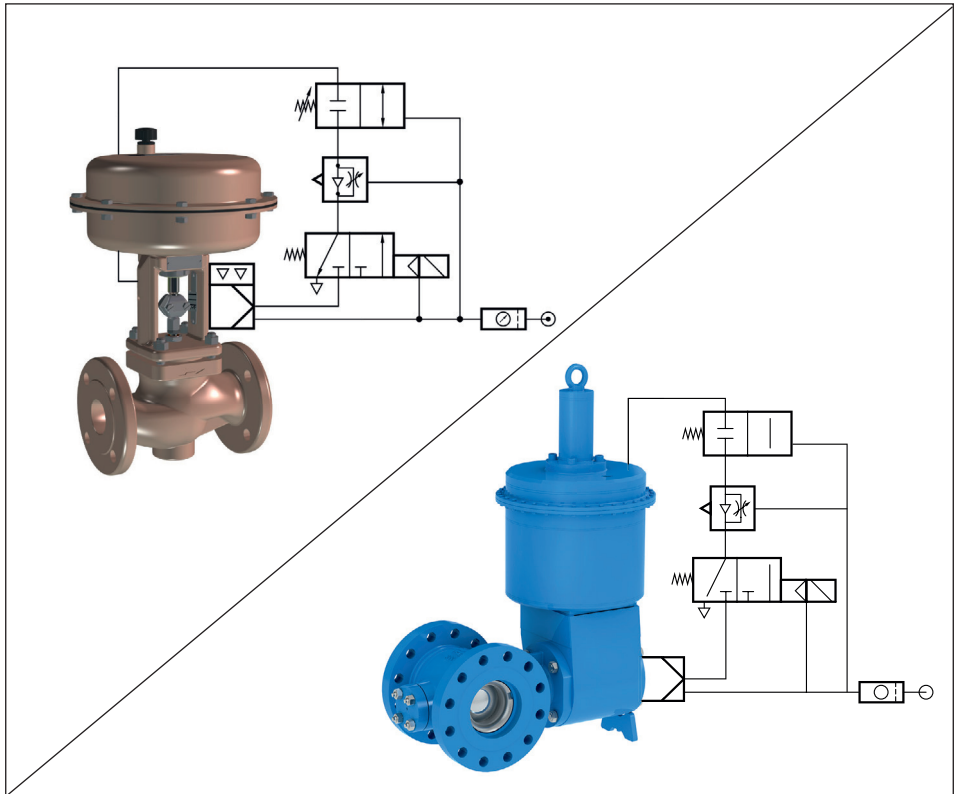




## H 02 EN

### Translation of original instructions



## Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery

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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*

<b>1</b>	<b>Use of valve accessories with SAMSON pneumatic control valves.....</b>	<b>5</b>
1.1	Role of valve accessories.....	5
1.2	Valve accessories as machinery components .....	6
<b>2</b>	<b>Interfaces on the control valve.....</b>	<b>8</b>
2.1	Globe valves .....	8
2.1.1	Valve yoke.....	8
2.1.2	Actuator yoke .....	8
2.1.3	Actuator stem .....	8
2.1.4	Signal pressure connection .....	9
2.2	Rotary valves .....	10
2.2.1	Free shaft end.....	10
2.2.2	Signal pressure connection .....	10
<b>3</b>	<b>Requirements placed on the manufacturer, operator and qualified personnel .</b>	<b>12</b>
<b>4</b>	<b>Technical specifications of the valve accessories .....</b>	<b>13</b>
<b>5</b>	<b>Activity-related notes on personal injury prevention.....</b>	<b>15</b>
5.1	General notes on possible severe personal injury.....	16
5.2	General notes on possible personal injury.....	17
<b>6</b>	<b>Appropriate valve accessories.....</b>	<b>18</b>
6.1	Positioners .....	18
6.2	Limit switches.....	20
6.3	Solenoid valves.....	20
6.4	Pneumatic lock-up valve .....	21
6.5	Supply pressure regulators.....	21
6.6	Volume boosters .....	22
6.7	Quick exhaust valves.....	22
6.8	i/p converters.....	23
6.9	Reversing amplifiers .....	23
6.10	Position transmitter .....	24
<b>7</b>	<b>Annex.....</b>	<b>25</b>
7.1	Instructions for pneumatic actuators .....	25
7.1.1	SAMSON product range.....	25
7.1.2	PFEIFFER product range.....	26
7.1.3	VETEC product range .....	26
7.2	Signal pressure connections for pneumatic actuators .....	27

## Contents

7.2.1	SAMSON product range .....	27
7.2.2	PFEIFFER product range.....	28
7.2.3	VETEC product range .....	28

# 1 Use of valve accessories with SAMSON pneumatic control valves

## Terms and definitions

In this manual, 'SAMSON control valves' includes all control valves by SAMSON AKTIENGESELLSCHAFT as well as by our subsidiaries Pfeiffer Chemie-Armaturen GmbH and VETEC Ventiltechnik GmbH.

