

# MOUNTING AND OPERATING INSTRUCTIONS



## EB 8113/8114 EN

Translation of original instructions



### **Type 3323 Valve · DIN and ANSI versions**

In combination with actuators,  
e.g. SAMSON Type 3372 Electropneumatic Actuator, Type 3371  
Pneumatic Actuator, Type 5824, Type 5827 or Type 3374 Electric  
Actuator

Edition November 2022



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



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.**

## 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 3323 Three-way Valve in combination with an actuator (e.g. Type 3372 Electropneumatic Actuator, Type 3371 Pneumatic Actuator, Type 5824, Type 5827 or Type 3374 Electric Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors. The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control 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 control valve in applications or conditions other than those 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 control valve is not suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data
- Use outside the limits defined by the valve accessories connected to the valve

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

- Use of non-original spare parts
- Performing service and repair work not described

## Qualifications of operating personnel

The control valve must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices must 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). Depending on the process medium and/or the activity, the protective equipment required includes:

- Protective clothing, gloves, eye protection and respiratory protection in applications with hot, cold and/or corrosive media
  - Wear hearing protection when working near the valve
  - Hard hat
  - Safety harness, e.g. when working at height
  - Safety footwear, if applicable ESD (electrostatic discharge) footwear
- ➔ 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.

### Safety features

The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation). The fail-safe action of the actuator (see the 'Design and principle of operation') is the same as its direction of action and is specified on the nameplate of SAMSON actuators.

### Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warnings and caution notes in these mounting and operating instructions.

Hazards resulting from the special working conditions at the installation site of the valve must be identified in a risk assessment and prevented through the corresponding safety instructions drawn up by the operator.

### Responsibilities of the operator

Operators are responsible for proper use 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, operators must ensure that operating personnel or third parties are not exposed to any danger.

Operators are additionally responsible for ensuring that the limits for the product defined in the technical data are observed. This also applies to the start-up and shutdown procedures. Start-up and shutdown procedures fall within the scope of the operator's duties and, as such, are not part of these mounting and operating instructions. SAMSON is unable to make any statements about these procedures since the operative details (e.g. differential pressures and temperatures) vary in each individual case and are only known to the operator.

### 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, operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

### Referenced standards, directives and regulations

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU, Machinery Directive 2006/42/EC, Directive 2016 No. 1105 Pressure Equipment (Safety) Regulations 2016 and Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008. Valves with a CE marking and/or UKCA marking have a declaration of conformity, which includes information about the applied conformity assessment procedure. The 'Certificates' section contains this declaration of conformity.

According to the ignition hazard assessment performed in accordance with Clause 5.2 of ISO 80079-36, the non-electrical control valves do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 2014/34/EU.

➔ For connection to the equipotential bonding system, observe the requirements specified in Clause 6.4 of EN 60079-14 (VDE 0165-1).

### Referenced documentation

The following documents apply in addition to these mounting and operating instructions:

- Mounting and operating instructions for the mounted actuator, for example:
  - ▶ EB 8313-1 for Type 3372 Electropneumatic Actuator (with integral positioner)
  - ▶ EB 8313-3 for Type 3372 Electropneumatic Actuator (with Type 3725 Positioner)
  - ▶ EB 8317 for Type 3371 Actuator
  - ▶ EB 8331-3 for Type 3374 Electric Actuator (three-step version)
  - ▶ EB 8331-4 for Type 3374 Electric Actuator (version with positioner)
  - ▶ EB 5824-1 for Type 5824 Electric Actuator (three-step version)
  - ▶ EB 5824-2 for Type 5824 Electric Actuator (version with positioner)
  - ▶ EB 5827-1 for Type 5827 Electric Actuator (three-step version)
  - ▶ EB 5827-2 for Type 5827 Electric Actuator (version with positioner)
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- ▶ AB 0100 for tools, tightening torques and lubricant
- When a substance is used in the device, which is listed as being a substance of very high concern on the candidate list of the REACH regulation:  
Information on safe use of the part affected
  - ▶ [www.samsongroup.com](http://www.samsongroup.com) > About SAMSON > Material Compliance > REACH

If a device contains a substance listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.

## 1.1 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.



## 1.2 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.

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

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

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

- Wear hearing protection when working near the valve.

#### **Risk of personal injury due to exhaust air being vented from pneumatically operated components.**

While the valve is operating, the pneumatic actuator may vent during closed-loop control or when the valve opens or closes.

- Install the control valve in such a way that vent openings are not located at eye level and the actuator does not vent at eye level in the work position.
- Use suitable silencers and vent plugs.
- Wear eye protection when working in close proximity to the control valve.

#### **Risk of personal injury due to preloaded springs.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic actuators can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

### **WARNING**

#### **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 valve is in operation.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Disconnect the supply voltage before performing any work on the control valve.
- 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, respiratory protection and eye protection.

#### **Exposure to hazardous substances poses a serious risk to health.**

Certain lubricants and cleaning agents are classified as hazardous substances. These substances have a special label and a material safety data sheet (MSDS) issued by the manufacturer.

- Make sure that an MSDS is available for any hazardous substance used. If necessary, contact the manufacturer to obtain an MSDS.
- Inform yourself about the hazardous substances and their correct handling.

**⚠ WARNING**

**Risk of personal injury through incorrect operation, use or installation as a result of information on the valve 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.

### 1.3 Notes on possible property damage

**ⓘ NOTICE**

**Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.**

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

- Flush the pipelines before start-up.

**Risk of valve damage due to unsuitable medium properties.**

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

- Only use the process medium specified for sizing the equipment.

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

Observe the specified torques when tightening control valve components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

- Observe the specified tightening torques (▶ AB 0100).

**Risk of valve damage due to the use of unsuitable tools.**

Certain tools are required to work on the valve.

- Only use tools approved by SAMSON (▶ AB 0100).

### ! NOTICE

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

The lubricants to be used depend on the valve material. Unsuitable lubricants may corrode and damage surfaces.


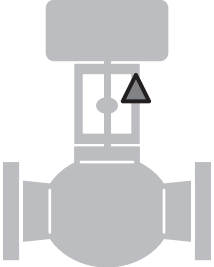
→ Only use lubricants approved by SAMSON (▶ AB 0100).

#### **Risk of the process medium being contaminated through the use of unsuitable lubricants and/or contaminated tools and components.**

→ If necessary, keep the valve and the tools used free from solvents and grease.

→ Make sure that only suitable lubricants are used.

## 1.4 Warnings on the device

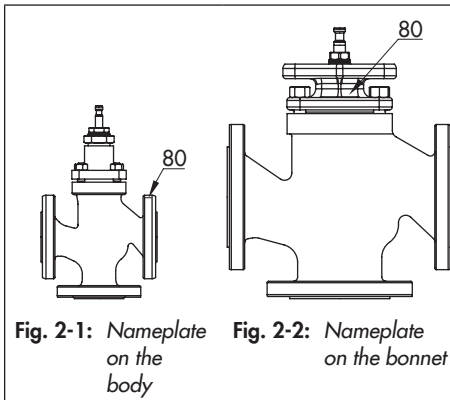
Warning symbols	Meaning of the warning	Location on the device
	<p>Warning against moving parts There is a risk of injury to hands or fingers through the stroking movement of the actuator and plug stem if they are inserted into the yoke while the air supply is connected to the actuator.</p>	

## 2 Markings on the device

The nameplate shown was up to date at the time of publication of this document. The nameplate on the device may differ from the one shown.

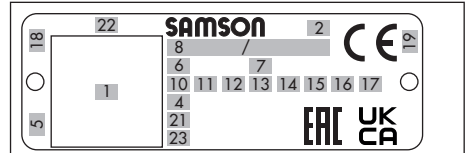
### 2.1 Valve nameplate

In valve sizes DN 15 to 50 or NPS ½ to 2, the valve nameplate (80) is affixed to the valve on the body flange (Fig. 2-1). The nameplate is affixed to the top of the bonnet in valve sizes DN 65 or NPS 2½ and larger (Fig. 2-2).



**i Note**

Fig. 2-3 and the inscription table list all possible characteristics and options that may appear on a valve nameplate. Only the inscriptions relevant to the ordered Type 3323 Valve actually appear on the nameplate.



**Fig. 2-3:** Inscriptions on the valve nameplate

Item	Inscription meaning
1	Data Matrix code
2	Type designation
4	Material
5	Month and year of manufacture
6	Valve size: DIN: <b>DN</b> · ANSI: <b>NPS</b> · JIS: <b>DN</b>
7	Pressure rating: DIN: <b>PN</b> · ANSI: <b>CL</b> · JIS: <b>K</b>
8	Order number/item
10	Flow coefficient: DIN: <b>KVS</b> · ANSI: <b>CV</b>
11	Characteristic: %: equal percentage · <b>LIN</b> : linear <b>mod-lin</b> : modified linear <b>NO/NC</b> : on/off service
12	Seat-plug seal: <b>ME</b> : metal · <b>HA</b> : carbide metal · <b>ST</b> : metal base material with Stellite® facing <b>KE</b> : ceramic · <b>PT</b> : PTFE soft seal · <b>PK</b> : PEEK soft seal
13	Seat code (trim material): on request
14	Pressure balancing: DIN: <b>D</b> · ANSI/JIS: <b>B</b> Version: <b>M</b> : mixing valve · <b>V</b> : diverting valve

## Markings on the device

Item	Inscription meaning
15	Noise reduction: <b>1</b> : flow divider (ST) 1 · <b>2</b> : ST 2 · <b>3</b> : ST 3 · <b>1/PSA</b> : ST 1 standard and integrated in seat for PSA valve · AC-1/AC-2/AC-3/AC-5: anti-cavitation trim, versions 1 to 5 <b>LK</b> : perforated plug · <b>LK1/LK2/LK3</b> : perforated plug with flow divider ST 1 to ST 3 · <b>MHC1</b> : multi-hole cage · <b>CC1</b> : Combi Cage · <b>ZT1</b> : Zero Travel · <b>LDB</b> : Low dB
16	PSA version: <b>PSA</b>
17	Cage/seat style: <b>CS</b> : clamped-in seat · <b>CG</b> : guided cage · <b>SS</b> : screwed-in seat · <b>SF</b> : suspended cage, flanged seat
18	Country of origin
19	ID of the notified body (EU), for example: – <b>0062</b> for Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE
21	<b>PED</b> : Pressure Equipment Directive <b>G1/G2</b> : gases and vapors Fluid group 1 = hazardous Fluid group 2 = other <b>L1/L2</b> : liquids Fluid group 1 = hazardous Fluid group 2 = other <b>I/II/III</b> : Category 1 to 3
22	Serial number
23	Hardware version (NE 53)



### Tip

We recommend to include the device's serial number (22 on the nameplate) and/or its material number (as specified in the order confirmation) in the plant documentation for the associated tag number.

The serial number enables you to view the device's current technical data as configured by SAMSON. The material number enables you to view the device's technical data as configured by SAMSON upon delivery of the device. To view these data, go to our website at ► [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > Electronic nameplate. For example, you can also use the associated information to order a new nameplate from our After-sales Service, if required.

## 2.2 Actuator nameplate

See associated actuator documentation.

## 2.3 Material identification number

The seat and plug of the valves have an item number written on them. You can contact us stating this item number to find out which material is used. Additionally, a seat code is used to identify the trim material. This seat code is specified on the nameplate.

## 2.4 Label when an adjustable packing is installed

An instructional label is affixed to the valve when an adjustable packing is installed (see Fig. 2-4).



**Fig. 2-4:** *Label when an adjustable packing is installed*





### 3 Design and principle of operation

Depending on the plug arrangement, the Type 3323 Three-way Valve can be used either as a mixing or diverting valve. The design of the mixing and diverting valves in sizes DN 15 to 25 (NPS ½ to 1) is identical. The Type 3323 Valve is preferably to be combined with the following SAMSON actuators:

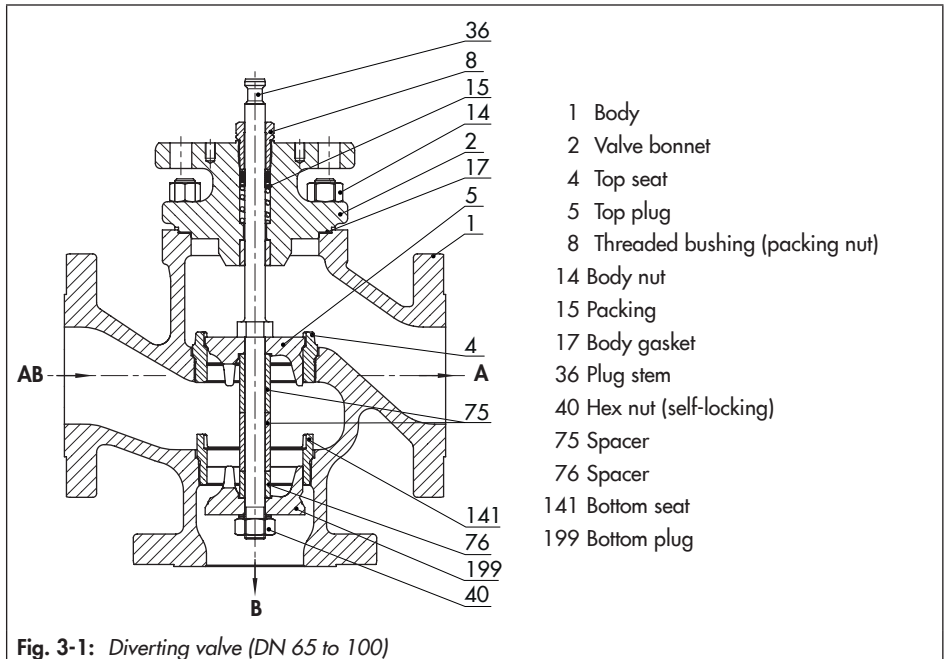
- Type 3372 Electropneumatic Actuator
- Type 3371 Pneumatic Actuator
- Type 3374 Electric Actuator
- Type 5824 or Type 5827 Electric Actuator

The two seats and two plugs with plug stem are installed in the body. The plug stem is connected to the actuator stem by a stem connector and sealed by the spring-loaded packing.

