

# MOUNTING AND OPERATING INSTRUCTIONS



## **EB 8547 EN**

Translation of original instructions



## **Type 3711 Quick Exhaust Valve**

Edition April 2020

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## Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in these instructions are for illustration purposes only. The actual product may vary.

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service (aftersaleservice@samsongroup.com).



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at [www.samsongroup.com](http://www.samsongroup.com) > **Service & Support** > **Downloads** > **Documentation**.

## Definition of signal words

### **DANGER**

*Hazardous situations which, if not avoided, will result in death or serious injury*

### **WARNING**

*Hazardous situations which, if not avoided, could result in death or serious injury*

### **NOTICE**

*Property damage message or malfunction*

### **Note**

*Additional information*

### **Tip**

*Recommended action*

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# 1 Safety instructions and measures

### Intended use

The Type 3711 Quick Exhaust Valve is mounted between the positioner or solenoid valve and the pneumatic actuator. It is used to vent the actuator more quickly.

The device is designed to operate under exactly defined conditions (e.g. operating pressure, temperature). Therefore, operators must ensure that the quick exhaust valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the quick exhaust valve in other applications or conditions than specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

→ Refer to the technical data for limits and fields of application as well as possible uses.

### Reasonably foreseeable misuse

The Type 3711 Quick Exhaust Valve is **not** suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data

Furthermore, the following activities do not comply with the intended use:

- Use of non-original spare parts
- Performing maintenance activities not specified by SAMSON

### Qualifications of operating personnel

The quick exhaust valve must be mounted, started up and serviced by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

### Personal protective equipment

Personal protective equipment is not required to mount or operate the quick exhaust valve.

### Modifications not permitted

Contact SAMSON before performing any modification to the product. Failure to do so will render the product warranty void. SAMSON does not assume liability for any resulting personal injury or property damage.

### **Responsibilities of the operator**

The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third parties are not exposed to any danger.

### **Responsibilities of operating personnel**

Operating personnel must read and understand these mounting and operating instructions as well as the specified hazard statements, warning and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

## **1.1 Notes on possible personal injury**

### **WARNING**

#### **Risk of injury due to high pressure inside device.**

The quick exhaust valve is pressurized. Improper removal of installed quick exhaust valve or opening of the valve body can lead to device components bursting and cause serious injury.

- Disconnect the signal pressure before removing an installed quick exhaust valve or opening the valve body.

#### **Risk of damage to hearing due to loud noise.**

Without a noise-reducing element screwed into the exhaust port, the quick exhaust valve generates a loud noise on venting.

- Wear hearing protection.

## 1.2 Notes on possible property damage

### NOTICE

#### **Risk of damage to the quick exhaust valve due to incorrect mounting position.**

The incorrect mounting position may allow dirt or other foreign particles to enter the exhaust port (EXH) and lead to malfunctioning or damage.

In versions with silencers, the silencer must be protected against icing up and/or snow.

- Mount the quick exhaust valve with the exhaust port facing downward or to the side. Alternatively, fit a suitable cover to protect it against adverse weather conditions.

#### **Risk of damage to the quick exhaust valve due to lack of protection against contamination.**

In versions with silencers, the silencer must be protected against contamination, icing up and/or snow.

- Take suitable precautions to protect the silencer against dirt, icing up and/or snow.

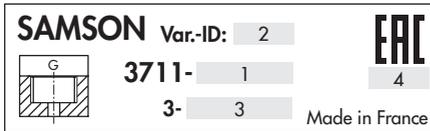
#### **Risk of damage to the quick exhaust valve due to incorrect hook-up.**

The quick exhaust valve is not suitable for combination with a volume booster.

- Do not connect the quick exhaust valve in combination with a volume booster.

