

Type 3323 Valve

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

DIN and ANSI versions

SAMSON



Translation of original instructions

Mounting and Operating Instructions

EB 8113/8114 EN

Edition April 2018

CE

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 3323 Three-way Valve in combination with an actuator (e.g. Type 3372 Electropneumatic Actuator, Type 3371 Pneumatic Actuator, Type 5824 Electric Actuator 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 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.

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.

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).

According to the ignition risk assessment performed in accordance with EN 13463-1:2009, section 5.2, 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 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:
 - ▶ 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 Pneumatic Actuator
 - ▶ EB 5824-1 for Type 5824 Electric Actuator (three-step version)
 - ▶ EB 5824-2 for Type 5824 Electric Actuator (version with positioner)
 - ▶ EB 8331-3 for Type 3374 Electric Actuator (three-step version)
 - ▶ EB 8331-4 for Type 3374 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

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.

Risk of electric shock.

- Do not remove any covers to perform adjustment work on live parts.
- Before performing any work on the device and before opening the device, disconnect the power supply and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.

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.

⚠ WARNING**Risk of personal injury when the pneumatic actuator vents.**

While the valve is operating, the Type 3371 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.

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 damage to the electric control valve due to the power supply exceeding the permissible tolerances.

The electric control valves are designed for use according to regulations for low-voltage installations.

- Observe the permissible tolerances of the power supply. See associated actuator documentation.

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.

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).

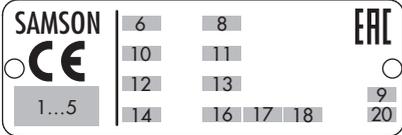
Risk of valve damage due to the use of unsuitable lubricants.

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



SAMSON | 6 | 8 | **EAC**

○ **CE** | 10 | 11 | ○

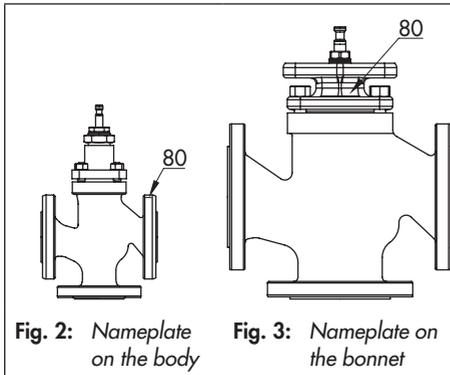
1...5 | 12 | 13 | 9 |

| 14 | 16 | 17 | 18 | 20 |

Fig. 1: Valve nameplate

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
16	Seat-plug seal: ME: metal (see section 3.3) HA: carbide metal ST: Stellite® facing KE: ceramic PT: soft seal with PTFE PK: soft seal with PEEK
17	Seat code (trim material) · On request
18	Version: Mixing valve: M · Diverting valve: V
20	Country of origin

The valve nameplate (80) in valve sizes DN 15 to 15 or NPS ½ to 2 is affixed to the valve on the body flange (Fig. 2). The nameplate is affixed to the top of the bonnet in valve sizes DN 65 or NPS 2½ and larger (Fig. 3).



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

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 Electric Actuator

The two seats and two plugs with plug stem are installed in the body. The plug stem is

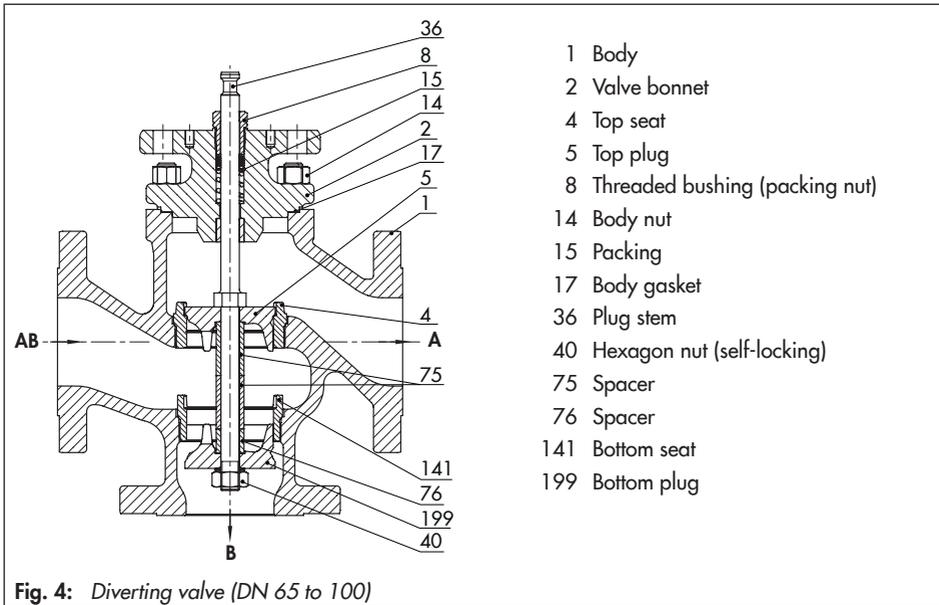
connected to the actuator stem by a stem connector and sealed by the spring-loaded packing.

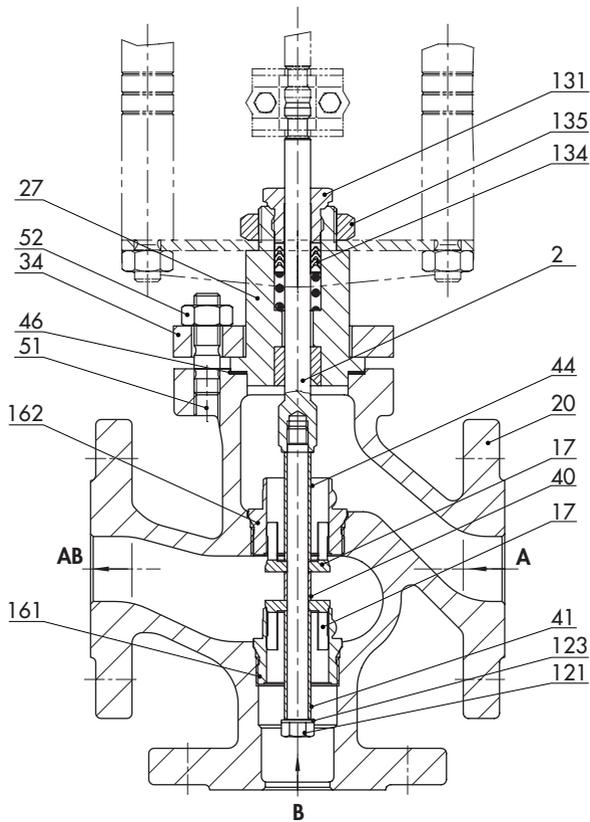
The medium flows through the valve in the direction indicated by the arrow.

