

# MOUNTING AND OPERATING INSTRUCTIONS



## EB 1015 EN

Translation of original instructions



## Type 2 N and Type 2 NI Strainers

Edition April 2021



## 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.

- 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@samson.de).



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 SAMSON Type 2 N and Type 2 NI Strainers are used to hold back large particles contained in liquids, gases and vapors. The strainers are designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the strainers are only used in operating conditions that meet the specifications used for sizing the strainers at the ordering stage. In case operators intend to use the strainers 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 and nameplate for limits and fields of application as well as possible uses.

## Reasonably foreseeable misuse

The strainers are 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 service and repair work not described in these instructions

## Qualifications of operating personnel

The strainer must be mounted, started up, serviced and repaired 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.

## Safety instructions and measures

### Personal protective equipment

We recommend checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substances database).

- Provide protective equipment (e.g. safety gloves, eye protection) appropriate for the process medium used.
- Wear hearing protection when working near the strainer.
- Check with the plant operator for details on further protective equipment.

### Revisions and other modifications

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

### Warning against residual hazards

To avoid personal injury or property damage, operators and operating personnel must prevent hazards that could be caused in the strainer by the process medium and operating pressure by taking appropriate precautions. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

We also recommend checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substances database).

- Observe safety measures for handling the device as well as fire prevention and explosion protection measures.

### 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 as well as the referenced documents to the operating personnel and to instruct them in proper operation. Furthermore, the operator must ensure that operating personnel or third persons 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 referenced documents and observe the specified hazard statements, warnings and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

### Referenced standards and regulations

The strainers comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Strainers with a CE marking have an EU declaration of conformity, which includes information about the applied conformity assessment procedure. The EU declaration of conformity is included in the annex of these instructions (see section 9.3).

## 1.1 Notes on possible severe personal injury

### DANGER

#### **Risk of bursting in pressure equipment.**

Strainers and pipelines are pressure equipment. Improper opening can lead to strainer components bursting.

- If necessary, a suitable overpressure protection must be installed on site in the plant section.
- Before starting any work on the strainer, depressurize all plant sections concerned.
- Drain the process medium from all the plant sections affected as well as from the strainer.
- Wear personal protective equipment.

## 1.2 Notes on possible personal injury

### WARNING

#### **Risk of personal injury due to residual process medium in the strainer.**

While working on the strainer, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- If possible, drain the process medium from all the plant sections affected and the strainer.
- Wear protective clothing, safety gloves and eye protection.

#### **Risk of burn injuries due to hot or cold components and pipelines.**

Depending on the process medium, strainer components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or heat up.
- Wear protective clothing and safety gloves.



## 1.3 Notes on possible property damage

### ! NOTICE

#### **Risk of the strainer becoming blocked due to contamination (e.g. solid particles) in the pipeline.**

The plant operator is responsible for cleaning the pipelines in the plant.

- Do not use the strainer to permanently filter the process medium.
- Observe the maximum permissible pressure for strainer and plant.
- Observe the maximum permissible differential pressure for strainer and plant.

#### **Risk of strainer damage due to unsuitable medium properties.**

The strainer is designed for a process medium with defined properties.

- Only use the process medium specified for sizing.

#### **Risk of strainer damage due to the use of unsuitable lubricants.**

The lubricants to be used depend on the strainer material. Unsuitable lubricants may corrode and damage the surface.

- Only use lubricants approved by SAMSON (see section 9.2).

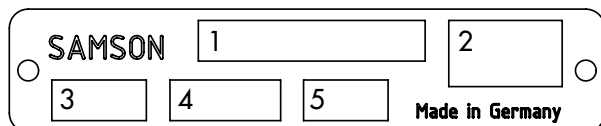
#### **Risk of leakage and strainer damage due to excessively high or low tightening torques.**

Observe the specified torques on tightening strainer components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

- Observe the specified tightening torques (see section 9.2).

## 2 Markings on the device

### 2.1 Marking on the strainer body



- 1 Configuration ID and device index
- 2 CE marking, if applicable
- 3 Order number or year of manufacture
- 4 Type designation and mesh size
- 5 EAC

**Fig. 1:** *Marking on the strainer body*

The nameplate of all sizes is affixed to the body flange.

### 2.2 Material numbers

Specifying the configuration ID, you can contact us to find out which material is used. The configuration ID is specified on the nameplate (1 (configuration ID and device index)). For more details on the nameplate, see Fig. 1.

