

MOUNTING AND OPERATING INSTRUCTIONS



EB 8093-1 EN

Translation of original instructions



Type 3248 Valve · ANSI version

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

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 3248 Globe and Angle Valve in combination with an actuator (e.g. Type 3271 or Type 3277 Pneumatic Actuator) is designed to regulate the flow rate, pressure or temperature of liquids or gases in cryogenic applications. For this purpose, the valves can be welded into vacuum-insulated pipelines or cold boxes. 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 applications 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, SAMSON must be contacted.

SAMSON does not assume any liability for damage resulting from the failure to use the valve 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 in 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 wearing the following protective equipment depending on the process medium:

- Protective clothing, gloves, and eyewear in applications with cold or cryogenic and/or corrosive media
 - 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 to 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.

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 hazard statements, warning and caution notes specified in them. 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 a declaration of conformity, which includes information about the applied conformity assessment procedure. This 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 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
- For oxygen service: Manual ▶ H 01

1.1 Notes on possible severe personal injury

DANGER

Risk of bursting in pressure equipment.

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

- Before starting any work on the control 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 injury due to incorrect handling of oxygen or applications with cryogenic gases.

The Type 3248 Valve is frequently used for oxygen service or applications with cryogenic gases. Oxygen is a hazardous substance, which reacts quickly, leading to combustion and explosions. Contact with cryogenic gases causes severe frostbite and cold burns (cryogenic burns). Operating personnel must be trained for these applications. Unqualified operating personnel expose themselves and others to an increased risk of injury.

- Operating personnel must be sufficiently trained and be made aware of the dangers occurring in oxygen service and in applications with cryogenic gases.
- Instructions and information on how to safely handle devices for oxygen service can be found in the Manual ► H 01.

Tip

All SAMSON staff receives appropriate training before performing any activities in connection with oxygen service. SAMSON's After-sales Service department also offers such training courses for service staff to allow them to learn how to handle devices for the above listed applications correctly and safely.

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.

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. cold burns.

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

⚠ WARNING

Risk of burn injuries due to cold components and pipelines.

Depending on the process medium, valve components and pipelines may get extremely cold and cause cryogenic burns.

- Allow components and pipelines to 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 the valve.

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).

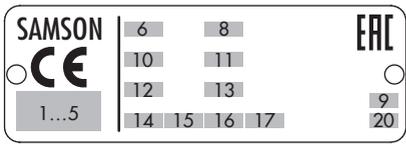
Risk of valve damage due to the use of unsuitable lubricants.

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 control valve

2.1 Valve nameplate



SAMSON | 6 | 8 | **EAC**
CE | 10 | 11 | |
 | 12 | 13 | 9 |
 1...5 | 14 | 15 | 16 | 17 | 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
11	Pressure rating: DIN: PN · ANSI: CL
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
15	Characteristic: %: equal percentage · Lin: linear
16	Seat-plug seal: ME: metal (see section 3.3) ST: Stellite® facing PT: soft seal with PTFE
17	Seat code (trim material) · On request
20	Country of origin

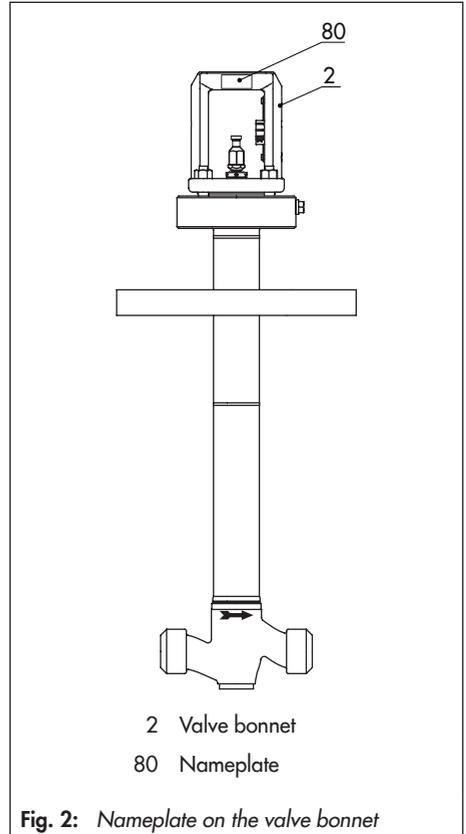
The nameplate is affixed to the valve bonnet (see Fig. 2).

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 3248 is available in the following versions:

- Globe or angle valve with stainless steel body, NPS 1 to 6, Class 150 to 300 (see Fig. 3)
- Globe or angle valve with stainless steel body, NPS 1 to 6, Class 600 (see Fig. 4)

A top-entry design is used for these valves. As a result, the valve does not need to be removed from the pipeline for servicing work.

The seat (4) and plug with plug stem (5) are installed in the body (1). The plug stem is screwed to the plug stem with bellows seal (37) which is, in turn, screwed to the spacer stem (71). The stem connector clamps (A26/27) connect the actuator stem (A7) of the mounted actuator.

The cryogenic extension bonnet is welded onto the body (1). Its bottom part consists of the bellows seal and insulated pipe. A cover plate can be welded at a specific angle onto the pipe. The cover plate serves as orientation during installation into a cold box, for example.

The plug stem is sealed by the metal bellows and the packing (15). The metal bellows prevents direct contact of the packing with the process medium. As a result, the service life is increased and icing up is prevented. The test connection at the valve bonnet can be used to monitor the sealing ability of the bellows. The packing consists of a spring-loaded PTFE-carbon V-ring packing.

In the Class 150 to 300 version, the valve bonnet (2) is designed as a yoke (see Fig. 3). In the Class 600 version, the valve bonnet (2) is designed as an intermediate piece. A yoke (3) is fastened onto the valve bonnet with a castellated nut (92) (see Fig. 4).

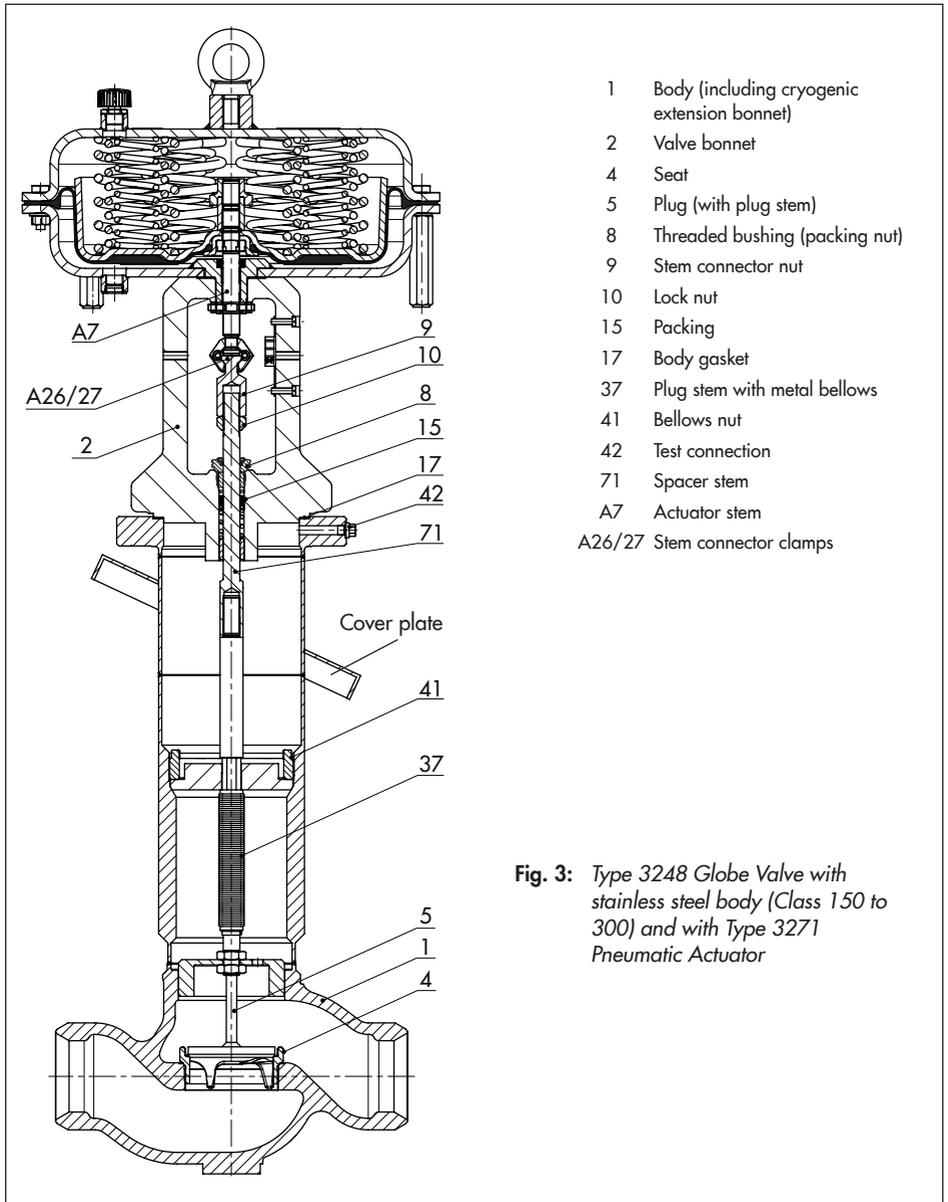
A protective cover can be mounted in place of the valve bonnet and actuator. This reduces the overall height of the valve and makes it easier to transport it. The protective cover also protects the inside of the bellows seal against moisture and dirt.