## 1.1 Role of valve accessories

Valve accessories are mounted onto pneumatic control valves to create an engineered control unit for certain applications:

- **Positioners** ensure a predetermined assignment of the valve position to the control signal and supply a corresponding output signal pressure.
- **Limit switches** are suitable for automation of on/off applications and issue an electric binary signal when the valve travel exceeds or falls below an adjusted limit. The signal can be used, for example for switching control signals, issuing visual and audible alarms or for connection to central control or alarm systems.
- **Solenoid valves** serve as switching elements for the opening and closing of the valve assembly or act as safety control circuits for connected valve accessories to form the interface between the electric control level and the pneumatic actuator.
- **Lock-up valves** are used to shut off the signal pressure line of pneumatic actuators. They shut off the line either when the air supply falls below an adjusted limit or in case of complete air supply failure. This causes the actuator to fail in place.
- **Supply pressure regulators** are used to provide pneumatic measuring and control equipment with a constant supply pressure. They reduce and control the pressure of a compressed air network to the pressure adjusted at the set point adjuster.
- **Volume boosters** are used together with positioners to increase the positioning speeds of pneumatic actuators. They influence the process to vent or supply the actuator, which causes the control valve to open or close more quickly.
- **Quick exhaust valves** are used to reduce the time required for venting pneumatic actuators.
- **Electropneumatic converters** are used to convert a direct current input signal into a pneumatic output signal for measuring and control tasks. They act as the interface between electric control devices and pneumatic control valves.
- The **reversing amplifier** allows double-acting pneumatic actuators to be operated using single-acting pneumatic/electropneumatic positioners or limit switches.

- The **position transmitters** mounted onto control valves convert the linear or rotary motion of a control valve into a standardized electric signal.

### 1.2 Valve accessories as machinery components

The valve accessories listed in section 1.1 are classified as machinery components in the declaration of conformity of full machinery issued by SAMSON and do not fall within the scope of the Machinery Directive as specified in § 35 and § 46 of the Guide to Application of the Machinery Directive 2006/42/EC <sup>1)</sup> issued by the European Commission.

SAMSON defines the interfaces of the control valve to the valve accessories and the requirements SAMSON places on valve accessories in the following sections. Valve accessories are only considered to be machinery components when these requirements are met.

The declarations of conformity for pneumatic control valves issued by SAMSON in compliance with the Machinery Directive 2006/42/EC only apply to control valves which are fitted with appropriate machinery components. The operator of the control valve must perform a new conformity assessment procedure for final machinery if different machinery components are used.

<sup>1)</sup> European Commission, July 2017. Guide to Application of the Machinery Directive 2006/42/EC. Update of 2nd edition

## Example

### EU DECLARATION OF CONFORMITY TRANSLATION



#### Declaration of Conformity of Final Machinery

in accordance with Annex II, section 1.A. of the Directive 2006/42/EC

For the following products:

#### Types 3251-1/-7 Pneumatic Control Valves consisting of the Type 3251 Valve and Type 3271/Type 3277 Pneumatic Actuator

We hereby declare that the machinery mentioned above complies with all applicable requirements stipulated in Machinery Directive 2006/42/EC.

For product descriptions of the valve and actuator, refer to:

- Type 3251 Valve (DIN): Mounting and Operating Instructions EB 8051
- Type 3251 Valve (ANSI): Mounting and Operating Instructions EB 8052
- Types 3271 and 3277 Actuators: Mounting and Operating Instructions EB 8310-X

Valve accessories (e.g. positioners, limit switches, solenoid valves, lock-up valves, supply pressure regulators, volume boosters and quick exhaust valves) are classified as machinery components in this declaration of conformity and do not fall within the scope of the Machinery Directive as specified in § 35 and § 46 of the Guide to Application of the Machinery Directive 2006/42/EC issued by the European Commission. In the SAMSON Manual H 02 titled "Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery", SAMSON defines the specifications and properties of appropriate machinery components that can be mounted onto the above specified final machinery.

Referenced technical standards and/or specifications:

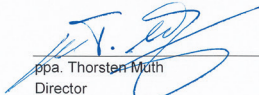
- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03


Comment:

Information on residual risks of the machinery can be found in the mounting and operating instructions of the valve and actuator as well as in the referenced documents listed in the mounting and operating instructions.

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Revision no. 01

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Page 1 of 1

Fig. 1: EU declaration of conformity of final machinery (example)

## 2 Interfaces on the control valve

Valve accessories are mounted and connected to the pneumatic control valve in order for them to perform their functional role.