## 2 Markings on the device

### 2.1 Nameplate



- 1 Type number (see article code)
- 2 Configuration ID
- 3 Production ID
- 4 Month/year

### 2.2 Article code

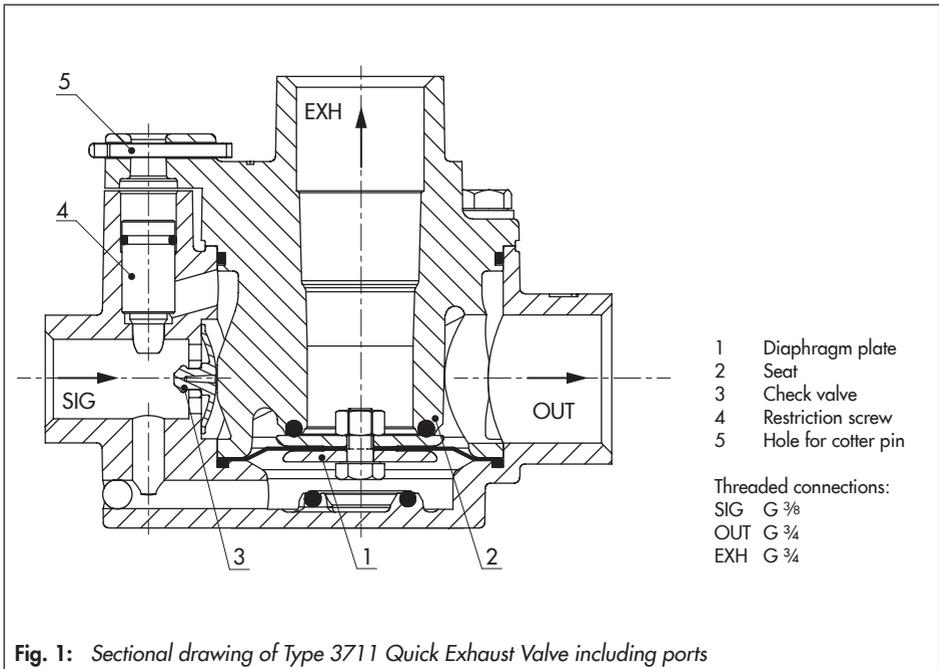
Quick exhaust valve	Type 3711-	x	x	x	x	x	x	x	0
Version									
Standard version	0								
Body material									
Aluminum	0								
Stainless steel	1								
Pneumatic connection									
G 3/4 (EXH, OUT) · G 3/8 (SIG)			1						
Silencer									
With silencer				1					
Without silencer				2					
Compatibility with paint									
Standard					1				
Ambient temperature									
-40 to +80 °C						1			
Certificates									
Without								0	
Special versions									
Without									0

### 3 Design and principle of operation

The quick exhaust valve is mounted between the positioner or solenoid valve and the actuator. It is used to vent the actuator more quickly. When a control pressure (SIG) is applied, the diaphragm plate (1) rests on the seat (2), closing the valve. The check valve allows the air to flow through the output (OUT) to the actuator while the control pressure rises. No air is vented.

The check valve (3) closes when the control pressure decreases. After the actuator pressure and control pressure reach a certain differential pressure, the diaphragm plate (1) releases the seat of the exhaust port (EXH), causing the actuator to be vented quickly.

The adjustable restriction screw (4) prevents the air from being exhausted quickly during normal control mode and is used to set the venting characteristic. The access to the restriction screw is secured by a cotter pin inserted into the hole (5).

