

MOUNTING AND OPERATING INSTRUCTIONS



EB 8055 EN

Translation of original instructions



Type 3253 Valve · DIN version

In combination with an actuator,
e.g. a SAMSON Type 3271 or Type 3277 Pneumatic Actuator

Edition May 2018



Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

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



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > **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 3253 Three-way Valve in combination with an actuator, e.g. Type 3271 or Type 3277 Pneumatic Actuator, is designed as a mixing or diverting valve for use in process engineering applications with high industrial requirements. 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 other applications or conditions than specified, contact SAMSON.

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

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

Reasonably foreseeable misuse

The 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 mounted on the control 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 in these instructions

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 are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Safety instructions and measures

Personal protective equipment

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

▶ GESTIS (CLP) hazardous substance database).

- Provide protective equipment (e.g. safety gloves, eye protection) appropriate for the process medium used.
- Wear hearing protection when working near the valve.
- 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 devices

Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators (see actuator documentation).

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. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

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

▶ GESTIS (CLP) hazardous substance database).

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

Responsibilities of the operator

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

Responsibilities of operating personnel

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

Referenced standards and regulations

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Valves with a CE marking have an EU declaration of conformity, which includes information about the applied conformity assessment procedure. This EU declaration of conformity is included in the Appendix of these instructions (see section 10.2).

Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source according to the risk assessment stipulated in EN 13463-1: 2009, section 5.2, even in the rare incident of an operating fault. Therefore, such valve versions do not fall within the scope of Directive 2014/34/EU.

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

Referenced documentation

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

- Mounting and operating instructions for mounted actuator, e.g. ► EB 8310-X for Type 3271 and Type 3277 Actuators
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- ► AB 0100 for tools, tightening torques and lubricant

1.1 Notes on possible severe personal injury

DANGER

Risk of bursting in pressure equipment.

Valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.

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

1.2 Notes on possible personal injury

WARNING

Crush hazard arising from moving parts.

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

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

Risk of personal injury when the actuator vents.

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

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

⚠ WARNING**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).

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

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

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

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 heat up.
- Wear protective clothing and safety gloves.

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.
- Observe the maximum permissible pressure for valve and plant.

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.

NOTICE

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

Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. 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).

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 the valve surface.

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

2 Markings on the device

2.1 Valve nameplate

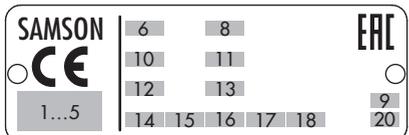


Fig. 1: Valve nameplate

1...5	6	8	ERC
	10	11	
	12	13	9
	14	15	16
	17	18	20

- 1...5 PED (Pressure Equipment Directive), "Art. 4, Abs. 3"
ID of the notified body, fluid group and category
- 6 Type designation
- 8 Material
- 9 Year of manufacture
- 10 Valve size:
DIN: DN · ANSI: NPS · JIS: DN ... A/B
- 11 Pressure rating:
DIN: PN · ANSI: CL · JIS: K
- 12 Order no. with modification index
For after-sales service orders: AA prefix
- 13 Position in order
For after-sales service orders: configuration ID
- 14 Flow coefficient:
DIN: K_{VS} · ANSI: C_V · JIS: C_V
- 15 Characteristic:
Lin: linear
- 16 Seat-plug seal:
ME: metal (see section 3.3)
HA: carbide metal
ST: Stellite® facing
- 17 Seat code (trim material) · On request
- 18 Version:
Mixing valve: M · Diverting valve: V
- 20 Country of origin

The valve nameplate (80) is affixed to the bonnet (see Fig. 2).

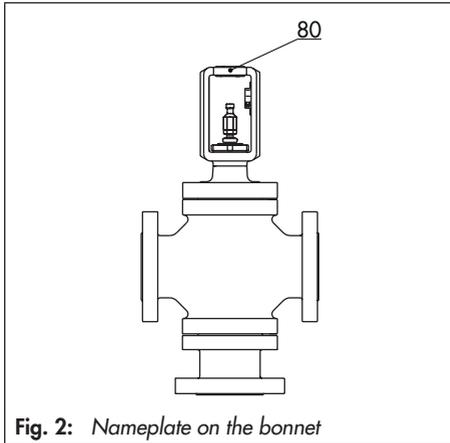


Fig. 2: Nameplate on the bonnet

2.2 Actuator nameplate

See associated actuator documentation.

2.3 Material number

The seat and plug of the valves have an article number written on them. Specifying this article number, you can contact us 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 (17 on nameplate). For more details on the nameplate, see section 2.1.

3 Design and principle of operation

The Type 3253 is a three-way valve which can be used either as a mixing or diverting valve. The design of the mixing and diverting valves in sizes DN 15 to 25 is identical. The Type 3253 Valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator (see Fig. 3). It can also be combined with other actuators.

The two seats (4), plug (5) and plug stem (36) are installed in the body (1). The plug stem is connected to the actuator stem (A7) by the stem connector clamps (A26/27) and is sealed by a V-ring packing (15). Alternatively, an adjustable high-temperature packing can be used.

The springs in the pneumatic actuator are located either above or below the diaphragm depending on the selected fail-safe action (see section 3.1). A change in the signal pressure acting on the diaphragm causes the plug to move. The actuator size is determined by the diaphragm area.

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

signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator stem retracts or extends. As a result, the plug position in the seats changes and determines the flow rate through the valve.

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).

In diverting valves, the process medium enters at the valve port **AB** and the partial flows exit at ports **A** and **B** (see Fig. 4).

3.1 Fail-safe positions

The fail-safe position depends on the mounted actuator.

Depending on how the compression springs are arranged in the pneumatic actuator, the valve has two different fail-safe positions:

Actuator stem extends (FA)

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem downward. In mixing valves, port **B**

Legend for Fig. 3 and Fig. 4		15	Packing	A8	Ring nut
1	Body	17	Body gasket	A10	Spring
2	Bonnet	20	Seat body	A26/27	Stem connector clamps
4	Seat	36	Plug stem		
5	Plug	60	Yoke assembly		
8	Threaded bushing (packing nut)	92	Castellated nut		
10	Lock nut	225	Nut		
14	Nuts	A4	Diaphragm		
		A7	Actuator stem		

Fig. 3: Type 3253 Valve (as mixing valve) with Type 3271 Pneumatic Actuator

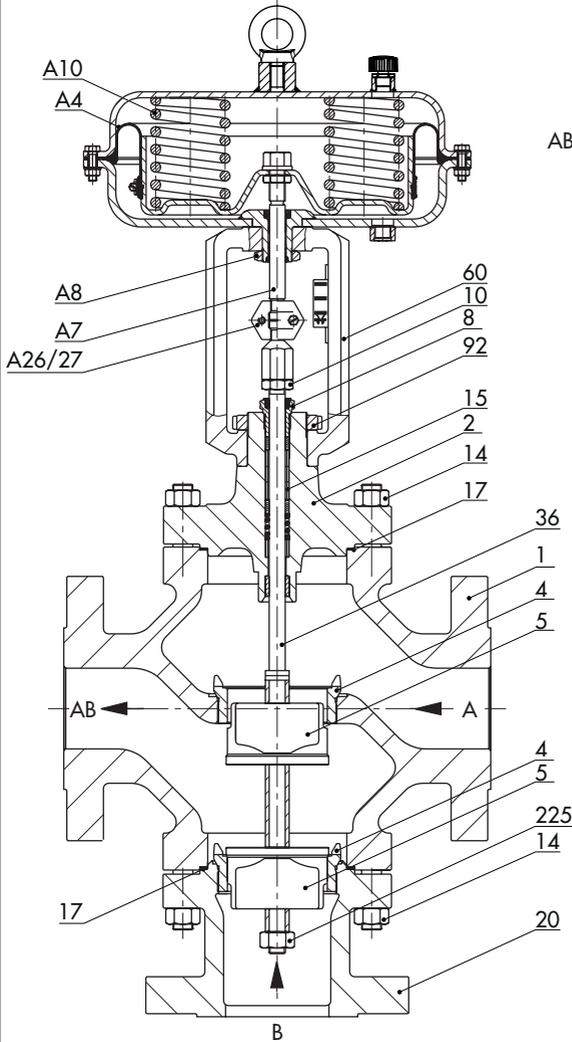
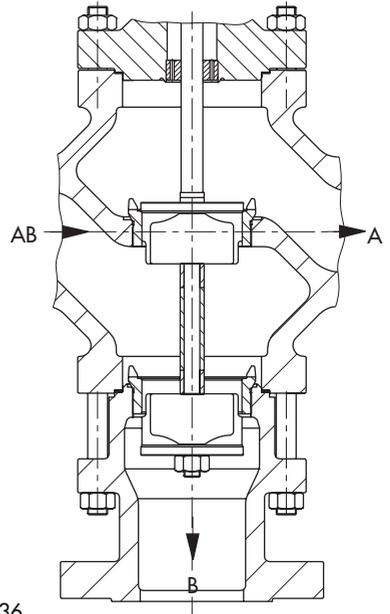


Fig. 4: Type 3253 Valve (as diverting valve)



Design and principle of operation

is closed. In diverting valves, port **A** is closed. The valve ports **B** or **A** respectively are opened against the force of the compression springs when the signal pressure increases.