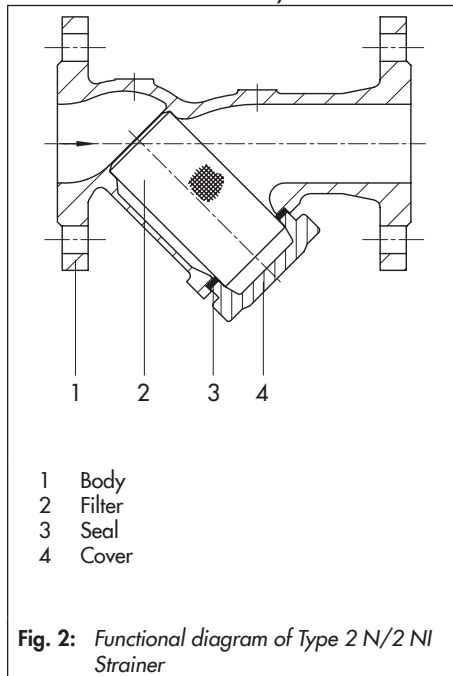
### 3 Design and principle of operation

→ See Fig. 2

The Type 2 N and Type 2 NI Strainers consist of a Y-style body (1) with flanged connections, filter (2), seal (3) and a cover (4) for the filter.

The strainer installed upstream of the valve is used to hold back any dirt or other foreign particles carried along by the medium.

The process medium flows through the body in the direction indicated by the arrow.



### 3.1 Technical data

The strainer body contains information on the strainer version (see section 2.1).

#### Process medium and scope of application

The **Type 2 N and Type 2 NI** Strainers are suitable for use with **liquids, vapors and gases**.

#### Temperature range

The Type 2 N and Type 2 NI are designed for a temperature range from  $-10$  to  $+450$  °C (14 to 840 °F), depending on the body material.

#### Noise emissions

SAMSON is unable to make general statements about noise emissions. The noise emissions depend on the strainer version, plant facilities and process medium.

## Design and principle of operation

### **⚠ WARNING**

Risk of hearing loss or deafness due to loud noise.

Wear hearing protection when working near the strainer.

## Dimensions and weights

Table 4 provides a summary of the dimensions and weights of Type 2 N and Type 2 NI Strainers. The lengths and heights in the dimensional drawing are shown in Fig. 3.

**Table 1:** *Technical data*

Type 2 N/Type 2 NI	
Connection	Flanges DN 15 to 250
Max. permissible temperature <sup>1)</sup>	300 to 450 °C
Conformity	<b>CE</b> · <b>ERC</b>

<sup>1)</sup> Depending on body material

**Table 2:** *Materials · Material numbers according to DIN EN*

Valve size	DN 15 to 250	DN 15 to 150	DN 15 to 250	DN 15 to 100
Pressure rating	PN 10 <sup>2)</sup> · PN 16	PN 16 <sup>3)</sup> · PN 25	PN 16 <sup>4)</sup> · PN 25 <sup>5)</sup> PN 40	PN 40
Body	Cast iron EN-GJL-250	Spheroidal graphite iron EN-GJS-400-18-LT	Cast steel 1.0619	Cast stainless steel 1.4408
Cover flange	EN-GJL-250	1.0460	1.0460 <sup>1)</sup>	1.4571
Filter	Stainless steel 1.4401			
Seal	Graphite on metal core			

<sup>1)</sup> DN 200 and 250: 1.0619

<sup>2)</sup> DN 200 and 250 only

<sup>3)</sup> DN 100 to 150 only

<sup>4)</sup> On request with DN 100 to 150

<sup>5)</sup> On request with DN 200 and 250

**Table 3:**  $K_{VS}$  coefficients · Flow resistance coefficient

Valve size in DN		15	20	25	32	40	50	65	80	100	125	150	200	250	
<b>Type 2 N</b>															
$K_{VS}$	m <sup>3</sup> /h	5	10	17.5	21	36	65	116	150	235	366	522	950	1450	
Mesh size	mm	0.5			0.8			1.25			2				
Mesh count per cm <sup>2</sup>		150			59			28			12				
Free filter area		Approx. 3 times pipe cross-section						Approx. 2.75 times pipe cross-section			Approx. 2.5 times pipe cross-section				
Flow resistance coefficient	$\zeta$	2.5													
Valve size in DN		15	20	25	32	40	50	65	80	100	125	150	200	250	
<b>Type 2 NI <sup>1)</sup></b>															
$K_{VS}$	m <sup>3</sup> /h	4.5	8	14	18	29	51	90	115	190	290	450	760	1150	
Mesh size	mm	0.25													
Mesh count per cm <sup>2</sup>		625													
Free filter area		Approx. 3 times pipe cross-section						Approx. 2.75 times pipe cross-section			Approx. 2.5 times pipe cross-section				
Flow resistance coefficient	$\zeta$	3													

<sup>1)</sup> Type 2 NI fulfills the requirements of DVGW (German Technical and Scientific Association for Gas and Water) according to DIN EN 161 in combination with a Type 3241 Valve.

