

## **GESTRA Steam Systems**

# **SMK 22**

# **SMK 22-51**

# **SMK 22-81**

# **SMK 22-82**

**EN**  
English

### **Installation Instructions 810481-04**

Steam Traps

SMK 22, SMK 22-51, SMK 22-81, SMK 22-82

# Contents

Page

## Title

Title page .....	1
------------------	---

## Inhalt

Contents .....	2, 3
----------------	------

## Important Notes

Usage for the intended purpose .....	4
Safety note .....	4
Danger .....	4
Attention .....	4
PED (Pressure Equipment Directive) .....	4
ATEX (Atmosphère Explosible) .....	4

## Explanatory Notes

Scope of supply .....	5
-----------------------	---

## Technical Data

Name plate / marking .....	6
----------------------------	---

## Design

Component parts SMK 22 .....	7
Component parts SMK 22-51 .....	8
Component parts SMK 22-81, SMK 22-82 .....	9
Key .....	10

## Installation

SMK 22, SMK 22-51, SMK 22-81, SMK 22-82 .....	11
Installation instructions .....	11
Attention .....	11
Heat treatment of welds .....	11

## Commissioning Procedure

Danger .....	12
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# Contents - continued -

Page

## Operation

SMK 22, SMK 22-51, SMK 22-81, SMK 22-82 .....	12
Thermostatic capsule .....	12

## Maintenance

Danger .....	13
Cleaning / replacing thermostatic capsule .....	13
Tools .....	13
Tightening torques .....	13

## Spare Parts

SMK 22, SMK 22-51, SMK 22-81, SMK 22-82 .....	14
Spare parts list .....	14

## Decommissioning

Danger .....	15
Attention .....	15
Disposal .....	15

## Back

GESTRA Agencies .....	16
-----------------------	----

## Important Notes

### Usage for the intended purpose

Use the steam trap only for the discharge of condensed water from steam lines or for air venting from steam spaces. Use this equipment only within the specified pressure and temperature ratings and check the corrosion resistance and chemical suitability for the application in question.

Do not expose the control membrane to superheat conditions above 5 degrees C.

### Safety note

Installation, commissioning, maintenance and retrofitting of this equipment must only be performed by adequately trained persons who have a recognized level of competence.



#### Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.

Always wear industrial gloves when servicing the equipment.



#### Attention

The name plate / marking specifies the technical features of the equipment.

Do not commission or operate any item of equipment that does not bear its specific name plate. The pressure and temperature ratings on the name plate of the equipment must meet the requirements of the installation.

### PED (Pressure Equipment Directive)

The equipment fulfills the requirements of the Pressure Equipment Directive PED 97/23/EC.

For use with fluids of group 2.

The equipment is excluded from the scope of the PED according to Article 3.3 and must not bear a CE marking.

### ATEX (Atmosphère Explosible)

The equipment does not have its own potential source of ignition and is therefore not subject to the ATEX-Directive 94/9/EC.

Applicable in Ex-zones 0, 1, 2, 20, 21, 22 (1999/92/EC). The equipment does not bear an Ex marking.

## Explanatory Notes

### Scope of supply

#### **SMK 22**

1 Steam trap SMK 22  
1 Installation manual

#### **SMK 22-51**

1 Steam trap SMK 22-51  
1 Installation manual

#### **SMK 22-81**

1 Steam trap SMK 22-81  
1 Installation manual

#### **SMK 22-82**

1 Steam trap SMK 22-82  
1 Installation manual

## Technical Data

### Name plate / marking

The temperature/pressure ratings are indicated on the trap body or on the name plate. For more information see GESTRA technical documents such as data sheets and the Technical Information.

According to EN 19 the name plate or the specification on the body indicates the type and design:

- Name/logo of the manufacturer
- Type designation
- Pressure class PN or Class
- Material number
- Max. temperature
- Max. pressure
- Direction of flow
- Stamp on trap body / name plate, e. g.  $\frac{4}{09}$  specifies the quarter and the year of production (example: 4th quarter 2009)

GESTRA SMK 22  
MADE BY GESTRA

PMA 10bar - TMA 150°C - ΔPMX 6bar  
DN15 - 1.4435 - (QA ....) - Charge: ....

Fig. 1

GESTRA SMK 22  
MADE BY GESTRA

PMA 10bar - TMA 185°C - ΔPMX 6bar  
DN15 - 1.4435 - (QA ....) - Charge: ....

Fig. 2

GESTRA SMK22-51  
MADE BY GESTRA



PMA 10bar - TMA 185°C - ΔPMX 6bar  
DN15 - 1.4404 - (QA ....) - Charge: ....