Actuator stem retracts (FE)

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upward. In mixing valves, port **B** is opened. In diverting valves, port **A** is opened. The valve ports **B** or **A** respectively are closed against the force of the compression springs when the signal pressure increases.



Tip

The actuator's direction of action can be reversed, if required. Refer to the mounting and operating instructions of the pneumatic actuator:

▶ *EB 8310-X for Type 3271 and Type 3277*

3.2 Versions

Insulating section or bellows seal

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

Actuators

In these instructions, the preferable combination with a Type 3271 or Type 3277 Pneumatic Actuator is described. The pneumatic actuator (with or without handwheel) can be replaced by another pneumatic actuator in a different size, but with the same travel.

→ Observe the maximum permissible actuator force.

i Note

If the travel range of the actuator is larger than the travel range of the valve, the spring assembly in the actuator must be preloaded so that the travel ranges match. See associated actuator documentation.

The basic pneumatic actuator can be replaced by a pneumatic actuator with additional handwheel or by an electric actuator.

Anti-rotation fixture

An optional anti-rotation fixture is available. It is mounted to the actuator/plug stem to protect the plug against damage caused by rotation.

3.3 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See section 2.1 and the actuator documentation.

i Note

More information is available in Data Sheet
▶ *T 8055.*

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities and process medium.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Wear hearing protection when working near the valve.

Table 1: Technical data

Material		Cast iron EN-GJL-250		Cast steel 1.0619		Cast steel 1.7357	Cast stainless steel 1.4408	
Valve size ¹⁾	DN	150 to 200	250 to 500	15 to 100	150 to 300	15 to 300	15 to 100	150 to 300
Nominal pressure ¹⁾	PN	16	10	16 to 160	16 to 160	16 to 160	16 to 160	16 to 160
Type of connection	Flanges	All DIN EN versions						
Seat-plug seal		Metal seal						
Characteristic		Linear						
Rangeability		50 : 1						
Temperature ranges in °C · Permissible operating pressures acc. to pressure-temperature diagrams (see Information Sheet ▶ T 8000-2)								
Body without insulating section		-10 to +220 °C · Up to +350 °C with high-temperature packing						
Body with insulating section or bellows seal		-10 to +300		-10 to +400		-10 to +500		-196 to +550
Valve plug	Metal seal	-196 to +550						
Leakage class according to IEC 60534-4		≤ 0.05 % of K _{V5} coefficient						
Compliance		CE · EAC						

¹⁾ Up to PN 400 on request · DN 400: PN 16 to 40 · DN 500: PN 16 to 40

Design and principle of operation

Dimensions and weights

Table 2 to Table 4 provide a summary of the dimensions and weights of the standard version of Type 3253 Valve. The lengths and heights in the dimensional drawings are shown on p. 19.

Dimensions in mm · Weights in kg

Table 2: Dimensions of Type 3253 Three-way Valve · DN 15 to 150

Valve	DN	15	25	40	50	80	100	150
Length L	PN 10 to 40	130	160	200	230	310	350	480
	PN 63 to 160	210	230	260	300	380	430	550
Height H4	PN 10 to 40	152	152	164	217	222	242	315
	PN 63 to 160							
	PN 250 to 400	186	186	195	251	288	348	445
H8 for actuator	350 cm ²	240	240	240	240	240	240	–
	700 cm ²	240	240	240	240	240	240	418
	1400-60 cm ²	–			295	295	295	418
	1400-120 cm ² 2800 cm ²				480	480	480	503
	H2 (approx.)	PN 10 to 40	115	115	130	230	275	305
PN 63 to 160		115	115	130	275	310	370	535
PN 250 to 320		140	On request					587
PN 400		On request					457	626

Table 3: Dimensions of Type 3253 Three-way Valve · DN 200 to 500

Valve	DN	200	250	300	400	500
Length L	PN 10 to 40	600	730	850	1100	1250
	PN 63 to 160	650	775	900	1150 ¹⁾	1400 ²⁾
Height H4	PN 10 to 40	389	441	637	637	735
	PN 63 to 160		518		–	
	PN 250 to 400	544	699	811	–	

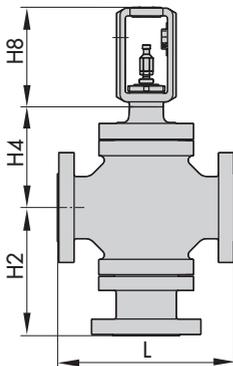
Valve	DN	200	250	300	400	500
H8 for actuator	350 cm ²	-				
	700 cm ²	418	418	-		
	1400-60 cm ²	418	418	503	503	503
	1400-120 cm ² 2800 cm ²	503	503 ³⁾	650	650	650
H2 (approx.)	PN 10 to 40	520	595	740	830	982
	PN 63 to 160	590	730	790	-	
	PN 250 to 320	On request				
	PN 400	On request				

- 1) DN 400, up to PN 63
- 2) DN 500, up to PN 40
- 3) H8 = 650 mm with 250 mm seat bore

Table 4: Weights for Type 3253 Three-way Valve

Valve	DN	15	25	40	50	80	100	150	200	250	300	400	500
Valve without actuator	PN 10 to 40	On request											
	PN 63 to 160	32	37	50	93	129	165	365	On request		-	-	
	PN 250 to 400	On request											

Dimensional drawing



Standard version of Type 3253

i Note

For more dimensions and weights refer to the Data Sheef ▶ T 8055.
 The associated actuator documentation applies to actuators, e.g. for SAMSON pneumatic actuators:
 ▶ T 8310-1 for Type 3271 and Type 3277 Actuators up to 750 cm² actuator area
 ▶ T 8310-2 for Type 3271 Actuator with 1000 cm² actuator area and larger
 ▶ T 8310-3 for Type 3271 Actuator with 1400-60 cm² actuator area

4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

Note

Do not remove the packaging until immediately before installing the valve into the pipeline.

Proceed as follows to lift and install the valve:

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

NOTICE

*Risk of valve damage due to foreign particles entering the valve.
The protective caps fitted on the valve's inlet and outlet prevent foreign particles from entering the valve and damaging it.
Do not remove the protective caps until immediately before installing the valve into the pipeline.*

4.2 Transporting and lifting

DANGER

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

WARNING

Risk of lifting equipment tipping 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, if applicable).
- Refer to section 3.3 or Data Sheet  T 8055 for weights.

WARNING

Risk of personal injury due to the control valve tipping.

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

NOTICE

*Risk of valve damage due to incorrectly attached slings.
The eyebolt on the actuator is only intended for mounting and removing the actuator as well as lifting the actuator without valve. Do not use this eyebolt to lift the entire control valve assembly.*

- 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 4.2.2).

**Tip**

SAMSON's After-sales Service department can provide more detailed transport and lifting instructions on request.

4.2.1 Transporting

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).
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is –20 to +65 °C.

i Note

Contact SAMSON's After-sales Service department for the transportation temperatures of other valve versions.

4.2.2 Lifting

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

Lifting instructions

- Secure slings against slipping.
- Make sure the slings can be removed from the valve once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
- Make sure that the additional sling between the eyebolt and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves larger than DN 150. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

Measures for preparation

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. 5).
2. If necessary, attach another sling to the eyebolt on the actuator and to the rigging equipment.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.

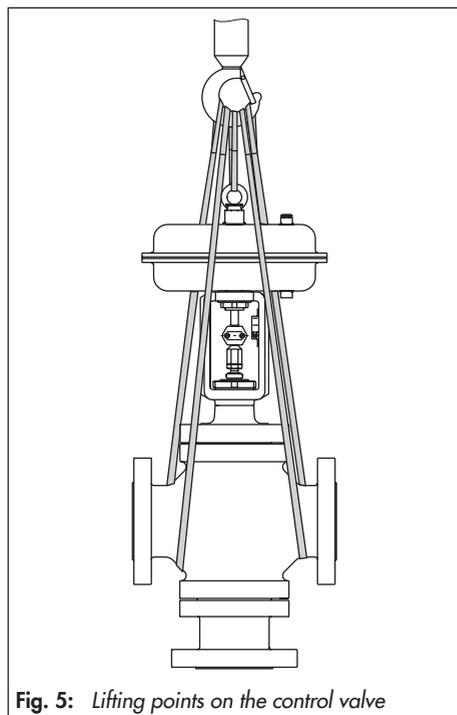


Fig. 5: Lifting points on the control valve

5. Install the valve into the pipeline (see section 5.2.3).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.



Tip

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

4.3 Storage

NOTICE

Risk of valve damage due to improper storage.

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

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).

- 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.

i Note

Contact SAMSON's After-sales Service department 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 for elastomers.
 - Store elastomers away from lubricants, chemicals, solutions and fuels.
-

💡 Tip

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

4.4 Preparation for installation

Proceed as follows:

- ➔ Flush the pipelines.
-

i Note

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

- ➔ Check the valve to make sure it is clean.
- ➔ Check the valve for damage.
- ➔ Check to make sure that the type designation, valve size, material, pressure rating and temperature range of the valve match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- ➔ For steam applications, make sure that the pipelines are dry. Moisture will damage the inside of the valve.
- ➔ Check any mounted pressure gauges to make sure they function.
- ➔ When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ AB 0100). Components may loosen during transport.