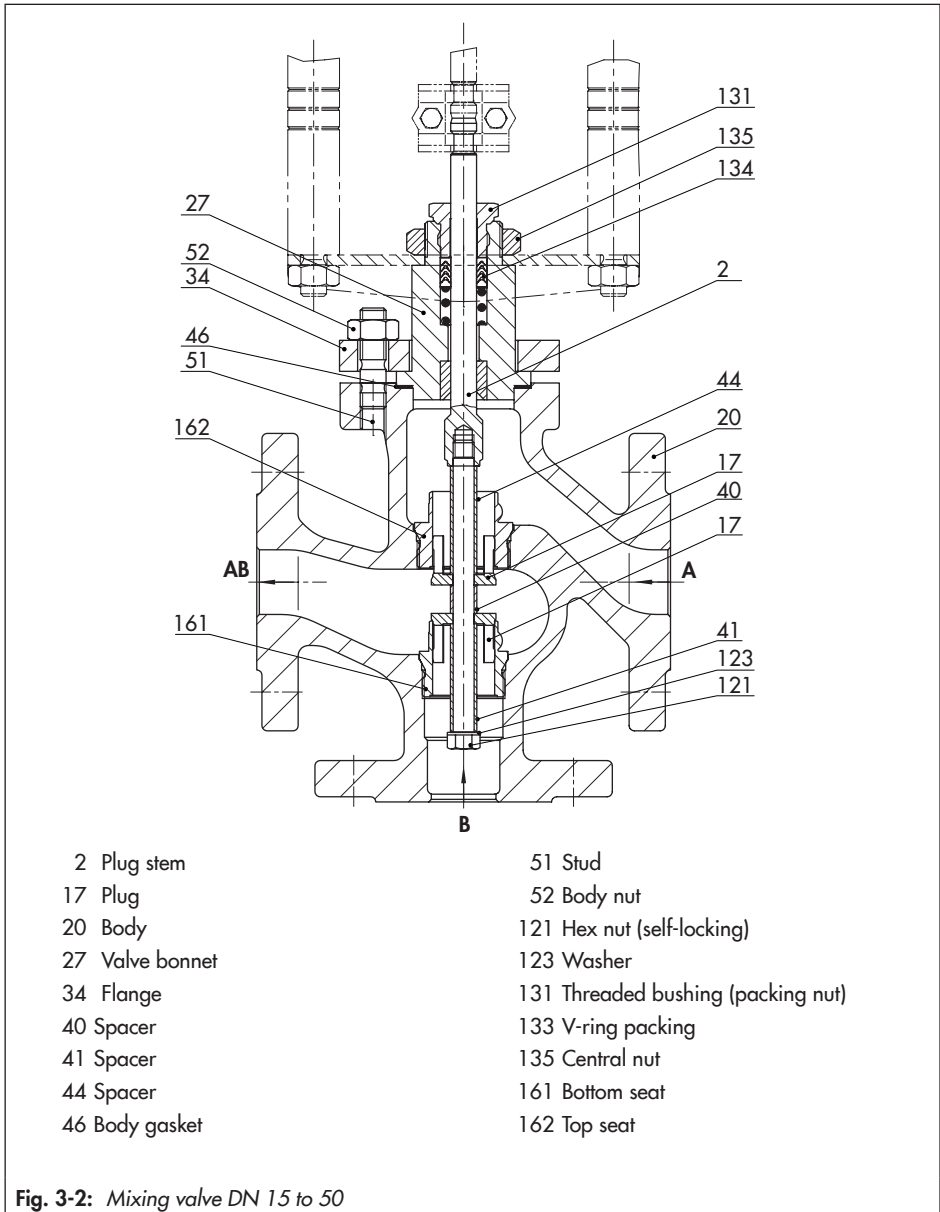
The medium flows through the valve in the direction indicated by the arrow.

In mixing valves, the process media to be mixed enter at valve ports **A** and **B**. The combined flow exits the valve at port **AB** (see Fig. 3-2).

In diverting valves, the process medium enters at the valve port **AB** and the partial flows exit at ports **A** and **B** (see Fig. 3-1).



## Design and principle of operation



The flow rate from ports A or B to AB and vice versa depends on the cross-sectional area of flow between the seats and plugs. The plugs are moved by changing the control signal applied to the actuator.

### 3.1 Fail-safe action

The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation). The fail-safe action of SAMSON actuators is specified on the actuator nameplate.

Upon failure of the air supply or supply voltage, the valve fitted with the corresponding actuator moves to one of the following fail-safe positions.

#### Actuator stem extends (FA)

When the supply air or supply voltage fails, port **B** is closed in mixing valves and port **A** is closed in diverting valves.

Port B of diverting valves in sizes DN 15 to 25/NPS ½ to 1 is closed as these valves have the same construction as mixing valves.

#### Actuator stem retracts (FE)

When the supply air or supply voltage fails, port **A** is closed in mixing valves and port **B** is closed in diverting valves.

Port A of diverting valves in sizes DN 15 to 25/NPS ½ to 1 is closed as these valves have the same construction as mixing valves.



#### Tip

*The direction of action of the electric and electropneumatic actuators is determined by the actuator version.*

*The direction of action of the Type 3371 Pneumatic Actuator can be reversed, if required. See the mounting and operating instructions ► EB 8317.*

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### 3.2 Versions

#### With insulating section

The modular design allows an insulating section to be fitted to the standard valve version.

#### Actuators

In these instructions, the preferable combination with one of the following SAMSON actuators is described.

- Type 5824 or Type 5827 Electric Actuator
- Type 3374 Electric Actuator
- Type 3372 Electropneumatic Actuator
- Type 3371 Pneumatic Actuator

### 3.3 Additional fittings

#### Strainers

We recommend installing a SAMSON strainer upstream of the valve. It prevents solid particles in the process medium from damaging the valve.

#### Bypass and shut-off valves

We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve and installing a bypass line. The bypass ensures that the plant does not need to be shut down for service and repair work on the valve.

#### Insulation

Control valves can be insulated to reduce heat energy transfer. Refer to the instructions in the 'Installation' section.

#### Safety guard

For operating conditions that require increased safety (e.g. in cases where the valve is freely accessible to untrained staff), a safety guard must be installed to rule out a crush hazard arising from moving parts (actuator and plug stem). Plant operators are responsible for deciding whether a guard is to be used. The decision is based on the risk posed by the plant and its operating conditions.

### 3.4 Accessories

Information Sheet ► T 8350

### 3.5 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See the 'Markings on the device' section.

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#### **i** Note

*More information is available in Data Sheets ► T 8113 and ► T 8114.*

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#### Noise emissions

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

#### Dimensions and weights

The dimensions and weights for the DIN versions are listed in Table 3-3.

The dimensions and weights for the ANSI versions are listed in Table 3-4.

**Table 3-1:** *Technical data · DIN version*

Material		Cast iron · EN-GJL-250	Sph. gr. iron · EN-GJS-400-18-LT	Cast steel · 1.0619		Stainless steel 1.4408	
		Valve size	DN	15 to 100	15 to 100	15 to 50	65 to 100
Pressure rating	PN	16	25	40	16 and 40	40	16
Seat-plug seal		Metal seal					
Characteristic		Linear					
Rangeability		30:1 up to DN 25 · 50:1 for DN 40 and larger					
Temperature range		-10 to +220 °C					
	With ins. section <sup>1)</sup>	-10 to +300 °C <sup>2)</sup>					
Leakage class acc. to IEC 60534-4		Metal seal: I (0.05 % of K <sub>V5</sub> )					
Conformity		CE · UK · EAC					

<sup>1)</sup> Not in stainless steel with DN 65 to 100

<sup>2)</sup> Version for lower temperatures on request

**Table 3-2:** *Technical data · ANSI version*

Material		A216 WCC	A351 CF8M
Valve size	NPS	½ · ¾ · 1 · 1½ · 2 · 2½ · 3 · 4	
End connection (flanges)		Raised face (RF) Ra = 3.2 to 6.3 µm	Raised face (RF) Ra = 3.2 to 6.3 µm
Pressure rating		Up to NPS 2: Class 300 NPS 2½ and larger: Class 150 + 300	Up to NPS 2: Class 300 NPS 2½ and larger: Class 150
Seat-plug seal		Metal seal	
Characteristic		Linear	
Rangeability		30:1 up to NPS 1 · 50:1 for NPS 1½ and larger	
Temperature range		14 to 430 °F · (-10 to +220 °C)	
	With ins. section	14 to 572 °F <sup>1)</sup> · (-10 to +300 °C)	
Leakage class acc. to ANSI/FCI 70-2		Metal seal: I (0.05 % of C <sub>v</sub> )	
Conformity		CE · UK · EAC	

<sup>1)</sup> Version for lower temperatures on request

## Design and principle of operation

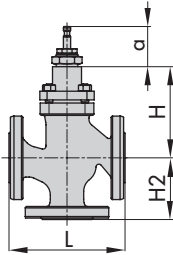
**Table 3-3:** Dimensions and weights for Type 3323 Valve · DIN version

Valve	DN	15	20	25	32	40	50	65	80	100
L	mm	130	150	160	180	200	230	290	310	350
Dimension A	mm	50								
H	mm	123	123	123	126	126	126	182	182	206
H2	mm	70	80	85	100	105	120	130	140	150
H4 (with ins. section)	mm	274	274	274	278	278	278	330	330	330
Weight	kg	5	6	7	11	12	15	31	37	49
Weight (with insulating section)	kg	8	9	10	17	18	21	40	45	68

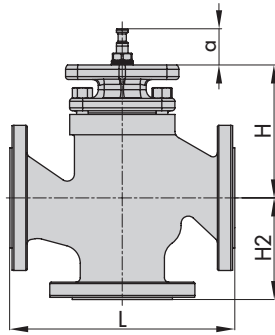
**Table 3-4:** Dimensions and weights for Type 3323 Valve · ANSI version

Valve size	NPS	½	¾	1	1½	2	2½	3	4	
	DN	15	20	25	40	50	65	80	100	
L Class 150	in	7.25	7.25	7.25	8.75	10.0	10.87	11.73	13.86	
	mm	184	184	184	222	254	276	298	352	
L Class 300	in	7.50	7.62	7.75	9.25	10.50	11.5	12.5	14.5	
	mm	190	194	197	235	267	292	318	368	
Dimension A	in	1.96								
	mm	50								
H	in	4.84	4.84	4.84	4.96	4.96	7.17	7.17	8.11	
	mm	123	123	123	126	126	182	182	206	
H2 Class 150	in	3.62	3.62	3.62	4.37	5	5.43	5.87	6.93	
	mm	92	92	92	111	127	138	149	176	
H2 Class 300	in	3.76	3.82	3.88	4.63	5.26	5.75	6.26	7.24	
	mm	95	97	98.5	117.5	133.5	146	159	184	
H4 (with ins. section)	in	10.79	10.79	10.79	10.95	10.95	12.99	12.99	12.99	
	mm	274	274	274	278	278	330	330	330	
Weight	lbs	11.0	13.2	15.4	26.5	33.1	68.3	81.6	108.0	
	kg	5	6	7	12	15	31	37	49	
Weight (with insulating section)	lbs	17.6	19.8	22.0	39.7	46.3	88.2	99.2	150.0	
	kg	8	9	10	18	21	40	45	68	

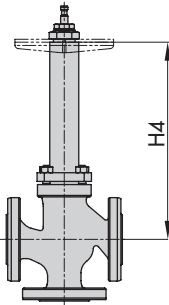
Dimensional drawings



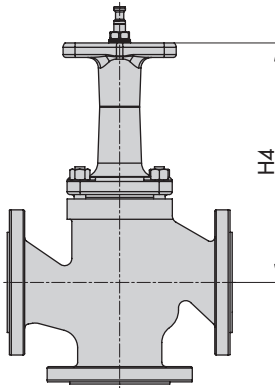
DN 15 to 50/NPS 1/2 to 2



DN 65 to 100/NPS 2 1/2 to 4



DN 15 to 50/NPS 1/2 to 2



DN 65 to 100/NPS 2 1/2 to 4

Version with insulating section

**i Note**

*Refer to the following data sheets for more dimensions and weights of the actuators:*

- ▶ *T 8313 for Type 3372 Electropneumatic Actuator*
  - ▶ *T 8317 for Type 3371 Pneumatic Actuator*
  - ▶ *T 5824 for Type 5824 Electric Actuator*
  - ▶ *T 5827 for Type 5827 Electric Actuator*
  - ▶ *T 8331 for Type 3374 Electric Actuator*
-



## 4 Shipment and on-site transport

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

### 4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the valve nameplate match the specifications in the delivery note. See the 'Markings on the device' section for nameplate details.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).
3. Determine the weight and dimensions of the units to be lifted and transported in order to select the appropriate lifting equipment and lifting accessories, if required. Refer to the transport documents and the 'Technical data' section.