Fig. 3

GESTRA SMK22-81  
MADE BY GESTRA



PMA 10bar - TMA 185°C - ΔPMX 6bar  
DN15 - 1.4404 - (QA ....)

Fig. 4

GESTRA SMK22-82  
MADE BY GESTRA



PMA 10bar - TMA 185°C - ΔPMX 6bar  
DN15 - 1.4404 - (QA ....)

Fig. 5

# Design

## Component parts SMK 22

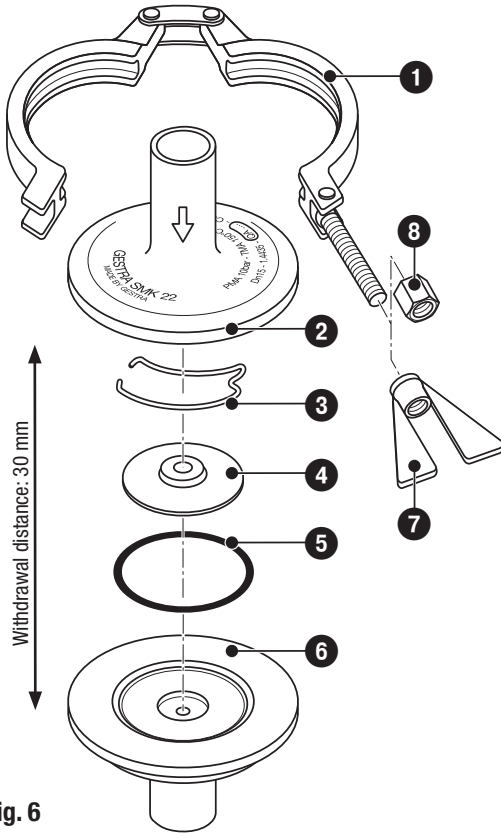


Fig. 6

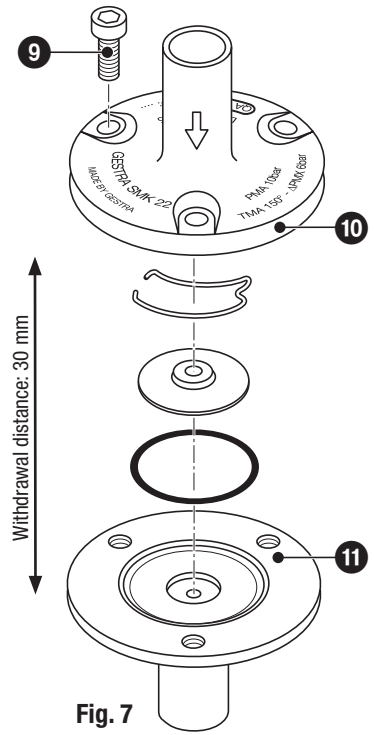


Fig. 7

Component parts SMK 22-51

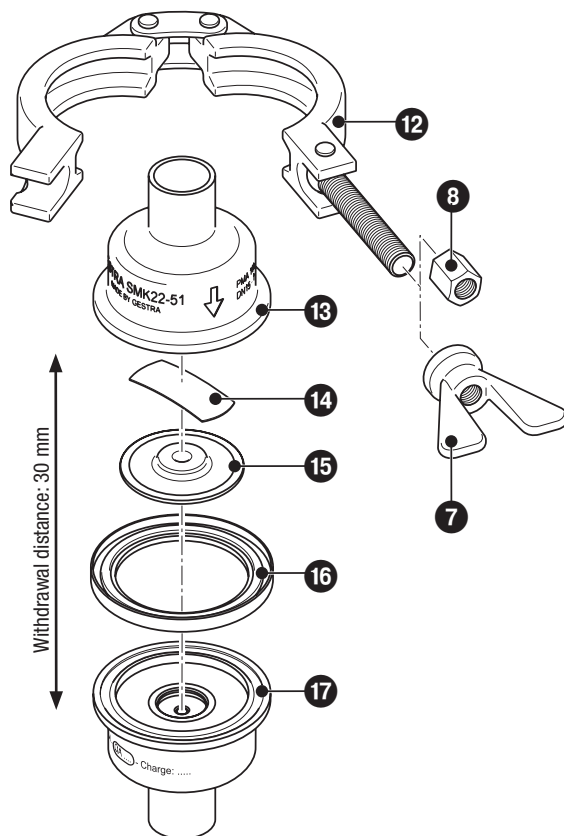


Fig. 8



Component parts SMK 22-81, SMK 22-82

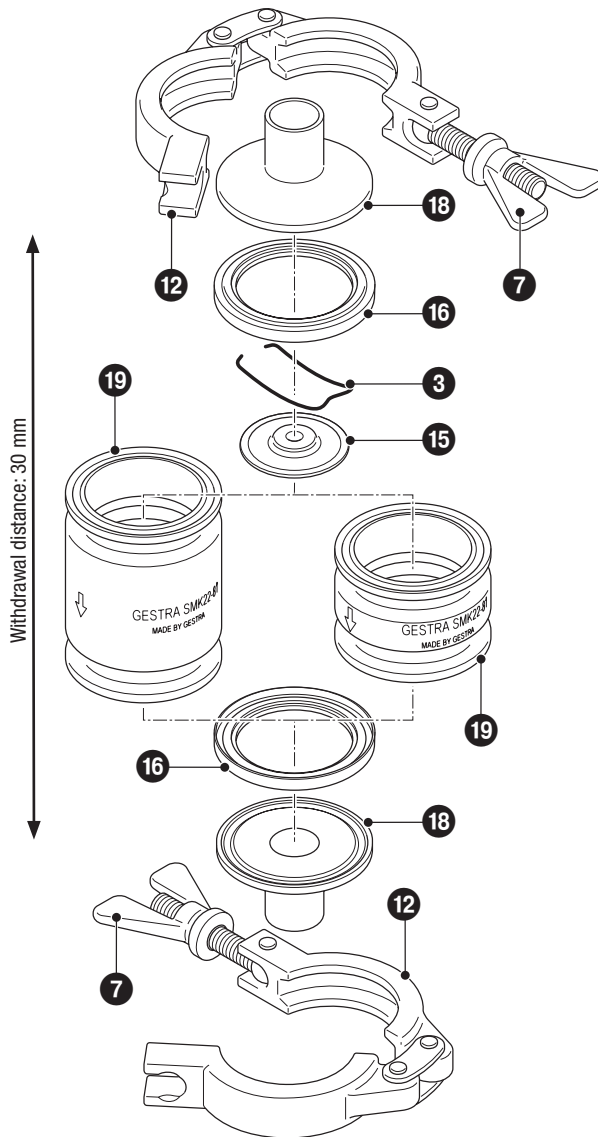


Fig. 9

## Component Parts - continued -

### Key

- 1 Joint clamp SMK 22
- 2 Upper body part SMK 22
- 3 Spring SMK 22, SMK 22-81, SMK 22-82
- 4 Thermostatic capsule SMK 22
- 5 Body gasket of EPDM (PTFE) SMK 22
- 6 Lower body part SMK 22
- 7 Wing nut
- 8 Hexagon nut (optional)
- 9 Socket-head cap screw M6 x 12 SMK 22
- 10 Upper body part SMK 22
- 11 Lower body part SMK 22
- 12 Joint clamp SMK 22-51, SMK 22-81, SMK 22-82
- 13 Upper body part SMK 22-51
- 14 Spring SMK 22-51
- 15 Thermostatic capsule SMK 22-51, SMK 22-81, SMK 22-82
- 16 Body gasket PTFE SMK 22-51, SMK 22-81, SMK 22-82
- 11 Lower body part SMK 22
- 18 Clamp support SMK 22-81, SMK 22-82
- 19 Functional unit SMK 22-81, SMK 22-82