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 seat changes and determines the flow rate through the valve.

Actuators

The Type 3248 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 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.



Design and principle of operation

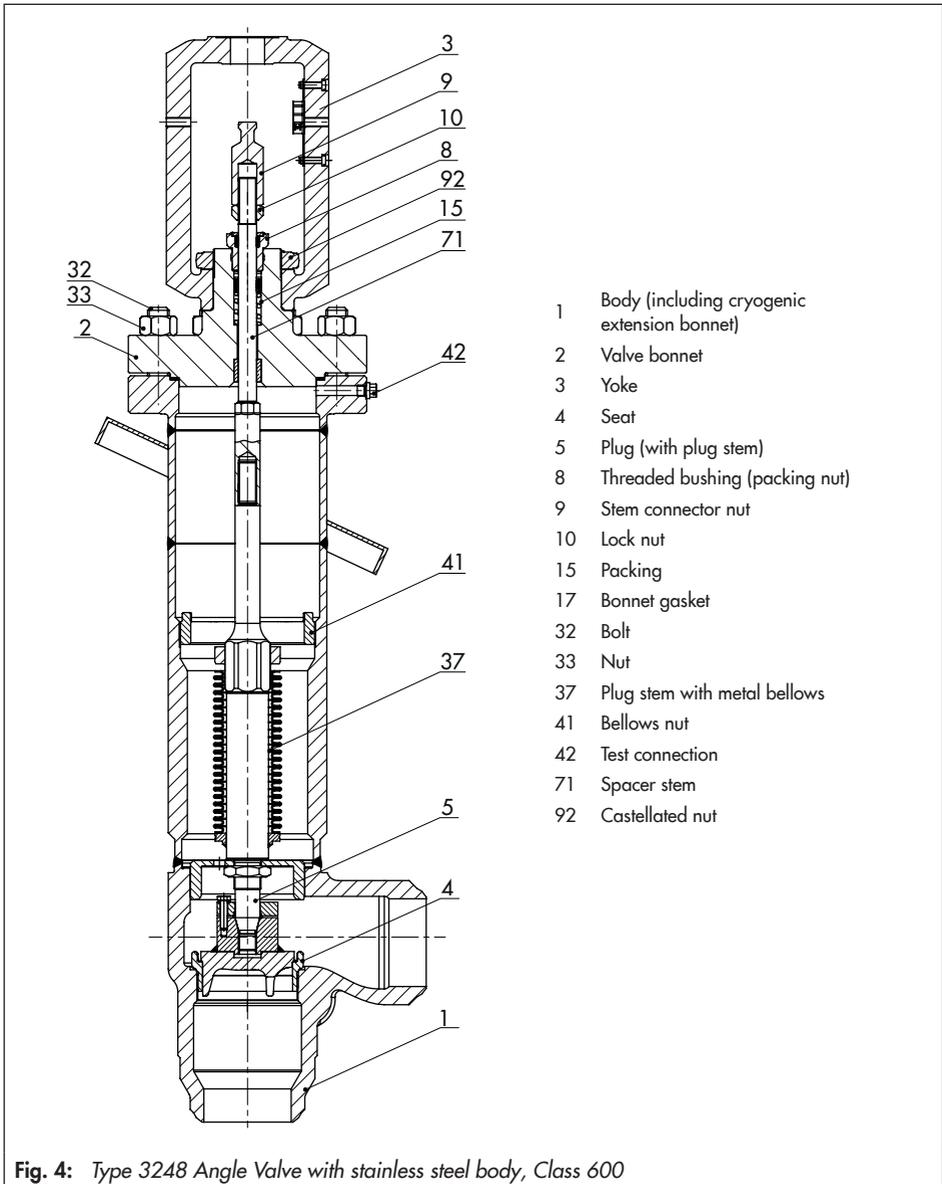


Fig. 4: Type 3248 Angle Valve with stainless steel body, Class 600

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 and close the valve. The valve opens when the signal pressure is increased enough to overcome the force exerted by the springs.

Actuator stem retracts (FE)

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upwards and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.



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

Larger nominal sizes

The Type 3248 Valve is available up to nominal size NPS 8.

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.

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.

Design and principle of operation

i Note

More information is available in Data Sheet
▶ T 8093-1.

Compliance

The Type 3248 Valve bears both the CE and EAC marks of conformity.

CE

EAC

Temperature range

The Type 3248 Valve is designed for a temperature range from -325 to $+149$ °F (-196 to $+65$ °C). The use of an extended bellows seal extends the temperature range down to 425 °F (-254 °C).

Leakage class

Depending on the version, the following leakage class according to ANSI/FCI 70-2 or IEC 60534-4 applies:

Seal (16 on nameplate)	Leakage class
Metal (ME)	IV
Stellite® facing (ST)	V
PTFE (PT)	VI

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.

Dimensions and weights

Table 1 to Table 6 provide a summary of the dimensions of the various versions of Type 3248 Valve. Table 7 lists the weights of the various versions of Type 3248 Valve. The lengths and heights are shown in the dimensional drawings (Fig. 5, Fig. 6, and Fig. 7).

i Note

Height H7 is the minimum clearance for service work. The actuator dimensions must also be observed. The largest value applies. Height H1 and the specified weights are reference values. The exact dimensions and weights depend on various factors, e.g. actuator size and overall height.

i Note

Refer to the following data sheets for dimensions and weights of the 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

Table 1: Dimensions of globe valve with stainless steel body, short pattern, Class 150 to 300, without cover plate (Fig. 5)

Valve	NPS	1	1½	2	3	4	6
		Socket weld ends			Butt weld ends (Schedule 10s)		
L	in	7.75	9.25	10.50	12.50	14.50	17.75
	mm	197	235	267	318	368	451
H1	in	29.75	29.90	29.90	33.0	38.74	44.76
	mm	756	760	760	838	984	1137
H2	in	1.73	2.80	2.80	3.66	4.37	6.85
	mm	44	71	71	93	111	174
H5	in	24.0	24.0	24.0	24.0	30.31	36.34
	mm	610	610	610	610	770	923
H6	in	9.45	9.45	9.45	–	–	–
	mm	200	200	200	–	–	–
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
ØC	in	1.35	1.95	2.45	–	–	–
	mm	34.5	49.5	62	–	–	–
D	in	0.5	0.62	0.70	–	–	–
	mm	12.7	15.8	17.5	–	–	–