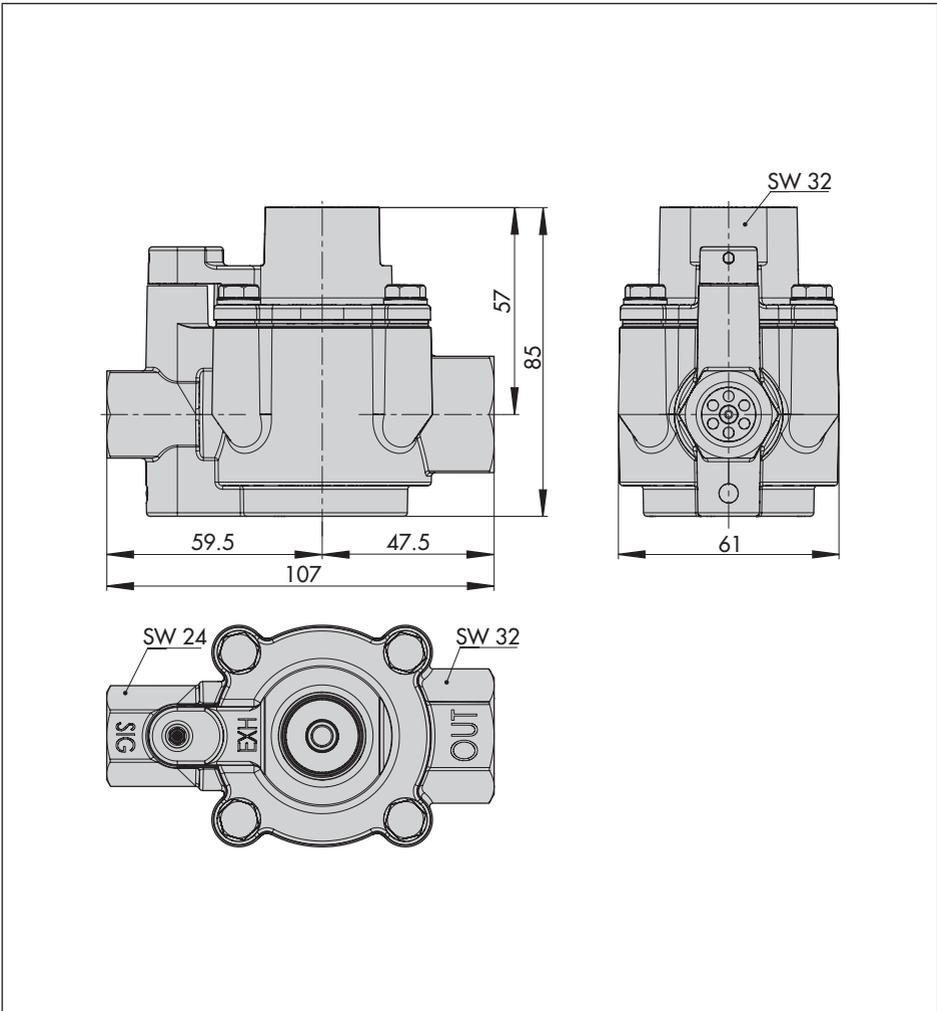


### 3.1 Technical data

<b>Type 3711</b>		
Operating pressure	0 to 7 bar	
Differential pressure between supply and exhaust	55 % of control pressure	
Permissible leakage at 6 bar	$\leq 25 \text{ l}_n/\text{h}$	
Permissible ambient temperature range	-40 to +80 °C	
Closing hysteresis of check valve	< 0.02 bar	
Conformity	<b>EAC</b>	
Weight	kg (approx.)	0.5 <sup>1)</sup>
<b>Air quality according to ISO 8573-1</b>		
Maximum particle size and density	Class 4	
Oil content	Class 3	
Pressure dew point	Class 3 or at least 10 K below the lowest ambient temperature to be expected	
<b>Flow coefficients</b>		
$K_{VS}$ Exhaust	10.0 <sup>1)</sup>	
$K_{VS}$ Supply (check valve)	1.3 (restriction screw closed)	
	1.9 (restriction screw open)	
$K_{VS}$ Bypass (restriction screw)	Max. 0.75	
<b>Materials</b>		
Body	Aluminum with corrosion protection and epoxy powder coating	Stainless steel, 1.4409
Cover		
Restriction, screw fitting, cotter pin	Stainless steel	
Check valve	VMQ	
Diaphragm	VMQ	
Diaphragm plate	Aluminum with corrosion protection	Stainless steel 1.4404
Seals	VMQ	
<b>Accessories</b>		
Silencers	Order number: 1402-1148	

<sup>1)</sup> Without silencer

### 3.2 Dimensions in mm



## 4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any transportation damage.

### 4.1 Unpacking

#### **i** Note

*Do not remove the packaging if the quick exhaust valve is to be transported to another location or kept in storage.*

Before mounting the quick exhaust valve, proceed as follows:

1. Remove the packaging from the quick exhaust valve.
2. Dispose of the packaging in accordance with the valid regulations.