5 Mounting and start-up

SAMSON valves are delivered ready for use. In special cases, the valve and actuator are delivered separately and must be assembled on site. Proceed as follows to mount and start up the valve.

NOTICE

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

Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. 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).

5.1 Mounting the actuator onto the valve

Proceed as described in the actuator documentation if the valve and actuator have not been assembled by SAMSON.

Versions with V-port plug

Each V-port plug has three V-shaped ports. Depending on the valve size, the size of the symmetrically arranged V-shaped ports var-

ies. The process medium in the valve flows through the V-shaped ports as soon as the plugs are lifted out of the seat (i.e. the valve opens).

1. Before mounting the actuator, determine which V-shaped port is uncovered first when the top and bottom plug are lifted out of the seat.

Tip

Usually, this is the largest V-shaped port.

2. On mounting the actuator, make sure that the V-shaped port of both the top and bottom plug uncovered first is correctly aligned.

Mixing valve: the corresponding V-shaped ports face toward the side valve outlet **AB** (see Fig. 6).

Diverting valve: the corresponding V-shaped ports face toward the side valve outlet **A** (see Fig. 6).

NOTICE

Medium flow obstructed due to incorrect installation of the V-port plug. To achieve the best flow conditions inside the valve, the V-port plug must always be installed with the largest port facing toward the valve outlet. Make sure the V-port plug is installed correctly.

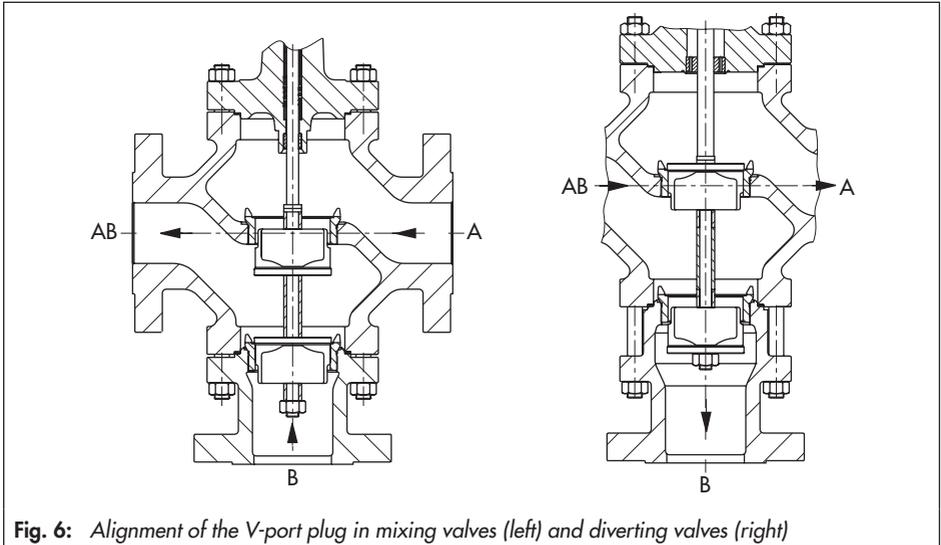


Fig. 6: Alignment of the V-port plug in mixing valves (left) and diverting valves (right)

i Note

- Remove the mounted actuator before mounting the other actuator (see associated actuator documentation).
- Preloading the actuator springs increases the thrust of a pneumatic actuator and reduces the travel range of the actuator (see associated actuator documentation).

5.2 Installing the valve into the pipeline

5.2.1 Checking the installation conditions

Pipeline routing

The inlet and outlet lengths vary depending on the process medium. To ensure the control

valve functions properly, follow the installation instructions given below:

- ➔ Install the valve free of stress and with the least amount of vibrations as possible. If necessary, attach supports to the valve.
- ➔ 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. 7).

Mounting position

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

In the following versions, the valve **must** be installed with the actuator on top:

Mounting and start-up

- Valves in DN 100 and larger
 - Valves with insulating section for low temperatures below $-10\text{ }^{\circ}\text{C}$
- ➔ Contact SAMSON if the mounting position is not as specified above.

Support or suspension

Depending on the valve version and mounting position, the control valve and pipeline must be supported or suspended. The plant engineering company is responsible in this case.

NOTICE

Premature wear and leakage due to insufficient support or suspension.

In the following versions, the control valve must be supported or suspended:

- Valves that are not installed with the actuator in the upright position on top of the valve.

Attach a suitable support or suspension to the valve.

Vent plug

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.

- ➔ Locate the vent plug on the opposite side to the workplace of operating personnel.
- ➔ On mounting valve accessories, make sure that they can be operated from the workplace of the operating personnel.

Note

The workplace of operating personnel is the location from which the valve, actuator and any mounted valve accessories can be accessed to operate them.

5.2.2 Additional fittings

Strainers

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

Shut-off valves

We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve.

Insulation

Only insulate control valves with insulating section or bellows seal up to the bonnet flange of the valve body for medium temperatures below $0\text{ }^{\circ}\text{C}$ or above $220\text{ }^{\circ}\text{C}$.

Do not insulate valves mounted to comply with NACE MR0175 requirements and which have nuts and bolts that are not suitable for sour gas environments.

Test connection

Versions with bellows seal fitted with a test connection ($G\ 1/8$) at the top flange allow the sealing ability of the bellows to be monitored.

Mixing service

Temperature control $Q = \text{constant}$

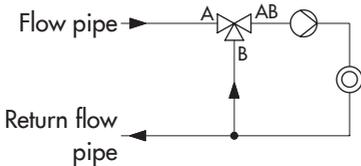
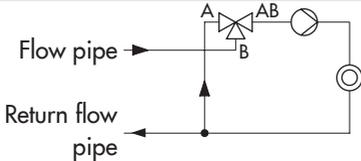
Fail-safe action: FA = "Actuator stem extends", FE = "Actuator stem retracts"
 In heating applications with FA, the heating medium (flow) is shut off in the fail-safe position,
 in cooling applications with FE, cooling is maintained in the fail-safe position.

Diverting service

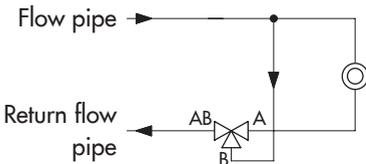
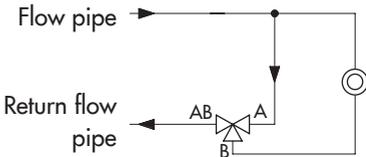
Flow control $Q = 0 \text{ to } 100 \%$

Heating with mixing valve (FA) or cooling with mixing valve (FE)

Installation in flow pipe

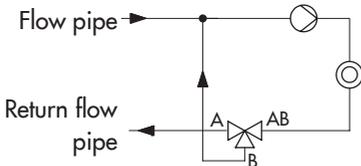
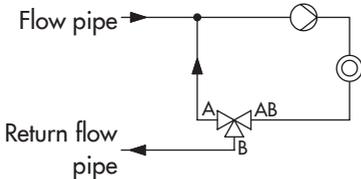


Installation in return flow pipe



Heating with diverting valve (FA) or cooling with diverting valve (FE)

Installation in return flow pipe



Installation in flow pipe

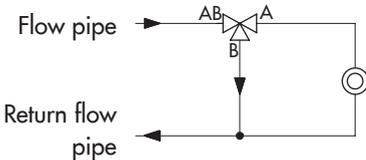
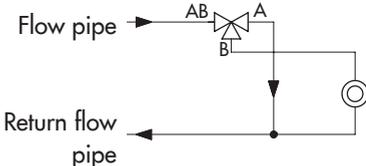


Fig. 7: Typical installations

Mounting and start-up

Particularly for liquids and vapors, we recommend installing a suitable leakage indicator (e.g. a contact pressure gauge, an outlet to an open vessel or an inspection glass).

⚠ WARNING

Risk of personal injury due to pressurized components and process medium escaping under pressure.

Do not loosen the screw of the test connection while the valve is in operation.

Safety guard

To reduce the crush hazard arising from moving parts (actuator and plug stem), a safety guard can be installed.

5.2.3 Installing the control valve

1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Remove the protective caps from the valve ports before installing the valve.
3. Lift the valve using suitable lifting equipment to the site of installation (see section 4.2.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
4. Make sure that the correct flange gaskets are used.
5. Bolt the pipe to the valve free of stress.
6. Depending on the field of application, allow the valve to cool down or heat up to reach ambient temperature before start up.

7. Slowly open the shut-off valve in the pipeline after the valve has been installed.

ⓘ NOTICE

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

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

8. Check the valve to ensure it functions properly.

5.3 Quick check

SAMSON valves are delivered ready for use. To test the valve's ability to function, the following quick checks can be performed:

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.

Fail-safe position

- ➔ Shut off the signal pressure line.
- ➔ Check whether the valve moves to the fail-safe position.

Adjustable packing



Tip

A label on the bonnet (2) indicates whether an adjustable packing is installed.