Design and principle of operation

Table 2: Dimensions of globe valve with stainless steel body, long pattern, Class 150 to 300, with cover plate (Fig. 6)

Valve	NPS	1	1½	2	3	4	6
		Socket weld ends			Butt weld ends (Schedule 10s)		
L	in	8.25	9.88	11.25	13.25	15.50	20.0
	mm	210	251	286	337	394	508
H1	in	26.77	26.93	26.93	30.0	30.43	35.43
	mm	680	684	684	762	773	900
H2	in	1.73	2.80	2.80	3.66	4.37	6.85
	mm	44	71	71	93	111	174
H4	in	17.36	17.36	17.36	17.36	17.36	21.69
	mm	441	441	441	441	441	551
H5	in	21.0	21.0	21.0	21.0	22.0	27.0
	mm	534	534	534	534	559	686
H6	in	3.15	3.94	3.94	–	–	–
	mm	80	100	100	–	–	–
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
Ød ¹⁾	in	9.84	10.63	10.63	14.57	16.93	16.93
	mm	250	270	270	370	430	430
ØC	in	1.33	1.91	2.41	–	–	–
	mm	33.8	48.6	61.1	–	–	–
D	in	0.50	0.50	0.50	–	–	–
	mm	12.7	12.7	12.7	–	–	–

¹⁾ The cover plate is prepared for mounting at an angle of 25°, mounted unattached and not welded to the insulating section. Other angles for mounting the cover plate on request.

Table 3: Dimensions of globe valve with stainless steel body, long pattern, Class 600, without cover plate (Fig. 5)

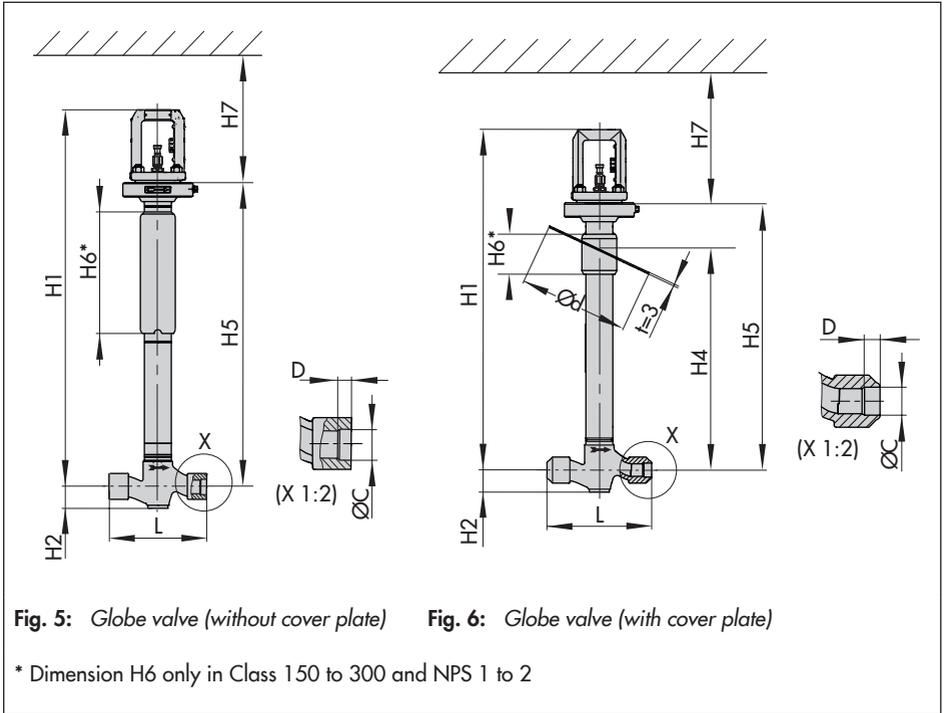
Valve	NPS	1	1½	2	3	4	6
		Socket weld ends			Butt weld ends (Schedule 10s)		
L	in	8.25	9.88	11.25	13.25	15.50	20.0
	mm	210	251	286	337	394	508
H1	in	35.31	35.2	35.2	35.71	42.03	58.43
	mm	897	894	894	907	1067.5	1484
H2	in	1.73	2.80	2.80	3.66	4.37	6.85
	mm	44	71	71	93	111	174
H5	in	24.0	24.0	24.0	24.0	30.31	36.34
	mm	610	610	610	610	770	923
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
ØC	in	1.35	1.95	2.45	–	–	–
	mm	34.5	49.5	62	–	–	–
D	in	0.5	0.62	0.70	–	–	–
	mm	12.7	15.8	17.5	–	–	–

Design and principle of operation

Table 4: Dimensions of globe valve with stainless steel body, long pattern, Class 600, with cover plate (Fig. 6)

Valve	NPS	1	1½	2	3	4	6
		Socket weld ends			Butt weld ends (Schedule 10s)		
L	in	8.25	9.88	11.25	13.25	15.50	20.0
	mm	210	251	286	337	394	508
H1	in	32.36	32.17	32.17	32.76	38.74	51.10
	mm	822	817	817	832	984	1298
H2	in	1.73	2.80	2.80	3.66	4.37	6.85
	mm	44	71	71	93	111	174
H4	in	17.36	17.36	17.36	17.36	21.69	23.62
	mm	441	441	441	441	551	600
H5	in	21.0	21.0	21.0	21.0	27.0	29.0
	mm	534	534	534	534	686	737
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
Ød ¹⁾	in	9.84	10.63	10.63	14.57	16.93	16.93
	mm	250	270	270	370	430	430
ØC	in	1.33	1.91	2.41	–	–	–
	mm	33.8	48.6	61.1	–	–	–
D	in	0.50	0.50	0.50	–	–	–
	mm	12.7	12.7	12.7	–	–	–

¹⁾ The cover plate is prepared for mounting at an angle of 25°, mounted unattached and not welded to the insulating section. Other angles for mounting the cover plate on request.



Design and principle of operation

Table 5: Dimensions of angle valve with stainless steel body, Class 300 (Fig. 7)

Valve	NPS	1	1½	2	3	4	6
L	in	3.86	5.25	5.25	6.25	7.25	9.31
	mm	98	133	133	159	184	236
H1	in	32.68	33.27	33.27	40.04	43.62	43.35
	mm	830	845	845	1017	1108	1101
H4	in	23.62	23.62	23.62	25.59	29.53	29.53
	mm	600	600	600	650	750	750
H5	in	26.93	27.36	27.36	31.02	35.16	34.92
	mm	684	695	695	788	893	887
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
Ød	in	11.10	11.10	11.10	11.10	11.10	11.10
	mm	282	282	282	282	282	282
Butt weld ends/ pipe connection		SCH 10S					

Table 6: Dimensions of angle valve with stainless steel body, Class 600 (Fig. 7)

Valve	NPS	1	1½	2	3	4	6
L	in	3.86	5.25	5.25	6.25	7.25	9.31
	mm	98	133	133	159	184	236
H1	in	31.42	31.42	31.42	31.32	37.13	47.64
	mm	798	798	798	795.5	943	1210
H4	in	15.75	15.75	15.75	15.75	16.69	21.65
	mm	400	400	400	400	500	550
H5	in	20.08	20.28	20.28	19.61	25.39	25.55
	mm	510	515	515	498	645	649
H7	in	41.34	35.43	35.43	35.43	43.31	43.31
	mm	1050	900	900	900	1100	1100
Ød	in	11.10	11.10	11.10	11.10	11.10	11.10
	mm	282	282	282	282	282	282
Butt weld ends/ pipe connection		SCH 40S					