### 4.2 Removing the packaging from the valve

Observe the following sequence:

- Do not open or remove the packaging until immediately before lifting to install the valve into the pipeline.

- Leave the control valve in its transport container or on the pallet to transport it on site.
- Do not remove the protective caps from the inlet and outlet until immediately before installing the valve into the pipeline. They prevent foreign particles from entering the valve.
- Dispose and recycle the packaging in accordance with the local regulations.

### 4.3 Transporting and lifting the valve

---

#### **⚠ DANGER**

***Danger due to suspended loads falling.***

- *Stay clear of suspended or moving loads.*
  - *Close off and secure the transport paths.*
- 

#### **⚠ 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 valve (including actuator and packaging, if applicable).*
-

### **⚠ WARNING**

**Risk of personal injury due to the control valve tipping over.**

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

### **⚠ WARNING**

**Risk of injury due to incorrect lifting without the use of lifting equipment.**

Lifting the control valve without the use of lifting equipment may lead to injuries (back injury in particular) depending on the weight of the control valve.

- Observe the occupational health and safety regulations valid in the country of use.

### **ⓘ NOTICE**

**Risk of valve damage due to incorrectly attached slings.**

- When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.
- Do not attach load-bearing slings to the actuator, handwheel or any other parts.
- Observe lifting instructions (see section 4.3.2).

### **💡 Tip**

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

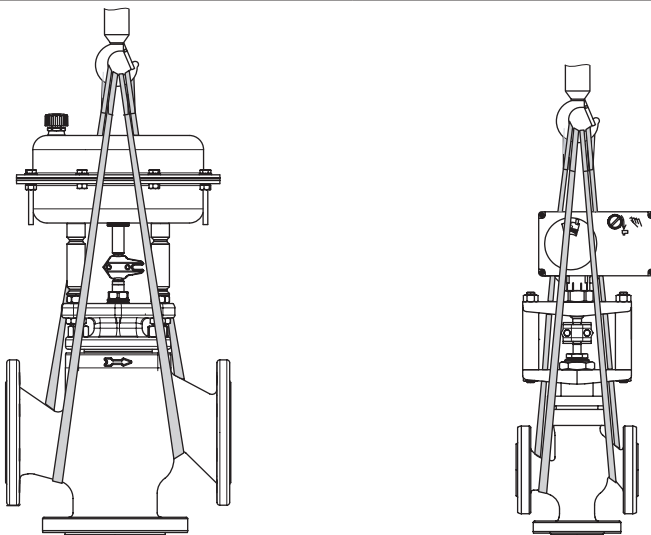


Fig. 4-1: Lifting points on the control valve

### 4.3.1 Transporting the valve

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

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

#### Transport instructions

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the piping and any mounted valve accessories against damage.
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is  $-20$  to  $+65$  °C ( $-4$  to  $+149$  °F).

---

**i Note**

Contact our after-sales service for the transportation temperatures of other valve versions.

---

### 4.3.2 Lifting the valve

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

#### Lifting instructions

- Use a hook with safety latch (see Fig. 4-1) to secure the slings from slip-

ping off the hook during lifting and transporting.

- Secure slings against slipping.
- Make sure the slings can be removed from the valve once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping over.
- 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.

#### Lifting the control valve

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. 4-1).
2. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
3. Move the control valve at an even pace to the site of installation.
4. Install the valve into the pipeline (see the 'Installation' section).
5. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
6. Remove slings.

### 4.4 Storing the valve

---

#### NOTICE

**Risk of valve damage due to improper storage.**

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

#### Note

We recommend regularly checking the control valve and the prevailing storage conditions during long storage periods.

---

#### Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Secure the valve in the stored position against slipping or tipping over.
- Protect the control valve 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.
- The permissible storage temperature of standard control valves is  $-20$  to  $+65$  °C ( $-4$  to  $+149$  °F). Contact our after-sales

service for the storage temperatures of other valve versions.

- Do not place any objects on the control valve.

#### Special storage instructions for elastomers

Elastomer, e.g. actuator diaphragm

- To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
  - We recommend a storage temperature of  $15$  °C ( $59$  °F) for elastomers.
  - Store elastomers away from lubricants, chemicals, solutions and fuels.
- 

#### Tip

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

---

## 5 Installation

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

### 5.1 Installation conditions

#### Work position

The work position for the control valve is the front view looking onto the operating con-

**Table 5-1:** Inlet and outlet lengths

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	$Ma \leq 0.3$	2	4
	$0.3 \leq Ma \leq 0.7$	2	10
Vapor	$Ma \leq 0.3$ <sup>1)</sup>	2	4
	$0.3 \leq Ma \leq 0.7$ <sup>1)</sup>	2	10
	Saturated steam (percentage of condensate > 5 %)	2	20
Liquid	Free of cavitation/ $w < 10$ m/s	2	4
	Cavitation producing noise/ $w \leq 3$ m/s	2	4
	Cavitation producing noise/ $3 < w < 5$ m/s	2	10
	Critical cavitation/ $w \leq 3$ m/s	2	10
	Critical cavitation/ $3 < w < 5$ m/s	2	20
Flashing	–	2	20
Multi-phase	–	10	20

<sup>1)</sup> No saturated steam

#### **i** Note

In the version as diverting valve (see Fig 3-1 in the 'Design and principle of operation' section), the inlet length *a* applies to the port AB. The outlet length *b* applies to the ports A and B. In the version as mixing valve (see Fig 3-2 in the 'Design and principle of operation' section), the inlet length *a* applies to the ports A and B. The outlet length *b* applies to the port AB.

## Installation

trols (including valve accessories).

Plant operators must ensure that, after installation of the device, the operating personnel can perform all necessary work safely and easily access the device from the work position.

### Pipeline routing

The inlet and outlet lengths (see Table 5-1) vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.

To ensure that the valve functions properly, proceed as follows:

- Observe the recommended inlet and outlet lengths (see Table 5-1). Contact SAMSON if the valve conditions or states of the medium process deviate.
- Install the valve free of stress and with the least amount of vibrations as possible. Read information under 'Mounting position' and 'Support or suspension' in this section.
- Install the valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.
- In heating or cooling applications, the valve can be installed in the flow pipe or return flow pipe (see Fig. 5-1).  
Fail-safe action: the valve shuts off the flow of the heating medium or opens the flow of the cooling medium.

### Mounting position

Generally, we recommend installing the valve with the actuator upright and on top of the valve.

- Contact SAMSON if the mounting position is not as specified above.

### Support or suspension

---

#### **i Note**

*The plant engineering company is responsible for selecting and implementing a suitable support or suspension of the installed control valve and the pipeline.*

---

Depending on the valve version and mounting position, the valve, actuator and pipeline must be supported or suspended.

Valves, which are not installed in the pipeline in the upright position with the actuator on top, must be supported or suspended.

### Valve accessories

- During connection of valve accessories, make sure that they are easily accessible and can be operated safely from the work position.

### Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Furthermore, the vent plugs allow air intake to prevent a vacuum from forming in the device.

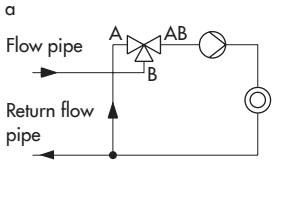
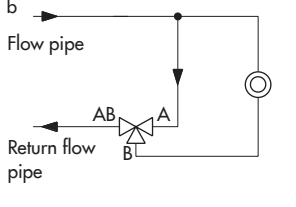
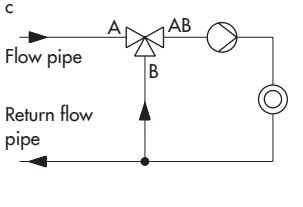
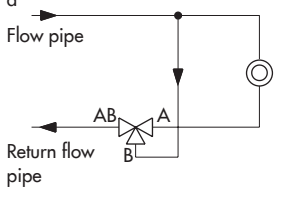
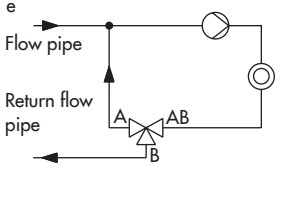
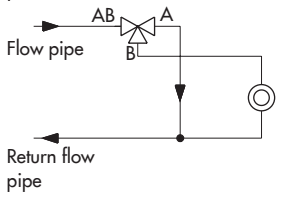
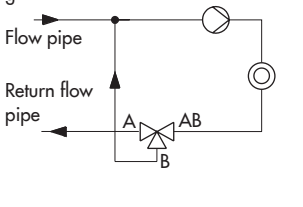
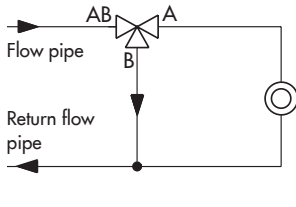
<p>Mixing service – Temperature control <math>Q = \text{constant}</math></p>	<p>Diverting service – Flow control <math>Q = 0 \text{ to } 100\%</math></p>	<p>FA: Actuator stem extends FE: Actuator stem retracts</p>
<p>a</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>b</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>Heating with mixing valve (FA) Cooling with mixing valve (FE) a) Installation in flow pipe b) Installation in return flow pipe</p>
<p>c</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>d</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>Heating with mixing valve (FA) Cooling with mixing valve (FE) c) Installation in flow pipe d) Installation in return flow pipe</p>
<p>e</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>f</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>Heating with diverting valve (FA) Cooling with diverting valve (FE) e) Installation in return flow pipe f) Installation in flow pipe</p>
<p>g</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>h</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>Heating with diverting valve (FA) Cooling with diverting valve (FE) g) Installation in return flow pipe h) Installation in flow pipe</p>

Fig. 5-1: Typical installations

## Installation

- Locate the vent plug on the opposite side to the work position of operating personnel.

## 5.2 Preparation for installation

Before installation, make sure the following conditions are met:

- The valve is clean.
- The valve and all valve accessories (including piping) are not damaged.
- The valve data on the nameplate (type designation, valve size, material, pressure rating and temperature range) match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' section for nameplate details.
- The requested or required additional pipe fittings (see the 'Additional fittings' section) have been installed or prepared as necessary before installing the valve.

---

### **NOTICE**

**Risk of control valve damage due to incorrect insulation.**

- Only insulate control valves with insulating section up to the bonnet flange of the valve body for medium temperatures below 0 °C (32 °F) and above 220 °C (428 °F). If the insulating section is insulated, it will not function properly.

---

Proceed as follows:

- Lay out the necessary material and tools to have them ready during installation work.

- Flush the pipelines.

---

### **i Note**

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

---

- For steam applications, dry the pipelines. Moisture will damage the inside of the valve.
- Check any mounted pressure gauges to make sure they function properly.
- When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ AB 0100). Components may loosen during transport.

## 5.3 Mounting the device

The activities listed below are necessary to install the valve and before it can be started up.

---

### **NOTICE**

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

Observe the specified torques when tightening control valve components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

- Observe the specified tightening torques (▶ AB 0100).
-



**NOTICE**

**Risk of valve damage due to the use of unsuitable tools.**

→ Only use tools approved by SAMSON  
▶ AB 0100).

### 5.3.1 Mounting the actuator onto the valve

→ To mount the actuator, proceed as described in the associated actuator documentation.

#### a) Pneumatic or electropneumatic actuator

There are two different types of attachment to mount the pneumatic or electropneumatic actuator onto the valve depending on the version (valve size etc.): mounting using crossbeam or mounting using rods (see Table 5-2).

#### Mounting using crossbeam and central nut

When the actuator is mounted to the valve using a crossbeam (form B, Fig. 5-2), the actuator is fastened to the valve bonnet using a central nut.

#### Mounting using rods

When the actuator is mounted using rods (form C, Fig. 5-3), the actuator is connected to the valve bonnet using rods. In this case, a crossbeam is not required for mounting the actuator. A plate keeps the correct distance between rods.

#### b) Electric actuator

When an electric actuator is mounted onto the valve, it is mounted with a form-fit connection using a stem connector and yoke.

**Table 5-2:** Possible combinations and types of attachment

Actuator		Type of attachment	
Type 3371	Actuator area	120 cm <sup>2</sup>	350 cm <sup>2</sup>
For valve size	DN 15 to 50/NPS ½ to 2	Form B	—
	DN 65 to 100/NPS 2½ to 4	Form C	Form C
Type 3372	Actuator area	120 cm <sup>2</sup>	350 cm <sup>2</sup>
For valve size	DN 15 to 50/NPS ½ to 2	Form B	—
	DN 65 to 100/NPS 2½ to 4	Form C	Form C
Type 3374		Form-fit attachment using stem connector and yoke	
Type 5824 <sup>1)</sup>		Form-fit attachment using stem connector and yoke	
Type 5827		Form-fit attachment using stem connector and yoke	

<sup>1)</sup> The product will be discontinued in the near future. Replacement device ▶ T 5827



Type 3323-PP



Type 3323-IP



Type 3323-E1



Type 3323-E3

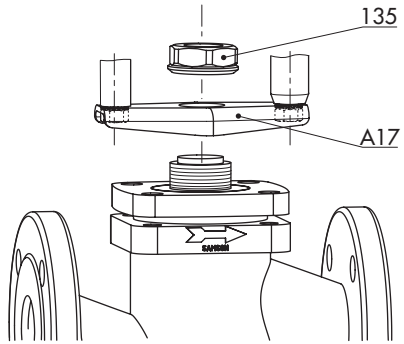


Fig. 5-2: Mounting using crossbeam and central nut (form B attachment)



Type 3323-PP



Type 3323-IP

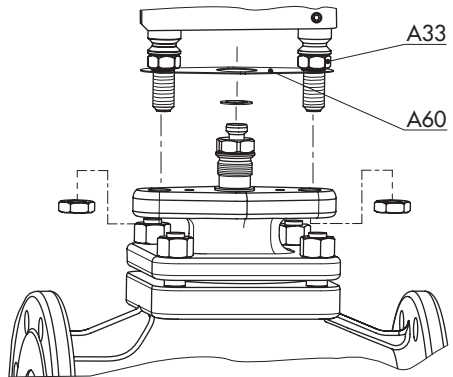


Fig. 5-3: Mounting using rods (form C attachment)

**Legend for Fig. 5-2 and Fig. 5-3**

- 135 Central nut
- A17 Crossbeam
- A33 Rod
- A60 Plate

### 5.3.2 Installing the valve into the pipeline

1. Close the shut-off valves in the pipeline at the inlet and outlet of the plant section while the valve is being installed.
2. Prepare the relevant section of the pipeline for installing the valve.
3. Remove the protective caps from the valve ports before installing the valve.
4. Lift the valve using suitable lifting equipment to the site of installation (see the 'Lifting the valve' section). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Make sure that the correct flange gaskets are used.
6. Bolt the pipe to the valve free of stress.
7. Attach a support or suspension on the valve, if necessary.