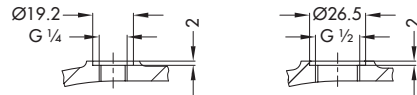
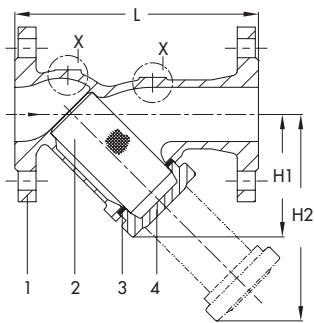
**Table 4:** Dimensions in mm and weights

Valve size in DN		15	20	25	32	40	50	65	
PN 10 PN 16 PN 25	Length L	130	150	160	180	200	230	290	
	Height H1	45	60	70	85	95	115	150	
	Height H2 (strainer insert pulled out)	75	90	110	135	160	195	225	
PN 40	Weight, approx. kg	Spheroidal graphite iron/cast iron	1.9	2.8	3.3	5.4	6.5	9.1	12
		Cast steel	2.2	3.2	4.0	5.8	7.2	10	14

## Design and principle of operation

Valve size in DN		80	100	125	150	200	250
PN 10 PN 16 PN 25 PN 40	Length L	310	350	400	480	600	730
	Height H1	180	224	255	290	385	480
	Height H2 (strainer insert pulled out)	295	343	420	485	640	790
Weight, approx. kg	Spheroidal graphite iron/ cast iron	17	24	36	52	91	152
	Cast steel	19	28	42	60	130	195

### Dimensional drawings



"X" detailed views for special version with pressure gauge connection

- 1 Body
- 2 Filter
- 3 Seal
- 4 Cover flange

Fig. 3: Dimensions

Pressure-temperature diagram

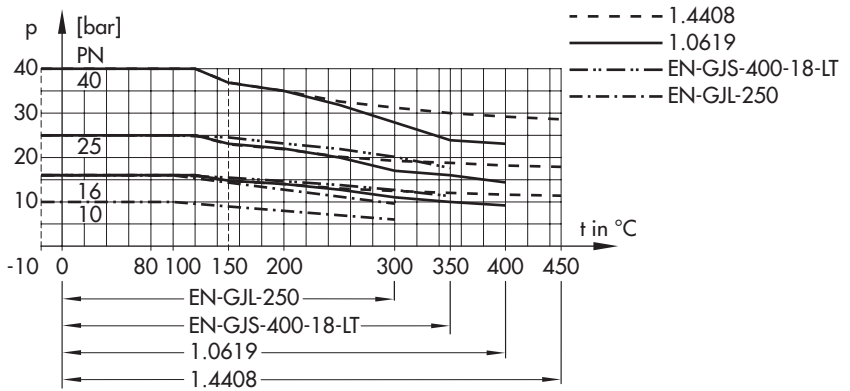


Fig. 4: Pressure-temperature diagram

## 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 damage to SAMSON and the forwarding agent (refer to delivery note).

### 4.1 Unpacking

#### Note

*Do not remove the packaging until immediately before installation.*

Proceed as follows to lift and install the strainer:

1. Remove the packaging from the strainer.
2. Dispose of the packaging in accordance with the valid regulations.

#### NOTICE

*Risk of strainer damage due to foreign particles entering it.*

*The protective caps fitted on the strainer's inlet and outlet prevent foreign particles from entering the strainer and damaging it.*

*Do not remove the protective caps until immediately before installation.*

### 4.2 Transporting and lifting

#### DANGER

*Risk due to suspended loads falling.  
Stay clear of suspended or moving loads.*

#### WARNING

*Risk of lifting equipment tipping over and risk of damage to lifting accessories due to exceeding the rated lifting capacity.*

- Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the strainer.
- Refer to Table 4 for weights.