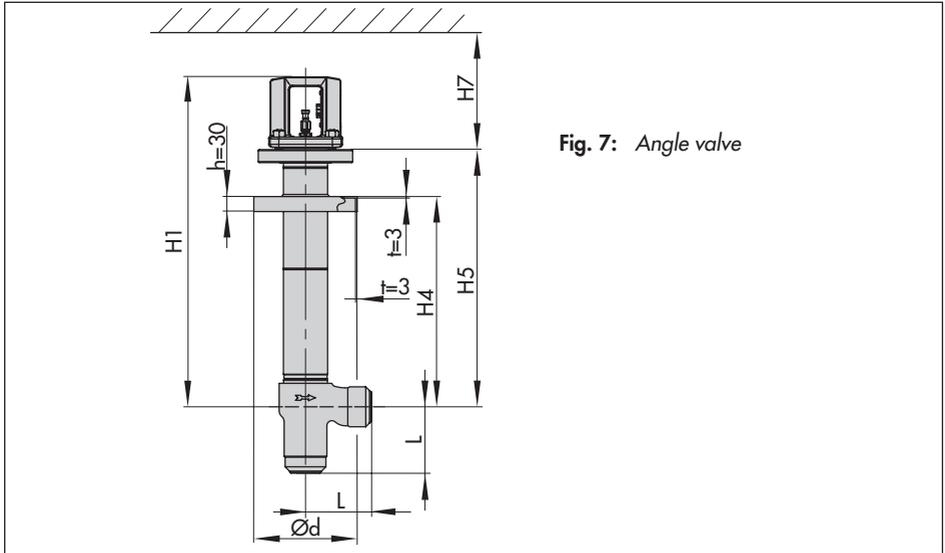


Fig. 7: Angle valve

Table 7: Weights of Type 3248 Valve · Without actuator

Valve	NPS	1	1½	2	3	4	6
Globe valve with stainless steel body, short and long pattern, Class 150 to 300							
Weight	lbs	38	62	62	122	210	289
	kg	17	30	30	55	95	131
Globe valve with stainless steel body, long pattern, Class 600							
Weight	lbs	42	78	78	177	239	419
	kg	19	35	35	80	108	190
Angle valve with stainless steel body, Class 300							
Weight	lbs	38	62	62	115	203	283
	kg	17	30	30	52	92	128
Angle valve with stainless steel body, Class 600							
Weight	lbs	42	78	78	170	232	389
	kg	19	35	35	77	105	176

4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received against 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 and the corresponding data sheets for the weights.

! WARNING

Risk of personal injury due to 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 welded-on lifting eyelet on SAMSON actuators is only intended for mounting and removing the actuator as well as lifting the actuator without valve. Do not use this lifting eyelet 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.

Transport instructions

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

Note

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

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.

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.



Tip

We recommend using a hook with safety latch (see Fig. 11). The safety latch prevents the slings from slipping during lifting and transporting.

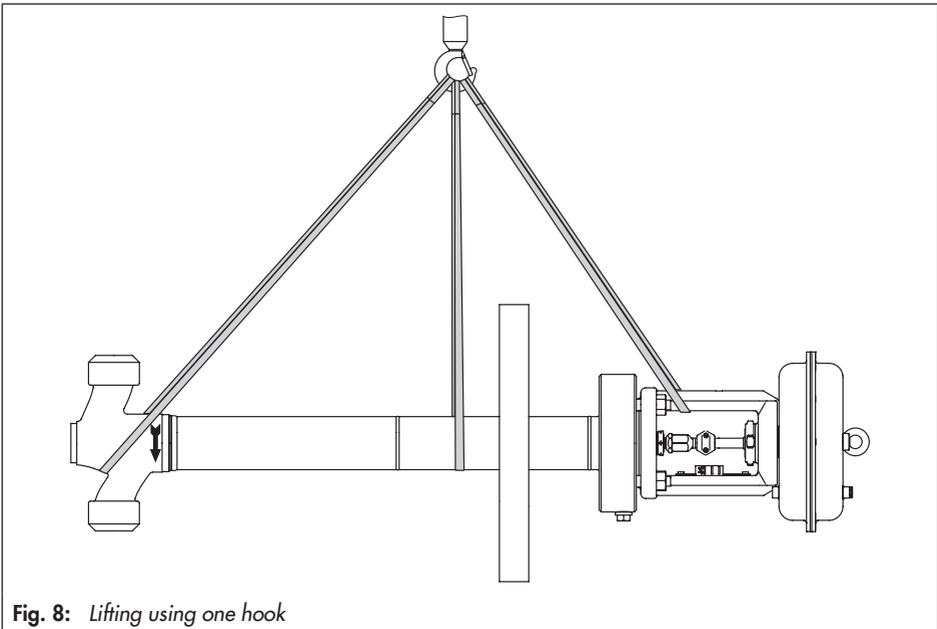


Fig. 8: Lifting using one hook

Lifting with the actuator mounted

The control valve can be lifted in the horizontal position either using one hook (Fig. 8) or using several hooks on a beam (Fig. 9).

1. Attach one sling to the valve body, cryogenic extension bonnet, and valve bonnet or yoke as well as to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 8).
2. **With beam, NPS 4 and larger:** attach additional sling to support the valve at the body (see Fig. 9).
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.
5. Install the valve into the pipeline (see section 5.1.3).
6. After installation in the pipeline, check whether the weld seams hold.
7. Remove slings.

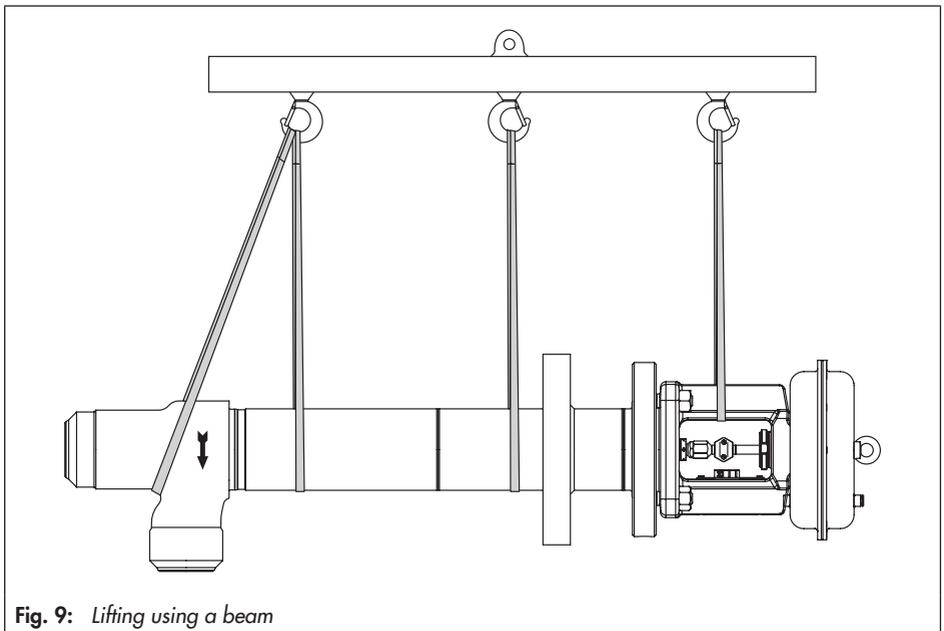


Fig. 9: Lifting using a beam

Measures for preparation

Lifting with the protective cover mounted

1. Attach two slings to the cryogenic extension bonnet and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 10).
2. **NPS 4 and larger:** attach additional sling to support the valve at the body.
3. Proceed as described in Lifting with the actuator mounted, steps 3 to 7.

Lifting the control valve with mounted actuator in the upright position

Optionally, the valve can be lifted in the upright position (see Fig. 11).