### 5.4 Testing the installed valve

#### **⚠ DANGER**

**Risk of bursting due to incorrect opening of pressurized equipment or components.**

Valves and pipelines are pressure equipment that may burst when handled incorrectly.

Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the control valve:

- ➔ Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.

- ➔ Drain the process medium from all the plant sections concerned as well as the valve.

#### **⚠ WARNING**

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

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- ➔ Wear hearing protection when working near the valve.

#### **⚠ WARNING**

**Crush hazard arising from actuator and plug stem moving.**

- ➔ Do not insert hands or finger into the yoke while the valve is in operation.
- ➔ Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- ➔ Disconnect the supply voltage before performing any work on the control valve.
- ➔ 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), re-

## Installation

Release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

---

### WARNING

**Risk of personal injury due to exhaust air being vented from pneumatically operated components.**

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

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

---

### WARNING

**Risk of personal injury due to preloaded springs.**

Actuators with preloaded springs are under tension. They can be identified by the long bolts protruding from the bottom of the actuator.

→ Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

---

To test the valve functioning before start-up or putting back the valve into operation, perform the following tests:

### 5.4.1 Leak test

The plant operator is responsible for performing the leak test and selecting the test method. The leak test must comply with the requirements of the national and international standards that apply at the site of installation.

---

#### Tip

Our after-sales service can support you to plan and perform a leak test for your plant.

---

1. Close the valve.
2. Slowly apply the test medium to the inlet space upstream of the valve. A sudden surge in pressure and resulting high flow velocities can damage the valve.
3. Open the valve.
4. Apply the required test pressure.
5. Check the valve for leakage to the atmosphere.
6. Depressurize the pipeline section and valve.
7. Rework any parts that leak and repeat the leak test.

### 5.4.2 Travel motion

The movement of the actuator stem must be linear and smooth.

- Apply the maximum and minimum control signals to check the end positions of the valve while observing the movement of the actuator stem.
- Check the travel reading at the travel indicator scale.

### 5.4.3 Fail-safe position

- Shut off the signal pressure line.
- Check whether the valve moves to the fail-safe position (see the 'Design and principle of operation' section).

### 5.4.4 Pressure test

The plant operator is responsible for performing the pressure test.

**Tip**

*Our after-sales service can support you to plan and perform a pressure test for your plant.*

---

During the pressure test, make sure the following conditions are met:

- Move the plug to the mid-position to open the valve.
- Observe the maximum permissible pressure for both the valve and plant.



## 6 Start-up

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

### **⚠ WARNING**

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

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

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **⚠ WARNING**

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

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a brief loud noise may occur through the sudden venting of the pneumatic actuator (see 'Fail-safe position') or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

- Do not insert hands or finger into the yoke while the valve is in operation.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Disconnect the supply voltage before performing any work on the control valve.
- 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.

### **⚠ WARNING**

#### **Risk of personal injury due to exhaust air being vented from pneumatically operated components.**

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

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

## Start-up

Before start-up or putting the valve back into service, make sure the following conditions are met:

- The valve is properly installed into the pipeline (see the 'Installation' section).
- The leak and function tests have been completed successfully (see the 'Testing the installed valve' section).
- The prevailing conditions in the plant section concerned meet the valve sizing requirements (see information under 'Intended use' in the 'Safety instructions and measures' section).

### **Start-up/putting the device back into operation**

1. Allow the valve to cool down or warm up to reach ambient temperature before start-up when the ambient temperature and process medium temperature differ greatly or the medium properties require such a measure.
2. Slowly open the shut-off valves in the pipeline. Slowly opening these valves prevents a sudden surge in pressure and high flow velocities which can damage the valve.
3. Check the valve to ensure it functions properly.



## 7 Operation

Immediately after completing start-up or putting the valve back into operation (see the 'Start-up' section), the valve is ready for use.

### **⚠ WARNING**

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

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

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **⚠ WARNING**

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

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

- Do not insert hands or finger into the yoke while the valve is in operation.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Disconnect the supply voltage before performing any work on the control valve.
- 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.

### **⚠ WARNING**

#### **Risk of personal injury due to exhaust air being vented from pneumatically operated components.**

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

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



## 8 Malfunctions

Read hazard statements, warnings and caution notes in the 'Safety instructions and measures' section.

### 8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator and plug stem does not move on demand.	Actuator is blocked.	Check attachment. Remove the blockage. <b>WARNING!</b> A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Disconnect the supply voltage. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
	Pneumatic/electro-pneumatic actuators: diaphragm in the actuator defective	See associated actuator documentation.
	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
	No or incorrect supply voltage connected.	Check the supply voltage and connections.
Actuator and plug stem does not stroke through the entire range.	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
	No or incorrect supply voltage connected.	Check the supply voltage and connections.
	Incorrect setting of valve accessories	Check the settings of the valve accessories.

## Malfunctions

Malfunction	Possible reasons	Recommended action
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve.
	Valve trim is worn out.	Replace seat and plug (see the 'Servicing' section) or contact our after-sales service.
The valve leaks to the atmosphere (fugitive emissions).	Defective packing	Replace packing (see the 'Servicing' section) or contact our after-sales service.
	Flange joint loose or gasket worn out	Check the flange joint. Replace gasket at the flanged joint (see the 'Servicing' section) or contact our after-sales service.

### **i** Note

Contact our after-sales service for malfunctions not listed in the table.

## 8.2 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Perform troubleshooting (see section 8.1).
3. Rectify those malfunctions that can be remedied based on the instructions provided here. Contact our after-sales service in all other cases.

### Putting the valve back into operation after a malfunction

See the 'Start-up' section.

## 9 Servicing

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

The following documents are also necessary for servicing the valve:

- Mounting and operating instructions for the mounted actuator, e.g. ▶ EB 8313-X for Type 3372 Actuator
  - ▶ EB 8317 for Type 3371 Actuator
  - ▶ EB 5824-X for Type 5824 Actuator
  - ▶ EB 5827-X for Type 5827 Actuator
  - ▶ EB 8331-X for Type 3374 Actuator
- ▶ AB 0100 for tools, tightening torques and lubricant

### **⚠ DANGER**

#### **Risk of bursting due to incorrect opening of pressurized equipment or components.**

Valves and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the control valve:

- ➔ Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.
- ➔ Drain the process medium from all the plant sections concerned as well as the valve.

### **⚠ WARNING**

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

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

- ➔ Allow components and pipelines to cool down or warm up to the ambient temperature.
- ➔ Wear protective clothing and safety gloves.

### **⚠ WARNING**

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

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- ➔ Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

- ➔ Do not insert hands or finger into the yoke while the valve is in operation.
- ➔ Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.

## Servicing

- Disconnect the supply voltage before performing any work on the control valve.
- 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.

### **⚠ WARNING**

#### **Risk of personal injury due to exhaust air being vented from pneumatically operated components.**

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

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

### **⚠ WARNING**

#### **Risk of personal injury due to preloaded springs.**

Actuators with preloaded springs are under tension. They can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

### **⚠ WARNING**

#### **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.

- Wear protective clothing, safety gloves, respiratory protection and eye protection.

### **ⓘ NOTICE**

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

Observe the specified torques when tightening control valve components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

- Observe the specified tightening torques (▶ AB 0100.).

### **ⓘ NOTICE**

#### **Risk of valve damage due to the use of unsuitable tools.**

- Only use tools approved by SAMSON (▶ AB 0100.).

### **ⓘ NOTICE**

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

- Only use lubricants approved by SAMSON (▶ AB 0100.).

**i Note**

The control valve was checked by SAMSON before it left the factory.

- Certain test results certified by SAMSON lose their validity when the valve is opened. Such testing includes seat leakage and 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.

## 9.1 Periodic testing

Depending on the operating conditions, check the valve at certain intervals to prevent possible failure before it can occur. Plant operators are responsible for drawing up an inspection and test plan.

 **Tip**

Our after-sales service can support you in drawing up an inspection and test plan for your plant.

We recommend the following inspection and testing which can be performed while the process is running:

Inspection and testing	Action to be taken in the event of a negative result:
Check the markings, labels and name-plates on the valve for their readability and completeness.	Immediately renew damaged, missing or incorrect name-plates or labels.
	Clean any inscriptions that are covered with dirt and are illegible.
Check the pipe connections and gaskets on the valve and actuator for leakage.	Check the bolted joint (tightening torque).
	Replace the gasket on the flanged joint as described in section 9.4.1.
	Replace the packing (see section 9.4.2)

## Servicing

Inspection and testing	Action to be taken in the event of a negative result:
Check the valve's seat leakage.	Shut off the section of the pipeline and flush the valve to remove any dirt and/or deposited foreign particles between the seat and plug.
Check the valve for external damage (e.g. corrosion).	Repair any damage immediately. If necessary, put the control valve out of operation (see the 'Decommissioning' section).
Check the valve accessories to ensure they are mounted properly.	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stem move smoothly.	Unblock a blocked actuator and plug stem. <b>WARNING!</b> A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Disconnect the supply voltage. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Put the control valve out of operation (see the 'Decommissioning' section). Identify the cause for the malfunction and rectify it (see the 'Troubleshooting' section).

## 9.2 Preparing the valve for service work

1. Lay out the necessary material and tools to have them ready for the service work.
2. Put the control valve out of operation (see the 'Decommissioning' section).
3. Remove the actuator from the valve. See associated actuator documentation.

### Note

To remove a pneumatic actuator with "stem extends" fail-safe action and/or with pre-

loaded springs, a certain signal pressure must be applied to the actuator (see associated actuator documentation). Afterwards, the signal pressure must be removed and the air supply disconnected again and locked.

### Tip

We recommend removing the valve from the pipeline before performing any service work (see the 'Removal' section).

The following service work can be performed after preparation is completed:



- Replace the gaskets as described in section 9.4.1.
- Replace the packing (see section 9.4.2)
- Replace the seat and plug (see section 9.4.3)

### 9.3 Mounting the valve after service work

1. Mount actuator. See associated actuator documentation and the 'Installation' section.
2. Adjust lower or upper signal bench range. See associated actuator documentation.
3. If the valve has been removed, re-install the valve into the pipeline (see the 'Installation' section).
4. Put the control valve back into operation (see the 'Start-up' section). Observe the requirements and conditions for start-up or putting the valve back into operation.