#### **!** NOTICE

*Risk of damage to the quick exhaust valve due to foreign particles entering the valve. Do not remove the protective film until immediately before mounting.*

## 4.2 Storage

#### **!** NOTICE

*Risk of damage to the quick exhaust valve due to improper storage. Observe the storage instructions. Contact SAMSON, if need be.*

#### Storage instructions

- Protect the quick exhaust valve against external influences (e.g. impact, shocks, vibration).
- Do not damage the corrosion protection (coating).
- Protect the quick exhaust valve against moisture and dirt. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Observe the storage temperature from  $-40$  to  $+80$  °C.
- Pack the quick exhaust valve in airtight packaging.

### 5 Mounting and start-up

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#### ⚠ NOTICE

*Malfunction due to dirt blocking the quick exhaust valve.*

*No substances must be allowed to enter the device during mounting, transport or storage.*

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#### 5.1 Mounting position

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#### ⚠ NOTICE

*Risk of damage to the quick exhaust valve due to incorrect mounting position.*

*Do not mount the quick exhaust valve with the exhaust port facing upward.*

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- ➔ Mount the quick exhaust valve with the exhaust port (EXH) facing downward or to the side.
- ➔ If the quick exhaust valve can become covered in snow, iced up or dirt can collect in the device, it must be mounted with the exhaust side facing downward or protected by a suitable fixture/cover.

### 5.2 Attachment and hook-up

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#### ⚠ NOTICE

*Risk of damage to the quick exhaust valve due to it being combined with a volume booster.*

*Do not connect the quick exhaust valve in combination with a volume booster.*

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#### ⚠ NOTICE

*Risk of damage or malfunction of the quick exhaust valve due to lack of protection against dirt, icing up or snow.*

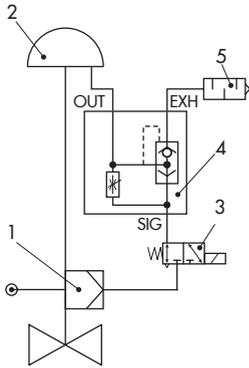
*In versions with silencers, take suitable precautions to protect it against dirt, icing up and/or snow.*

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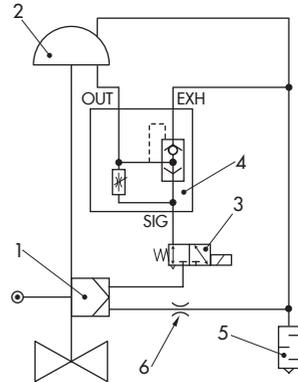
Follow the instructions below during mounting:

- ➔ To vent the actuator as quickly as possible, the quick exhaust valve must be mounted as close to the pneumatic actuator as possible.
- ➔ Mount the quick exhaust valve between the positioner or solenoid valve and the pneumatic actuator (see Fig. 2).
- ➔ Mount the quick exhaust valve in such a way that the compressed air flows through the valve in the direction indicated by the arrows shown in Fig. 2.
- ➔ Hook-up with a volume booster is not permissible.
- ➔ Select piping and screw fittings with the largest possible flow rate.