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. 5).

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).

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.





- | | |
|-----------------|------------------------------------|
| 2 Plug stem | 51 Stud |
| 17 Plug | 52 Body nut |
| 20 Body | 121 Hexagon nut (self-locking) |
| 27 Valve bonnet | 123 Washer |
| 34 Flange | 131 Threaded bushing (packing nut) |
| 40 Spacer | 133 V-ring packing |
| 41 Spacer | 135 Central nut |
| 44 Spacer | 161 Bottom seat |
| 46 Body gasket | 162 Top seat |

Fig. 5: Mixing valve DN 15 to 50

3.1 Fail-safe positions

Upon failure of the air supply or power supply, the valve moves to its fail-safe position.

- **Actuator stem extends:** when the supply air or supply voltage fails, port **B** is closed in mixing valves and port **A** is closed in diverting valves.
- **Actuator stem retracts:** when the supply air or supply voltage fails, port **A** is closed in mixing valves and port **B** is closed in diverting valves.

i Note

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.

3.2 Mounting types

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 1).

1. **Mounting using crossbeam and central nut**

When the actuator is mounted to the valve using a crossbeam (Form B, Fig. 6), the actuator is fastened to the valve bonnet using a central nut.

2. **Mounting using rods**

When the actuator is mounted using rods (Form C, Fig. 7), 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.

Table 1: Possible combinations and types of attachment

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

Fig. 6: Mounting using crossbeam and central nut (Form B attachment)

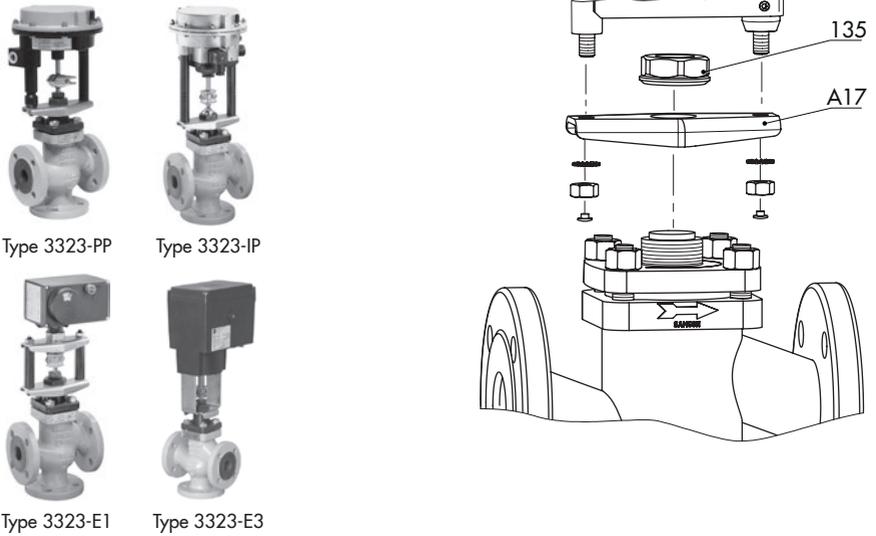
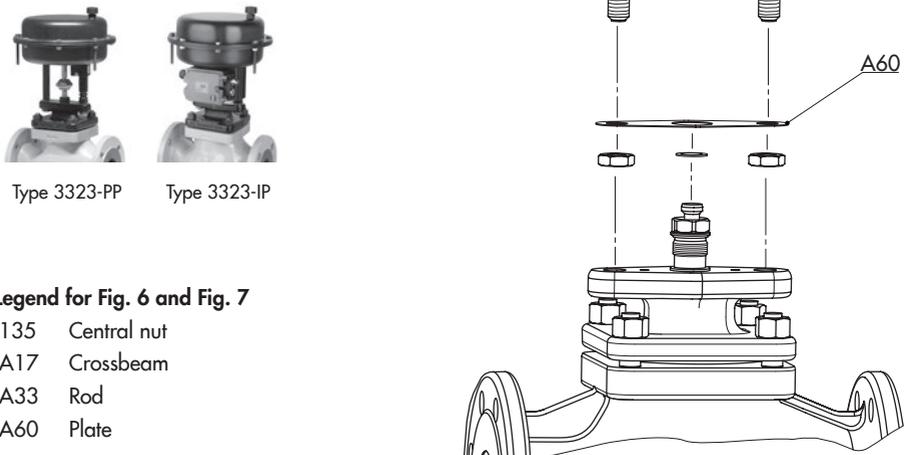


Fig. 7: Mounting using rods (Form C attachment)



Legend for Fig. 6 and Fig. 7

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

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

i Note

The mounting of valve and actuator is described in the associated actuator documentation.

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 8113 (DIN) and ▶ T 8114 (ANSI).

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities and process medium. On request, SAMSON can perform calculations according to IEC 60534, Part 8-3 and Part 8-4 or VDMA 24422 (edition 89).

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Wear hearing protection when working near the valve.

Dimensions and weights

The dimensions and weights for the DIN versions are listed in Table 4. The dimensions and weights for the ANSI versions are listed in Table 5.

i Note

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

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

Table 2: Technical data · DIN version

Material		Cast iron EN- GJL-250	Sph. graphite 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 ¹⁾		-10 to +300 °C					
Leakage class acc. to IEC 60534-4		Metal seal: I (0.05 % of K _{v5})					
Compliance		CE · EAC					

¹⁾ Not for stainless steel with DN 65 to 100

Table 3: 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 and 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 insulating section		14 to 572 °F (-10 to +300 °C)	
Leakage class according to ANSI/FCI 70-2		Metal seal: I (0.05 % of C _v)	
Compliance		CE · EAC	

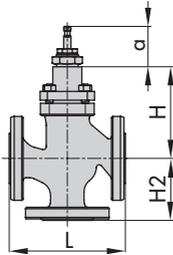
Table 4: Dimensions and weights for Type 3323 Valve · DIN version

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	110	110	110	115	115	115	135	135	157
H2	mm	70	80	85	100	105	120	130	140	150
H4 (with ins. section)	mm	369	369	369	374	374	374	402	402	408
Weight	kg	5	6	7	11	12	15	31	37	49
Weight (with ins. section)	kg	8	9	10	17	18	21	40	45	68

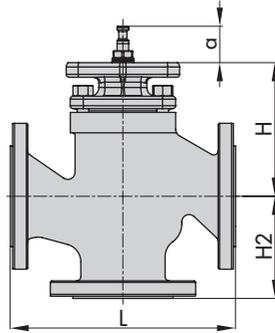
Table 5: Dimensions and weights for Type 3323 Valve · ANSI version