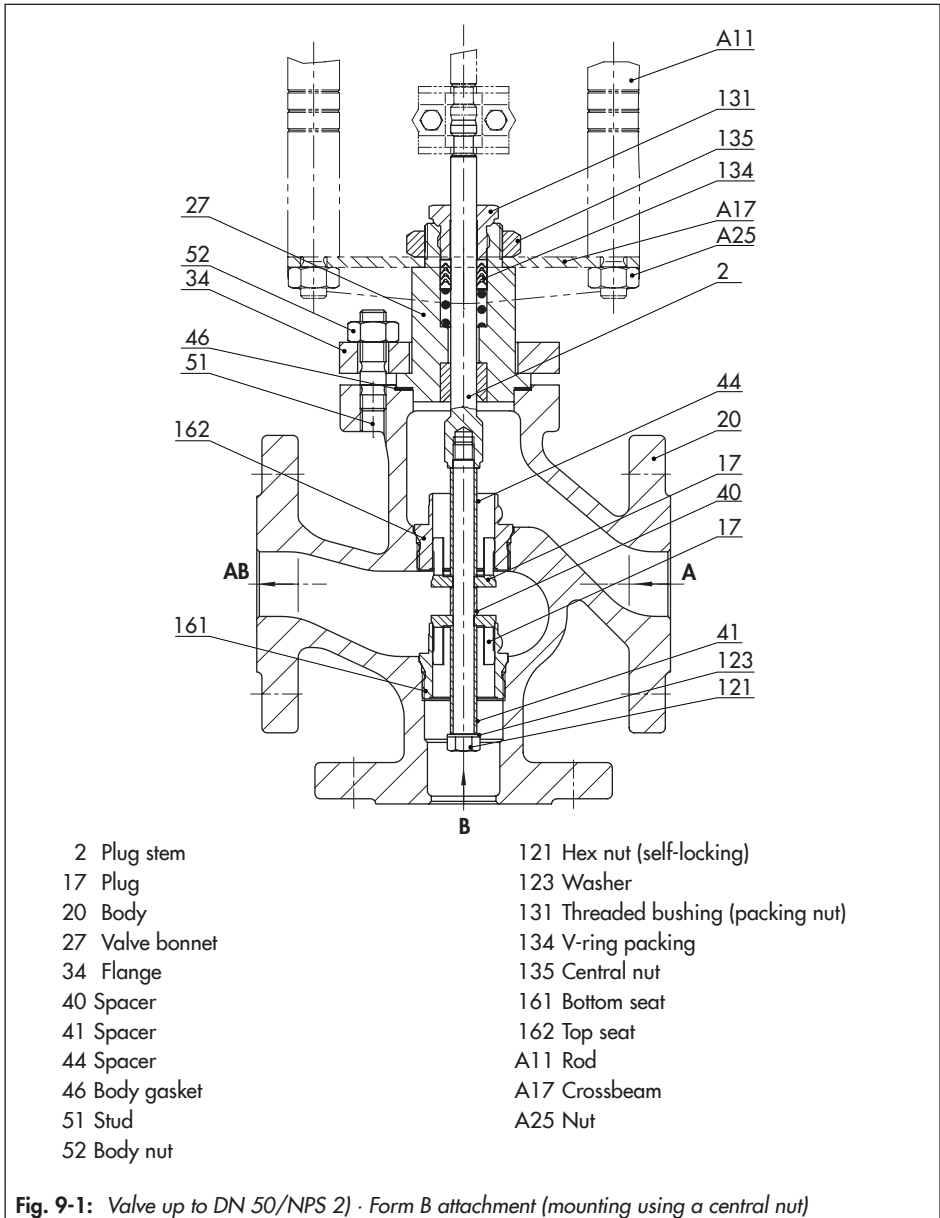
### 9.4 Service work

- Before performing any service work, preparations must be made to the control valve (see section 9.2).
- After all service work is completed, check the control valve before putting it back into operation (see 'Testing the installed valve' in the 'Installation' section).

### 9.4.1 Replacing the gasket

#### a) Valves up to DN 50/NPS 2

1. Unscrew the threaded bushing (131).
2. Undo the body nuts (52) gradually in a crisscross pattern.
3. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
4. Remove the gasket (46). Carefully clean the sealing faces in the valve body (20) and on the valve bonnet (27).
5. Insert a new gasket (46) into the body.
6. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20).
7. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
8. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.



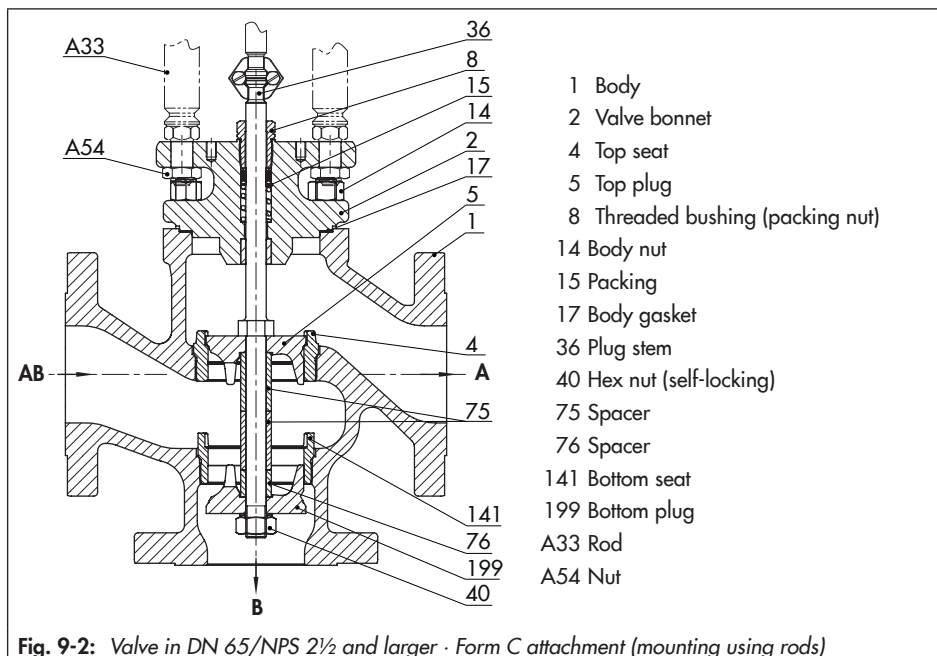


Fig. 9-2: Valve in DN 65/NPS 2½ and larger · Form C attachment (mounting using rods)

## b) Valves in DN 65/NPS 2½ and larger

1. Unscrew the threaded bushing (8).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
4. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange bonnet (2).
5. Insert a new gasket (17) into the body.
6. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1).
7. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
8. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

### 9.4.2 Replacing the packing

**i Note**

The Type 3323 Valve is either fitted with a standard or form D packing. The packings have an identical design, but contain different materials.

### a) Valves up to DN 50/NPS 2

1. Unscrew the threaded bushing (131).
2. Undo the body nuts (52) gradually in a crisscross pattern.
3. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
4. Pull the entire packing out of the packing chamber using a suitable tool.
5. Renew damaged parts. Clean the packing chamber thoroughly.
6. Apply a suitable lubricant to all the packing parts and to the plug stem (2).
7. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.
8. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-3).
9. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
10. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

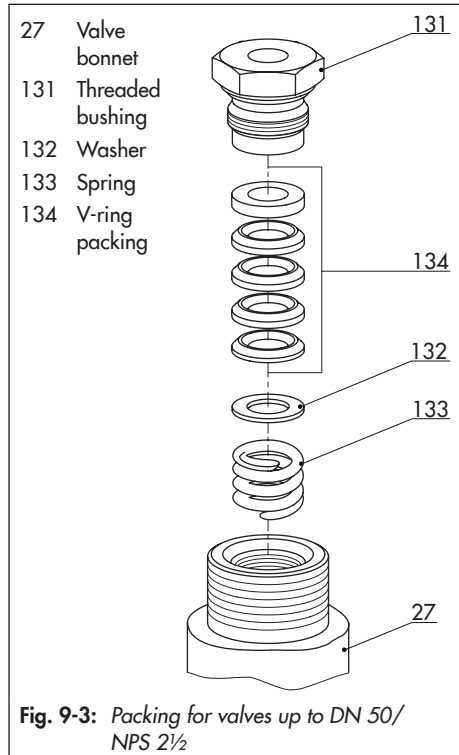


Fig. 9-3: Packing for valves up to DN 50/  
NPS 2½

### b) Valves in DN 65/NPS 2½ and larger

1. Unscrew the threaded bushing (8).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
4. Pull the entire packing out of the packing chamber using a suitable tool.
5. Renew damaged parts. Clean the packing chamber thoroughly.

6. Apply a suitable lubricant to all the packing parts and to the plug stem (36).
7. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.
8. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-4).
9. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
10. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

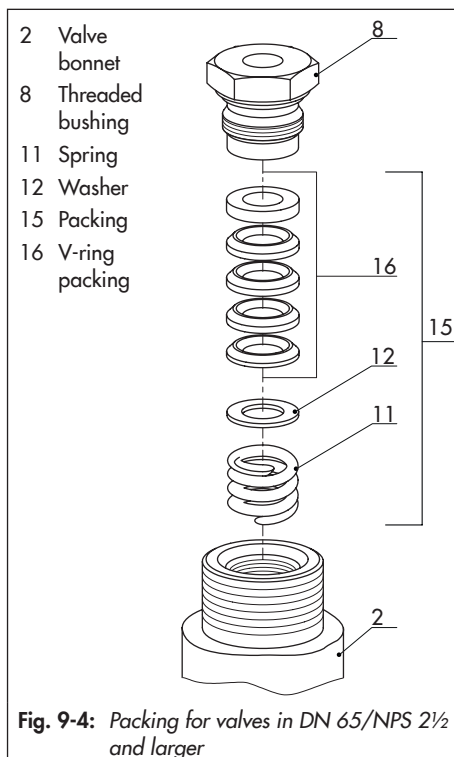


Fig. 9-4: Packing for valves in DN 65/NPS 2½ and larger

### 9.4.3 Replacing the seat and plug

**NOTICE**

**Risk of damage to the facing of the seat and plug due to incorrect service or repair.**  
 → Always replace both the seat and plug.



### Tip

When replacing the seat and plug, we also recommend replacing the gasket and packing. See sections 9.4.1 and 9.4.2.

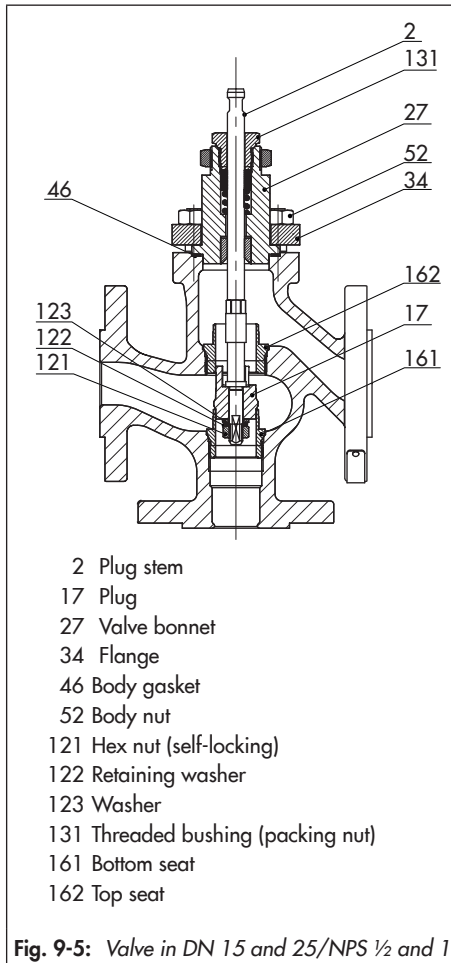
## a) Valves in DN 15 and 25/ NPS ½ and 1



### Note

The design of the mixing and diverting valves in sizes DN 15 to 25 (NPS ½ to 1) is identical.

1. Unscrew the threaded bushing (131).
2. Undo the body nuts (52) gradually in a crisscross pattern.
3. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
4. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
5. Remove the retaining washer and shim (122, 123) from the plug stem (2).
6. Carefully pull the plug stem (2) out of the body (20) from above.
7. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 9.4.2.
8. Unscrew the top seat (162) using a suitable tool.
9. Remove plug (17).
10. Unscrew the bottom seat (161) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new bottom seat (161).
12. Screw in the bottom seat (161). Observe tightening torques.
13. Insert a new plug (17), making sure the three skirt projections face upwards. Insert new plug (17).
14. Apply a suitable lubricant to the thread and the sealing cone of the new top seat (162).
15. Screw in the top seat (162). Observe tightening torques.
16. Carefully guide the plug stem (2) from above through the plug (17).
17. Slide the retaining washer and shim (122, 123) from below onto the plug stem (2).
18. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.
19. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
20. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.
21. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-5).



**Fig. 9-5:** Valve in DN 15 and 25/NPS ½ and 1

## b) Valves in DN 32 and 50/ NPS 3 and 4



### Tip

On mounting the spacers (40, 41, 44) and plug (17), use a rod or long screw to hold them in position.

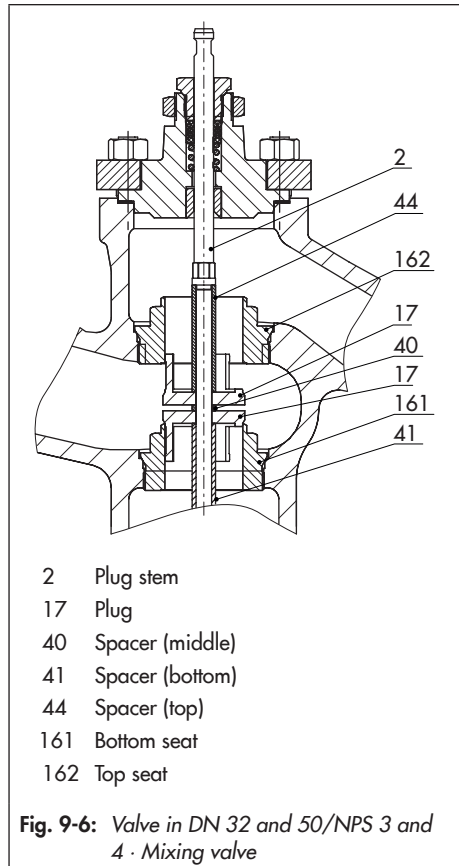
### Mixing valve

1. Unscrew the threaded bushing (131).
2. Undo the body nuts (52) gradually in a crisscross pattern.
3. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
4. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
5. Remove the retaining washer and shim (122, 123) and the bottom spacer (41) from the plug stem (2).
6. Carefully pull the plug stem (2) out of the body (20) from above. Pull out the middle spacer (40) sideways.
7. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 9.4.2.
8. Unscrew the top seat (162) using a suitable tool.
9. Remove the top and bottom plug (17).
10. Unscrew the bottom seat (161) using a suitable tool.

22. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
23. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

## Servicing

11. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
12. Screw in the bottom seat (161). Observe tightening torques.
13. Insert the bottom plug (17) into the bottom seat (161).
14. Screw in the top seat (162). Observe tightening torques.
15. Carefully guide the plug stem (2) with top spacer (44) from above through the top plug (17), middle spacer (40) and bottom plug (17).
16. Slide the bottom spacer (41) and retaining washer and shim (122, 123) from below onto the plug stem (2).
17. Apply a suitable lubricant to the hex nut (121) and the threaded end of the plug stem (2).
18. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.
19. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
20. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.
21. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-6).