1. Tighten the threaded bushing gradually (by turning it clockwise) until the packing seals the valve.

NOTICE

Risk of valve damage due to the threaded bushing tightened too far.

Make sure that the plug stem can still move smoothly after the threaded bushing has been tightened.

2. Open and close the valve several times.
3. Check the valve for leakage (visual inspection).
4. Repeat steps 1 and 2 until the packing completely seals the valve.

Note

If the adjustable packing does not seal properly, contact SAMSON's After-sales Service department.

Pressure test

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 valve and plant.

Note

The plant operator is responsible for performing the pressure test. SAMSON's After-sales Service department can support you to plan and perform a pressure test for your plant.

6 Operation

The valve is ready for use when mounting and start-up (see section 5) have been completed.

WARNING

Crush hazard arising from moving parts (actuator and plug stem).

Do not insert hands or fingers into the yoke while the valve is in operation.

WARNING

Risk of personal injury when the actuator vents.

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

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.

Wear protective clothing and safety gloves.

NOTICE

Operation disturbed by a blocked actuator or plug stem.

Do not impede the movement of the actuator or plug stem by inserting objects into their path.

6.1 Working in manual mode

Valves fitted with actuators with a handwheel can be manually closed or opened in case of supply air failure.

→ For normal closed-loop operation, move the handwheel to the neutral position.

7 Servicing

The control valve is subject to normal wear, especially at the seats, plug and packing. Depending on the operating conditions, check the valve at regular intervals to prevent possible failure before it can occur.



Tip

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



DANGER

Risk of bursting in pressure equipment. Valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

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



WARNING

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

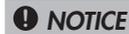


WARNING

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 heat up.
- Wear protective clothing and safety gloves.



NOTICE

Risk of valve damage due to incorrect servicing or repair.

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



NOTICE

Risk of control valve damage due to incorrect service or repair.

The parts subject to wear can only be replaced when all the following conditions are met:

- Nominal size of the valve is \leq DN 100.
- The valve does not have a balanced plug.
- The valve does not have a flow divider.
- The valve does not have a bellows seal.
- The standard or ADSEAL packing is installed in the valve.

To replace parts subject to wear in other valve versions, contact SAMSON's After-sales Service department.

! 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.
 - We recommend replacing all the parts subject to wear (gasket, packing, seat and plug) at the same time.
-

! NOTICE

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

Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. 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 (seat leakage and leak test) certified by SAMSON lose their validity when the valve body or actuator housing is opened.
 - 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 department.
 - Only use original spare parts by SAMSON, which comply with the original specifications.
-

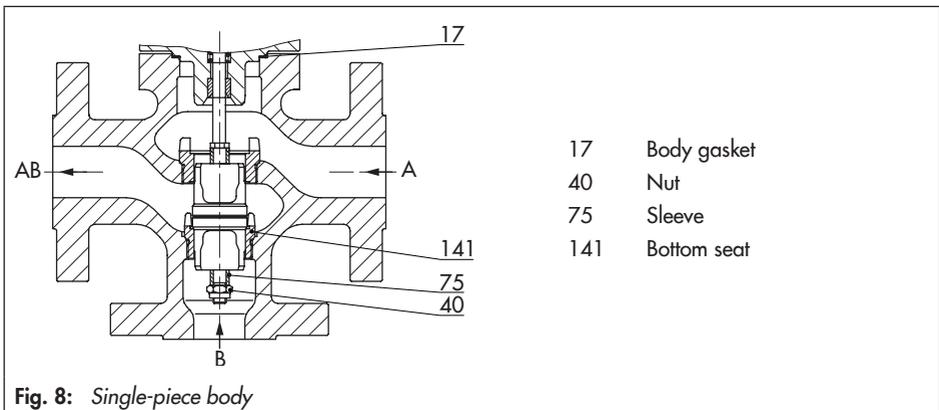
Preparing the valve for servicing

- ➔ Put the control valve out of operation (see section 9.1).
- ➔ Remove the valve from the pipeline (see section 9.2).

7.1 Standard version

7.1.1 Single-piece body

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the nut (40) from the bottom end of the plug stem while holding the stem connector nut (9) stationary.
3. Remove the bottom plug (5) and sleeves (75) from the plug stem.
4. Unscrew the castellated nut (92) and take the yoke (60) off the bonnet (2).
5. Undo the body nuts (14) gradually in a crisscross pattern.
6. Remove the bonnet (2) and plug stem (36) together with the top plug (5) from the body (1).
7. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bonnet (2).
8. Unthread the stem connector nut (9) and lock nut (10) from the plug stem.
9. Unscrew the threaded bushing (8).
10. Pull the plug stem (36) together with the top plug (5) out of the bonnet (2).
11. Pull all the packing parts out of the packing chamber using a suitable tool.
12. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
13. Unscrew the top plug (5) from the plug stem (36).
14. Unscrew the bottom seat (141) and top seat (4) using a suitable tool.
15. Apply a suitable lubricant to the thread and the sealing cone of the new seats.
16. Screw in the top seat (4) and bottom seat (141). Observe tightening torques.
17. Insert a new gasket (17) into the body.
18. Apply a suitable lubricant to the plug stem (36).



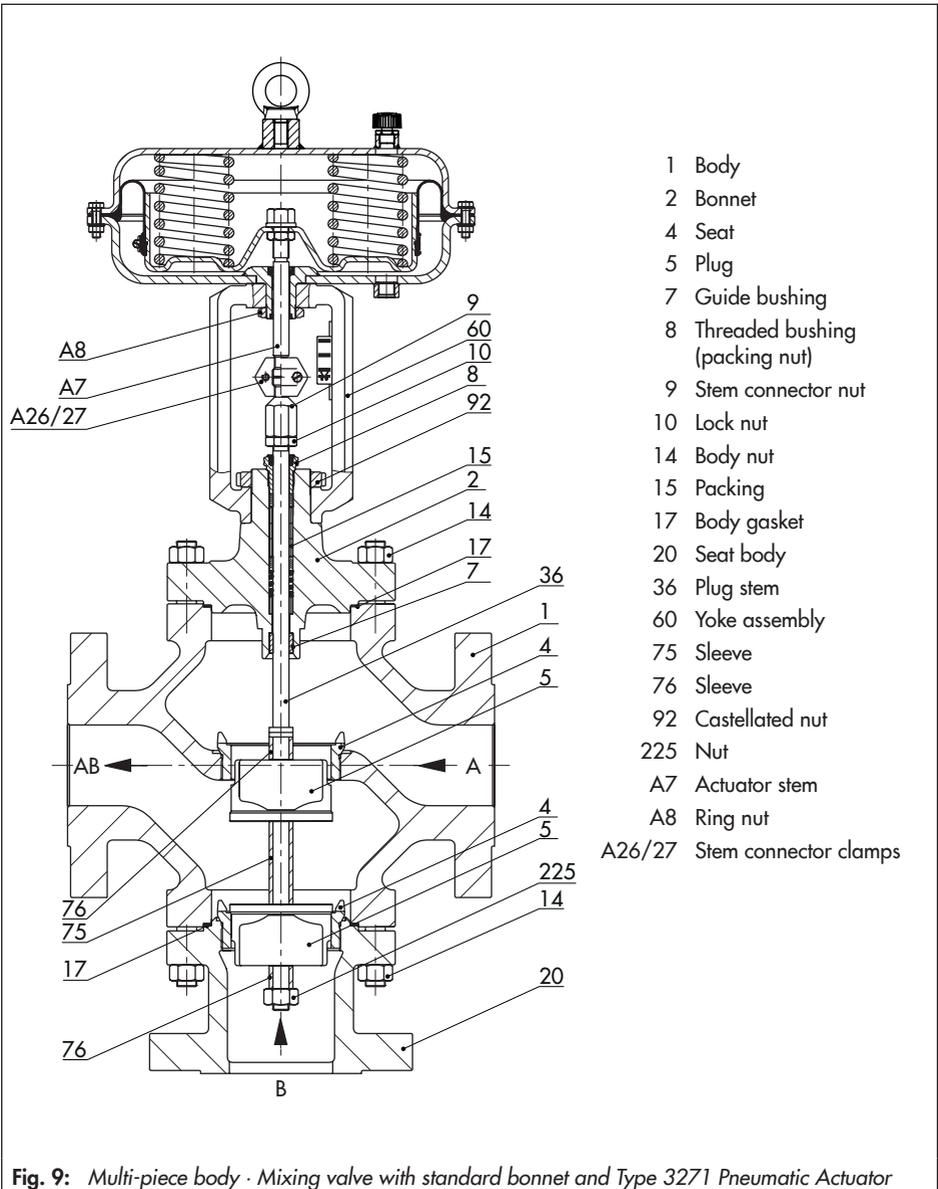


Fig. 9: Multi-piece body · Mixing valve with standard bonnet and Type 3271 Pneumatic Actuator

Servicing

19. Screw the new top plug (5) onto the plug stem (36).
20. Slide the plug stem (36) together with the top plug (5) into the bonnet (2).
21. Place the bonnet (2) and plug stem (36) together with the top plug (5) onto the body (1).
22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see section 7.3).
23. Firmly press the top plug (5) into the top seat (4) and fasten down the bonnet (2) with the top body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
24. Screw in the threaded bushing (8) and tighten it.
25. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.
26. Place the yoke (60) on the bonnet (2) and fasten tight using the castellated nut (92).
27. Place the sleeve (75) and bottom plug (5) onto the plug stem.
28. Tighten the nut (40) at the bottom end of the plug stem while holding the stem connector nut (9) stationary.
29. Mount actuator. See associated actuator documentation.
30. Adjust lower or upper signal bench range. See associated actuator documentation.