### 2.1 Globe valves

Relevant interfaces on linear-motion control valves include:

- Valve yoke to mount valve accessories (see section 2.1.1)
- Actuator yoke to mount valve accessories (see section 2.1.2)
- Actuator stem for travel pick-off by the positioner or limit switch (see section 2.1.3)
- Signal pressure connection on the actuator to connect the actuator to the valve accessories (see section 2.1.4)

#### 2.1.1 Valve yoke

**Scope:** all pneumatic control valves (consisting of the valve and a Type 3271 or Type 3277 Pneumatic Linear Actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

SAMSON globe valves are fitted with a valve yoke which permits the standardized attachment of valve accessories.

- Attachment according to IEC 60534-6 (see Fig. 2)
- Attachment according to VDI/VDE 3847-1

#### 2.1.2 Actuator yoke

**Scope:** all pneumatic control valves (consisting of the valve and a Type 3277 Pneumatic Linear Actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

The Type 3277 Pneumatic Linear Actuator has an actuator yoke on which valve accessories can be mounted:

- Direct attachment (see Fig. 3)
- Attachment according to VDI/VDE 3847-1 (see Fig. 4)

#### 2.1.3 Actuator stem

**Scope:** all pneumatic control valves (consisting of the valve and a Type 3271 or Type 3277 Pneumatic Linear Actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

**Positioners** and **limit switches** that use position sensing systems with direct contact have a follower clamp to link the position sensing system to the actuator stem.



## 2.1.4 Signal pressure connection

**Scope:** all pneumatic control valves (consisting of the valve and a Type 3271 or Type 3277 Pneumatic Linear Actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

The valve plug in pneumatic control valves is positioned based on the signal pressure acting on the springs of the linear actuator. In a pneumatic control valve with valve accessories, the air for the signal pressure is routed through the signal pressure connection into the pneumatic linear actuator (depending on the type of attachment).

The maximum permissible supply pressure of Type 3271 and Type 3277 Pneumatic Linear Actuators is 6 bar for throttling service. In on/off service, the supply pressure must be limited depending on the bench range or operating range of the actuator. The applicable bench range or operating range through which the actuator can move is written on the actuator nameplate.

- With fail-safe action "actuator stem retracts", the permissible supply pressure must not exceed the upper bench range value by more than 3 bar.
- With fail-safe action "actuator stem extends" and travel stop, the supply pressure must not exceed the upper signal range value by more than 1.5 bar.



**Fig. 2:**  
Attachment of a solenoid valve according to IEC 60534-6 (example)



**Fig. 3:**  
Integral positioner attachment (example)



**Fig. 4:**  
Attachment of a solenoid valve according to VDI/VDE 3847-1 (example)

### 2.2 Rotary valves

Relevant interfaces on rotary-motion control valves include:

- The free shaft end of the rotary actuator fitted with appropriate accessories allows the rotary motion to be sensed by positioners and limit switches (see section 2.1.3)
- Signal pressure connection on the actuator to connect the actuator to the valve accessories (see section 2.1.4)

#### 2.2.1 Free shaft end

**Scope:** all pneumatic control valves (consisting of the valve and a rotary actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

The free shaft end of rotary actuators can be connected to valve accessories using one of two standardized types of attachment (see Table 1):

- Mounting according to VDI/VDE 3845-1 (EN 15714-3)
- Direct attachment for positioners according to VDI/VDE 3847-2

#### 2.2.2 Signal pressure connection

**Scope:** all pneumatic control valves (consisting of the valve and a rotary actuator) for which SAMSON declares conformity of final machinery in compliance with the Machinery Directive 2006/42/EC

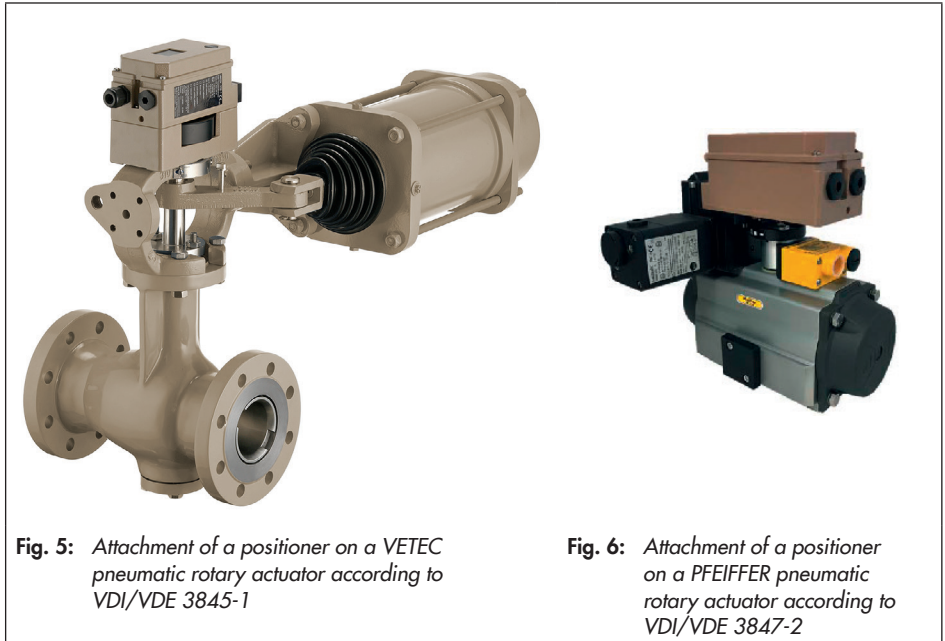
SAMSON rotary actuators have threaded supply connections according to EN 15714-3 and VDI/VDE 3845-1 which allow the standardized attachment of valve accessories.