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	4.3	4.3	4.3	4.5	4.5	5.3	5.3	6.2
	mm	110	110	110	115	115	135	135	157
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	14.53	14.53	14.53	14.72	14.72	15.83	27.64	15.83
	mm	369	369	369	374	374	402	702	402
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 ins. 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

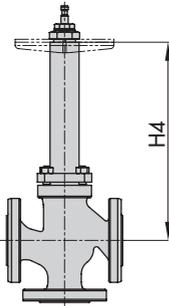
Dimensional drawings



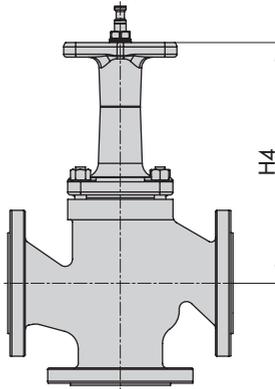
DN 15 to 50/NPS ½ to 2



DN 65 to 100/NPS 2½ to 4



DN 15 to 50/NPS ½ to 2



Version with insulating section

DN 65 to 100/NPS 2½ to 4

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

i 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 8113 (DIN) and ▶ T 8114 (ANSI) 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.

- 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 (–4 to +149 °F).

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.

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. 8).
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 section 5.2.3).
5. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
6. Remove slings.



Tip

We recommend using a hook with safety latch (see Fig. 8). The safety latch prevents the slings from slipping during lifting and transporting.

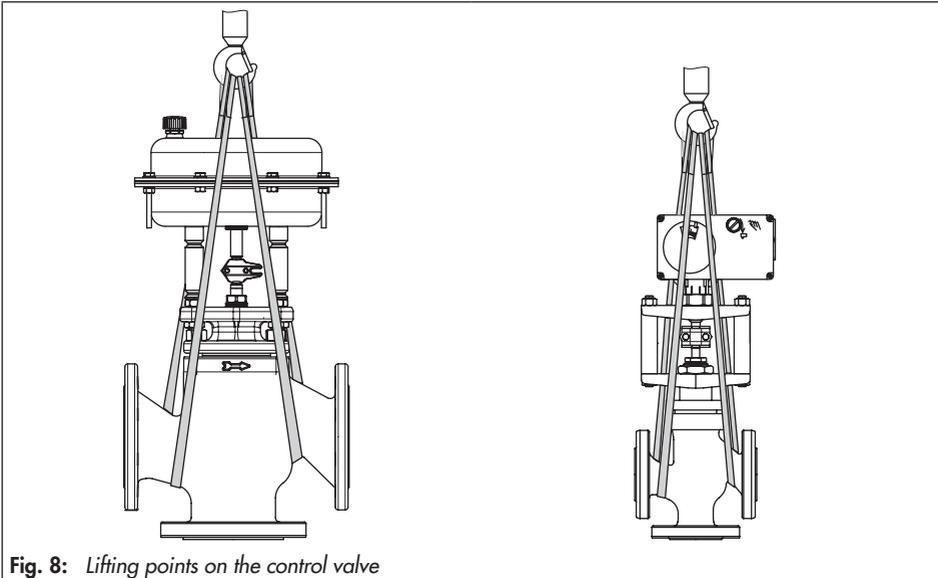


Fig. 8: Lifting points on the control valve

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 (-4 to $+149$ °F).

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 (59 °F) 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.

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

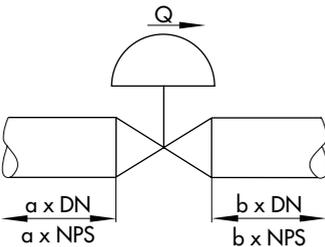
5.2.1 Checking the installation conditions

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:

- Observe the inlet and outlet lengths (see Table 6). Contact SAMSON if the valve conditions or state of the medium process deviate.
- 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. 9).

Table 6: Inlet and outlet lengths



Q Flow rate
a Inlet length
b Outlet length

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	$Ma \leq 0.3$ ¹⁾	2	4
	$0.3 \leq Ma \leq 0.7$ ¹⁾	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

¹⁾ No saturated steam

i Note

In the version as diverting valve (see Fig. 4), 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. 5), the inlet length a applies to the ports A and B. The outlet length b applies to the port AB.

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

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. 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

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).

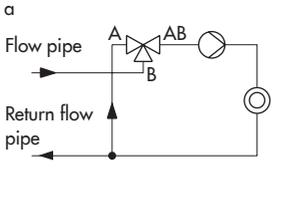
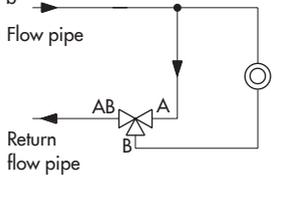
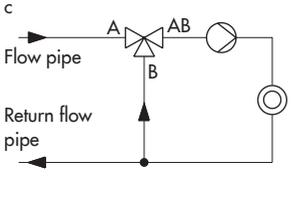
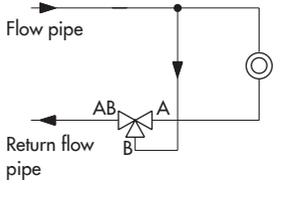
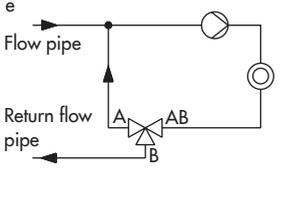
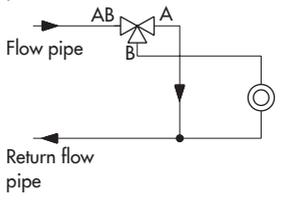
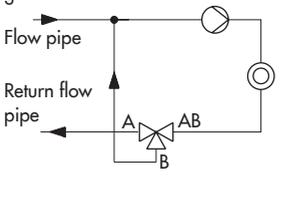
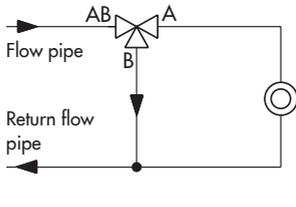
<p>Mixing service – Temperature control $Q = \text{constant}$</p>	<p>Diverting service – Flow control $Q = 0 \text{ to } 100\%$</p>	<p>FA: Actuator stem extends FE: Actuator stem retracts</p>
<p>a</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>b</p>  <p>Flow pipe</p> <p>Return flow pipe</p>	<p>Heating 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. 9: Typical installations

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:

Tight shut-off

1. Close the valve.
2. Slowly open the shut-off valve in the pipeline.

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.

3. Check the valve for leakage (visual inspection).

Travel motion

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

- Open and close the valve, observing the movement of the actuator stem.
- Apply the maximum and minimum control signals to check the end positions of the valve.
- 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.