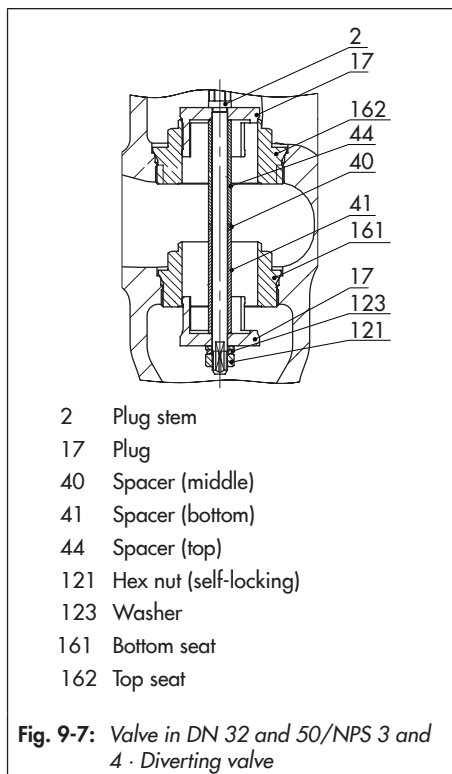


22. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
23. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.



### Diverting valve

1. Unscrew the threaded bushing (131).
2. Undo the body nuts (52) gradually in a crisscross pattern.
3. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
4. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
5. Remove the retaining washer and shim (122, 123) from the plug stem (2).
6. Hold the bottom plug (17). Carefully pull the plug stem (2) out of the body from above. Catch the spacers (40, 41, 44) as they fall out.
7. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 9.4.2.
8. Remove the top plug (17).
9. Unscrew the top seat (162) and bottom seat (161) using a suitable tool.
10. Remove the bottom plug (17).
11. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
12. Place the bottom plug (17) into the body (20).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Use a suitable tool to catch the bottom plug (17) and the spacers (41, 40, 44).



15. Screw in the top seat (162). Observe tightening torques.
16. Place the top plug (17) into the top seat (162).
17. Carefully guide the plug stem (2) from above through the top plug (17), top spacer (44), middle spacer (40), bottom spacer (41) and bottom plug (17).
18. Apply a suitable lubricant to the hex nut (121) and the threaded end of the plug stem (2).

## Servicing

19. Slide the retaining washer and shim (122, 123) from below onto the plug stem (2).
20. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.
21. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
22. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.
23. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-7).
24. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
25. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

### c) Valves in DN 65/NPS 2½ and larger



#### Tip

*On mounting the spacers (75, 76) and plugs (5, 199), use a rod or long screw to hold them in position.*

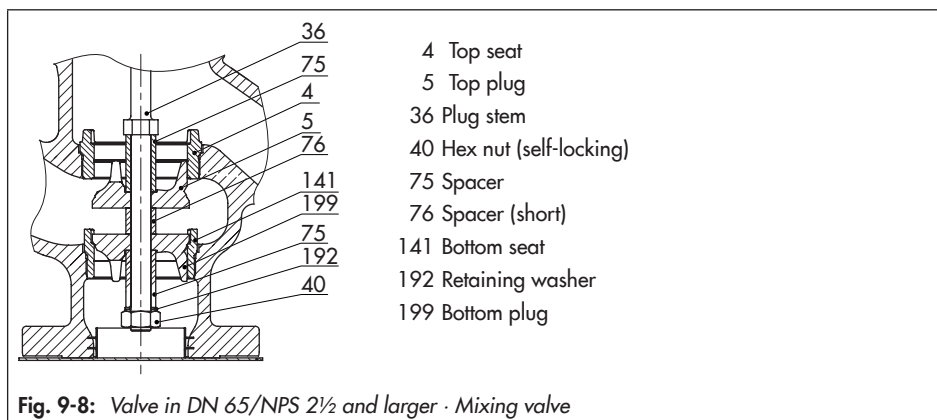
### Mixing valve

1. Unscrew the threaded bushing (8).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
4. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).
5. Remove the retaining washer (192) and bottom spacer (75) from the plug stem (36).
6. Carefully pull the plug stem (36) out of the body (1) from above. Pull out the short spacer (76) sideways.
7. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 9.4.2.
8. Unscrew the top seat (4) using a suitable tool.
9. Remove the top plug (5) and bottom plug (199).
10. Unscrew the bottom seat (141) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
12. Screw in the bottom seat (161). Observe tightening torques.
13. Insert the bottom plug (199) into the bottom seat (141).
14. Screw in the top seat (4). Observe tightening torques.

15. Carefully guide the plug stem (36) with top spacer (75) from above through the top plug (5), short spacer (76) and bottom plug (199).
16. Slide the bottom spacer (75) and retaining washer (192) from below onto the plug stem (36).
17. Apply a suitable lubricant to the hex nut (40) and the threaded end of the plug stem (36).
18. Thread and tighten the hex nut (40) onto the plug stem (36). Observe tightening torques.
19. Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.
20. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.
21. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-8).
22. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
23. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

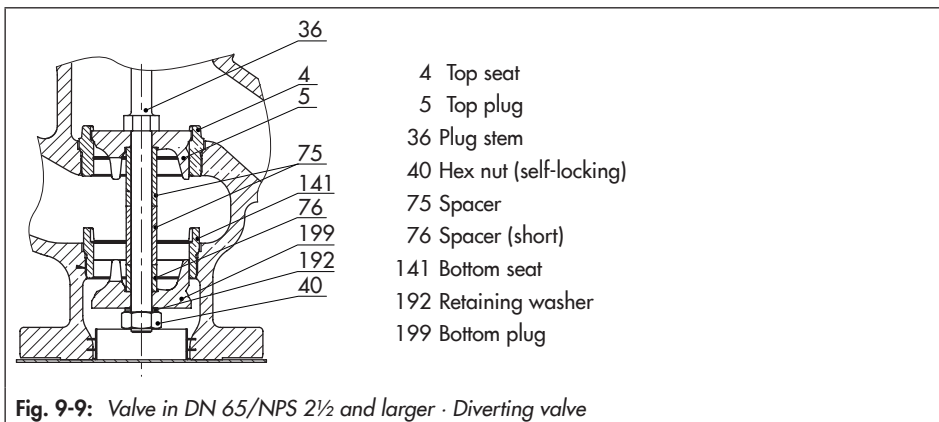
**Diverting valve**

1. Unscrew the threaded bushing (8).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
4. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).



## Servicing

- Remove the retaining washer (192) from the plug stem (36).
- Hold the bottom plug (199). Carefully pull the plug stem (36) out of the body from above. Catch the spacers (75,76) as they fall out.
- Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 9.4.2.
- Remove the top plug (5).
- Unscrew the top seat (4) and bottom seat (141) using a suitable tool.
- Remove the bottom plug (199).
- Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
- Place the bottom plug (199) into the body (1).
- Screw in the bottom seat (141). Observe tightening torques.
- Use a suitable tool to catch the bottom plug (199) and the spacers (75, 76).
- Screw in the top seat (4). Observe tightening torques.
- Place the top plug (5) into the top seat (4).
- Carefully guide the plug stem (36) from above through the top plug (5), spacers (75, 76) and bottom plug (199).
- Apply a suitable lubricant to the hex nut (40) and the threaded end of the plug stem (36).
- Slide the retaining washer (192) from below onto the plug stem (36).
- Thread and tighten the hex nut (40) onto the plug stem (36). Observe tightening torques.
- Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.



22. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.
23. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-9).
24. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
25. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

### 9.5 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 Annex for details on spare parts.

#### Lubricant

See document ► AB 0100 for details on suitable lubricants.

#### Tools

See document ► AB 0100 for details on suitable tools.

## 10 Decommissioning

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

### **⚠ DANGER**

#### **Risk of bursting due to incorrect opening of pressurized equipment or components.**

Valves and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the control valve:

- Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.
- Drain the process medium from all the plant sections concerned as well as the valve.

### **⚠ WARNING**

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

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

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **⚠ WARNING**

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

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

- Do not insert hands or finger into the yoke while the valve is in operation.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Disconnect the supply voltage before performing any work on the control valve.
- 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.

## Decommissioning

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### **⚠ WARNING**

***Risk of personal injury due to exhaust air being vented from pneumatically operated components.***

*While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.*

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

---

### **⚠ WARNING**

***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.*

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

---

To decommission the control valve for service work or to remove it from the pipeline, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply or supply voltage to depressurize or de-energize the actuator.
4. Release any stored energy.

5. If necessary, allow the pipeline and valve components to cool down or warm up to the ambient temperature.



## 11 Removal

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

### **⚠ WARNING**

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

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

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **⚠ WARNING**

**Crush hazard arising from actuator and plug stem moving.**

- Do not insert hands or finger into the yoke while the valve is in operation.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Disconnect the supply voltage before performing any work on the control valve.
- 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.

### **⚠ WARNING**

**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.

- Wear protective clothing, safety gloves, respiratory protection and eye protection.

### **⚠ WARNING**

**Risk of personal injury due to preloaded springs.**

Actuators with preloaded springs are under tension. They can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs.

Before removing the valve, make sure the following conditions are met:

- The control valve is put out of operation (see the 'Decommissioning' section).

## Removal

### 11.1 Removing the valve from the pipeline

1. Support the valve to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' section).
2. Unbolt the flange joint.
3. Remove the valve from the pipeline (see the 'Shipment and on-site transport' section).

### 11.2 Removing the actuator from the valve

See associated actuator documentation.

## 12 Repairs

If the valve does not function properly according to how it was originally sized or does not function at all, it is defective and must be repaired or exchanged.

### ! NOTICE

**Risk of valve damage due to incorrect service or repair work.**

- ➔ Do not perform any repair work on your own.
- ➔ Contact SAMSON's After-sales Service for repair work.

### 12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
  - ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > After-sales Service.
2. Send an e-mail ▶ [retouren@samsongroup.com](mailto:retouren@samsongroup.com) to register the return shipment including the following information:
  - Type
  - Article no.
  - Configuration ID
  - Original order

- Completed Declaration on Contamination, which can be downloaded from our website at
  - ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > After-sales Service.

**After checking your registration, we will send you a return merchandise authorization (RMA).**

3. Attach the RMA (together with the Declaration on Decontamination) to the outside of your shipment so that the documents are clearly visible.
4. Send the shipment to the address given on the RMA.

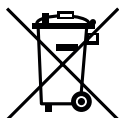
### i Note

*Further information on returned devices and how they are handled can be found at*

- ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service & Support > After-sales Service.



## 13 Disposal



SAMSON is a producer registered at the following European institution  
▶ <https://www.ewrn.org/national-registers/national-registers>.  
WEEE reg. no.: DE 621 94439/  
FR 02566

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

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### **i** Note

*We can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at [offersaleservice@samsongroup.com](mailto:offersaleservice@samsongroup.com) giving details of your company address.*

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### Tip

*On request, we can appoint a service provider to dismantle and recycle the product as part of a distributor take-back scheme.*

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## 14 Certificates

These declarations are included on the next pages:

- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU:
  - Country of origin: Germany, see page 14-2 to 14-3
  - Country of origin: France, see page 14-4 to 14-7
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3323-1 and 3323-7 Control Valves on page 14-8
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for the Type 3323 Valve with other actuators other than Types 3271 and 3277 Actuators on page 14-9
- Declaration of conformity in compliance with the 2016 Regulations No. 1105 Pressure Equipment (Safety) Regulations 2016, see page 14-10
- Declaration of conformity in compliance with the 2008 Regulations No. 1597 Supply of Machinery (Safety) Regulations 2008:
  - Final machinery, see page 14-11
  - Partly completed machinery, see page 14-12

The certificates shown were up to date at the time of publishing. The latest certificates can be found on our website:

► [www.samsongroup.com](http://www.samsongroup.com) > *Products & Applications* > *Product selector* > *Valves* > 3323

Other optional certificates are available on request.