The valve shaft of pneumatic rotary valves is turned by the signal pressure that acts on the actuator piston or actuator diaphragm. In a rotary valve with valve accessories, the air for the signal pressure is routed through the signal pressure connection into the rotary actuator.

The maximum permissible supply pressure of SAMSON rotary actuators is specified on the actuator nameplate and in the associated technical documentation.

**Table 1:** Types of attachment for SAMSON rotary actuators

SAMSON rotary actuator	VDI/VDE 3845-1 (EN 15714-3)	VDI/VDE 3847-2
PFEIFFER: Type 30a	•	
PFEIFFER: Type 31a, DAP version	•	
PFEIFFER: Type 31a, DAP version (edition 2020+)	•	•
PFEIFFER: Type 31a, SRP version	•	
PFEIFFER: Type 31a, SRP version (edition 2020+)	•	•
SAMSON: Type 3278	•	
VETEC: AT	•	•
VETEC: MD	•	
VETEC: MN	•	
VETEC: MZ	•	
VETEC: R	•	



**Fig. 5:** Attachment of a positioner on a VETEC pneumatic rotary actuator according to VDI/VDE 3845-1

**Fig. 6:** Attachment of a positioner on a PFEIFFER pneumatic rotary actuator according to VDI/VDE 3847-2

### 3 Requirements placed on the manufacturer, operator and qualified personnel

---

#### **i Note**

*The term 'qualified personnel' is used in following and has the same meaning as 'operator' defined in section 1.1.1 (Definitions) in the Machinery Directive 2006/42/EC. In the Machinery Directive, 'operator' is defined as the person or persons installing, operating, adjusting, maintaining, cleaning, repairing or moving machinery.*

---

To ensure safe use of the pneumatic control valves, the manufacturers and operators of valve accessories as well as the qualified personnel who use and operate them must meet the safety requirements in order for the valve accessories to be considered to be appropriate machinery components for pneumatic control valves as defined in the declarations of conformity in compliance with the Machinery Directive 2006/42/EC issued by SAMSON.

#### **Manufacturer of valve accessories**

The manufacturer of valve accessories provides a safe product according to Directive 2001/95/EC (product safety legislation (ProdSG) in Germany) according to the CE directives to be taken into account for the valve accessory (e.g. low voltage directive 2014/35/EU, ATEX Directive 2014/34/EU). The necessary information on safety for users is indicated in the device's mounting and operating instructions and as warnings on the actual valve accessory.

#### **Operator**

The operator makes sure that only appropriate machinery components as specified in section 6 are used on the control valve. The operator of the control valve must perform a new conformity assessment procedure for final machinery if different machinery components are used.

The operators provides the mounting and operating instructions of the valve accessories used to qualified personnel and instructs them in proper use.

The operator ensures that the valve accessory is mounted, started up, serviced and repaired by qualified personnel only; the accepted industry codes and practices must be observed. According to this manual, qualified personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards. Explosion-protected versions of devices must be operated only by qualified personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

Plant operators must ensure that, after installation of the device, the qualified personnel can perform all necessary work safely and easily access the device from the work position. The work position for the control valve is the front view looking onto the operating controls (including valve accessories) as seen by the qualified personnel.

### Qualified personnel

The qualified personnel reads and understands the mounting and operating instructions of the valve accessories and adheres to the specified hazard statements, warning and caution notes. Furthermore, the qualified personnel is familiar with the applicable health, safety and accident prevention regulations and complies with them.

## 4 Technical specifications of the valve accessories

To ensure safe use of the pneumatic control valves, the valve accessories must have specific features in order for them to be considered to be appropriate machinery components for pneumatic control valves as defined in the declaration of conformity in compliance with the Machinery Directive 2006/42/EC issued by SAMSON.

Each valve accessory used must meet the requirements listed in following. If certain requirements cannot be met, the valve accessory cannot be considered to be an appropriate machinery component unless the operators recognizes the risk posed by the valve accessories and safeguards against it by taking appropriate protective measures.

### Conformity

- ☑ Valve accessories which are subject to CE marking requirements have a CE marking. The associated declaration of conformity provides the operator with information about the applied CE directives.