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.

i 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 Type 3371 Pneumatic 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.*

7 Servicing

The control valve is subject to normal wear, especially at the seat, 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 a servicing plan for your plant.

We recommend removing the valve from the pipeline for service or repair work (see section 9.2).



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.

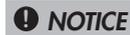
Wear protective clothing, safety gloves and eyewear.



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 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.*

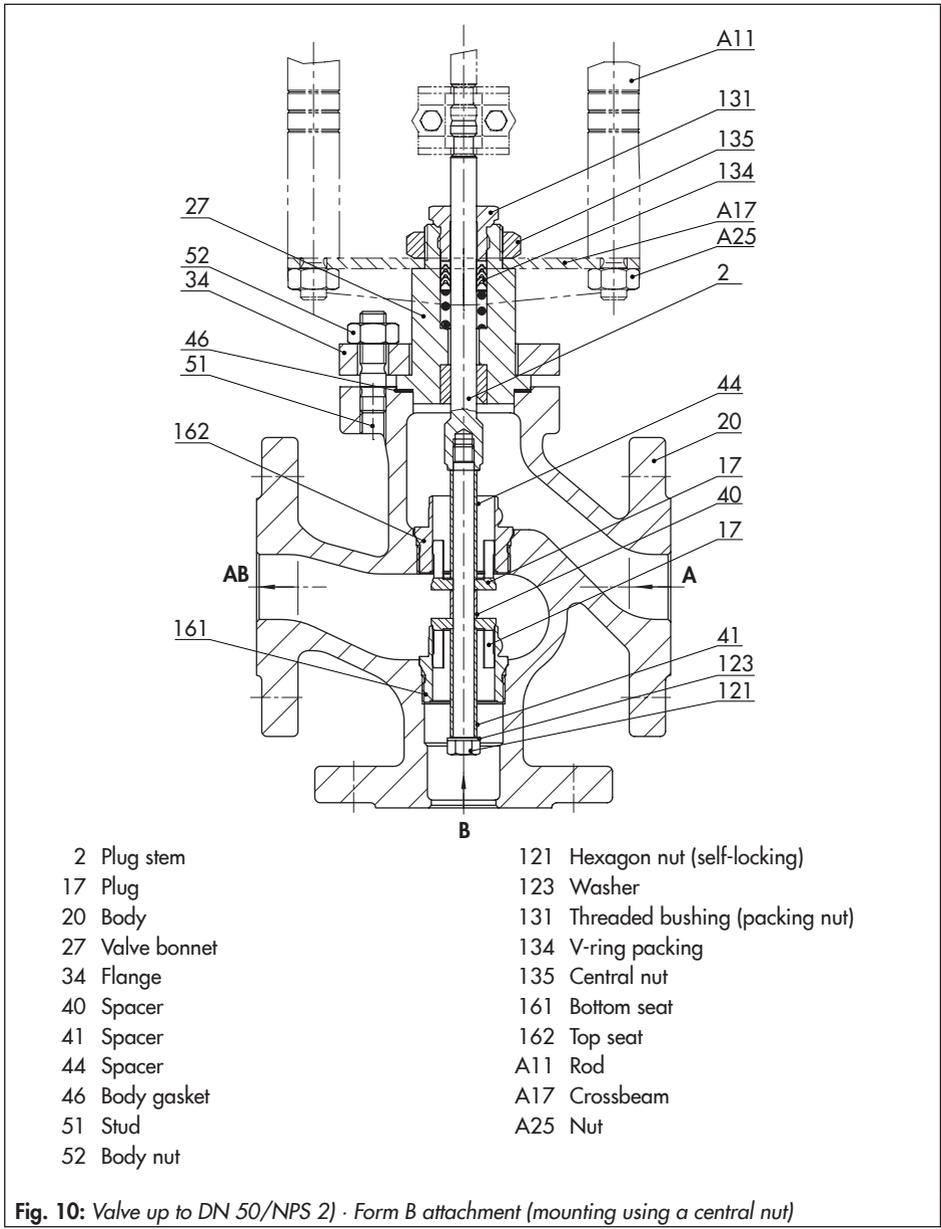
i Note

Proceed as follows to service the version with the standard valve bonnet. Assemble versions with insulating section in the same way.

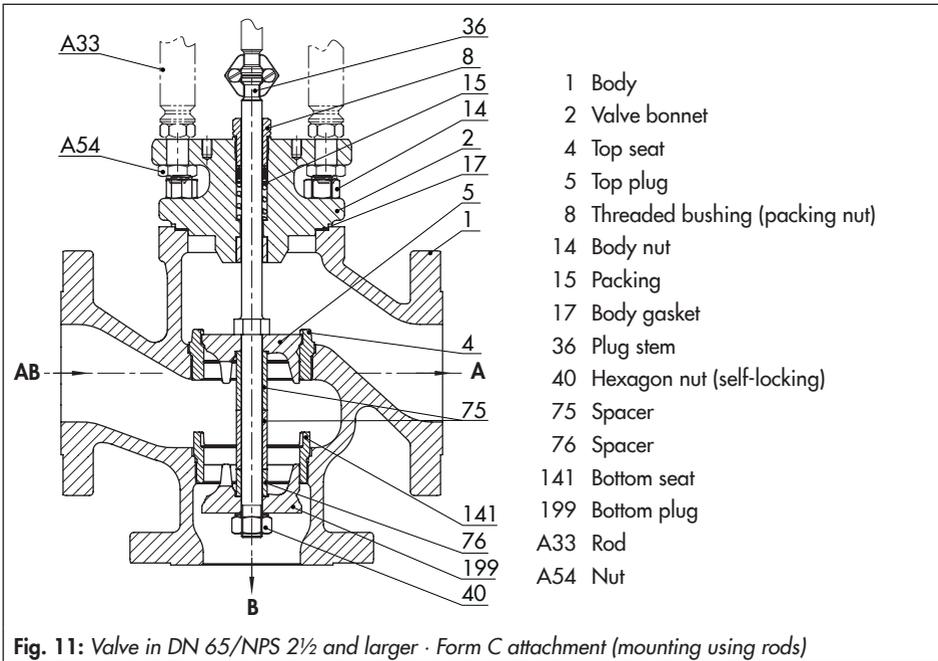
7.1 Replacing the gasket

7.1.1 Valves up to DN 50/ NPS 2

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



- | | |
|-----------------|------------------------------------|
| 2 Plug stem | 121 Hexagon nut (self-locking) |
| 17 Plug | 123 Washer |
| 20 Body | 131 Threaded bushing (packing nut) |
| 27 Valve bonnet | 134 V-ring packing |
| 34 Flange | 135 Central nut |
| 40 Spacer | 161 Bottom seat |
| 41 Spacer | 162 Top seat |
| 44 Spacer | A11 Rod |
| 46 Body gasket | A17 Crossbeam |
| 51 Stud | A25 Nut |
| 52 Body nut | |



