambient temperature operation	-10 ... 60 °C	
Ambient temperature storage	-20 ... 70 °C	
<b>Diaphragm safety valves with connection threads</b>		
Max. heat capacity of the heat generator	50 kW	100 kW



## 5 Mounting

Only mount the product after having completed all pipe assembly work, all welding work and all soldering work.

1. Flush the lines of the system before installing the product.

### 5.1 Preparing mounting

## NOTICE

### LEAKING PRODUCT

- Verify that the pipe of the product has been thoroughly flushed prior to installation. Impurities and deposits such as weld beads, hemp, metal chips or limescale cause leaks of the product.

### **Failure to follow these instructions can result in equipment damage.**

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- ⇒ Verify that the nominal pressure of the product corresponds to the specification value of the system.
- ⇒ Verify that the liquid in the system complies with the intended use.
- ⇒ Verify that liquid can escape via the discharge line during heating up.
- ⇒ Verify that the product has been mounted without a shut-off element.
  - Do not install shut-off valves, filters or similar equipment.
- ⇒ Verify that the product is mounted in such a way that no external forces can act on the components after it has been installed.

## 5.2 Mounting the product

- ⇒ Verify that the arrow at the discharge opening of the product (valve outlet) matches the direction of flow of the liquid.
1. Mount the product in such a way that the liquid can escape via the discharge opening without obstructions.
  2. Mount the product to the pump line.
    - A straight connection line with a maximum length of 1 m may be installed between the product and the heat generator.
    - The cross section of the connection line must correspond to the cross section of the inlet of the product.
  3. Tighten the connections with a maximum tightening torque of 18 Nm when making the connections.
    - Excessive tightening torque can cause cracks in the material which can lead to leaks.

## 5.3 Mounting the discharge line



### WARNING

#### HOT LIQUID

The liquid in systems is under high pressure and can have temperatures of more than 100 °C.

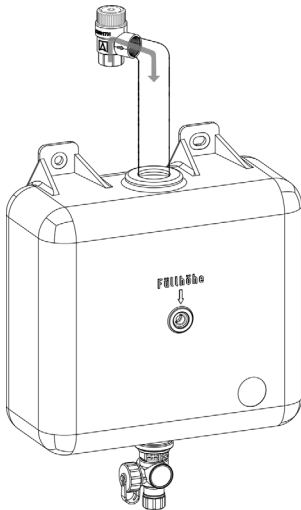
- Verify that the discharge line is installed in such a way that blown off liquid cannot cause injury or damage.

**Failure to follow these instructions can result in death, serious injury or equipment damage.**

- ⇒ Verify that the discharge line is accessible and easy to oversee.
1. The discharge line must have a gradient; its cross section must have at least the same cross section as that of the discharge opening.
    - The length of the discharge line must not exceed 2 m; the maximum number of elbows is 2.
  2. Route the end of the discharge line into a collector tank for solar liquid that can hold the total capacity of the system.
    - The liquid must be collected and returned into the system by a specialised company.
    - Do not drain the liquid into the sewage system.



The discharge opening is designated by an arrow on the valve body.



*Fig. 2: Installation with discharge line and collector tank for solar liquid*

## 5.4 Replacing the product



### WARNING

#### HOT LIQUID

The liquid in systems is under high pressure and can have temperatures of more than 100 °C.

- Verify that the liquid has cooled down before replacing the product.
- Verify that there is no pressure in the system before replacing the product.

**Failure to follow these instructions can result in death, serious injury or equipment damage.**

- 
- ⇒ Verify that the nominal pressure of the product corresponds to the specification value of the system.
  - ⇒ Verify that liquid can escape via the discharge line during heating up.

When the system has cooled down and is unpressurised, you can replace the product.

1. Mount the product as described in chapter "Mounting the product".

## 6 Commissioning

### 6.1 Commissioning the product

1. Attach a label in the vicinity of the discharge line or to the product with the following text:  
**"For safety reasons, water must be able to escape via the discharge line during heating. Do not shut off!"**
2. Check all connections for tightness.
3. Flush all lines of the system prior to commissioning.

### 6.2 Function test

1. Provide a container to collect the liquid of the product.
2. Protect all persons from escaping liquid.
3. Open the product by turning the cap.
  - Liquid escapes.
4. Release the cap.
  - No liquid may escape

## 7 Operation

- ⇒ Verify that liquid can escape via the discharge line during heating up.
1. If the product has triggered, check the system before recommissioning the system.
  2. Perform a function test (see chapter "Function test").

## 8 Maintenance

### 8.1 Maintenance intervals

When	Activity
Every six months	Perform a function test (see chapter "Function test").

## 9 Troubleshooting

Malfunctions may only be repaired by the manufacturer.

## 10 Decommissioning, disposal

Dispose of the product in compliance with all applicable directives, standards and safety regulations.