**Standard hook-up:**

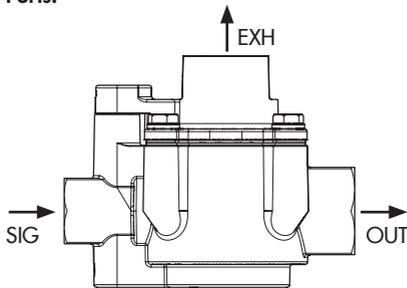


**Hook-up including purging of actuator spring chamber:**



- 1 Positioner
- 2 Actuator
- 3 Solenoid valve
- 4 Quick exhaust valve
- 5 Silencer
- 6 Restriction

**Ports:**



Inscription	Port
SIG	Control pressure
OUT	Output
EXH	Exhaust

**Fig. 2:** Hook-ups and connections

### 5.3 Pneumatic connections

#### **⚠ WARNING**

*Risk of damage to hearing due to loud noise. If a noise-reducing element is not screwed into the exhaust port, the quick exhaust valve generates a loud noise on venting → Wear hearing protection.*

The ports of the quick exhaust valve are labeled (abbreviated) on the valve and designed as G threads:

Port	Inscription	Thread
Control pressure	SIG	G 3/8
Output	OUT	G 3/4
Exhaust	EXH	G 3/4

#### **i Note**

*The tapped holes with G threads correspond with the form X of DIN 3852-2 in the normal version.*

- Before mounting, all pipes must be free of dirt and foreign matter.
- Mount the screw fittings properly using suitable tools and sealant to prevent thread galling (seizure).
- The use of Teflon tape as a sealant for the fittings is not permitted.
- Tighten all screw fittings securely.

### 5.3.1 Supply air

The quality of the supply air must meet the requirements of ISO 8573-1 concerning particle size, oil content and pressure dew point (see Technical data in section 3.1).

### 5.4 Start-up

#### **⚠ WARNING**

*Risk of damage to hearing due to loud noise. Wear hearing protection. Check that all components are mounted properly before every start-up.*

- Before start-up, mount the quick exhaust valve between a positioner or solenoid valve and a pneumatic actuator as described in section 5.1 and section 5.2.

### 5.4.1 Fine tuning

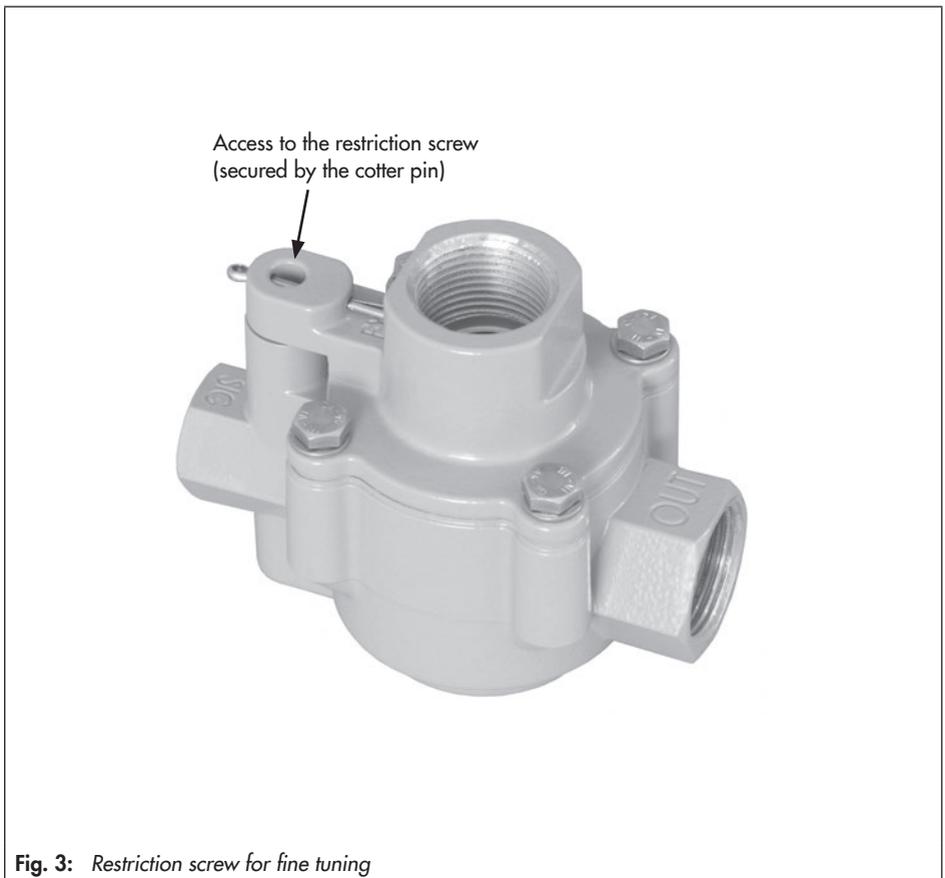
The dynamic response of the quick exhaust valve can be adjusted at the restriction screw (see Fig. 3). In particular when a hook-up includes a positioner, this can help prevent air being exhausted quickly unintentionally during normal control mode.