7.1.2 Multiple-piece body · Mixing valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. **DN 15 to 50:** unscrew the nut (225) from the bottom end of the plug stem while holding the stem connector nut (9) stationary.
DN 65 to 100: unscrew the nut (225) from the bottom end of the plug stem while holding the stem connector nut (9) stationary. Remove the tab washer (224) and ring (230) from end of the plug stem.
3. Remove the sleeve (76) from the plug stem.
4. Undo the bottom body nuts (14) gradually in a crisscross pattern.
5. Remove the seat body (20) from the body (1).
6. Remove the bottom gasket (17). Carefully clean the sealing faces in the valve body (1) and on the seat body (20).
7. Remove the new bottom plug (5), sleeve (75), top plug (5) and sleeve (76) from the plug stem.
8. Unscrew the castellated nut (92) and take the yoke (60) off the bonnet (2).
9. Undo the top body nuts (14) gradually in a crisscross pattern.
10. Remove the bonnet (2) and plug stem (36) from the body (1).

11. Remove the top gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bonnet (2).
12. Unthread the stem connector nut (9) and lock nut (10) from the plug stem.
13. Unscrew the threaded bushing (8).
14. Pull the plug stem (36) out of the bonnet (2).
15. Pull all the packing parts out of the packing chamber using a suitable tool.
16. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
17. Unscrew the bottom and top seat (4) using a suitable tool.
18. Apply a suitable lubricant to the thread and the sealing cone of the new seats.
19. Screw in the top and bottom seat (4). Observe tightening torques.
20. Insert a new top gasket (17) into the body.
21. Apply a suitable lubricant to the plug stem (36).
22. Slide the plug stem (36) into the bonnet (2).
23. Place the bonnet (2) and plug stem (36) onto the body (1).
24. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see section 7.3).

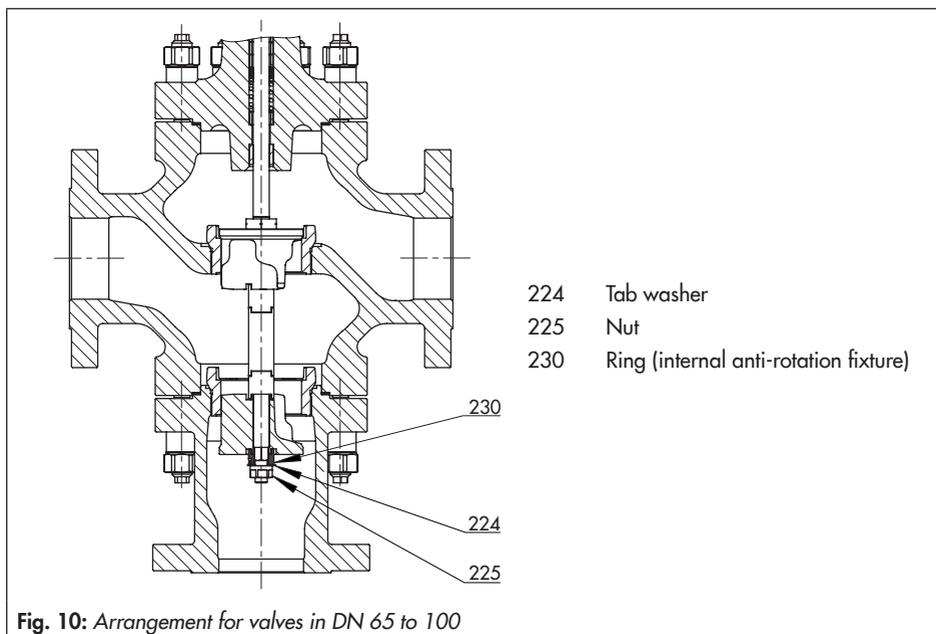


Fig. 10: Arrangement for valves in DN 65 to 100

Servicing

25. Fasten down the bonnet (2) with the top body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
26. Screw in the threaded bushing (8) and tighten it.
27. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.
28. Place the yoke (60) on the bonnet (2) and fasten tight using the castellated nut (92).
29. Place the sleeve (76), new top plug (5), sleeve (75) and the new bottom plug (5) onto the plug stem.

i Note

The sleeves of valves in DN 65 and larger are constructed to act as an internal anti-rotation fixture. Make sure during assembly that the sleeves engage in each other.

30. Insert a new bottom gasket (17) into the body.
31. Place the seat body (20) onto the body (1) and fasten down it with the bottom body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
32. Place the sleeve (76) on the plug stem.
33. **DN 15 to 50:** tighten the nut (225) on the end of the plug stem while holding the stem connector nut (9) stationary.
DN 65 to 100: Place the ring (230) and tab washer (224) on the end of the plug stem. Tighten the nut (225) at the bottom end of the plug stem while holding the stem connector nut (9) stationary.
34. Mount actuator. See associated actuator documentation.
35. Adjust lower or upper signal bench range. See associated actuator documentation.

7.1.3 Multi-piece body · Diverting valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. **DN 15 to 50:** unscrew the nut (225) from the bottom end of the plug stem while holding the stem connector nut (9) stationary.
DN 65 to 100: unscrew the nut (225) from the bottom end of the plug stem while holding the stem connector nut (9) stationary. Remove the tab washer (224) and ring (230) from end of the plug stem.
3. Remove the bottom plug (5) and sleeves (75 and 75) from the plug stem.
4. Undo the bottom body nuts (14) gradually in a crisscross pattern.
5. Remove the seat body (20) from the body (1).
6. Remove the bottom gasket (17). Carefully clean the sealing faces in the valve body (1) and on the seat body (20).
7. Unscrew the castellated nut (92) and take the yoke (60) off the bonnet (2).

8. Undo the top body nuts (14) gradually in a crisscross pattern.
9. Remove the bonnet (2) and plug stem (36) together with the top plug (5) from the body (1).
10. Remove the top gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bonnet (2).
11. Unthread the stem connector nut (9) and lock nut (10) from the plug stem.
12. Unscrew the threaded bushing (8).
13. Pull the plug stem (36) together with the top plug (5) out of the bonnet (2).
14. Pull all the packing parts out of the packing chamber using a suitable tool.
15. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
16. Unscrew the top plug (5) from the plug stem (36).
17. Unscrew the bottom and top seat (4) using a suitable tool.
18. Apply a suitable lubricant to the thread and the sealing cone of the new seats.
19. Screw in the top and bottom seat (4). Observe tightening torques.
20. Insert a new top gasket (17) into the body.
21. Apply a suitable lubricant to the plug stem (36).
22. Screw the new top plug (5) onto the plug stem (36).
23. Slide the plug stem (36) into the bonnet (2).
24. Place the bonnet (2) and plug stem (36) together with the top plug (5) onto the body (1).
25. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see section 7.3).
26. Firmly press the top plug (5) into the seat (4) and fasten down the bonnet (2) with the top body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
27. Screw in the threaded bushing (8) and tighten it.
28. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.
29. Place the yoke (60) on the bonnet (2) and fasten tight using the castellated nut (92).
30. Insert a new bottom gasket (17) into the body.
31. Place the seat body (20) onto the body (1) and fasten down it with the bottom body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
32. Place the sleeves (75 and 76) and the new bottom plug (5) onto the plug stem.

i Note

The sleeves of valves in DN 65 and larger are constructed to act as an internal anti-rotation fixture. Make sure during assembly that the sleeves engage in each other.

Servicing

33. **DN 15 to 50:** tighten the nut (225) on the end of the plug stem while holding the plug stem connector nut (9) stationary.
DN 65 to 100: Place the ring (230) and tab washer (224) on the end of the plug stem. Tighten the nut (225) at the bottom end of the plug stem while holding the stem connector nut (9) stationary.
34. Mount actuator. See associated actuator documentation.
35. Adjust lower or upper signal bench range. See associated actuator documentation.

7.2 Version with insulating section

The parts subject to wear in versions with insulating section are replaced according to the same principle as for the standard version.

- Proceed as described in section 7.1. The insulating section (21) is installed instead of the bonnet (2). See Fig. 11.