1. Dismount the product (see chapter "Mounting", reverse sequence of steps).
2. Dispose of the product.

## 11 Returning the device

Get in touch with us before returning your product ([service@afriso.de](mailto:service@afriso.de)).

## 12 Warranty

See our terms and conditions at [www.afriso.com](http://www.afriso.com) or your purchase contract for information on warranty.

## 13 Spare parts and accessories


### NOTICE

#### UNSUITABLE PARTS

- Only use genuine spare parts and accessories provided by the manufacturer.

**Failure to follow these instructions can result in equipment damage.**

#### Product






Product designation	Heat capacity	Opening pressure	Part no.	Figure
diaphragm safety valve - solar "MSS" G½ x G¾	50 kW	6.0 bar	42330	

#### Spare parts and accessories

Product designation	Part no.	Figure
Collector tank for solar liquid	77796	-

## 14 Appendix

## 14.1 EU Declaration of Conformity

							
<b>Technik für Umweltschutz</b>							
<small>Messen. Regeln. Überwachen.</small>							
<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;"><b>EU - Konformitätserklärung</b></td> <td style="width: 20%; text-align: center;"></td> <td style="width: 20%;"><b>Formblatt FB 27 - 03</b></td> </tr> <tr> <td colspan="3"> <i>EU Declaration of Conformity / Déclaration EU de conformité / Declaración de conformidad CE / Declaração de conformidade CE / Deklaracja zgodności UE</i> </td> </tr> </table>		<b>EU - Konformitätserklärung</b>		<b>Formblatt FB 27 - 03</b>	<i>EU Declaration of Conformity / Déclaration EU de conformité / Declaración de conformidad CE / Declaração de conformidade CE / Deklaracja zgodności UE</i>		
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<i>EU Declaration of Conformity / Déclaration EU de conformité / Declaración de conformidad CE / Declaração de conformidade CE / Deklaracja zgodności UE</i>							
<p>Name und Anschrift des Herstellers: <u>AFRISO-EURO-INDEX GmbH, Lindenstraße 20, 74363 Güglingen</u>  <i>Manufacturer / Fabricant / Fabricante / Nome e endereço do fabricante / Producent:</i></p> <p>Erzeugnis: <u>Membran-Sicherheitsventile</u>  <i>Product / Produkt / Producto / Produto / Produkt:</i></p> <p>Typenbezeichnung: <u>Heizung: MS, Trinkwasser: MSW, Solar: MSS + MAG (Ausdehnungsgefäß)</u>  <i>Type / Type / Tipo / Tipo / Typ:</i></p> <p>Betriebsdaten: <u>P = 1; 1.5; 2; 2.5; 3; 3.5; 4; 5; 6; 7; 8; 10 bar</u>  <u>T = -20°C, +120°C (MS), +4°C, +110°C (MSW), -20°C, +160°C (MSS+MAG)</u>  <i>Techn. Details / Caractéristiques / Características / Detalhes técnicos / Dane techniczne:</i></p> <p>Wir erklären in alleiniger Verantwortung, dass das bezeichnete Erzeugnis mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:  <i>We declare under our sole responsibility that the above mentioned product meets the requirements of the following European Directives:</i>  <i>Le produit mentionné est conforme aux prescriptions des Directives Européennes suivantes:</i>  <i>El producto indicado cumple con las prescripciones de las Directivas Europeas siguientes:</i>  <i>O produto indicado cumpre com as prescrições das seguintes Diretivas Europeias:</i>  <i>Wymieniony wyżej produkt spełnia wymagania następujących Dyrektyw Europejskich:</i></p> <p><b>Druckgeräterichtlinie (2014/68/EU)</b>  <i>Pressure Equipment Directive / Directive équipements sous pression / Directiva equipos a presión / Dyrektywa ciśnieniowa</i></p> <p><b>Notifizierte Stelle:</b>  <u>TÜV Rheinland Industrie Service GmbH, Am Grauen Stein, D-51105 Köln, Kennnummer 0035</u>  <u>EU-Baumusterprüfung, Baumuster-Zertifikat Nr.: 01 202 642TR-B-18 TR11</u></p> <p>Unterzeichner: <u>Dr. Späth, Geschäftsführer Technik</u>  <i>Signed / Signataire / Firmante / Assinado por / Podpisat:</i> <i>Technical Director / Diretor Técnico / Dyrektor Techniczny</i></p> <p><u>10. Juni 2024</u>  <i>Datum / Date / Fecha / Data</i></p> <p style="text-align: right;">  <i>AFRISO-EURO-INDEX GmbH Lindenstraße 20, 74363 Güglingen Tel. +49 (0) 7141 90-0 Fax +49 (0) 7141 90-100 www.afriso.de</i>  <i>Unterschrift / Signature / Firma / Assinatura / Podpis</i></p>							
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Version: 3 Index: 5	AFRISO-EURO-INDEX GmbH D-74363 Güglingen	Seite 1 von 1					

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