#### WARNING

*Risk of personal injury due to the strainer tipping.*

- Observe the strainer's center of gravity.
- Secure the strainer against tipping over or turning.

#### Tip

- Our after-sales service can provide more detailed transport and lifting instructions on request.



## 4.2.1 Transporting

The strainer can be transported using lifting equipment (e.g. crane or forklift).

- Leave the strainer in its transport container or on the pallet to transport it.
- Observe the transport instructions.

### Transport instructions

- Protect the strainer against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the strainer against moisture and dirt.
- Observe the permissible ambient temperatures (see section 3.1).

## 4.2.2 Lifting

To install a large strainer into the pipeline, use lifting equipment (e.g. crane or forklift) to lift it.

### Lifting instructions

- Secure slings against slipping.
- Make sure the slings can be removed after installation.
- Prevent the strainer from tilting or tipping.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.

### Version with flanges

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 5).
2. Carefully lift the strainer. Check whether the lifting equipment and accessories can bear the weight.
3. Move the strainer at an even pace to the site of installation.
4. Install the strainer into the pipeline (see section 5.3).
5. After installation in the pipeline, check whether the flanges are bolted tight and the strainer in the pipeline holds.
6. Remove slings.

## Measures for preparation

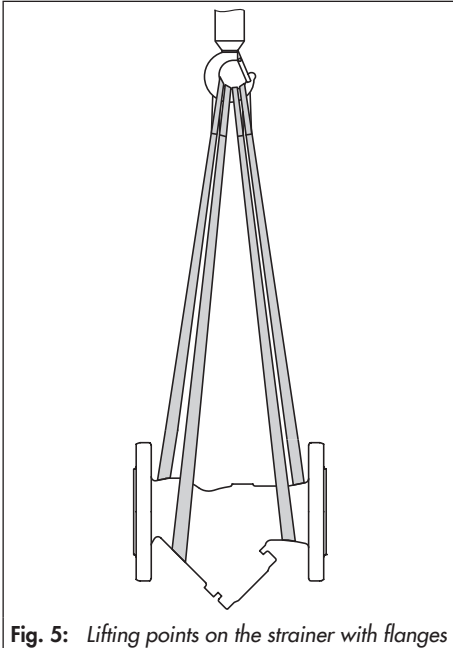


Fig. 5: Lifting points on the strainer with flanges

### Version with welding ends

1. Attach one sling to each welding end of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 6).
2. Secure the slings attached to the body against slipping using a connector.
3. Carefully lift the strainer. Check whether the lifting equipment and accessories can bear the weight.
4. Move the strainer at an even pace to the site of installation.
5. Install the strainer into the pipeline (see section 5.3).

6. After installation, check whether the weld seams hold.
7. Remove connector and slings.

### Tip

We recommend using a hook with safety latch (see Fig. 5 and Fig. 6). The safety latch prevents the slings from slipping during lifting and transporting.

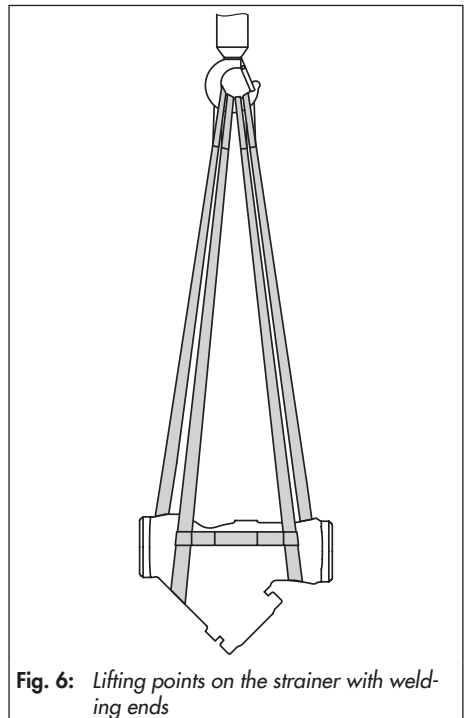


Fig. 6: Lifting points on the strainer with welding ends

## 4.3 Storage

### NOTICE

*Risk of strainer damage due to improper storage.*

- Observe the storage instructions.
- Avoid long storage times.
- Contact SAMSON in case of different storage conditions or long storage periods.

### Note

*We recommend regularly checking the device and the prevailing storage conditions during long storage periods.*

### Storage instructions

- Protect the device against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the device against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- Observe the permissible ambient temperatures (see section 3.1).
- Do not place any objects on the device.