7.1.2 Valves in DN 65/ NPS 2½ and larger

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

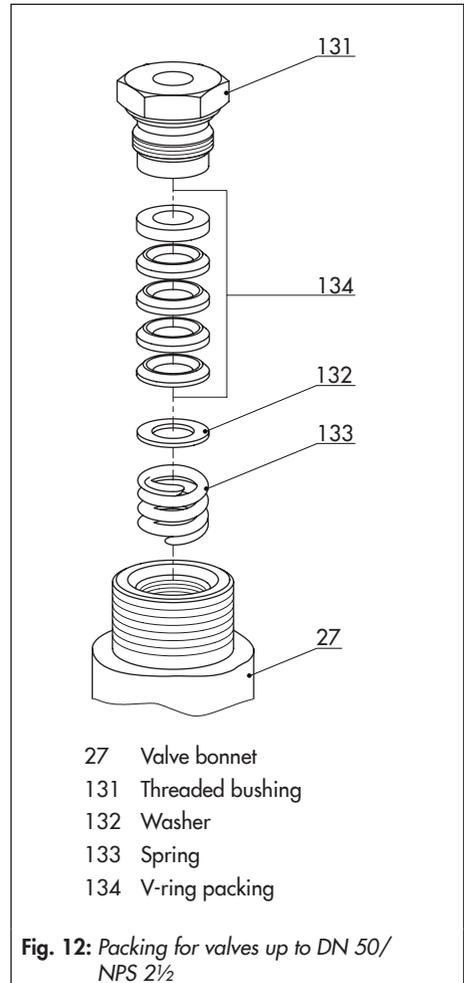
7.2 Replacing the packing

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.

7.2.1 Valves up to DN 50/ NPS 2

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Pull all the packing parts out of the packing chamber using a suitable tool.
6. Renew damaged parts. Clean the packing chamber thoroughly.
7. Apply a suitable lubricant to all the packing parts and to the plug stem (2).
8. 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 seated properly in the body.
9. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 12).



10. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
11. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.
12. Mount the actuator. See associated actuator documentation.

7.2.2 Valves in DN 65/ NPS 2½ and larger

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (8).
3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Pull all the packing parts out of the packing chamber using a suitable tool.
6. Renew damaged parts. Clean the packing chamber thoroughly.
7. Apply a suitable lubricant to all the packing parts and to the plug stem (36).
8. 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 seated properly in the body.
9. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).

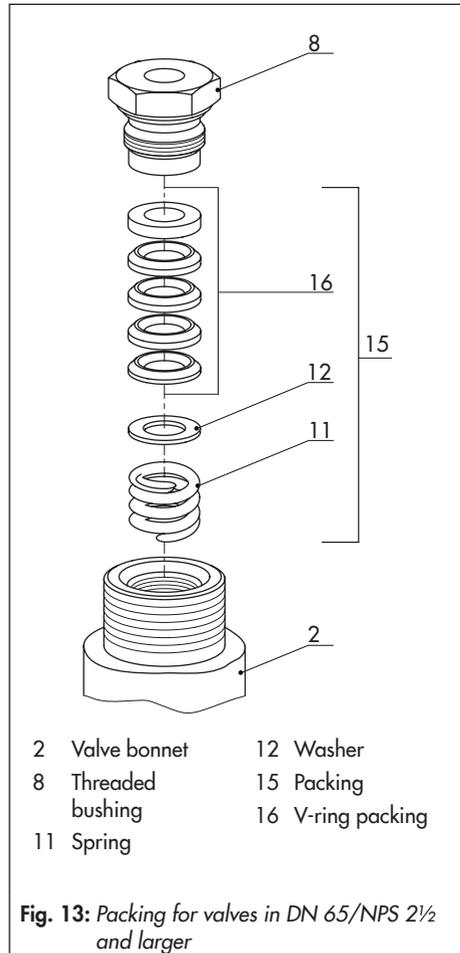


Fig. 13: Packing for valves in DN 65/NPS 2½ and larger

10. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
11. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.
12. Mount the actuator. See associated actuator documentation.

7.3 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 7.1 and 7.2.

7.3.1 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. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
6. Remove the retaining washer (122, 123) from the plug stem (2).
7. Carefully pull the plug stem (2) out of the body (20) from above.
8. Pull all the packing parts out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.1.
9. Unscrew the top seat (162) using a suitable tool.
10. Remove plug (17).
11. Unscrew the bottom seat (161) using a suitable tool.
12. Apply a suitable lubricant to the thread and the sealing cone of the new bottom seat (161).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Insert a new plug (17), making sure the three skirt projections face upwards.
15. Apply a suitable lubricant to the thread and the sealing cone of the new top seat (162).
16. Screw in the top seat (162). Observe tightening torques.

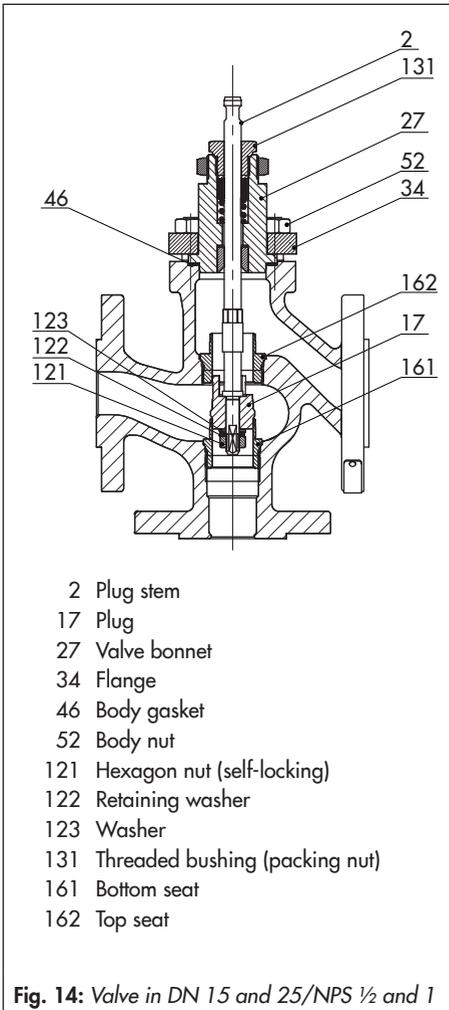


Fig. 14: Valve in DN 15 and 25/NPS ½ and 1

17. Carefully guide the plug stem (2) from above through the plug (17).
18. Slide the retaining washer (122, 123) from below onto the plug stem (2).
19. Thread and tighten the hexagon nut (121) onto the plug stem (2). Observe tightening torques.
20. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
21. 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 seated properly in the body.
22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 12).
23. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
24. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.
25. Mount the actuator. See associated actuator documentation.