## EU-KONFORMITÄTSERKLÄRUNG EU DECLARATION OF CONFORMITY

### Modul A/Module A

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

Geräte/Devices	Bauart/Series	Typ/Type	Ausführung/Version
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse GG, DN 65-125, Gehäuse GGG, DN 50-80, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of cast iron, DN 65-125, body of spherical-graphite iron, DN 50-80, fluids G2, L1, L2 <sup>1)</sup>
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2 <sup>2)</sup> DIN, body of steel, etc., DN 40-100, fluids G2, L2 <sup>2)</sup>
Durchgangsventil/Globe valve	240	3241	ANSI, Gehäuse GG, Class 250, NPS 1 1/2 bis NPS 2, Class 125, NPS 2 1/2 bis NPS 4, Fluide G2, L1, L2 <sup>1)</sup> ANSI, body of cast iron, Class 250, NPS 1 1/2 to NPS 2, Class 125, NPS 2 1/2 to NPS 4, fluids G2, L1, L2 <sup>1)</sup>
Dreihauptventil/Three-way valve	240	3244	DIN, Gehäuse GG, DN 65-125, Gehäuse GGG, DN 50-80, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of cast iron, DN 65-125, body of spherical-graphite iron, DN 50-80, fluids G2, L1, L2 <sup>1)</sup>
Dreihauptventil/Three-way valve	240	3244	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2 <sup>2)</sup> DIN, body of steel, etc., DN 40-100, fluids G2, L2 <sup>2)</sup>
Schrägsitzventil/Angle seat valve	---	3353	DIN, Rotzussgehäuse, alle Fluide DIN, red brass body, all fluids
Schrägsitzventil/Angle seat valve	---	3353	DIN, Gehäuse Stahl, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of steel, fluids G2, L1, L2 <sup>1)</sup>
Durchgangsventil/Globe valve	V2001	3321	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of cast iron, DN 65-100, fluids G2, L1, L2 <sup>1)</sup>
Durchgangsventil/Globe valve	V2001	3321	ANSI, Gehäuse GG, NPS 2 1/2 bis NPS 4, Fluide G2, L1, L2 <sup>1)</sup> ANSI, body of cast iron, NPS 2 1/2 to NPS 4, fluids G2, L1, L2 <sup>1)</sup>
Dreihauptventil/Three-way valve	V2001	3323	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of cast iron, DN 65-100, fluids G2, L1, L2 <sup>1)</sup>
Dreihauptventil/Three-way valve	V2001	3323	ANSI, Gehäuse GG, NPS 2 1/2 bis NPS 4, Fluide G2, L1, L2 <sup>1)</sup> ANSI, body of cast iron, NPS 2 1/2 to NPS 4, fluids G2, L1, L2 <sup>1)</sup>
Dreihauptventil/Three-way valve	250	3253	DIN, Gehäuse GG, DN 200 PN 10, Fluide G2, L1, L2 <sup>1)</sup> DIN, body of cast iron, DN 200 PN 10, fluids G2, L1, L2 <sup>1)</sup>

<sup>1)</sup> Gase nach Art. 4 Abs.1 Pkt. c.) zweiter Gedankenstrich//Gases according to Article 4(1)(c.ii), second indent  
Flüssigkeiten nach Art. 4 Abs.1 Pkt. c.iii//Liquids according to Article 4(1)(c.iii)

<sup>2)</sup> Gase nach Art. 4 Abs.1 Pkt. c.i) zweiter Gedankenstrich//Gases according to Article 4(1)(c.i), second indent  
Flüssigkeiten nach Art. 4 Abs.1 Pkt. c.ii) zweiter Gedankenstrich//Liquids according to Article 4(1)(c.ii), second indent

die Konformität mit nachfolgender Anforderung:/that the products mentioned above comply with the requirements of the following standards:

<b>Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt/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</b>	2014/68/EU	vom 15. Mai 2014/ of 15 May 2014
<b>Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1/ Applied conformity assessment procedure for fluids according to Article 4(1)</b>	<b>Modul A/Module A</b>	

Angewandte technische Spezifikation/Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

Hersteller/Manufacturer: **SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany**

Frankfurt am Main, 23. Februar 2017/23 February 2017



Klaus Hörschken  
Zentralabteilungsleiter/Head of Central Department  
Entwicklung Ventile und Antriebe/R&D, Valves and Actuators



Dr. Michael Heß  
Zentralabteilungsleiter/Head of Central Department  
Product Management & Technical Sales



# EU DECLARATION OF CONFORMITY TRANSLATION



## Module H / N° CE-0062-PED-H-SAM 001-22-DEU

For the following products, SAMSON hereby declares under its sole responsibility:

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Steam-converting valve	280	3281	EN/ANSI, all fluids
		3284	EN/ANSI, all fluids
		3286	EN/ANSI, all fluids
		3286	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 <sup>1)</sup>
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 <sup>1)</sup>
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3588	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI, NPS 3 to NPS 8, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids

<sup>1)</sup> Gases according to Article 4(1)(c.i), second indent  
Liquids according to Article 4(1)(c.ii)

that the products mentioned above comply with the requirements of the following standards:

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
Applied conformity assessment procedure for fluids according to Article 4(1)	Module H	Certificate-No.: N°CE-0062-PED-H-SAM 001-22-DEU by Bureau Veritas 0062

The manufacturer's quality management system is monitored by the following notified body:  
Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX - LA DEFENSE  
Applied harmonised standards and technical specifications: EN 12516-2, EN 12516-3, EN 12266-1, ASME B16.34  
Manufacturer: SAMSON AKTIENGESELLSCHAFT, Weismüllerstrasse 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 15<sup>th</sup> November 2022

Dr. Andreas Widl  
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter  
Chief Technology Officer (CTO)

Revision 10

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstrasse 3 · 60314 Frankfurt am Main, Germany

Page 1 of 1



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

1/2

**DC014  
2022-05**

### Module A / Modul A

Par la présente, SAMSON REGULATION SAS déclare sous sa seule responsabilité pour les produits suivants :  
For the following products, SAMSON REGULATION SAS hereby declares under its sole responsibility:

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne de décharge / Back pressure reducing valve	2371-0	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 50	Tous fluides / all fluids
		ANSI		$P_{max} T = 70^{\circ}F$ 150 psi	NPS 1 1/4 – 2	
Détendeur alimentaire / Pressure reducing valve	2371-1	DIN		$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 50	
		ANSI		$P_{max} T = 70^{\circ}F$ 150 psi	NPS 1 1/4 – 2	
Vanne de régulation passage droit / Globe valve	2423	à membrane with diaphragm	Fonte grise / cast iron	PN25	DN 65 – 125	G2 (L2 1)
		à soufflet with bellow	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 125	
Vanne de régulation passage droit / Globe valve	3241	DIN	Fonte grise / cast iron	PN16	DN 65 – 100	G2, L1, L2 1)
		DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	PN25	DN 50 – 100	
		DIN	Fonte sphéroïdale / spheroidal graphite	PN40	DN 40 – 100	
		ANSI	Fonte grise / cast iron	PN10	DN 125 – 150	
		DIN	Fonte sphéroïdale / spheroidal graphite	PN16	DN 65 – 125	
		ANSI	Fonte grise / cast iron	PN 25	DN 50 – 80	
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Acier / steel	CI 125 CI 250	NPS 2 1/2 – 4 NPS 1 1/2 – 2	Tous fluides / all fluids
		DIN	Fonte grise / cast iron	PN10	DN 32 – 100	
		ANSI	Acier / steel	PN16	DN 32 – 50	
		ANSI	Acier / steel	PN25	DN 32 – 40	
Vanne de régulation passage droit / Globe valve	3251	DIN	Fonte grise / cast iron	CI 150	NPS 1 1/4 – 2	G2, L1, L2 1)
		ANSI	Acier / steel	PN10	DN 125 – 150	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16	DN 80 – 100	Tous fluides / all fluids
		ANSI	Acier / steel	PN25	DN 32 – 40	
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10	DN 40 – 50	Tous fluides / all fluids
		ANSI	Acier / steel	PN16	DN 80 – 100	
Vanne de régulation passage droit / Globe valve	3321	DIN	Fonte grise / cast iron	PN25	DN 40	G2, L1, L2 1)
		ANSI	Fonte grise / cast iron	CI 150	NPS 1 1/2 – 2	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN16	DN 65 – 100	
		ANSI	Fonte sphéroïdale / spheroidal graphite iron	CI 125	NPS 2 1/2 – 4	
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Acier / steel	CI 150	NPS 1 1/2 – 2	Tous fluides / all fluids
		ANSI	Fonte grise / cast iron : GJL-250	PN16	DN 65 – 100	
Vanne papillon / Butterfly valve	3331	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80	G2, L1, L2 1)
		ANSI	Acier / steel	PN10	DN 100	
Vanne à membrane Diaphragm valve	3345	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 100	Tous fluides / all fluids
		ANSI	Acier / steel	$P_{max} T = 20^{\circ}C$ 16 bar	DN 32 – 50	
		DIN	Acier / steel	$P_{max} T = 70^{\circ}F$ 150 psi or 230 psi	NPS 1 1/4 – 2	
		ANSI	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	$P_{max} T = 20^{\circ}C$ 10 bar	DN 125 – 150	
				$P_{max} T = 20^{\circ}C$ 16 bar	DN 65 – 125	
				$P_{max} T = 20^{\circ}C$ 40 bar	DN 40 – 50	
				$P_{max} T = 70^{\circ}F$ 150 psi	NPS 2 1/2 – 4	
				$P_{max} T = 70^{\circ}F$ 230 psi	NPS 2 1/2 – 5	
				$P_{max} T = 70^{\circ}F$ 580 psi	NPS 1 1/2 – 2	



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

2/2

Module A / Modul A

DC014  
2022-05

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	P <sub>max</sub> T = 20°C: 10 bar	DN 125 – 150	G2, L1, L2 <sup>1)</sup>
		ANSI		P <sub>max</sub> T = 70°F: 150 psi	NPS 5 – 6	
Vanne aseptique / Aseptic valve	3349	DIN	Acier / steel	P <sub>max</sub> T = 20°C: 10 bar	DN 32 – 100	Tous fluides / all fluids
		ANSI		P <sub>max</sub> T = 20°C: 16 bar	DN 32 – 50	
			P <sub>max</sub> T = 20°C: 25 bar	DN 32 – 40		
		P <sub>max</sub> T = 70°F: 150 psi	NPS 1 ¼ – 4			
		P <sub>max</sub> T = 230 psi	NPS 1 ¼ – 2			
		P <sub>max</sub> T = 70°F: 360 psi	NPS 1 ¼ – 1 ½			
Vanne Tout ou Rien / On-Off Valve	3351	DIN	Acier / steel	PN16	DN 32 – 50	Tous fluides / all fluids
		ANSI		PN25	DN 32 – 40	
		DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	CI 150	NPS 1 ¼ – 2	
				PN16	DN 65 – 100	
ANSI	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80			
		CI 125	NPS 2 ½ – 4			
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN6	DN 200 – 500	G2, L2 <sup>1)</sup>
				PN10	DN 125 – 350	
				PN16	DN 65 – 200	
				PN25	DN 50 – 125	
				PN40	DN 40 – 100	

<sup>1)</sup> Gas selon l'article 4 § 1.c) i) / Gases Acc. to article 4 paragraphs 1.c) i)  
Liquide selon l'article 4 § 1.c) ii) / Liquids Acc. to article 4 paragraphs 1.c) ii)

la conformité avec le règlement suivant : / the conformity with the following requirement :

La Directive du Parlement Européen et du Conseil d'harmonisation des lois des Etats Membres concernant la mise à disposition sur le marché d'équipements sous pression / 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/UE 2014/68/EU	Du / of 15.05.2014
Procédure d'évaluation de la conformité appliquée pour les fluides selon l'Article 4 § 1 Applied conformity assessment procedure for fluids according to Article 4 § 1	Module A / Modul A	

Normes techniques appliquées / Technical standards applied :  
DIN EN 12516-2, DIN EN 12516-3, ASME B16.34, DIN-EN 60534-4, DIN-EN 1092-1

Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

Vaulx-en-Velin, le 23/05/22

Bruno Soulas  
Directeur Stratégie et Développement / Head of Strategy and Development

Joséphine Signoles-Fontaine  
Responsable du service QSE / Head of QSE Department



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

1/2

### Module H / Modul H, N° / Nr CE-0062-PED-H-SAM 001-20-FRA-rev-A

**DC012**  
**2022-05**

Par la présente, SAMSON REGULATION SAS déclare sous sa seule responsabilité pour les produits suivants :  
For the following products, SAMSON REGULATION SAS hereby declares under its sole responsibility:

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids	
Vanne de régulation passage droit / globe valve	3241	DIN	Fonte grise & fonte sphéroidale / cast iron & spheroidal graphite iron	PN 16	DN 150	G2, L1, L2 <sup>1)</sup>	
		ANSI		CI 125	NPS 6		
		DIN	Acier / steel	PN 25	DN 100 – 150	Tous fluides / all fluids	
		ANSI		PN10 PN16 PN25 PN40 CI 150 CI 300	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ - 6 NPS 1 ¼ – 6		
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN 16	DN 150	G2, L1, L2 <sup>1)</sup>	
		DIN	Acier / steel	PN10 PN16 PN25 PN40 CI 150 CI 300	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6		Tous fluides / all fluids
		ANSI					
Vanne de régulation passage droit / globe valve	3251	DIN	Acier / steel	PN16 PN25 PN40 – 400 CI 150 CI 300 - 2500	DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6	Tous fluides / all fluids	
		ANSI					
Vanne haute pression / High pressure valve	3252	DIN	Acier / steel	PN40 – 400	DN 32 – 80	Tous fluides / all fluids	
		ANSI		CI 300 - 2500	NPS 1 ¼ – 3		
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16 PN40 – 400 CI 150 CI 300 - 2500	DN 65 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6	Tous fluides / all fluids	
		ANSI					
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10 PN16 PN25 PN40 CI 150 CI 300	DN 150 DN 80 – 150 DN 50 – 150 DN 40 – 150 NPS 3 – 6 NPS 1 ½ – 6	Tous fluides / all fluids	
		ANSI					
Vanne de régulation passage droit / globe valve	3321	DIN	Fonte sphéroidale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>	
		DIN	Acier / steel	PN16 PN40 CI 150 CI 300	DN 65 – 100 DN 32 – 100 NPS 2 ½ – 4 NPS 1 ½ – 4		Tous fluides / all fluids
		ANSI					
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Fonte sphéroidale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>	
		DIN	Acier / steel	PN16 PN40 CI 150 CI 300	DN 65 – 100 DN 32 – 100 NPS 2 ½ – 4 NPS 1 ¼ – 2		Tous fluides / all fluids
		ANSI					
Vanne papillon / Butterfly valve	3331	DIN	Acier / steel	PN10 PN16 – 50 CI 150 – 300	DN 150 – 400 DN 100 – 400 NPS 4 – 16	Tous fluides / all fluids	
		ANSI					
Vanne à membrane / Diaphragm valve	3345	ANSI	Fonte grise & fonte sphéroidale / cast iron & spheroidal graphite iron	P <sub>max</sub> T= 70°F 150 psi	NPS 5 – 6	G2, L1, L2 <sup>1)</sup>	
				P <sub>max</sub> T= 70°F 230 psi	NPS 6		
			Acier / steel	P <sub>max</sub> T= 70°F 150 - 230 psi	NPS 2 ½ – 6	Tous fluides / all fluids	