### Design

- ☑ Surfaces, edges, angles and accessible parts (e.g. electrical terminals) must be designed in such a way that, when mounted properly, the valve accessory does not pose a risk of injury.
- ☑ Set point screws, tuning screws and bypass screws must be designed in such a way that they do not pose a hazard for qualified personnel when they are used properly. Alternatively, valve accessories can be used which have set point screws, tuning screws and bypass screws that have proven in use to pose no risk.
- ☑ The valve accessory has a housing or body to ensure that any moving parts are not freely accessible during operation.

### Materials used

- ☑ The materials used in an electric or electronic valve accessory are RoHS compliant. Furthermore, the manufacturer fulfills its duty to provide information (e.g. on its website) to operators as defined in the REACH Regulation.

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#### **i** Note

*According to the REACH Regulation, the duty of the manufacturer to provide information applies immediately after a substance has been added to the candidate list. The duty to provide information does not apply retrospectively for products that have already been delivered.*

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### Dimensions and weights

- ☑ Only valve accessories are used which have dimensions and weights that allow them to be mounted securely in place on the control valve or in the signal pressure line.

The total weight depends on the hook-up design selected, the number of mounted components included and the connecting elements required as a result. The total weight must not exceed the following recommended value:

#### Linear-motion control valves:

- Attachment according to IEC 60534-6, VDI/VDE 3847-1 and direct attachment: max. 5.5 kg
- Mounted in the signal pressure line: max. 5.2 kg

#### Rotary-motion control valves:

- Auxiliary mounting parts (see section 2.2.1): max. 5.5 kg
  - Supply connections (see section 2.2.2): max. 5.5 kg
- The listed values must not be exceeded for the actuator interfaces with  $R_{p0.2} > 150$  MPa.

The valve accessories must not block moving parts on the control valve nor conceal operating controls.

### Attachment

- ☑ The device is mounted according to the manufacturer's mounting and operating instructions.

- ☑ Only original mounting kits and accessories by the manufacturer were used to mount the device. Alternatively, other mounting kits complying with the standards can be used for attachment according to IEC 60534-6 or VDI/VDE 3847.
- ☑ Valve accessories which vent under pressure (e.g. volume booster) must be installed in such a way that vent holes are not located at eye level in the work position. If this is not possible, the valve accessory cannot be considered to be an appropriate machinery component unless the risk posed by the vent hole is prevented by taking appropriate protective measures.

### Noise level

- ☑ Valve accessories which produce high noise emissions during operation (e.g. volume booster) must be fitted with noise-reducing parts (e.g. silencer). If this is not possible, the valve accessory cannot be considered to be an appropriate machinery component unless the risk posed by the noise emissions is prevented by taking appropriate protective measures.

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#### **i** Note

*According to the Guide to Application of the Machinery Directive 2006/42/EC, exposure of workers to noise is subject to the national provisions implementing Directive 2003/10/EC on the exposure of workers to the risks arising from noise.*

*In Germany, the regulation governing noise and vibration at the workplace applies in this case. This stipulates that the employer must establish and implement a program of technical and organizational measures to reduce exposure to noise if one of the upper exposure action values is exceeded. The upper exposure action values are:*

- Daily noise exposure level: 85 dB(A)*
- Peak sound pressure level: 137 dB(C)*

*Technical measures have priority over organizational measures.*

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### Hook-ups

- ☑ Signal pressure lines between valve accessories as well as between a valve accessory and the pneumatic actuator have a fixed connection. If necessary, they are secured by additional brackets, for example when devices mounted in the hook-up are heavy or when considerable vibrations occur.
- ☑ Signal pressure lines in hook-ups are designed for the maximum signal pressure.
- ☑ Signal pressure lines are fixed with suitable fittings to prevent injury as a result of exhaust air being vented to the atmosphere:
  - The connection on the valve accessory is defined by the manufacturer of the valve accessory. See specification in the operating instructions.
  - Section 7.2 as well as the instructions of the pneumatic actuator used (see section 7.1) apply to the actuator connection.

### Supply pressure

- ☑ The maximum permissible supply pressure at the pneumatic actuator is observed (see section 2.1.4).

### Operating conditions

- ☑ The valve accessories used are suitable for the prevailing operating conditions (e.g. ambient temperature, vibrations, air humidity).
- ☑ In potentially explosive atmospheres, only those valve accessories are used which are approved correspondingly for hazardous areas.
- ☑ The following regulations apply to installation in hazardous areas: EN 60079-14:2008.

## 5 Activity-related notes on personal injury prevention

The technical specifications cannot rule out all risks posed by the valve accessories. Therefore, the following still applies concerning the safe use of the control valve:

- ➔ Read the operating instructions for the valve, pneumatic actuator and valve accessories used.

The instructions in section 7.1 apply to the pneumatic actuators used.
- ➔ Observe the following general notes on possible personal injury (see section 5.1 and 5.2).