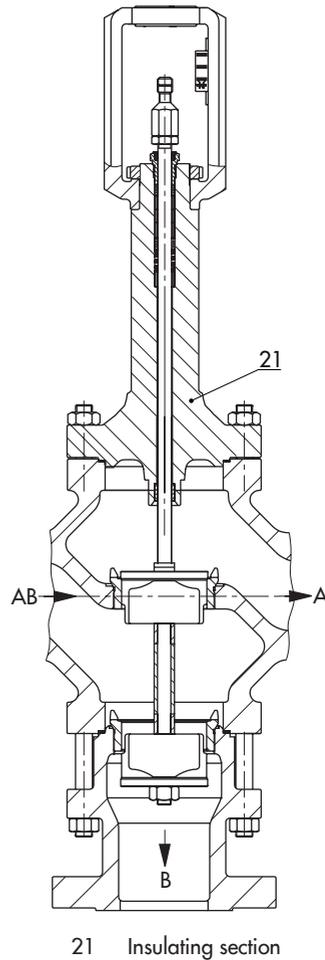


Fig. 11: Diverting valve with insulating section

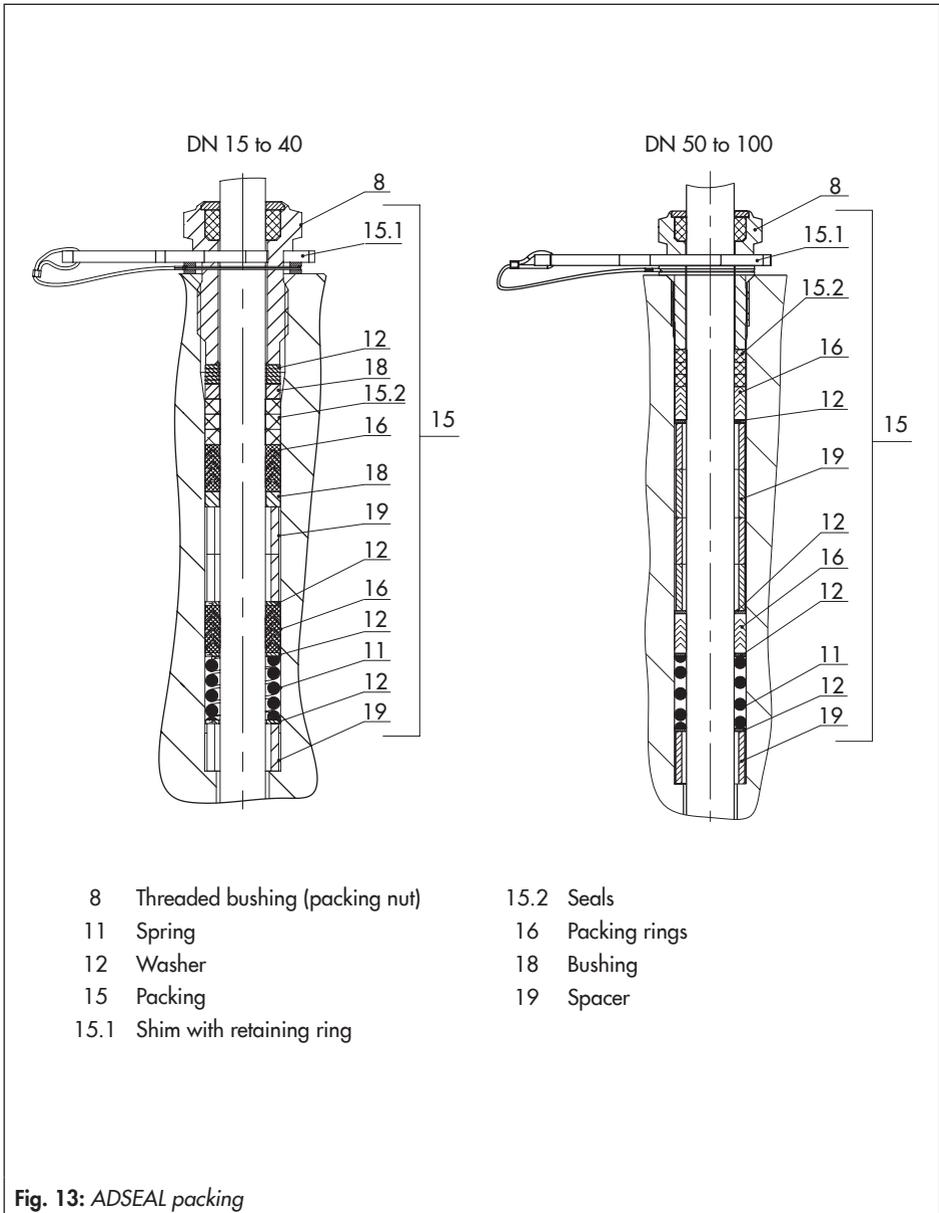


Fig. 13: ADSEAL packing

ADSEAL packing

1. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).
2. Slide the seals (15.2) over the plug stem. Insert the wire of the red spacer ring (15.1) into the groove of the retaining ring. Slide the retaining ring over the plug stem.
3. Insert the red spacer ring (15.1) between the threaded bushing (8) and retaining ring. See Fig. 13.
4. See section 7.1 or section 7.2 concerning further assembly.

7.4 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return devices to SAMSON:

1. Put the control valve out of operation (see section 9).
2. Decontaminate the valve. Remove any residual process medium.
3. Fill in the Declaration on Contamination, which can be downloaded from our website at ► www.samson.de > SERVICE & SUPPORT > After-sales Service > Declaration on Contamination.

4. Send the valve together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at ► www.samson.de > About SAMSON.

7.5 Ordering spare parts and operating supplies

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

Spare parts

See section 10.3 for details on spare parts.

Lubricants

Details on suitable lubricants can be found in the document ► AB 0100.

Tools

Details on suitable tools can be found in the document ► AB 0100.

8 Malfunctions

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



Tip

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

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator or plug stem does not move on demand.	Actuator is blocked.	Check attachment. Unblock the actuator.
	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Actuator or plug stem does not move through the whole range.	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
The valve leaks to the atmosphere (fugitive emissions).	The packing is defective.	Replace packing (see section 7) or contact SAMSON's After-sales Service department.
	Version with adjustable packing ¹⁾ : packing not tightened correctly.	See section 5.3, Adjustable packing. Contact SAMSON's After-sales Service department when it continues to leak.
	Version with bellows seal: the metal bellows seal is defective.	Contact SAMSON's After-sales Service department.
	Flange joint loose or gasket worn out.	Check the flange joint. Replace gasket at the flanged joint (see section 7 or contact SAMSON's After-sales Service department).

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.	Contact SAMSON's After-sales Service department.

¹⁾ A label on the bonnet (2) indicates whether an adjustable packing is installed.

i Note

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

8.2 Emergency action

Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1).

The plant operator is 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. Check the valve for damage. If necessary, contact SAMSON's After-sales Service department.

Putting the valve back into operation after a malfunction

- Slowly open the shut-off valves. Allow the process medium to slowly flow into the valve.

9 Decommissioning and disassembly

DANGER

Risk of bursting in pressure equipment. Valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

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

WARNING

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

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 heat up.*
- *Wear protective clothing and safety gloves.*

9.1 Decommissioning

To decommission the control valve for service and repair work or disassembly, 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 to depressurize the actuator.
4. If necessary, allow the pipeline and valve components to cool down or heat up.

9.2 Removing the valve from the pipeline

1. Put the control valve out of operation (see section 9.1).
2. Unbolt the flange joint.
3. Remove the valve from the pipeline (see section 4.2).

9.3 Removing the actuator from the valve

See associated actuator documentation.

9.4 Disposal

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

10 Appendix

10.1 After-sales service

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

E-mail

You can reach the After-sales Service Department at aftersaleservice@samson.de.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on the SAMSON website (www.samson.de) or in all SAMSON product catalogs.

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

10.2 Certificates

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

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 ¹⁾ / DIN, body of cast iron, DN 65-125, body of spheroidal-graphite iron, DN 50-80, fluids G2, L1, L2 ¹⁾
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2 ²⁾ / DIN, body of steel, etc., DN 40-100, fluids G2, L2 ²⁾
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 ¹⁾ / 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 ¹⁾
Dreizehrentil/Three-way valve	240	3244	DIN, Gehäuse GG, DN 65-125, Gehäuse GGG, DN 50-80, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron, DN 65-125, body of spheroidal-graphite iron, DN 50-80, fluids G2, L1, L2 ¹⁾
Dreizehrentil/Three-way valve	240	3244	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2 ²⁾ / DIN, body of steel, etc., DN 40-100, fluids G2, L2 ²⁾
Schrägsitzventil/Angle seat valve	---	3353	DIN, Rotgussgehäuse, alle Fluide DIN, red brass body, all fluids
Schrägsitzventil/Angle seat valve	---	3353	DIN, Gehäuse Stahl, Fluide G2, L1, L2 ¹⁾ / DIN, body of steel, fluids G2, L1, L2 ¹⁾
Durchgangsventil/Globe valve	V2001	3321	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron, DN 65-100, fluids G2, L1, L2 ¹⁾
Durchgangsventil/Globe valve	V2001	3321	ANSI, Gehäuse GG, NPS 2 1/2 bis NPS 4, Fluide G2, L1, L2 ¹⁾ / ANSI, body of cast iron, NPS 2 1/2 to NPS 4, fluids G2, L1, L2 ¹⁾
Dreizehrentil/Three-way valve	V2001	3323	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron, DN 65-100, fluids G2, L1, L2 ¹⁾
Dreizehrentil/Three-way valve	V2001	3323	ANSI, Gehäuse GG, NPS 2 1/2 bis NPS 4, Fluide G2, L1, L2 ¹⁾ / ANSI, body of cast iron, NPS 2 1/2 to NPS 4, fluids G2, L1, L2 ¹⁾
Dreizehrentil/Three-way valve	250	3253	DIN, Gehäuse GG, DN 200 PN 10, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron, DN 200 PN 10, fluids G2, L1, L2 ¹⁾