### Tip

*SAMSON's After-sales Service can provide more detailed storage instructions on request.*

## 4.4 Preparation for installation

Proceed as follows:

- Flush the pipelines.

### Note

*The plant operator is responsible for cleaning the pipelines in the plant.*

- Check the strainer to make sure that it is clean.
- Check the strainer for damage.
- Check to make sure that the type designation, nominal size, material, pressure rating and temperature range of the strainer match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- Check any mounted pressure gauges to make sure they function.

# 5 Mounting and start-up

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### ⚠ NOTICE

*Risk of overheating due to excessive ambient temperatures or insufficient heat dissipation when components are insulated.*

- Do not include the strainer in the insulation of the pipeline.
- 

### ⚠ NOTICE

*Risk of impaired functioning of the strainer and leakage at the joint due to installation under tension.*

- Bolt the strainer to the pipeline free of stress.
  - If necessary, support the pipelines near to the connections.
  - Do not attach supports directly to the strainer.
- 

## 5.1 Mounting positions

### Horizontal pipelines

- **Gases and liquids**  
Cover and filter face downwards.
- **Steam**  
Cover and filter face sideward.

### Vertical pipelines

- **Gases, vapors and liquids**  
In strainers where the medium flows upward, the cover and filter face upward.

### Installation conditions

- Make sure that the strainer remains freely accessible after the plant has been completed.
  - Make sure the direction of flow matches the direction indicated by the arrow on the body.
  - Allow sufficient space to remove the filter.
  - Install the strainer free of stress.
- 

### ⚠ NOTICE

*Possible malfunction and damage due to adverse weather conditions (temperature, humidity).*

- Do not install the device outdoors or in rooms prone to frost.
  - Protect the strainer against frost if it is used in combination with freezing media.
  - Either heat the strainer or remove it from the plant and completely drain the residual medium after a plant shutdown.
-

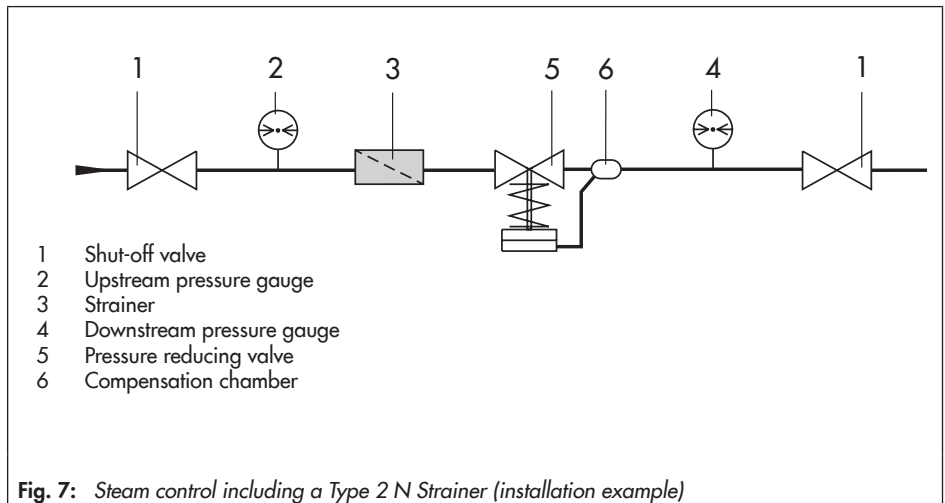
## 5.2 Additional fittings

### Shut-off valve

Install a hand-operated shut-off valve both upstream and downstream of the strainer (see Fig. 7). This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time.

### Pressure gauges

Install a pressure gauge both upstream and downstream of the strainer to monitor the pressures prevailing in the plant (see Fig. 7). Optionally with pressure gauge connections on the strainer body.



### 5.3 Installing the strainer

#### Version with flanges

1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Remove the protective caps from the strainer ports before installing the strainer.
3. Lift the strainer using suitable lifting equipment to the site of installation (see section 4.2). Observe the flow direction. The arrow on the strainer indicates the direction of flow.
4. Make sure that the correct flange gaskets are used.
5. Bolt the pipeline to the strainer free of stress.
6. Depending on the field of application, allow the strainer to cool down or heat up to reach ambient temperature before start up.

#### Version with welding ends

1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Lift the strainer using suitable lifting equipment to the site of installation (see section 4.2). Observe the flow direction. The arrow on the strainer indicates the direction of flow.
3. Weld the strainer free of stress into the pipeline.
4. Depending on the field of application, allow the strainer to cool down or heat up to reach ambient temperature before start up.