7.3.2 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. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
6. Remove the retaining washer (122, 123) and the bottom spacer (41) from the plug stem (2).
7. Carefully pull the plug stem (2) out of the body (20) from above. Pull out the middle spacer (40) sideways.
8. Pull all the packing parts out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.1.
9. Unscrew the top seat (162) using a suitable tool.
10. Remove the top and bottom plug (17).

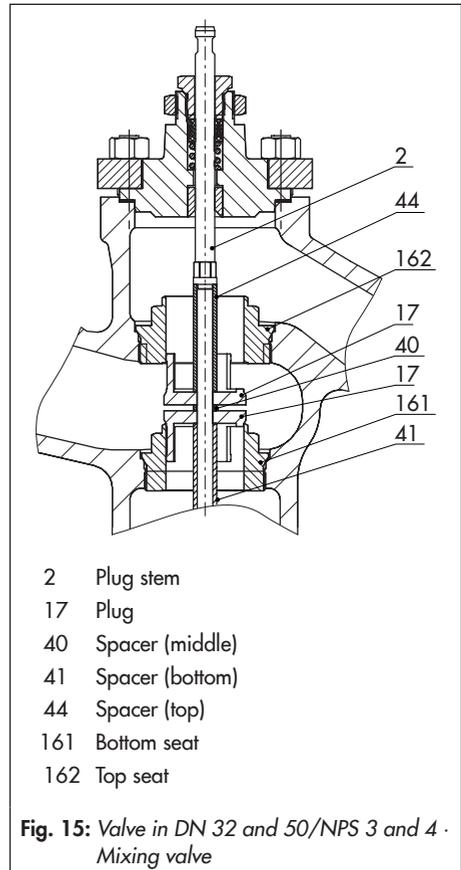


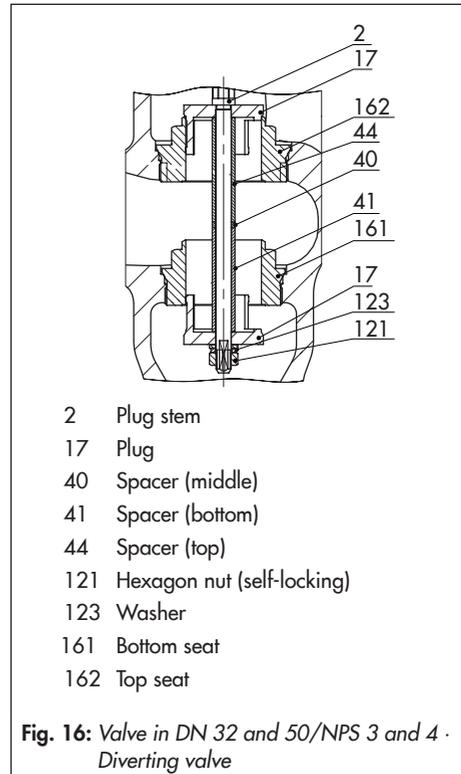
Fig. 15: Valve in DN 32 and 50/NPS 3 and 4 .
Mixing valve

11. Unscrew the bottom seat (161) using a suitable tool.
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Insert the bottom plug (17) into the bottom seat (161).

15. Screw in the top seat (162). Observe tightening torques.
16. Carefully guide the plug stem (2) with top spacer (44) from above through the top plug (17), middle spacer (40) and bottom plug (17).
17. Slide the bottom spacer (41) and retaining washer (122, 123) from below onto the plug stem (2).
18. Apply a suitable lubricant to the hexagon nut (121) and the threaded end of the plug stem (2).
19. Thread and tighten the hexagon nut (121) onto the plug stem (2). Observe tightening torques.
20. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
21. 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 seated properly in the body.
22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 12).
23. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
24. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.
25. Mount the actuator. See associated actuator documentation.

Diverting valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
6. Remove the retaining washer (122, 123) from the plug stem (2).
7. 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.
8. Pull all the packing parts out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.1.
9. Remove the top plug (17).
10. Unscrew the top seat (162) and bottom seat (161) using a suitable tool.
11. Remove the bottom plug (17).
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
13. Place the bottom plug (17) into the body (20).
14. Screw in the bottom seat (161). Observe tightening torques.



15. Use a suitable tool to catch the bottom plug (17) and the spacers (41, 40, 44).
16. Screw in the top seat (162). Observe tightening torques.
17. Place the top plug (17) into the top seat (162).
18. 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).

19. Apply a suitable lubricant to the hexagon nut (121) and the threaded end of the plug stem (2).
20. Slide the retaining washer (122, 123) from below onto the plug stem (2).
21. Thread and tighten the hexagon nut (121) onto the plug stem (2). Observe tightening torques.
22. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.
23. 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 seated properly in the body.
24. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 12).
25. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradual-

ly in a crisscross pattern. Observe tightening torques.

26. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.
27. Mount the actuator. See associated actuator documentation.

7.3.3 Valves in DN 65/ NPS 2½ and larger

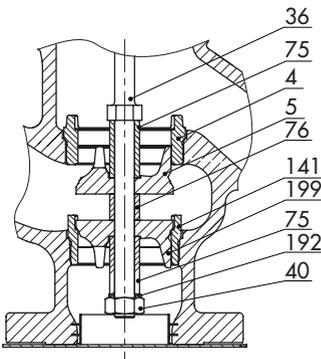


Tip

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

Mixing valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (8).



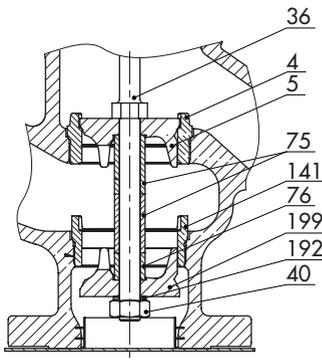
- 4 Top seat
- 5 Top plug
- 36 Plug stem
- 40 Hexagon nut (self-locking)
- 75 Spacer
- 76 Spacer (short)
- 141 Bottom seat
- 192 Retaining washer
- 199 Bottom plug

Fig. 17: Valve in DN 65/NPS 2½ and larger · Mixing valve

3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).
6. Remove the retaining washer (192) and bottom spacer (75) from the plug stem (36).
7. Carefully pull the plug stem (36) out of the body (1) from above. Pull out the short spacer (76) sideways.
8. Pull all the packing parts out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.2.
9. Unscrew the top seat (4) using a suitable tool.
10. Remove the top plug (5) and bottom plug (199).
11. Unscrew the bottom seat (141) using a suitable tool.
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Insert the bottom plug (199) into the bottom seat (141).
15. Screw in the top seat (4). Observe tightening torques.
16. Carefully guide the plug stem (36) with top spacer (75) from above through the top plug (5), short spacer (76) and bottom plug (199).
17. Slide the bottom spacer (75) and retaining washer (192) from below onto the plug stem (36).
18. Apply a suitable lubricant to the hexagon nut (40) and the threaded end of the plug stem (36).
19. Thread and tighten the hexagon nut (40) onto the plug stem (36). Observe tightening torques.
20. Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.
21. 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 seated properly in the body.
22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).
23. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
24. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.
25. Mount the actuator. See associated actuator documentation.