¹⁾ 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)

²⁾ 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:

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	2014/68/EU	vom 15. Mai 2014/ of 15 May 2014
Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1/ Applied conformity assessment procedure for fluids according to Article 4(1)	Modul A/Module A	

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

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SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main
Telefon: 069 4009-0 · Telefax: 069 4009-1507
E-Mail: samson@samson.de

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
E-mail: samson@samson.de

Revision 02



EU-KONFORMITÄTSERKLÄRUNG EU DECLARATION OF CONFORMITY

Modul H/Module H / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A

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

Geräte/Devices	Bauart/Series	Typ/Type	Ausführung/Version
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse GG ab DN 150, Gehäuse GGG ab DN 100, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ¹⁾
			DIN/ANSI, Gehäuse Stahl u.a., alle Fluide DIN/ANSI, body of steel, etc., all fluids
Dreivegeventil/Three-way valve	240	3244	DIN, Gehäuse GG ab DN 150, Gehäuse GGG ab DN 100, Fluide G2, L1, L2 ¹⁾ / DIN, body of cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ¹⁾
			DIN/ANSI, Gehäuse Stahl u.a., alle Fluide DIN/ANSI, body of steel, etc., all fluids
Tiefemperaturventil/Cryogenic valve	240	3248	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
Durchgangsventil/Globe valve	250	3251	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
Dreivegeventil/Three-way valve	250	3253	DIN/ANSI, Gehäuse Stahl u.a., alle Fluide DIN/ANSI, body of steel, etc., all fluids
Durchgangsventil/Globe valve	250	3254	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
Eckventil/Angle valve	250	3256	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
Split-Body-Ventil/Split-body valve	250	3258	DIN, alle Fluide / DIN, all fluids
IG-Eckventil/Angle valve (IG standards)	250	3259	DIN, alle Fluide / DIN, all fluids
Dampfumformventil/ Steam-converting valve	280	3281	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
		3284	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
		3286	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
		3288	DIN, alle Fluide / DIN, all fluids
Durchgangsventil/Globe valve	V2001	3321	DIN, Gehäuse Stahl u.a., alle Fluide / DIN, body of steel, etc., all fluids ANSI, alle Fluide / ANSI, all fluids
		3323	DIN, Gehäuse Stahl u.a., alle Fluide / DIN, body of steel, etc., all fluids ANSI, alle Fluide / ANSI, all fluids
Schrägsitzventil/Angle seat valve	---	3353	DIN, Gehäuse Stahl u.a., alle Fluide / DIN, body of steel, etc., all fluids
Drosselschalldämpfer/Silencer	3381	3381-1	DIN/ANSI, Einzeldrosselscheibe mit Anschweißende, alle Fluide DIN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
		3381-4	DIN/ANSI, Einzeldrosselscheibe mehrstufig mit Anschweißende, alle Fluide DIN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Durchgangsventil/Globe valve	240	3241	ANSI, Gehäuse GG, Class 125, ab NPS 5, Fluide G2, L1, L2 ¹⁾ ANSI, body of cast iron, Class 125, from NPS 5, fluids G2, L1, L2 ¹⁾
Tiefemperaturventil/Cryogenic valve	240	3246	DIN/ANSI, alle Fluide / DIN/ANSI, all fluids
Dreivegeventil/Three-way valve	250	3253	DIN, Gehäuse GG ab DN200 PN16, Fluide G2, L1, L2 ¹⁾ DIN, body of cast iron from DN200 PN16, fluids G2, L1, L2 ¹⁾
Durchgangsventil/Globe valve	290	3291	ANSI, alle Fluide / ANSI, all fluids
Eckventil/Angle valve	290	3296	ANSI, alle Fluide / ANSI, all fluids
Durchgangsventil/Globe valve	590	3591	ANSI, alle Fluide / ANSI, all fluids
Eckventil/Angle valve	590	3596	ANSI, alle Fluide / ANSI, all fluids
Regelventil/Control valve	---	3595	ANSI, alle Fluide / ANSI, all fluids

¹⁾ 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/Liquids according to Article 4(1)(c.ii)

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

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	2014/68/EU	vom 15. Mai 2014/ of 15 May 2014
Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1/ Applied conformity assessment procedure for fluids according to Article 4(1)	Modul H/ Module H	durch/by Bureau Veritas 0062

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

Bureau Veritas S. A. Nr./no. 0062, Newtime, 52 Boulevard du Parc, Ile de la Jatte, 92200 Neuilly sur Seine, France
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, 08. Februar 2017/08 February 2017

i.v. Klaus Horschken

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

Dr. Michael Heß

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

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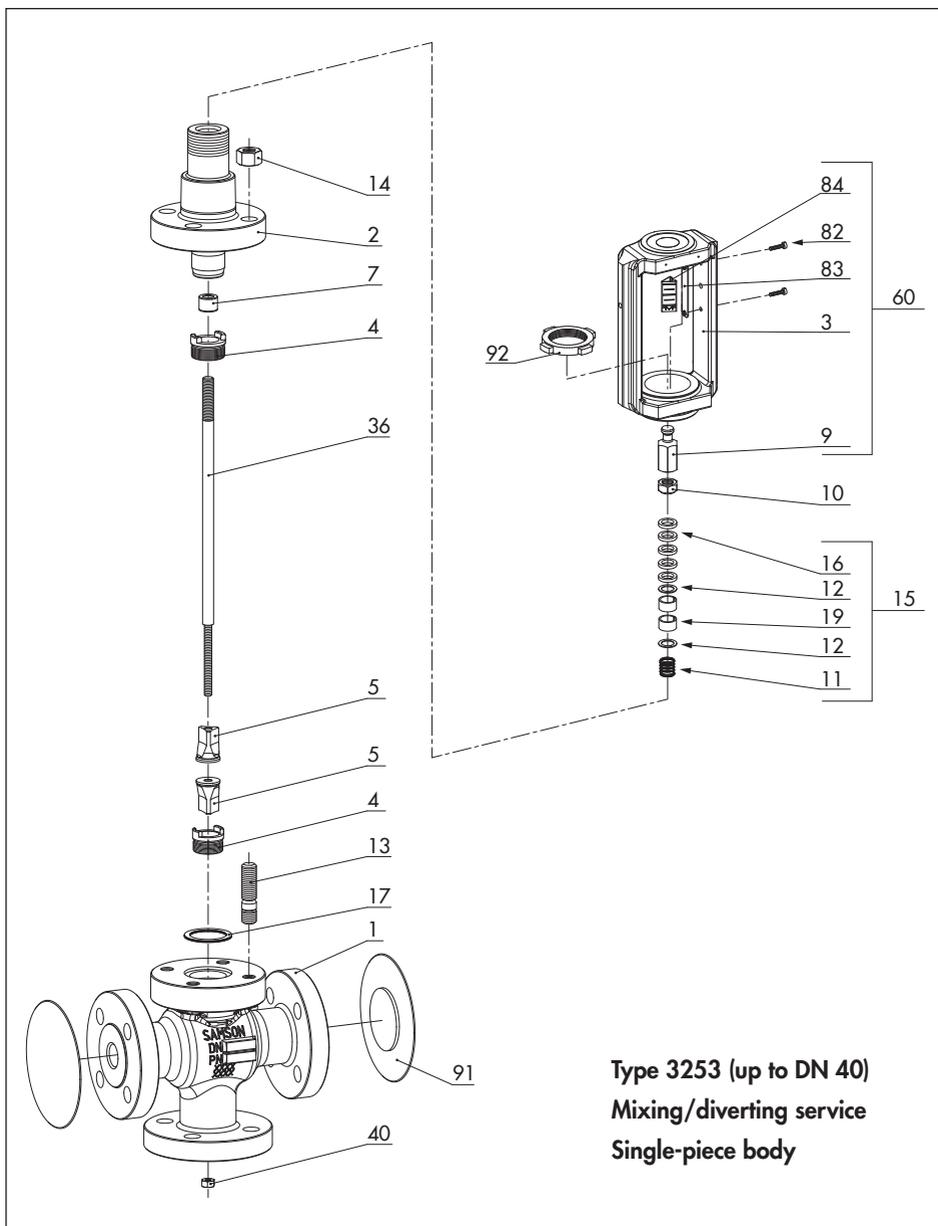
SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main
Telefon: 069 4009-0 - Telefax: 069 4009-1507
E-Mail: samson@samson.de

SAMSON AKTIENGESELLSCHAFT
Weismüllerstrasse 3 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 - Fax: +49 69 4009-1507
E-mail: samson@samson.de