### 5.4 Start-up

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#### **⚠ DANGER**

*Risk of personal injury due to process medium escaping under pressure.*

- First start up the strainer after mounting all parts.
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#### **ⓘ NOTICE**

*Risk of the body bursting due to excessive pressure during pressure testing.*

- The pressure must not exceed the maximum permissible pressure by 1.5 times the pressure rating.
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#### **ⓘ NOTICE**

*Risk of the strainer being destroyed by steam hammering.*

- Drain off any condensate in the pipeline.
  - Vent the plant.
- 

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#### **ⓘ NOTICE**

*Risk of strainer damage due to a sudden pressure increase and resulting high flow velocities.*

- Slowly open the shut-off valve in the pipeline during start-up.
- 

Once installed in the pipeline, the strainer can be put into operation.

### 5.4.1 Gases and liquids

- Open the shut-off valves slowly preferably starting from the upstream pressure side.
- Avoid pressure surges.

### 5.4.2 Steam

- Completely drain and dry steam lines to prevent water hammering.
- Slowly allow the steam to enter the plant to ensure that the pipes and valves warm up evenly and to avoid excessive flow velocities.
- Before the full capacity is reached, drain off the start-up condensate.
- Make sure that the air contained in the plant escapes as quickly as possible.
- Open the shut-off valves slowly preferably starting from the upstream pressure side.
- Avoid pressure surges.

## 6 Servicing

The strainer does not require any maintenance. Nevertheless, it is subject to natural wear, particularly at the filter. Depending on the operating conditions, check the strainer at regular intervals to avoid possible malfunctions.

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### **⚠ DANGER**

*Risk of bursting in pressure equipment. Strainers and pipelines are pressure equipment. Improper opening can lead to bursting of the strainer.*

- *Before starting any work on the strainer, depressurize all plant sections concerned as well as the strainer.*
- *Drain the process medium from all the plant sections affected as well as from the strainer.*
- *Wear personal protective equipment.*

---

### **⚠ WARNING**

*Risk of personal injury due to residual process medium in the strainer. While working on the strainer, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns. Wear protective clothing, safety gloves and eye protection.*

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### **⚠ WARNING**

*Risk of burn injuries due to hot or cold components and pipeline.*

*Strainer components and the pipeline may become very hot or cold. Risk of burn injuries.*

- *Allow components and pipelines to cool down or heat up.*
  - *Wear protective clothing and safety gloves.*
- 

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### **ⓘ NOTICE**

*Risk of strainer damage due to incorrect service or repair.*

*Service and repair work must be performed by trained staff only.*

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### **ⓘ NOTICE**

*Risk of strainer damage due to excessively high or low tightening torques.*

*Observe the specified torques on tightening strainer components. Excessively tightened torques lead to parts wearing out quicker.*

*Parts that are too loose may cause leakage. Observe the specified tightening torques (see section 9.2).*

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### **ⓘ NOTICE**

*Risk of strainer damage due to the use of unsuitable lubricants.*

*Only use lubricants approved by SAMSON (see section 9.2).*

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**i Note**

The strainer was checked by SAMSON before it left the factory.

- Certain test results certified by SAMSON lose their validity when the strainer is opened. Such testing includes leak tests.
- 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.

**💡 Tip**

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

## 6.1 Cleaning or exchanging the filter

➔ See Fig. 2

**ⓘ NOTICE**

*Risk of strainer damage due to excessively high or low tightening torques.*

*Observe the specified torques on tightening strainer components. Excessively tightened torques lead to parts wearing out quicker.*

*Parts that are too loose may cause leakage.*

*Observe the specified tightening torques (see section 9.2).*

### Removal

1. Put the plant out of operation (see section 8.1).
2. Remove the cover (4) by unscrewing the cover nuts. See section 9.2 for size of the open-end wrench.
3. Remove filter (2) and seal (3).
4. Thoroughly clean the filter.  
Replace a damaged filter.

### Installation

1. Renew the seal (3) (see section 9.2) and insert the new seal in the cover (4).
2. Insert the filter (2) into the cover (4).
3. Mount the cover (4) by screwing on the cover nuts. Observe the tightening torques specified in section 9.2.
4. Put the plant into operation (see section 5.4).