## Installation

### SMK 22, SMK 22-51, SMK 22-81, SMK 22-82

The SMK 22... can be installed in any position. Make sure that the flow arrow on the trap body matches the direction of flow of the steam. When mounted in a vertical line with downward flow the trap is self-draining.

### Installation instructions

1. Make sure that the flow arrow on the trap body matches the direction of flow of the steam.
  2. Consider space required for servicing the trap. When the trap is installed a minimum withdrawal space for servicing is required for removing trap parts (see **Design, Component Parts SMK 22...**).
  3. Remove plastic plugs. They are only used as transit protection.
  4. Clean end connections.
- 5.1 Install steam trap with releasable end connections (e. g. clamp).
- 5.2 For butt-weld ends: Apply welding process 141 according to ISO 4063 (or equivalent standard).



#### Attention

- Only qualified welders certified according to DIN EN 287 (or equivalent national standards) may weld steam traps into pipelines.

### Heat treatment of welds

A subsequent heat treatment of the welds is not required.

## Commissioning Procedure

Make sure that all connections have been adequately pressure tested according to local requirements.



### Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.

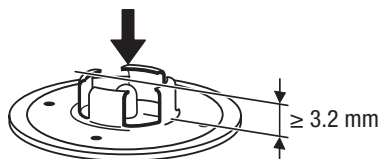
Always wear industrial gloves when servicing the equipment.