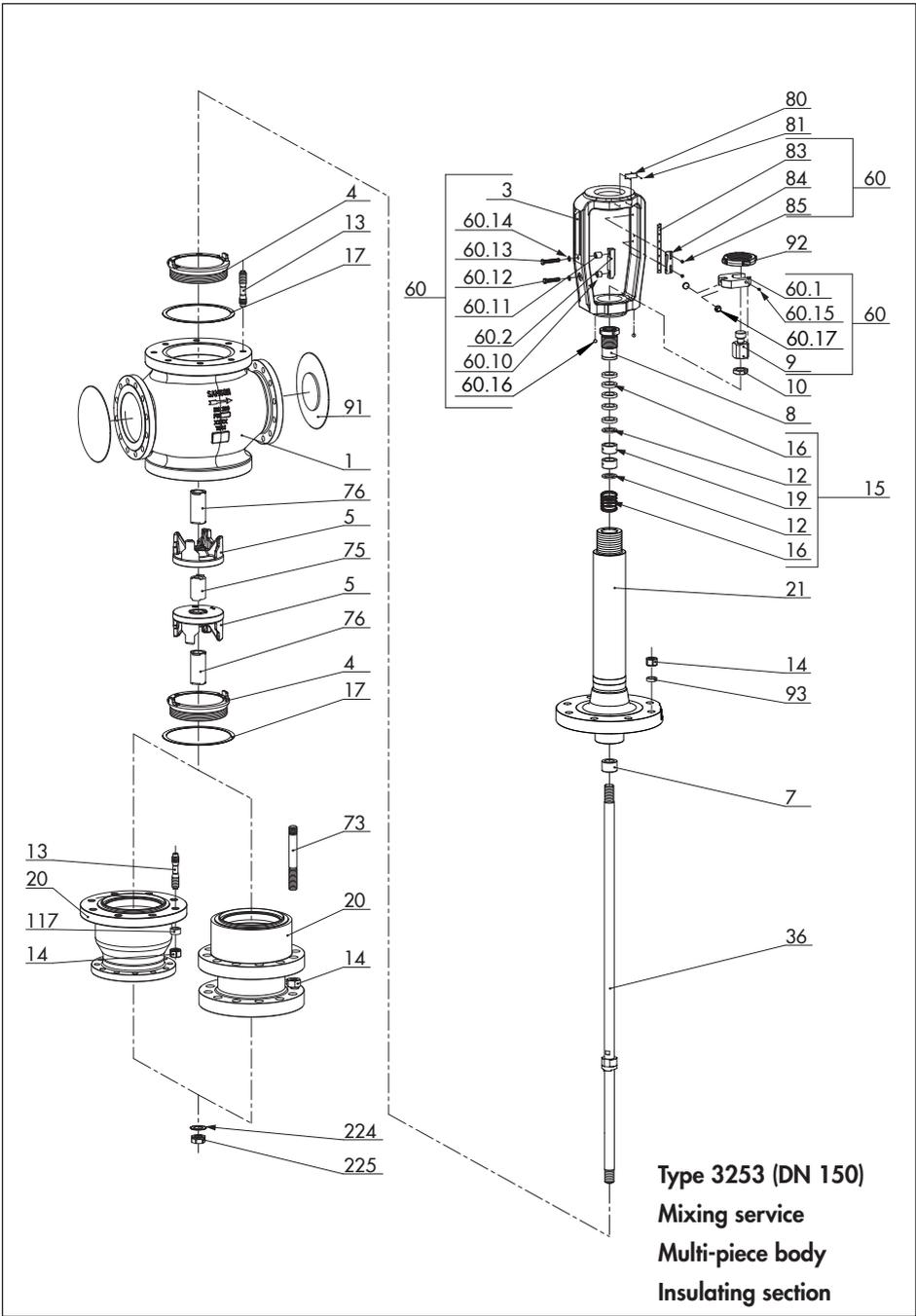
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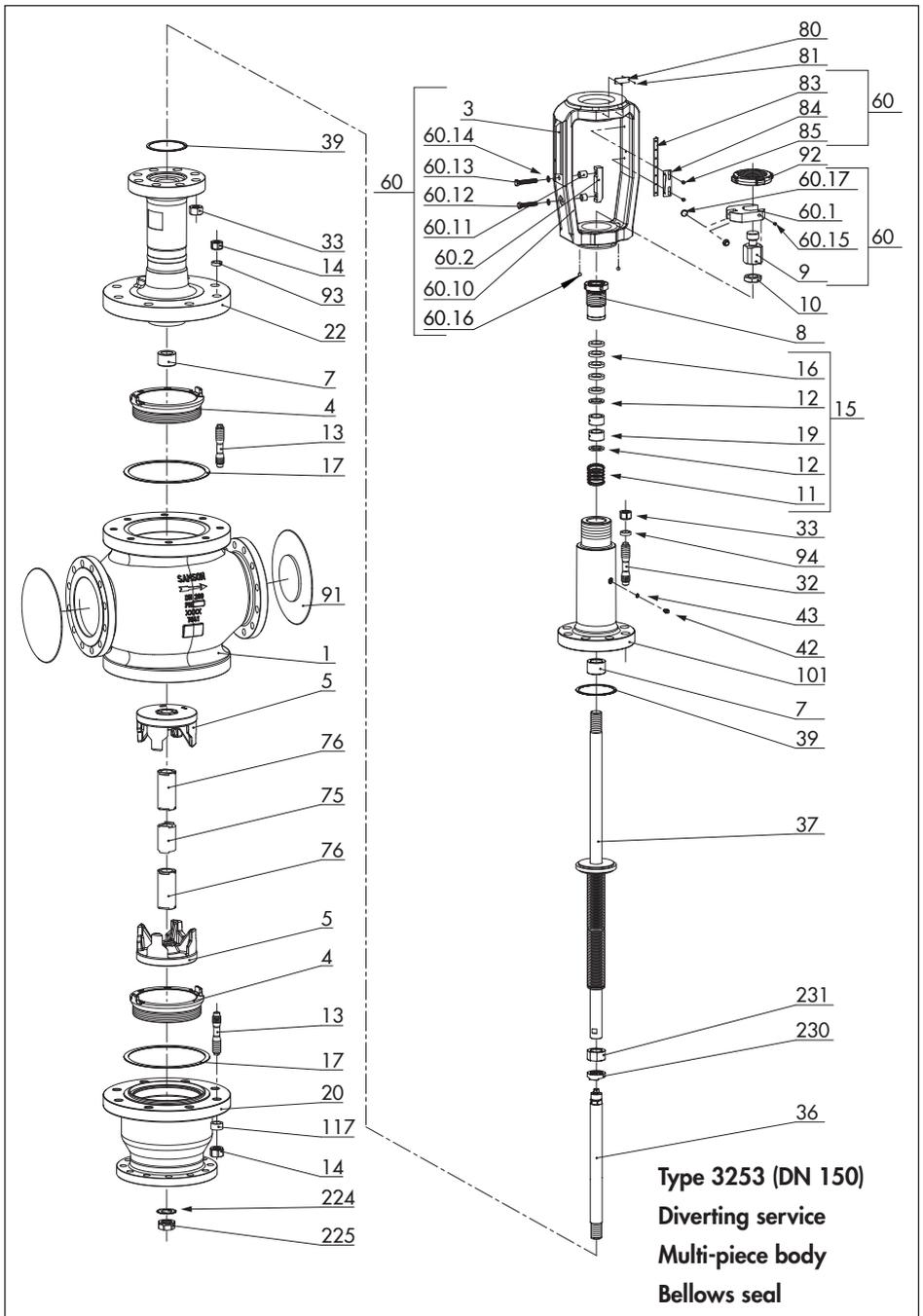
10.3 Spare parts

- 1 Body
- 2 Bonnet
- 3 Yoke
- 4 Seat
- 5 Plug
- 7 Guide bushing
- 8 Threaded bushing (packing nut)
- 9 Stem connector nut
- 10 Lock nut
- 11 Spring
- 12 Washer
- 13 Stud bolt
- 14 Body nut
- 15 Packing
- 16 V-ring packing
- 17 Body gasket
- 19 Bushing
- 20 Seat body
- 21 Insulating section
- 22 Bellows seal
- 32 Bolt
- 33 Nut
- 36 Plug stem
- 37 Plug stem with metal bellows
- 39 Gasket
- 40 Nut
- 42 Screw plug (test connection)
- 43 Seal
- 60 Yoke assembly with anti-rotation fixture
- 60.1 Anti-rotation fixture
- 60.2 Holder
- 60.10 Bushing
- 60.11 Bushing
- 60.12 Hexagon screw
- 60.13 Hexagon screw
- 60.14 Washer
- 60.15 Threaded pin
- 60.16 Balls functioning as anti-rotation fixture
- 60.17 Washer
 - 73 Stud bolt
 - 75 Sleeve
 - 76 Sleeve
 - 80 Nameplate
 - 81 Grooved pin
 - 82 Screw
 - 83 Hanger
 - 84 Travel indicator scale
 - 85 Screw
 - 91 Protective cap
 - 92 Castellated nut
 - 93 Expansion sleeve
 - 94 Expansion sleeve
- 101 Bellows cover
- 117 Expansion sleeve
- 224 Snap ring
- 225 Nut
- 230 Ring (anti-rotation fixture)
- 231 Seat holder



Type 3253 (up to DN 40)
Mixing/diverting service
Single-piece body





EB 8055 EN



SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
samson@samson.de · www.samson.de