## 5.1 General notes on possible severe personal injury

### DANGER

#### Risk of bursting in pressure equipment.

Valves and pipelines are pressure equipment. Impermissible pressure or improper opening can lead to valve components bursting.

- Observe the maximum permissible pressure for valve and plant.
- Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.

#### Risk of fatal injury due to the ignition of an explosive atmosphere.

In control valves used in potentially explosive atmospheres, incorrect installation, operation or maintenance of the valve accessories may lead to ignition of the atmosphere and ultimately to death.

- Use valve accessories that meet explosion protection requirements.
- The following regulations apply to installation in hazardous areas: EN 60079-14: 2008 (VDE 0165, Part 1).
- Installation, operation or servicing of the valve accessories used must only be performed by qualified personnel who has undergone special training or instructions or who is authorized to work on ex-

plosion-protected devices in hazardous areas.

#### Risk of fatal injury as a result of electrostatic discharge at the devices.

In certain valve accessories, an electric spark generated by electrostatic discharge may lead to ignition of a potentially explosive atmosphere and result in death.

- Avoid using objects or equipment made of insulating materials. In cases where objects or equipment made of conductive or dissipative materials cannot be used, take appropriate precautions against dangerous electrostatic charging.
- Only use objects or equipment made of conductive or dissipative materials in potentially explosive atmospheres.
- In hazardous areas, mount the device in such a way that electrostatic charging cannot take place.

#### Risk of fatal injury due to electric shock.

In valve accessories which are subject to regulations for low-voltage installations, an electric shock due to incorrect work practices may result in death.

- Before connecting wiring, performing any work on the device or opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- For electrical installation, observe the relevant electrotechnical regulations and the accident prevention regulations that apply in the country of use.



- In Germany, observe the VDE regulations and the accident prevention regulations of the employers' liability insurance.
- Do not open devices with flameproof enclosures while they are energized.

### **Risk of asphyxiation when using nitrogen as the pneumatic supply.**

In valve accessories which use nitrogen as the pneumatic supply, there is a risk of the air being displaced by the nitrogen.

- Operate the control valve in well-ventilated spaces.
- Discharge the exhaust air over a common pipe to the atmosphere.

## **5.2 General notes on possible personal injury**

### **⚠ WARNING**

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

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

- Prior to performing any work on the valve, allow components and pipelines to cool down or warm up.
- Wear protective clothing and safety gloves.

#### **Risk of personal injury due to exhaust air being vented.**

While the valve is operating, the actuator, solenoid valve, quick exhaust valve or vol-

ume booster may vent during closed-loop control or when the valve opens or closes.

- Wear eye protection when working in close proximity to the control valve.

#### **Crush hazard arising from moving parts.**

The control valve contains moving parts (actuator and plug stem), which can injure hands or fingers if inserted into the valve.

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

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

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

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

## Appropriate valve accessories

### **Risk of personal injury through incorrect operation, use or installation as a result of information on the device being illegible.**

Over time, markings, labels and nameplates on the valve may become covered with dirt or become illegible in some other way. As a result, hazards may go unnoticed and the necessary instructions not followed. There is a risk of personal injury.

- Keep all relevant markings and inscriptions on the device in a constantly legible state.
- Immediately renew damaged, missing or incorrect nameplates or labels.

### **Risk of hearing loss or deafness due to loud noise.**

The noise emissions depend on the valve version, valve accessories used, plant facilities and process medium.

- Wear hearing protection when working near the valve.

## 6 Appropriate valve accessories

### 6.1 Positioners

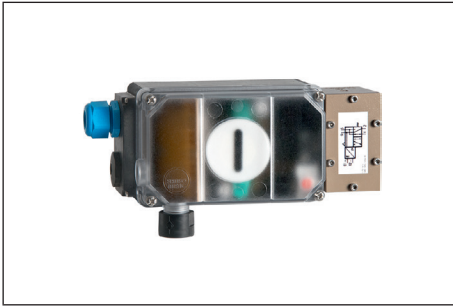


SAMSON declares conformity of the pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the following positioners (appropriate machinery components):

- **Type 3725 Electropneumatic Positioner (SAMSON)**, all firmware versions
- **Type 3730-0 Electropneumatic Positioner (SAMSON)**
- **Type 3730-1 Electropneumatic Positioner (SAMSON)**, all firmware versions
- **Type 3730-2 Electropneumatic Positioner (SAMSON)**, integrated EXPERTplus valve diagnostics, all firmware versions