## Operation

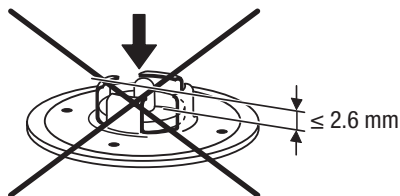
### SMK 22, SMK 22-51, SMK 22-81, SMK 22-82

SMK 22, SMK 22-51, SMK 22-81 and SMK 22-82 can be serviced (see **Maintenance**).

### Thermostatic capsule



**Fig. 10**  
*Capsule intact*



**Fig. 11**  
*Capsule defective*

## Maintenance

GESTRA steam traps SMK 22, SMK 22-51, SMK 22-81, SMK 22-81 do not require any special maintenance. However, if used in new installations which have not been rinsed check and clean the thermostatic capsule after the commissioning procedure.



### Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.

Always wear industrial gloves when servicing the equipment.

## Cleaning / replacing / removing thermostatic capsule

1. Unscrew hexagon nut **8** or wing nut **9** of joint clamp **1** / **12** and remove joint clamp. **Fig. 6, Fig. 8, Fig. 9**
2. Unscrew socket-head cap screws **9**. **Fig. 7**
3. Remove and clean thermostatic capsule.
4. Replace thermostatic capsule in case of signs of wear or damage.
5. Clean body and internals. Clean all gasket surfaces.
6. Press thermostatic capsule onto the lower body part.
7. Insert new body gasket **5** / **16**.
8. Assemble upper and lower body part.
9. Fit joint clamp and tighten wing nut / hexagon nut with the torque indicated in the table **Tightening Torques**.
10. Screw in socket-head cap screw **9** and tighten with the torque indicated in the table **Tightening Torques**.

## Tools

- Combination spanner A. F. 15 mm, DIN 3113, form B
- Key for hexagon socket screws with pilot A. F. 6 mm, DIN 6912
- Torque spanner 5 - 22.5 Nm, DIN ISO 6789

## Tightening torques

Item	Designation	Torque for tightening [Nm]
<b>8</b>	Hexagon nut	8
<b>7</b>	Wing nut	8
<b>9</b>	Socket-head cap screw M6 x 12	7

All torques indicated in the table are based at a room temperature of 20 °C.

## Spare Parts

### SMK 22, SMK 22-51, SMK 22-81, SMK 22-82

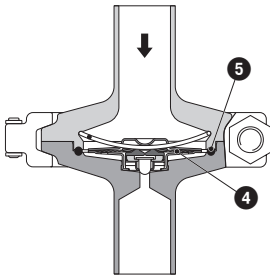


Fig. 12 SMK 22

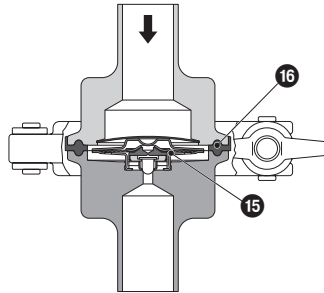


Fig. 13 SMK 22-51

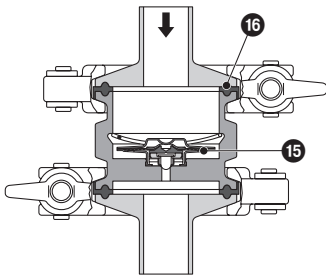


Fig. 14 SMK 22-81, SMK 22-82

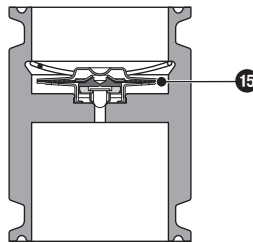


Fig. 15 Functional unit

### Spare parts list

Item	Designation	Stock code
4	Thermostatic capsule SMK 22	375862
5	Body gasket (EPDM 39 x 3), meets requirements of FDA, SMK 22	375673
5	Body gasket (PTFE 29 x 3), meets requirements of FDA, SMK 22	376777
15	Thermostatic capsule SMK 22-51, SMK 22-81, STERIl/line 1	390240
15	Thermostatic capsule SMK 22-82, STERIl/line 2	379091
16	Body gasket (PTFE), meets requirements of FDA SMK 22-51, SMK 22-81, SMK 22-82	377963

## Decommissioning



### Danger

The equipment is under pressure and hot during operation. Risk of severe burns and injuries to the whole body.

Installation and maintenance work should only be carried out when the system is depressurized (0 bar) and cold (20 °C).

The equipment must be isolated and vented from both upstream and downstream pressure before installation or maintenance work is performed.

Sharp edges on internals present a danger of cuts to hands.

Always wear industrial gloves when servicing the equipment.



### Attention

Drain steam trap if the installation is shut down and ambient temperatures  $\leq 0$  °C (frost) are to be expected.

## Disposal

For the disposal of the equipment observe the pertinent legal regulations concerning waste disposal.



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