### 6.2 Preparation for return shipment

Defective strainers can be returned to SAMSON for repair. Proceed as follows to return devices to SAMSON:

1. Put the plant out of operation (see section 8.1).
2. Decontaminate the strainer. Remove any residual process medium.
3. Fill in the Declaration on Contamination. The declaration form can be downloaded from our website at  
▶ [www.samsongroup.com](http://www.samsongroup.com) > SERVICE & SUPPORT > After-sales Service.
4. Continue as described on our website at  
▶ [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > After-sales Service > Returning goods.

### 6.3 Ordering spare parts and operating supplies

Contact your nearest SAMSON subsidiary or SAMSON's After-sales Service for information on spare parts, lubricants and tools.

#### Spare parts

See section 9.2 for details on spare parts.

#### Lubricant

See section 9.2 for details on suitable lubricants.

## 7 Malfunctions

The malfunctions listed in Table 5 are caused by mechanical faults and incorrect strainer sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required for repair work.

For troubleshooting, the conditions, such as installation, process medium, temperature and pressure conditions, must be taken into account.

SAMSON's After-sales Service can help during troubleshooting. Further information is available in section 9.1.



*SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.*

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**i Note**

Contact SAMSON's After-sales Service for malfunctions not listed in the table.

**Table 5: Troubleshooting**

Malfunction	Possible reasons	Recommended action
Pressure drops below the adjusted set point of the pressure regulator installed downstream.	Strainer installed against the flow.	<ul style="list-style-type: none"> <li>→ Install the strainer so that the direction of flow matches the direction indicated by the arrow on the body.</li> <li>→ Check the filter for deformation. Replace the filter, if necessary.</li> </ul>
	Foreign particles and dirt blocking the filter.	<ul style="list-style-type: none"> <li>→ Remove foreign particles and dirt.</li> <li>→ Replace a damaged filter.</li> </ul>
	Strainer or $K_{VS}/C_V$ coefficient too small.	<ul style="list-style-type: none"> <li>→ Check the sizing.</li> <li>→ Install the correctly sized strainer.</li> </ul>
Loud noises.	High flow velocity, cavitation.	<ul style="list-style-type: none"> <li>→ Check the sizing.</li> <li>→ If necessary, install a larger strainer.</li> <li>→ Check the filter for deformation. Replace the filter, if necessary.</li> </ul>
Leakage at the strainer.	The seal is defective.	<ul style="list-style-type: none"> <li>→ Replace damaged parts.</li> </ul>

### 8 Decommissioning and removal

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#### **⚠ DANGER**

*Risk of bursting in pressure equipment. Strainers and pipelines are pressure equipment. Improper opening can lead to bursting of the strainer.*

- *Before starting any work on the strainer, depressurize all plant sections concerned as well as the strainer.*
  - *Drain the process medium from all the plant sections affected as well as from the strainer.*
  - *Wear personal protective equipment.*
- 

#### **⚠ WARNING**

*Risk of burn injuries due to hot or cold components and pipeline.*

*Strainer components and the pipeline may become very hot or cold. Risk of burn injuries.*

- *Allow components and pipelines to cool down or heat up.*
  - *Wear protective clothing and safety gloves.*
- 

#### **⚠ WARNING**

*Risk of personal injury due to residual process medium in the strainer.*

*While working on the strainer, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.*

*Wear protective clothing, safety gloves and eye protection.*

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### 8.1 Decommissioning

To decommission the strainer for service and repair work or disassembly, proceed as follows:

1. Close the shut-off valve on the upstream side.
2. Close the shut-off valve on the downstream side.
3. Depressurize the plant.
4. If necessary, allow the pipeline and strainer to cool down or heat up.
5. Completely drain the pipelines and strainer.
6. Remove the strainer from the pipeline (see section 4.2).

### 8.2 Disposal

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

## 9 Annex

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

#### Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON, 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.

To assist diagnosis and in case of an unclear mounting situation, specify the following details (so far as possible). See section 2:

- Device type and nominal size
- Upstream and downstream pressure
- Temperature and process medium
- Max. flow rate
- Installation drawing showing the exact location of the strainer and all the additionally installed components (shut-off valves, pressure gauge etc.)