- **Type 3730-3 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **Type 3730-4 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, PROFIBUS-PA communication, all firmware versions
- **Type 3730-5 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, FOUNDATION™ fieldbus communication, all firmware versions
- **Type 3730-6 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **Type 3731-3 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **Type 3731-5 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, FOUNDATION™ fieldbus communication, all firmware versions
- **TROVIS 3730-1 Electropneumatic Positioner** (SAMSON), all firmware versions
- **TROVIS 3730-3 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **TROVIS 3793 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **TROVIS SAFE 3730-6 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **TROVIS SAFE 3731-3 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **TROVIS SAFE 3793 Electropneumatic Positioner** (SAMSON), integrated EXPERTplus valve diagnostics, HART® communication, all firmware versions
- **Type 3767 Electropneumatic Positioner** (SAMSON)
- **Type 3766 Pneumatic Positioner** (SAMSON)
- **Type 4763 Electropneumatic Positioner** (SAMSON)
- **Type 4765 Pneumatic Positioner** (SAMSON)
- **Positioner by other manufacturers** provided the conditions specified in this manual are met

## 6.2 Limit switches



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the limit switches listed below (appropriate machinery components):

- **Type 3738-20 Electronic Limit Switch** (SAMSON), all firmware versions
- **Type 3738-50 Electronic Limit Switch** (SAMSON), FOUNDATION™ fieldbus communication, all firmware versions
- **Type 3768 Inductive Limit Switch** (SAMSON)
- **Type 3776 Limit Switch** (SAMSON)
- **Type 4740 Electric Limit Switch** (SAMSON)
- **Type 4744 Electric Limit Switch** (SAMSON)
- **Type 4746 Electric or Pneumatic Limit Switch** (SAMSON)
- **Type 4747 Limit Switch** (SAMSON)

- **Limit switches by other manufacturers** provided the conditions specified in this manual are met

## 6.3 Solenoid valves



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the solenoid valves listed below (appropriate machinery components):

- **Type 3962 Ex d Solenoid Valve** (SAMSON)
- **Type 3963 Solenoid Valve** (SAMSON)
- **Type 3966 Solenoid Valve** (SAMSON)
- **Type 3967 Solenoid Valve** (SAMSON)
- **Type 3969 Solenoid Valve** (SAMSON)
- **Solenoid valves by other manufacturers** provided the conditions specified in this manual are met

## 6.4 Pneumatic lock-up valve



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the lock-up valves listed below (appropriate machinery components):

- **Type 3709 Pneumatic Lock-Up Valve (SAMSON)**
- **Lock-up valves by other manufacturers** provided the conditions specified in this manual are met

## 6.5 Supply pressure regulators



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the supply pressure regulators listed below (appropriate machinery components):

- **Type 4708 Supply Pressure Regulator (SAMSON)**
- **Supply pressure regulators by other manufacturers** provided the conditions specified in this manual are met

## 6.6 Volume boosters



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the volume boosters listed below (appropriate machinery components):

- **Type 3755 Volume Booster (SAMSON)**
- **Volume boosters by other manufacturers** provided the conditions specified in this manual are met

## 6.7 Quick exhaust valves



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the quick exhaust valves listed below (appropriate machinery components):

- **Type 3711 Quick Exhaust Valve (SAMSON)**
- **Quick exhaust valves by other manufacturers** provided the conditions specified in this manual are met

## 6.8 i/p converters



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the i/p converters listed below (appropriate machinery components):

- **Type 6111 i/p Converter (SAMSON)**
- **Type 6116 i/p Converter (SAMSON)**
- **Type 6126 i/p Converter (SAMSON)**
- **i/p converters by other manufacturers** provided the conditions specified in this manual are met

## 6.9 Reversing amplifiers



SAMSON declares the conformity for pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the reversing amplifiers listed below (appropriate machinery components):

- **Type 3710 Reversing Amplifier (SAMSON)**
- **Reversing amplifiers by other manufacturers** provided the conditions specified in this manual are met

## 6.10 Position transmitter



SAMSON declares conformity of the pneumatic control valves as defined in the issued declaration of conformity in compliance with the Machinery Directive 2006/42/EC when the control valve is operated with one of the following position transmitters (appropriate machinery components):

- **Type 4749 Position Transmitter**  
(SAMSON)
- **Position transmitters by other manufacturers** provided the conditions specified in this manual are met



## 7 Annex

### 7.1 Instructions for pneumatic actuators

#### 7.1.1 SAMSON product range



Documents relating to the device, such as the mounting and operating instructions, are available on our website at [www.samsongroup.com](http://www.samsongroup.com) > **Service & Support > Downloads > Documentation.**