#### **Perform fine tuning:**

1. Remove the cotter pin.
2. Use a 4 mm hex key to undo the restriction screw until the quick exhaust valve does not vent quickly during normal control mode.
3. Check whether the emergency venting of the actuator is guaranteed. Slightly screw

in the restriction screw again, if necessary.

4. Secure the access to the restriction screw with the cotter pin.



## 6 Servicing

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### Note

*The quick exhaust valve was checked by SAMSON before it left the factory.*

- The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's after-sales service.*
  - Only use original spare parts by SAMSON, which comply with the original specifications.*
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## 6.1 Maintenance

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### Note

*The Type 3711 Quick Exhaust Valve requires no maintenance.*

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### Tip

*We recommend regularly checking whether the device is leak-tight and whether the pipe screw fitting is screwed on properly.*

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## 6.2 Preparation for return shipment

Defective quick exhaust valves can be returned to SAMSON for repair.

Proceed as follows to return devices to SAMSON:

1. Put the control valve out of operation. See associated valve documentation.
2. Remove the quick exhaust valve (see section 8).
3. Proceed as described on our website at  [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > After-sales Service > Returning goods.

## 7 Malfunctions

### 7.1 Troubleshooting

<b>Malfunction</b>	Leakage between quick exhaust valve and pneumatic connections
<b>Possible reasons</b>	Pipe fittings are loose.
<b>Recommended action</b>	→ Check whether pipe screw fitting leaks and is screwed on properly.

→ If other malfunctions occur, contact SAMSON's After-sales Service:  
[aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com)

### 8 Decommissioning and removal

#### **⚠ WARNING**

*Risk of bursting in pressure equipment. Control valves, mounting parts and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.*

- Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.
- Observe the valve's safety instructions.

#### 8.1 Decommissioning

To decommission the quick exhaust valve for maintenance work or disassembly, proceed as follows:

1. Disconnect the supply pressure of the pneumatic actuator.
2. Disconnect the supply air.
3. If necessary, allow valve components to cool down or heat up.

#### 8.2 Removing the quick exhaust valve

1. Put the quick exhaust valve out of operation (see section 8.1).
2. Undo the threaded connections.
3. Remove the quick exhaust valve from the pipeline.

#### 8.3 Disposal



We are registered with the German national register for waste electric equipment (stiftung ear) as a producer of electrical and electronic equipment, WEEE reg. no.: DE 62194439

- Observe local, national and international refuse regulations.
- Do not dispose of components, lubricants and hazardous substances together with your other household waste.

#### **💡 Tip**

*On request, we can appoint a service provider to dismantle and recycle the product.*

## 9 After-sales service

Contact SAMSON's After-sales Service for support concerning service or repair work or when malfunctions or defects arise.

### **E-mail address**

You can reach our after-sales service at the following e-mail address.

[aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com)

### **Addresses of SAMSON AG and its subsidiaries**

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on our website ([www.samsongroup.com](http://www.samsongroup.com)) or in all SAMSON product catalogs.

### **Required specifications**

Please submit the following details:

- Order number and position number in the order
- Type, serial number, device version

**EB 8547 EN**



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