Diverting valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (8).
3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).
6. Remove the retaining washer (192) from the plug stem (36).
7. 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.
8. Pull all the packing parts out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.2.
9. Remove the top plug (5).
10. Unscrew the top seat (4) and bottom seat (141) using a suitable tool.
11. Remove the bottom plug (199).
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
13. Place the bottom plug (199) into the body (1).
14. Screw in the bottom seat (141). Observe tightening torques.
15. Use a suitable tool to catch the bottom plug (199) and the spacers (75, 76).
16. Screw in the top seat (4). Observe tightening torques.
17. Place the top plug (5) into the top seat (4).
18. Carefully guide the plug stem (36) from above through the top plug (5), spacers (75, 76) and bottom plug (199).



- 4 Top seat
- 5 Top plug
- 36 Plug stem
- 40 Hexagon nut (self-locking)
- 75 Spacer
- 76 Spacer (short)
- 141 Bottom seat
- 192 Retaining washer
- 199 Bottom plug

Fig. 18: Valve in DN 65/NPS 2½ and larger · Diverting valve

19. Apply a suitable lubricant to the hexagon nut (40) and the threaded end of the plug stem (36).
20. Slide the retaining washer (192) from below onto the plug stem (36).
21. Thread and tighten the hexagon nut (40) onto the plug stem (36). Observe tightening torques.
22. Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.
23. 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 seated properly in the body.
24. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).
25. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
26. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.
27. Mount the actuator. See associated actuator documentation.

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. The declaration form can be downloaded from our website at ► SERVICE & SUPPORT > After-sales Service.
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.

Tools

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

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.

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

Faults	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.
	No or incorrect power supply connected.	Check the power supply and connections.
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.
	No or incorrect power supply connected.	Check the power supply and connections.
The valve leaks to the atmosphere (fugitive emissions).	The packing is defective.	Replace packing (see section 7.2) or 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 7.1 or contact SAMSON's After-sales Service department).

Faults	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.	Replace seat and plug (see section 7.3 or contact SAMSON's After-sales Service department).

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.

DANGER

Risk of electric shock.

- Do not remove any covers to perform adjustment work on live parts.
- Before performing any work on the device and before opening the device, disconnect the power supply and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.

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 or power supply to depressurize or de-energize 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 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 m³/h
- Bench range of the actuator (e.g. 1.4 to 2.3 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 H/Module H, Nr./No. / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A

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

Ventile für elektrische und pneumatische Antriebe/Globe and three-way valves equipped with electric and pneumatic actuators

Typ/Type 3213, 3222 (Erz.-Nr./Model No. 2710), 3226, 3260* (2713*), 3223, 3535 (2803), 3213, 3531 (2811), 3214 (2814), 2423E (2823), 3241, 3244, 3267, 2422 (2814)

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

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

Menndruck Pressure rating	DN NPS	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65	80 3	100 4	125	150 6	200 8	250 10	300 12	400 16
PN 16		ohne/without (1)						A (2)(3)		A (2)(3)		H		H		
PN 25		ohne/without (1)						A (2)(3)		A (2)(3)		H		-		
PN 40		ohne/without (1)						A (2)(3)		A (2)(3)		H		-		
Class 150		ohne/without (1)						A (2)(3)		A (2)(3)		H		-		
Class 300		ohne/without (1)						A (2)(3)		A (2)(3)		H		-		

(1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie.

The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062).

The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).

(3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.

The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

* Für Ventile vom Typ 3260 sind ab DN 150 Fluide nach Art. 4(1)(c.ii) erster Gedankenstrich nicht zugelassen.

Fluids according to Art. 4(1)(c.ii), first indent are not permissible for Type 3260 Valves with DN equal or bigger than 150.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die

„Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

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

Dem Entwurf zu Grunde gelegt sind Verfahren aus/The design is based on the procedures specified in the following standards:

DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:

The manufacturer's quality management system is monitored by the following notified body:

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

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

Klaus Hörschen
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-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY**

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

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

Ventile für elektrische Stellgeräte und Strahlpumpe/Globe and three-way valves and jet pump equipped with electric actuators

Typ/Type 3213, 3222 (Erz.-Nr./Model No. 2710), 3323, 3535 (2803), 3213, 3531 (2811), 3214 (2814), 2423E (2823), 3241, 3244, 3267

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

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

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating of the making available on the market of pressure equipment. 2014/68/EU of 15.05.2014

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

DN NPS	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65 -	80 3	100 4	125 -	150 6	200 8	250 10	300 12	400 16
PN 25	ohne ⁽¹⁾			A ⁽²⁾⁽³⁾		H									
PN 40	ohne ⁽¹⁾			H									-		
Class 150	ohne ⁽¹⁾			A ⁽²⁾⁽³⁾		H									-
Class 300	ohne ⁽¹⁾			H									-		

- (1) Das auf dem Stellgerät aufgebrauchte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie
The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.
- (2) Das auf dem Stellgerät aufgebrauchte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062)
The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).
- (3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.
The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

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

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

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:
The Manufacturer's Quality Assurance System is monitored by following Notified Body

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

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

i.v. Klaus Hirschken

Klaus Hirschken
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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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⁾
Dreiwegeventil/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⁾
Dreiwegeventil/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⁾
Dreiwegeventil/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⁾
Dreiwegeventil/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⁾
Dreiwegeventil/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//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

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Product Management & Technical Sales

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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
Dreivegeventil/Three-way valve	V2001	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 Hörtschken