**Table 2:** Mounting and operating instructions for Type 3271 and Type 3277 Pneumatic Linear Actuators

Actuator	Type 3271														Type 3277								
	120 cm <sup>2</sup>	175v2 cm <sup>2</sup>	240 cm <sup>2</sup>	350 cm <sup>2</sup>	350v2 cm <sup>2</sup>	355v2 cm <sup>2</sup>	700 cm <sup>2</sup>	750v2 cm <sup>2</sup>	1000 cm <sup>2</sup>	1400-60 cm <sup>2</sup>	1400-120 cm <sup>2</sup>	1400-250 cm <sup>2</sup>	2800 cm <sup>2</sup>	2x 2800 cm <sup>2</sup>	120 cm <sup>2</sup>	175v2 cm <sup>2</sup>	240 cm <sup>2</sup>	350 cm <sup>2</sup>	350v2 cm <sup>2</sup>	355v2 cm <sup>2</sup>	700 cm <sup>2</sup>	750v2 cm <sup>2</sup>	
EB 8310-1	•														•								
EB 8310-2								•															
EB 8310-3									•														
EB 8310-4						•														•			
EB 8310-5		•			•			•								•			•				•
EB 8310-6			•	•			•										•	•				•	
EB 8310-7											•		•	•									
EB 8310-8												•											

**Table 3:** Mounting and operating instructions of the Type 3278 Pneumatic Rotary Actuator

Actuator	Type 3278
	EB 8321

## 7.1.2 PFEIFFER product range



Documents relating to the device, such as the mounting and operating instructions, are available on the following website ([www.pfeiffer-armaturen.com](http://www.pfeiffer-armaturen.com) > **Product documentation**).

**Table 4:** Operation, mounting and maintenance instructions for Type 30a and Type 31a Pneumatic Rotary Actuators

Actuator	Type 30a	Type 31a, DAP version	Type 31a, DAP version (edition 2020+)	Type 31a, SRP version	Type 31a, SRP version (edition 2020+)
	EB 30a	EB 31a	EB 31a	EB 31a	EB 31a

## 7.1.3 VETEC product range



Documents relating to the device, such as the mounting and operating instructions, are available on our website at [www.samsongroup.com](http://www.samsongroup.com) > **Service & Support > Downloads > Documentation**.

**Table 5:** Installation instructions for AT, MD, MN, MZ and R Pneumatic Rotary Actuators

Actuator	AT	MD	MN	MZ	R	S
	EB 005,002	EB 005,003	EB 005,004	EB 005,003	EB 005,001	EB 8321

## 7.2 Signal pressure connections for pneumatic actuators

### 7.2.1 SAMSON product range

**Table 6:** Signal pressure connections on Type 3271 and Type 3277 Pneumatic Linear Actuators

	Type 3271												Type 3277										
Diaphragm area	120 cm <sup>2</sup>	175v2 cm <sup>2</sup>	240 cm <sup>2</sup>	350 cm <sup>2</sup>	350v2 cm <sup>2</sup>	355v2 cm <sup>2</sup>	700 cm <sup>2</sup>	750v2 cm <sup>2</sup>	1000 cm <sup>2</sup>	1400-60 cm <sup>2</sup>	1400-120 cm <sup>2</sup>	1400-250 cm <sup>2</sup>	2800 cm <sup>2</sup>	2x 2800 cm <sup>2</sup>	120 cm <sup>2</sup>	175v2 cm <sup>2</sup>	240 cm <sup>2</sup>	350 cm <sup>2</sup>	350v2 cm <sup>2</sup>	355v2 cm <sup>2</sup>	700 cm <sup>2</sup>	750v2 cm <sup>2</sup>	
Without															•								
G 1/8 or 1/8 NPT	•																						
G 1/4 or 1/4 NPT		•	•													• 1)	• 1)						
G 3/8 or 3/8 NPT				•	•	•	•	•									• 1)	• 1)	• 1)	• 1)	• 1)	• 1)	• 1)
G 3/4 or 3/4 NPT									•	•													
G 1 or 1 NPT											•	•	•	•									

1) G 3/8 connection always used on yoke

**Table 7:** Signal pressure connections on Type 3278 Pneumatic Rotary Actuator

Actuator	Type 3278
	G 1/4

## 7.2.2 PFEIFFER product range

**Table 8:** Signal pressure connections on Type 30a and Type 31a Pneumatic Actuators

Actuator	Type 30a	Type 31a, DAP version	Type 31a, DAP version (edition 2020+)	Type 31a, SRP version	Type 31a, SRP version (edition 2020+)
G 1/8		•	•	•	•
G 1/4	•	•	•	•	•
G 3/8	•	•		•	
G 1/2	•	•		•	
G 3/4		•		•	
G 1		•		•	

## 7.2.3 VETEC product range

**Table 9:** Signal pressure connections on AT, MD, MN, MZ and R Pneumatic Actuators

	S160	S320	R110/110v	R150/150v	R200/200v	R250/250v	R250vv	MN200	MN300	MZ450	MD450	MZ700	MD700	AT60	AT100	AT15	AT20	AT300	AT450	AT600	AT900	AT1200	AT2000	AT5000
G 1/8														•	•									
G 1/4	•	•	•	•												•	•	•	•	•	•	•		
G 3/8																							•	
G 1/2					•	•	•	•	•	•		•												•
G 3/4																								
G 1										•	•	•	•											









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