On lifting the control valve in the upright position, make sure the following conditions are met:

- 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 lifting eyelet and rigging equipment (hook, shackle etc.) does not bear any load when lifting actuators with an actuator area of 700 cm² or larger. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

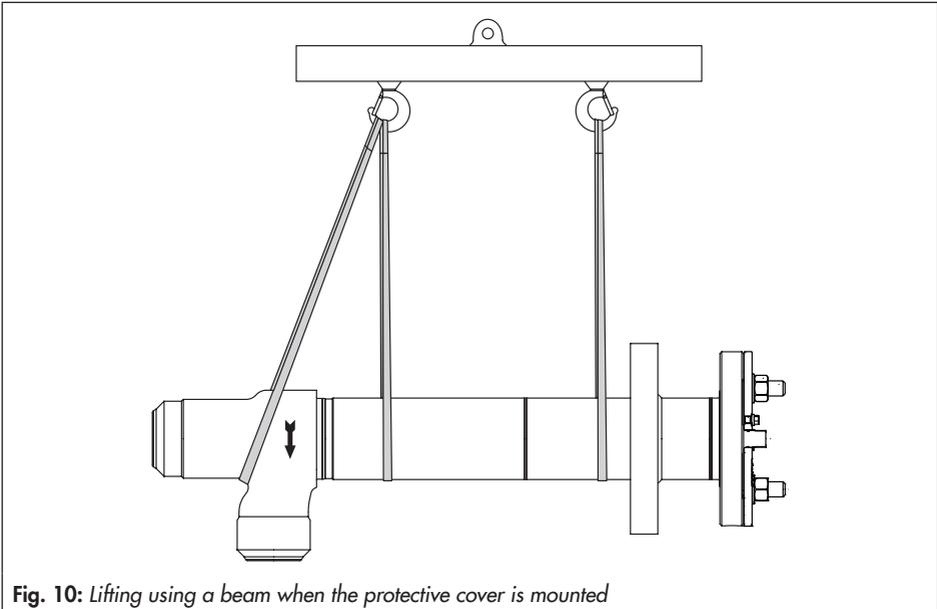


Fig. 10: Lifting using a beam when the protective cover is mounted

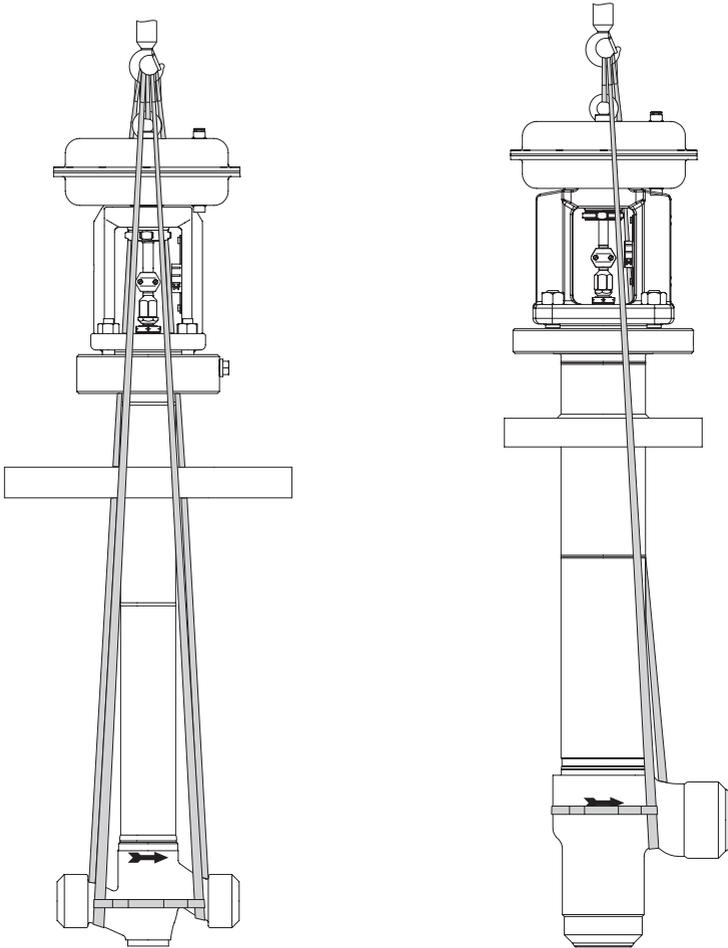


Fig. 11: Lifting points on the control valve: globe valve (left) and angle valve (right)

Measures for preparation

For lifting in the upright position, proceed as follows:

1. Attach one sling to each welding end of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 11).
2. Secure the slings attached to the body against slipping using a connector.
3. **700 cm² and larger:** attach another sling to the lifting eyelet on the actuator and to the rigging equipment.
4. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
5. Move the control valve at an even pace to the site of installation.
6. Install the valve into the pipeline (see section 5.1.3).
7. After installation in the pipeline, check whether the weld seams hold.
8. Remove connector and slings.

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.
-

i Note

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

Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- 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 -4 to $+149$ °F (-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 59 °F (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.).
- ➔ 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 some cases, the valve is delivered with a protective cover mounted. This can be removed either before or after the valve is installed into the pipeline (see section 5.2). The procedure to mount and start up the valve are described in the following.

! 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 Installing the valve into the pipeline

5.1.1 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 8). 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.

Mounting position

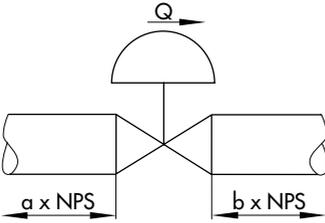
We recommend mounting the valve at an angle between 15 and 25° to the horizontal plane.

- 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.

Table 8: 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
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

NOTICE

Premature wear and leakage due to insufficient support or suspension.

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

- For versions with side-mounted handwheel which are installed at an angle of $<45^\circ$ to the horizontal plane

Attach a suitable support or suspension to the valve.

- ➔ Avoid supporting or suspending in the area around bellows nut (41).

Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic 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.

i 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.

5.1.2 Additional fittings

Insulation

Control valves with cover plates can be insulated up to the cover plate. Control valves without cover plates must only be insulated up to the top of the body flange.

Safety guard

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

Test connection

The test connection at the valve bonnet can be used to monitor the sealing ability of the bellows. 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).

5.1.3 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. Completely retract the actuator stem to protect the plug from sparks during welding:
With mounted protective cover: turn the adjustment bolt (95.2) clockwise.
With mounted actuator, "stem extends" direction of action: apply a signal pressure to the actuator.
With mounted actuator, "stem retracts" direction of action: the valve is open without any signal pressure being applied.
5. Weld the valve free of stress into the pipeline.
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. See section 5.4.

5.2 Removing the protective cover

To keep the overall height of valves for cold-box applications during transportation, the actuator and valve body can be removed from the body (cryogenic extension bonnet). In this case, the plug stem with bellows seal (37) is secured by a protective cover. The valve can be installed into the pipeline with the protective cover still mounted. The protective cover can remain mounted on the valve also during a pressure test (see section 5.4). Upon delivery with the protective cover, the valve is open: the thread of the plug stem with bellows seal (37) is completely screwed into the adjustment bolt (95.2).

Moving the plug stem

- To close the valve, turn the adjustment bolt (95.2) counterclockwise.
- To open the valve, turn the adjustment bolt (95.2) clockwise.



Tip

A plate on the protective cover indicates the turning direction (see Fig. 12).

Removing the protective cover

1. Remove nuts (33) and washers (95.9).
2. Turn the adjustment bolt (95.2) counterclockwise. The plug is lowered and the protective cover is lifted off the body.
3. As soon as the end of the thread is reached, remove the protective cover from the body.

i Note

The nuts (33) are required to mount the valve bonnet. The washers (95.9) are no longer required.

Mounting the valve bonnet

i Note

For the Class 600 version, mount the valve bonnet (2) together with the yoke (3).