### 9.2 Spare parts, tightening torques and lubricant

**Table 6:** Order numbers for filter and seal · Tightening torques for cover screws

Valve size	Type 2 N (standard strainer insert)	Type 2 NI (dual strainer insert)	Seal
	Order no.		
	<b>0550 -</b>	<b>0550 -</b>	<b>8422 -</b>
DN 15	0222	0238	0011
DN 20	0223	0239	0019
DN 25	0224	0240	0023
DN 32	0225	0241	0029
DN 40	0226	0242	0039
DN 50	0227	0243	0048
DN 65	0228	0244	0056
DN 80	0229	0245	0065
DN 100	0230	0246	0076
DN 125	0231	0247	0084
DN 150	0232	0248	0092
DN 200	0233	0249	0102
DN 250	0234	0250	8414-1510

Valve size	Quantity of cover nuts	Size of cover nuts	Width across flats of cover nuts	Tightening torque
DN 15	2 pieces	M10	16 (17)	~30 Nm
DN 20				
DN 25				
DN 32				
DN 40				
DN 50	4 pieces	M12	18 (19)	~50 Nm
DN 65		M16	24	~100 Nm
DN 80				
DN 100				
DN 125				
DN 150				
DN 200	8 pieces	M20	30	~170 Nm
DN 250	10 pieces			

Table 7: Recommended lubricant

Designation	Temperature range in °C	Color	Packs in g	Item no. of lubricant
Gleitmo 1763 V	-20 to +1000	Gray	5000	8150-0119
			250	8150-4008
			100	8150-4010

### 9.3 Certificates

The EU declarations of conformity are included on the next pages.

SMART IN FLOW CONTROL.



## EU-KONFORMITÄTSERKLÄRUNG EU DECLARATION OF CONFORMITY

### Modul H/Module H Nr./No. / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares under its sole responsibility:

#### Schmutzfänger/Strainers

Typ 2 N, 2 NI (Erz.-Nr. 2602)

die Konformität mit nachfolgender Anforderung/the conformity with the following requirement.

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt. 2014/68/EU vom 15.05.2014

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment. 2014/68/EU of 15 May 2014

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1) (c.i) erster Gedankenstrich. Modul siehe Tabelle durch  
Conformity assessment procedure applied for fluids according to Article 4 (1)(c.i), first indent. See table for module certified by Bureau Veritas S. A. (0062)

Nenndruck Nominal pressure	DN NPS	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65 -	80 3	100 4	125 -	150 6	200 8	250 10
PN 25		ohne								H				
PN 40		ohne								H				
Class 300		ohne								H				

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

Devices whose conformity has been assessed based on Module H refer to the certificate of approval for the quality management system issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus:/The design is based on the procedures specified in the following standards:  
DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.34, ASME B16.42

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:  
The manufacturer's quality management system is monitored by the following notified body:

Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Ile de la Jatte, 92200 Neuilly sur Seine, France  
Hersteller:/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 08. Februar 2017/08 February 2017

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Revision 03

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**EU-KONFORMITÄTSERKLÄRUNG  
EU DECLARATION OF CONFORMITY**

**Modul H/Module H, Nr./No. / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A**

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares under its sole responsibility:

**Schmutzfänger/Strainers**

Typ/Type 1N, 1NI, 1FN, 1FNI (Erz.-Nr./Model No. 2601), 2N, 2NI (2602)

die Konformität mit nachfolgender Anforderung/the conformity with the following requirement

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt.	2014/68/EU	vom 15.05.2014
Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating of the making available on the market of pressure equipment.	2014/68/EU	of 15 May 2014
Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1)(c.ii) und (c.i) zweiter Gedankenstrich.	Modul siehe Tabelle	durch certified by Bureau Veritas S. A. (0062)
Conformity assessment procedure applied for fluids according to Article 4(1)(c.ii) and (c.i), second indent	See table for module	

Typ/Type	Neindruck Pressure rating	DN NPS	- 3/8	15 1/2	20 3/4	25 1	32 1 1/4	40 1 1/2	50 2	65 -	80 3	100 4	125 -	150 6	200 8	250 10
2N, 2NI	PN 10 / PN 16		---	ohne/without						A (1)				H		
1N, 1NI, 1FN, 1FNI	PN 25			ohne/without					A (1)							

(1) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.  
The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.  
Devices whose conformity has been assessed based on Module H refer to the certificate of approval for the quality management system issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus:/The design is based on the procedures specified in the following standards:  
DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42

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Frankfurt am Main, 08. Februar 2017/08 February 2017

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Zentralabteilungsleiter/Head of Central Department  
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*Dr. Michael Heß*

Dr. Michael Heß  
Zentralabteilungsleiter/Head of Central Department  
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**EB 1015 EN**



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