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Revision 04

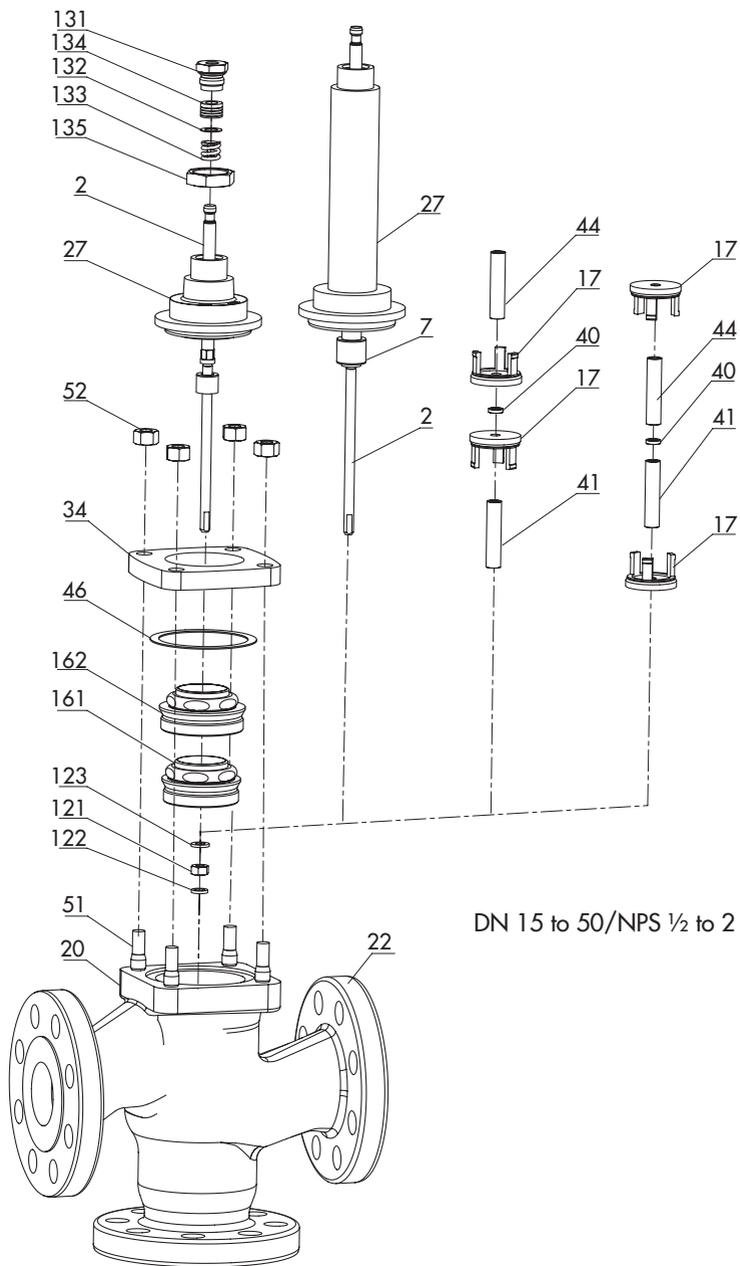
10.3 Spare parts

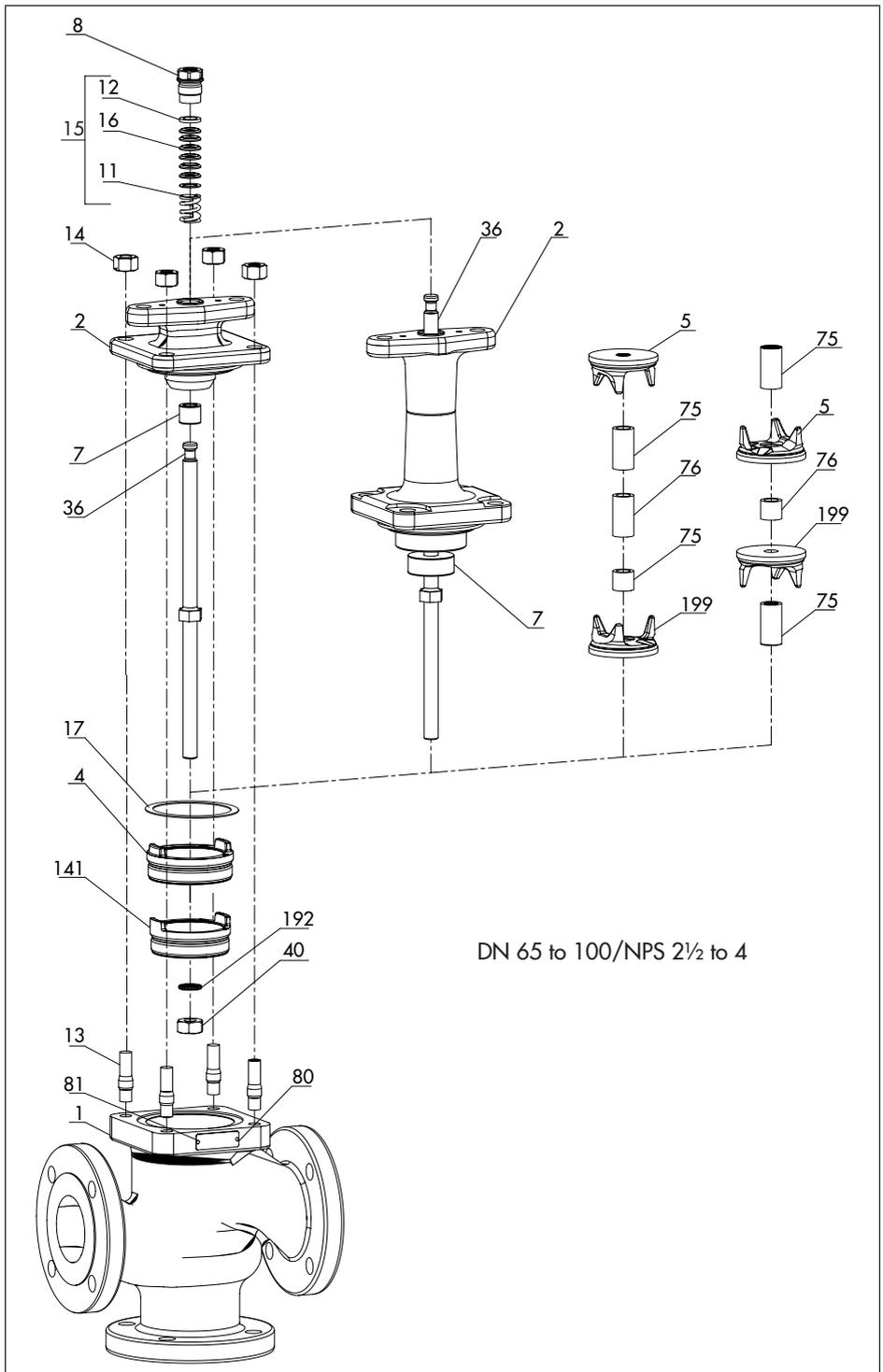
DN 15 to 50/NPS ½ to 2

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	Hexagon 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	Hexagon nut (self-locking)
75	Spacer
76	Spacer
80	Nameplate
81	Grooved pin
141	Bottom seat
192	Washer
199	Bottom plug







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