1. Insert a new gasket (17) into the body (1).
2. Carefully place the valve bonnet (2) together with the spacer stem (71) on the valve body (1). Place the spacer stem over the thread of the plug stem (37) and tighten by hand. Make sure that the posi-

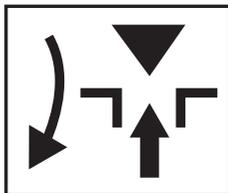


Fig. 12: Plate indicating the turning direction of the adjustment bolt

Mounting and start-up

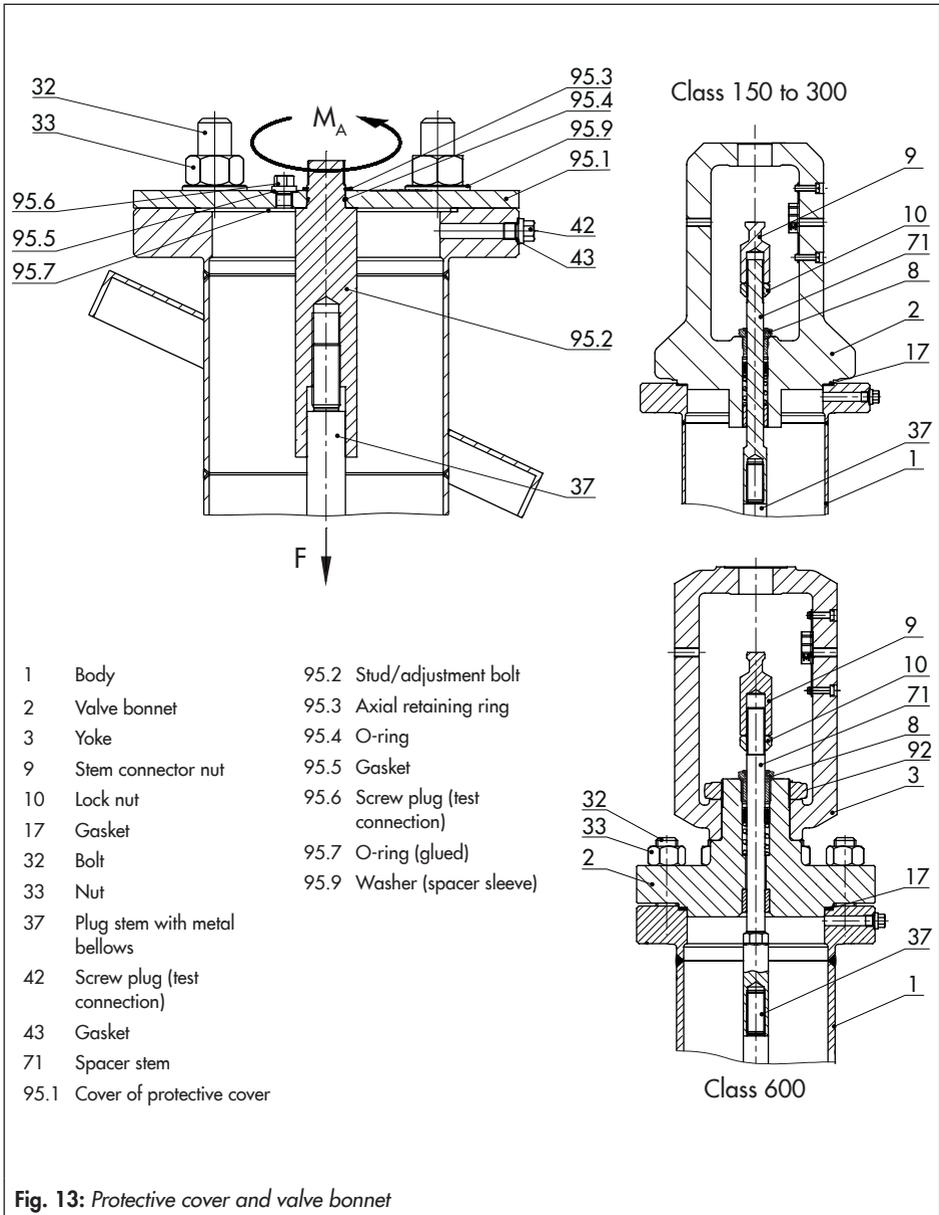


Fig. 13: Protective cover and valve bonnet

tion of the stem connector nut (9) and lock nut (10) on the spacer stem is not changed.

3. Fasten the valve bonnet (2) using the nuts (33) and bolts (32). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
4. Tighten the spacer stem (71) and plug stem (37) over the stem connector nut (9). Observe tightening torques.
5. Mount actuator. See associated actuator documentation.
6. In case the position of the stem connector nut and lock nut has been changed during mounting (step 2): adjust lower or upper signal bench range. See associated actuator documentation.

5.3 Mounting the actuator onto the valve

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

If a protective cover is mounted, first remove it and mount the valve bonnet (see section 5.2).

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 varies. The process medium in the valve flows through the V-shaped ports as soon as the plug is 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 plug is 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 uncovered first faces toward the valve outlet.

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.

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).
-

5.4 Quick check

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

Mounting and start-up

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 with mounted protective cover

With a mounted protective cover, perform the test pressure with an open valve as well as with a closed valve.

1. To open the valve, turn the adjustment bolt (95.2) clockwise.
 2. Perform the pressure test. Observe the maximum permissible pressure for valve and plant.
 3. To close the valve, turn the adjustment bolt (95.2) counterclockwise.
 4. Perform the pressure test. 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.

Pressure test with mounted actuator

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

- Retract the plug stem 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

Immediately after completing mounting and start-up (see section 5), the valve is ready for use.

⚠ 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 cold components and pipelines.

Depending on the process medium, valve components and pipelines may get extremely cold and cause cryogenic burns.

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 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 to draw up an inspection 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. Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

- Before starting any work on the control 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 cold components and pipelines.

Depending on the process medium, valve components and pipelines may get extremely cold and cause cryogenic burns.

- 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.

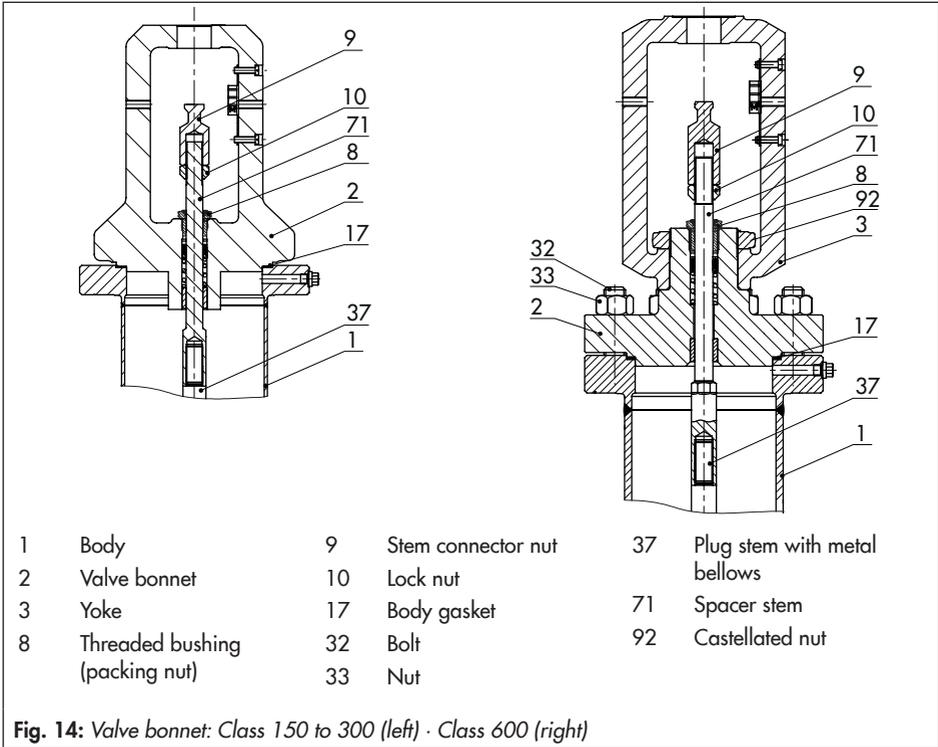
7.1 Replacing the gasket

7.1.1 Globe or angle valve, Class 150 to 300

1. Remove the actuator from the valve. See associated actuator documentation.
2. Undo the nuts (33) and bolts (32) gradually in a criss-cross pattern.
3. Carefully lift the valve bonnet (2) off the valve body (1) over the spacer stem (71).
4. Remove the gasket (17). Carefully clean the sealing faces in the valve bonnet (2) and on the body (1).
5. Insert a new gasket (17) into the body (1).
6. Carefully place the valve bonnet (2) on the valve body (1) over the spacer stem (71).
7. Fasten the valve bonnet (2) using the nuts (33) and bolts (32). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
8. Mount actuator. See associated actuator documentation.
9. Adjust lower or upper signal bench range. See associated actuator documentation.