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

2/2

Module H / Modul H, N° / Nr CE-0062-PED-H-SAM 001-20-FRA-rev-A

DC012  
2022-05

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	P <sub>max</sub> T = 20°C 16 bar P <sub>max</sub> T = 20°C 40 bar P <sub>max</sub> T = 20°C 63 bar	DN 150 DN 65 – 150 DN 32 – 150	G2, L1, L2 <sup>1)</sup>
		ANSI		P <sub>max</sub> T = 70°F 230 psi P <sub>max</sub> T = 70°F 580 psi P <sub>max</sub> T = 70°F 910 psi	NPS 6 NPS 2 ½ – 6 NPS 1 ¼ – 6	
Vanne aseptique / Aseptic valve	3349	DIN	Acier / steel	P <sub>max</sub> T = 20°C 16 bar P <sub>max</sub> T = 20°C 25 bar	DN 65 – 100 DN 50 – 100	Tous fluides / all fluids
		ANSI		P <sub>max</sub> T = 70°F 230 psi P <sub>max</sub> T = 70°F 360 psi	NPS 2 ½ – 4 NPS 2 – 4	
Vanne Tout ou Rien / On-Off Valve	3351	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN16 PN25 PN40	DN 65 – 100 DN 50 – 100 DN 32 – 100	
		ANSI		CI 150 CI 300	NPS 2 ½ – 4 NPS 1 ¼ – 4	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN10	DN 400 – 500	G2, L2 <sup>1)</sup>
				PN16	DN 250 – 500	
				PN25	DN 150 – 500	
				PN40	DN 125 – 500	

<sup>1)</sup> Gas selon l'article 4 § 1.c) i) / Gases Acc. to article 4 paragraphs 1.c) i)  
Liquide selon l'article 4 § 1.c) ii) / Liquids Acc. to article 4 paragraphs 1.c) ii)

la conformité avec le règlement suivant : / the conformity with the following requirement:

La Directive du Parlement Européen et du Conseil d'harmonisation des lois des Etats Membres concernant la mise à disposition sur le marché d'équipements sous pression / 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/UE 2014/68/EU	Du / of 15.05.2014
Procédure d'évaluation de la conformité appliquée pour les fluides selon l'Article 4 § 1 Applied conformity assessment procedure for fluids according to Article 4 § 1	Module H / Modul H	Certificat n° CE- 0062-PED-H-SAM 001-20-FRA-rev-A

Normes techniques appliquées / Technical standards applied :  
DIN EN 12516-2, DIN EN 12516-3, ASME B16.34, DIN-EN 60534-4, DIN-EN 1092-1

Le système de contrôle Qualité du fabricant est effectué par l'organisme de certification suivant :  
The manufacturer's quality management system is monitored by the following notified body:

Bureau Veritas Services SAS N°/Nr 0062, 8 Cours du Triangle, 92800 PUTEAUX - LA DEFENSE  
Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

Vaulx-en-Velin, le 23/05/22

Bruno Soulas  
Directeur Stratégie et Développement / Head of Strategy and Development

Joséphine Signoles-Fontaine  
Responsable du service QSE / Head of QSE department

# 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 3323-IP/-PP Pneumatic Control Valves consisting of the Type 3323 Valve and Type 3371 Pneumatic Actuator or Type 3372 Electropneumatic 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 3323 Valve: Mounting and Operating Instructions EB 8113/8114
- Type 3371 Actuator: Mounting and Operating Instructions EB 8317
- Type 3372 Actuator: Mounting and Operating Instructions EB 8313-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.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 04 March 2021

  
\_\_\_\_\_  
Peter Arzbach  
Director  
Product Management

  
\_\_\_\_\_  
Peter Scheermesser  
Director  
Product Life Cycle Management and ETO  
Development for Valves and Actuators

Revision no. 00

# DECLARATION OF INCORPORATION TRANSLATION



## Declaration of Incorporation in Compliance with Machinery Directive 2006/42/EC

For the following products:

### Type 3323 Pneumatic Control Valve

We certify that the Type 3323 Pneumatic Control Valves are partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated data sheets as well as the mounting and operating instructions; the documents are available in electronic form on the Internet at [www.samsongroup.com](http://www.samsongroup.com).

For product descriptions of the valve, refer to:

- Type 3323 Valve: Mounting and Operating Instructions EB 8113/8114

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, May 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

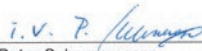
Comments:

- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 04 March 2021

  
\_\_\_\_\_  
Peter Arzbach  
Director  
Product Management

  
\_\_\_\_\_  
Peter Scheermesser  
Director  
Product Life Cycle Management and ETO  
Development for Valves and Actuators

Revision no. 00

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany

Page 1 of 1



**The Pressure Equipment (Safety) Regulations 2016 Module H / N° CE-0062-PED-H-SAM 001-22-DEU**

For the following products, SAMSON hereby declares under its sole responsibility:

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Steam-converting valve	280	3281	EN/ANSI, all fluids
		3284	EN/ANSI, all fluids
		3286	EN/ANSI, all fluids
		3288	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 <sup>1)</sup>
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 <sup>1)</sup>
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3588	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI, NPS 3 to NPS 8, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids

<sup>1)</sup> Gases according to Article 4(1)(c.i), second indent // Liquids according to Article 4(1)(c.ii) acc. to PE(S)R 2016

that the object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Legislation: STATUTORY INSTRUMENTS - 2016 No. 1105 - CONSUMER PROTECTION HEALTH AND SAFETY - The Pressure Equipment (Safety) Regulations 2016	PE(S)R 2016	2022
Applied conformity assessment procedure for fluids according to Article 4(1)	Module H	Certificate-No.: N° CE-0062-PED-H-SAM 001-22-DEU by Bureau Veritas 0062

The manufacturer's quality management system is monitored by the following notified body:  
Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX - LA DEFENSE (No. 0062)  
Applied designated standards and technical specifications: EN 12516-2, EN 12516-3, EN 12266-1, ASME B16.34

Manufacturer: SAMSON AKTIENGESELLSCHAFT, Weismüllerstrasse 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 16<sup>th</sup> November 2022

Dr. Andreas Wildi  
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter  
Chief Technology Officer (CTO)

Revision 00





**Declaration of Conformity of Final Machinery**

in accordance with Schedule 2 Part 2 Annex II, section 1.A. of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008

For the following products:

**Types 3323-IP Pneumatic Control Valves consisting of the Type 3323 Valve and Type 3372 Electropneumatic Actuator**

We hereby declare that the machinery mentioned above complies with all applicable requirements stipulated in Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008.

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

- Type 3323 Valve: Mounting and Operating Instructions EB 8113/8114
- Type 3372 Actuator: Mounting and Operating Instructions EB 8313-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. Machinery components can be mounted onto the above specified final machinery if they comply with the specifications and properties defined by SAMSON Manual H 02 "Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of 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.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 8 November 2022

Stephan Giesen  
Director  
Product Management

Peter Scheermesser  
Director  
Product Maintenance & Engineered Products

Revision 00



### Declaration of Incorporation of Partly Completed Machinery

in accordance with Schedule 2 Part 2 Annex II, section 1.B. of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008

For the following product:

#### Type 3323 Pneumatic Control Valve

We certify that the Type 3323 Pneumatic Control Valves are partly completed machinery as defined in the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008 and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, (Part 7 of Schedule 2) part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated mounting and operating instructions; the documents are available in electronic form on the Internet at [www.samsongroup.com](http://www.samsongroup.com).

For product descriptions refer to:

- Type 3323 Valve: Mounting and Operating Instructions EB 8113/8114

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

Comments:

- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 8 November 2022

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Stephan Giesen  
Director  
Product Management

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Peter Scheermesser  
Director  
Product Maintenance & Engineered Products

Revision 00

## 15 Annex

### 15.1 Tightening torques, lubricants and tools

► AB 0100 for tools, tightening torques and lubricants

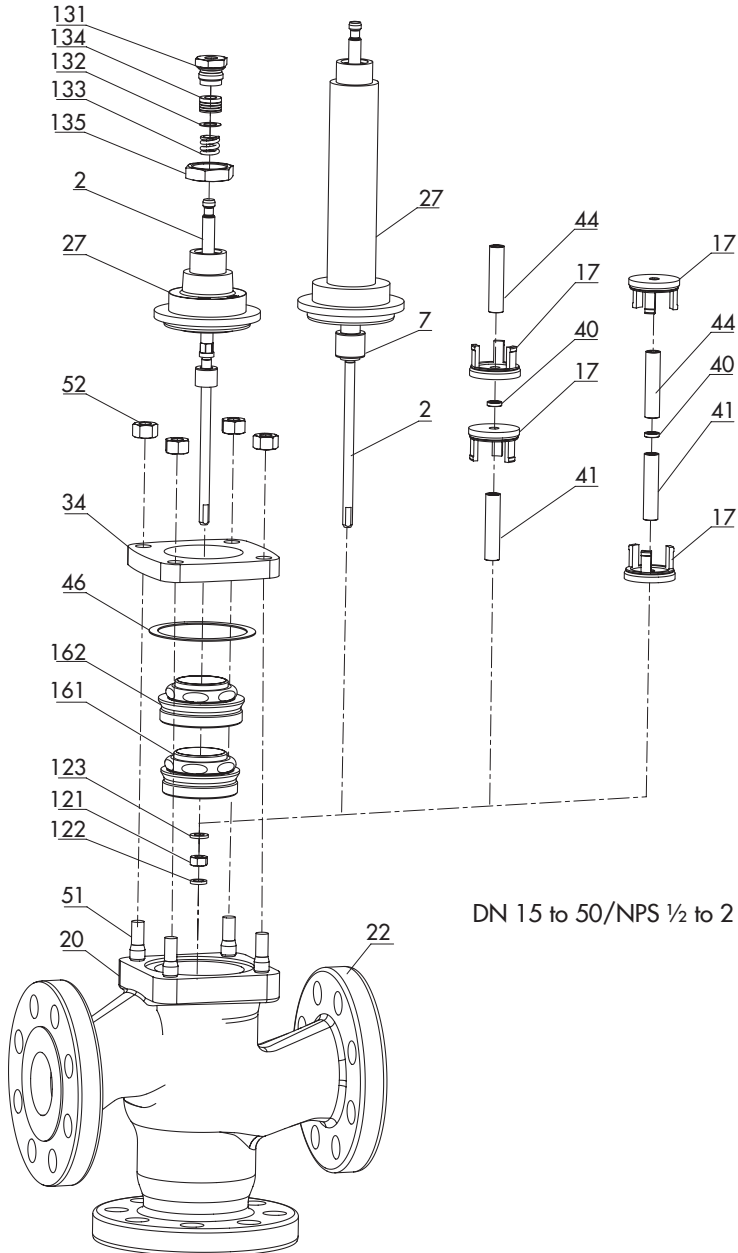
### 15.2 Spare parts

#### DN 15 to 50/NPS ½ to 2

2	Plug stem
7	Guide bushing
17	Plug
20	Body
22	Nameplate
27	Valve bonnet/insulating section
34	Flange
40	Spacer
41	Spacer
46	Body gasket
51	Stud
52	Body nut
121	Hex nut (self-locking)
122	Retaining washer
123	Washer
131	Threaded bushing (packing nut)
132	Washer
133	Spring
134	V-ring packing
135	Central nut
161	Top seat
162	Bottom seat

#### DN 65 to 100/NPS 2½ to 4

1	Body
2	Valve bonnet/insulating section
4	Top seat
5	Top plug
7	Guide bushing
8	Threaded bushing (packing nut)
11	Spring
12	Washer
13	Stud
14	Body nut
15	Packing
16	V-ring packing
17	Body gasket
36	Plug stem
40	Hex nut (self-locking)
75	Spacer
76	Spacer
80	Nameplate
81	Grooved pin
141	Bottom seat
192	Washer
199	Bottom plug





### 15.3 After-sales service

Contact our 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 [aftersalesservice@samsongroup.com](mailto:aftersalesservice@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, model number, valve size and valve version
- Pressure and temperature of the process medium
- Flow rate in m<sup>3</sup>/h
- Bench range of the actuator (e.g. 1.4 to 2.3 bar)
- Is a strainer installed?
- Installation drawing

### 15.4 Information on the UK sales region

The following information corresponds to the 2016 Regulations No. 1105 Pressure Equipment (Safety) Regulations 2016, STATUTORY INSTRUMENTS, 2016 No. 1105 (UKCA marking). It does not apply to Northern Ireland.

#### Importer

SAMSON Controls Ltd  
Perrywood Business Park  
Honeycrock Lane  
Redhill, Surrey RH1 5JQ

Phone: +44 1737 766391

E-mail: [sales-uk@samsongroup.com](mailto:sales-uk@samsongroup.com)

Website: [uk.samsongroup.com](http://uk.samsongroup.com)



**EB 8113/8114 EN**



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