7.1.2 Globe or angle valve, Class 600

1. Remove the actuator from the valve. See associated actuator documentation.



2. Unthread the stem connector nut (9) and lock nut (10) from the spacer stem (71).
3. Loosen the threaded bushing (8) to relieve the tension from the packing.

i Note

The threaded bushing does not need to be completely unscrewed to replace the gasket.

4. Undo the nuts (33) and bolts (32) gradually in a criss-cross pattern.

5. Carefully lift the valve bonnet (2) together with the yoke (3) off the valve body (1) and the spacer stem (71).
6. Remove the gasket (17). Carefully clean the sealing faces in the valve bonnet (2) and on the body (1).
7. Insert a new gasket (17) into the body (1).
8. Carefully place the valve bonnet (2) together with the yoke (3) on the valve body (1) over the spacer stem (71).

9. Fasten the valve bonnet (2) using the nuts (33) and bolts (32). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
10. Tighten the threaded bushing (8). Observe tightening torques.
11. Loosely screw the lock nut (10) and stem connector nut (9) onto the spacer stem (71).
12. Mount actuator. See associated actuator documentation.
13. Adjust lower or upper signal bench range. See associated actuator documentation.
2. Unthread the stem connector nut (9) and lock nut (10) from the spacer stem (71).
3. Unscrew the threaded bushing (8).
4. Remove nuts (33) and bolts (32).
5. Carefully lift the valve bonnet (2) over the spacer stem (71).
6. Pull all the packing parts out of the packing chamber using a suitable tool.
7. Renew the damaged parts and carefully clean the packing chamber.
8. Replace the gasket as described in section 7.1.1.
9. Apply a suitable lubricant to all the packing parts.

7.2 Replacing the packing

NOTICE

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

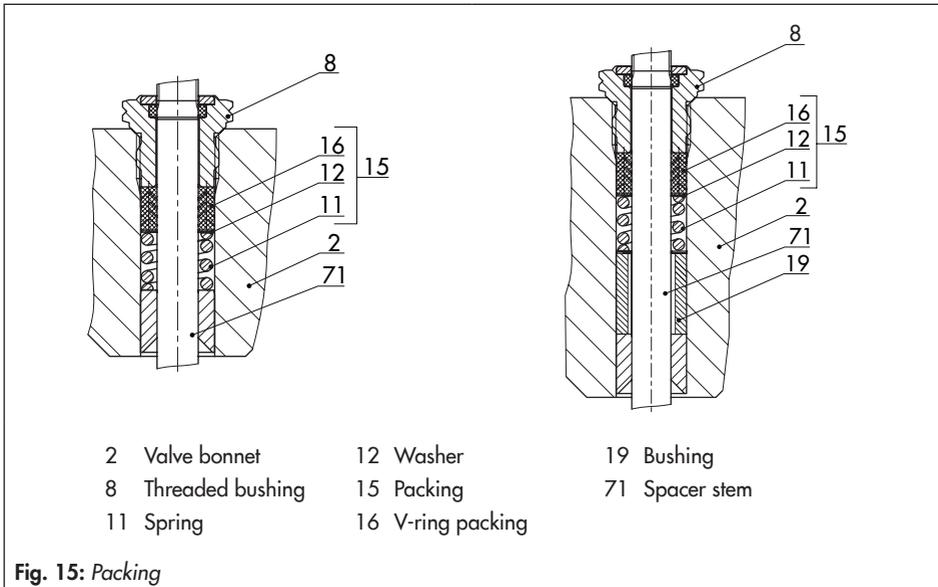
The packing can only be replaced when all the following conditions are met:

- The valve size is \leq NPS 6.
- The standard or Form D (for oxygen) packing is installed in the valve.

To replace the packing in other valve versions, contact SAMSON's After-sales Service department.

7.2.1 Globe or angle valve, Class 150 to 300

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unthread the stem connector nut (9) and lock nut (10) from the spacer stem (71).
3. Unscrew the threaded bushing (8).
4. Remove nuts (33) and bolts (32).
5. Carefully lift the valve bonnet (2) over the spacer stem (71).
6. Pull all the packing parts out of the packing chamber using a suitable tool.
7. Renew the damaged parts and carefully clean the packing chamber.
8. Replace the gasket as described in section 7.1.1.
9. Apply a suitable lubricant to all the packing parts.
10. Carefully slide the packing parts over the spacer stem (71) into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 15).
11. Carefully place the valve bonnet (2) on the valve body (1) over the spacer stem (71).
12. Fasten the valve bonnet (2) using the nuts (33) and bolts (32). Observe tightening torques.
13. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
14. Loosely screw the lock nut (10) and stem connector nut (9) onto the spacer stem (71).
15. Mount actuator. See associated actuator documentation.
16. Adjust lower or upper signal bench range. See associated actuator documentation.



7.2.2 Globe or angle valve, Class 600

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the castellated nut (92) and lift the yoke (3) off the valve bonnet (2).
3. Unthread the stem connector nut (9) and lock nut (10) from the spacer stem (71).
4. Unscrew the threaded bushing (8).
5. Pull all the packing parts out of the packing chamber using a suitable tool.
6. Renew the damaged parts and carefully clean the packing chamber.
7. Apply a suitable lubricant to all the packing parts.
8. Carefully slide the packing parts over the spacer stem (71) into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 15).
9. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
10. Place yoke (3) on the valve bonnet (2) and fasten tight using the castellated nut (92).
11. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem (5).
12. Mount actuator. See associated actuator documentation.
13. Adjust lower or upper signal bench range. See associated actuator documentation.

7.3 Replacing the seat and plug

ⓘ NOTICE

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

To replace seat and plug in the Type 3248 Valve, contact SAMSON's After-sales Service department.

7.4 Replacing the bellows seal

ⓘ NOTICE

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

To replace the bellows seal in the Type 3248 Valve, contact SAMSON's After-sales Service department.

7.5 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return valves 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 > Services > Check lists for 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 > Contact.

7.6 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

Details on spare parts are available on request.

Lubricant

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 plan.



Tip

SAMSON's After-sales Service department can support you to draw up an inspection 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.
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, particularly with soft seat, is worn.	Contact SAMSON's After-sales Service department.
The valve leaks to the atmosphere (fugitive emissions).	The packing and metal bellows are defective.	Contact SAMSON's After-sales Service department.
	Flange joint not tight.	Check the flange joint.
	Gasket worn out.	Replace bonnet gasket. See section 7.1) or contact SAMSON's After-sales Service department.
Icing up of the packing chamber.	Metal bellows is defective.	Contact SAMSON's After-sales Service department.



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. Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

- *Before starting any work on the control 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 cold components and pipelines. Depending on the process medium, valve components and pipelines may get extremely cold and cause cryogenic burns.

- *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. Cut the pipeline in front of the weld seam.
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 other 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, in all SAMSON product catalogs or on the back of these Mounting and Operating Instructions.

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 cu.ft./min or m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

10.2 Certificates

The declaration of conformity is provided on the next page.



**EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY**

Modul/Module H / N° CE-PED-H-SAM 001-13-DEU

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte/explains in sole responsibility for the following products:

Geräte/Devices	Bauart/Series	Typ/Type	Ausführung/Version
Durchgangsventil/Globe Valve	240	3241	DIN, Gehäuse GG/Cast iron-Body ab/from DN150, Gehäuse GGG/Sph. gr. iron-Body ab/from DN100, Fluide/Fluids G2, L1, L2 ¹⁾ DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Dreizehventil/Three-way Valve	240	3244	DIN, Gehäuse GG ab DN150/Cast iron-Body from DN150; Gehäuse GGG ab DN100/Sph. gr. iron-Body from DN100, Fluide/Fluids G2, L1, L2 ¹⁾ DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Tiefemperaturventil/Cryogenic Valve	240	3248	DIN/ANSI, alle Fluide/all Fluids
Durchgangsventil/Globe Valve	250	3251	DIN/ANSI, alle Fluide/all Fluids
Dreizehventil/Three-way Valve	250	3253	DIN/ANSI, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids
Durchgangsventil/Globe Valve	250	3254	DIN/ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	250	3256	DIN/ANSI, alle Fluide/all Fluids
Split-Body-Ventil/Split-Body-Valve	250	3258	DIN, alle Fluide/all Fluids
IG-Eckventil/IG-Angle Valve	250	3259	DIN, alle Fluide/all Fluids
Dampfumformventil/ Steam-converting Valve	280	3281	DIN/ANSI, alle Fluide/all Fluids
		3284	DIN/ANSI, alle Fluide/all Fluids
		3286	DIN/ANSI, alle Fluide/all Fluids
		3288	DIN, alle Fluide/all Fluids
Durchgangsventil/Globe Valve	V2001	3321	DIN, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids ANSI, alle Fluide/all Fluids
Dreizehventil/Three-way Valve	V2001	3323	DIN, Geh. Stahl u.a./Body Steel etc., alle Fluide/all Fluids ANSI, alle Fluide/all Fluids
Schrägsitzventil/Bevel-Valve	---	3353	DIN, Geh. Stahl/Body Steel, alle Fluide/all Fluids
Drosselschalldämpfer/Silencer	3381	3381-1	DIN/ANSI, alle Fluide/all Fluids; Einzeldrosselscheibe mit Anschweißende/ Single attenuation plate with welding end
		3381-3	DIN/ANSI, alle Fluide/all Fluids
		3381-4	DIN/ANSI, alle Fluide/all Fluids; Einzeldrosselscheibe mehrstufig mit Anschweißende/Single attenuation plate multi-stage with welding end
Durchgangsventil/Globe Valve	240	3241	ANSI, Gehäuse GG CI125 ab 5"/Cast iron-Body CI125 from 5", Fluide/Fluids G2, L1, L2 ¹⁾
Tiefemperaturventil/ Cryogenic Valve	240	3246	DIN/ANSI, alle Fluide/all Fluids
Dreizehventil/Three-way Valve	250	3253	DIN, Gehäuse GG ab DN200 PN16/Cast iron-Body from DN200 PN16, Fluide/Fluids G2, L1, L2 ¹⁾
Durchgangsventil/Globe Valve	290	3291	ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	290	3296	ANSI, alle Fluide/all Fluids
Durchgangsventil/Globe Valve	590	3591	ANSI, alle Fluide/all Fluids
Eckventil/Angle Valve	590	3596	ANSI, alle Fluide/all Fluids

¹⁾ Gase nach Art. 4 Abs.1 Pkt. c.i zweiter Gedankenstrich/Liquids acc. to Article 4, Section 1 Subsection c.i second indent Flüssigkeiten nach Art. 4 Abs.1 Pkt. c.ii/Liquids acc. to Article 4, Section 1 Subsection c.ii

die Konformität mit nachfolgender Anforderung/we declare conformity with the demands of the:

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 harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment/Siehe auch Artikel 41 und 48/See also Article 41 and 48	2014/68/EU	vom/of 15.05.2014
Angewandtes Konformitätsbewertungsverfahren/ Applied Conformity Assessment Procedure für Fluide nach Art. 4 Abs. 1/for fluids acc. to Article 4, Section 1	Modul H/ Module H	durch/by Bureau Veritas 0062

Das Qualitätssicherungssystem des Herstellers wird von folgender benannten Stelle überwacht/The Manufacturer's Quality Assurance System is monitored by following Notified Body:
Bureau Veritas S. A. nr 0062 67/71, boulevard du Château, 92200 Neuilly-sur-Seine, France

Angewandte technische Spezifikation/Technical Standards used: DIN EN12516-2; DIN EN12516-3; ASME B16.34

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

Frankfurt, 19.07.2016

i.v. Klaus Mitter

ppa Mitter

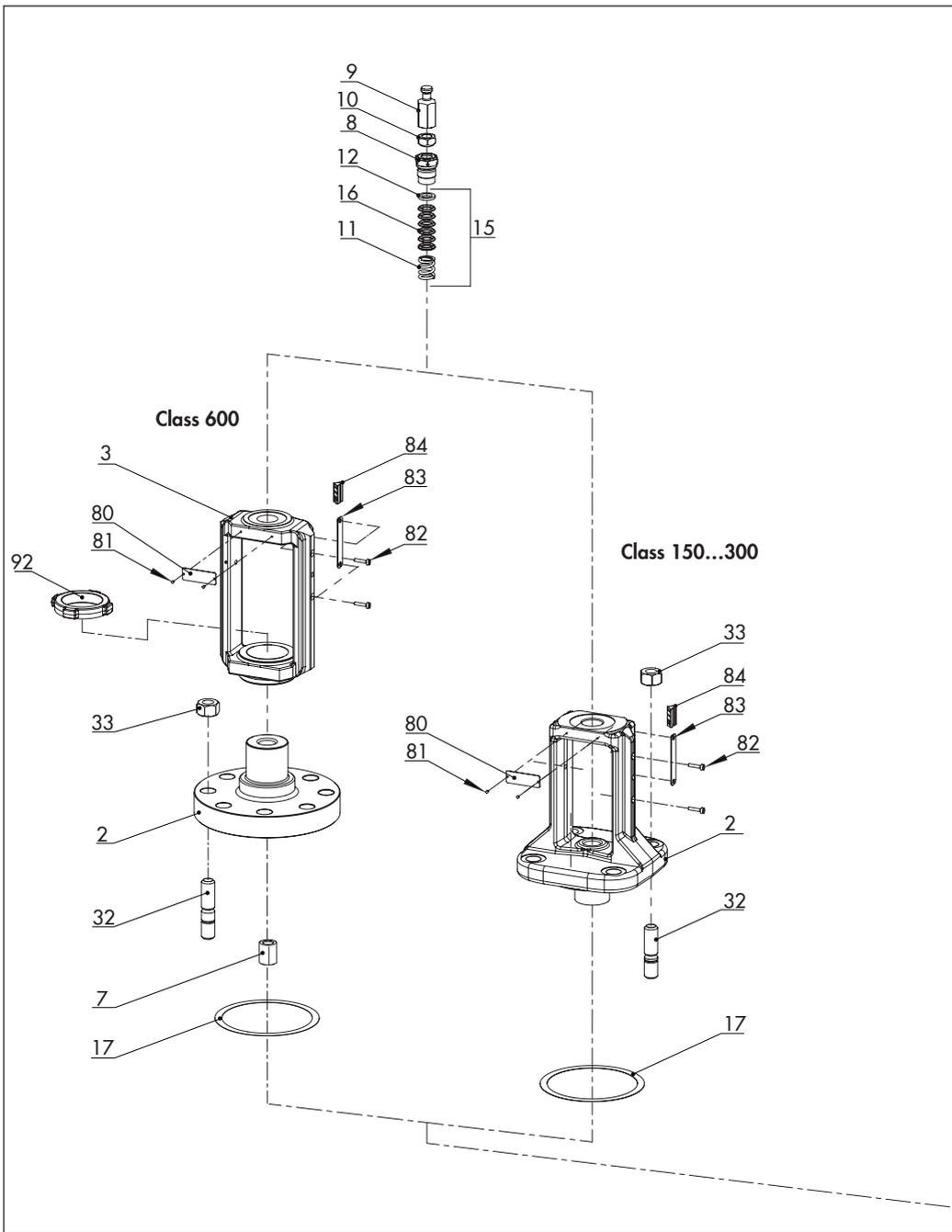
Klaus Hörschken
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / R&D Valves and Actuators

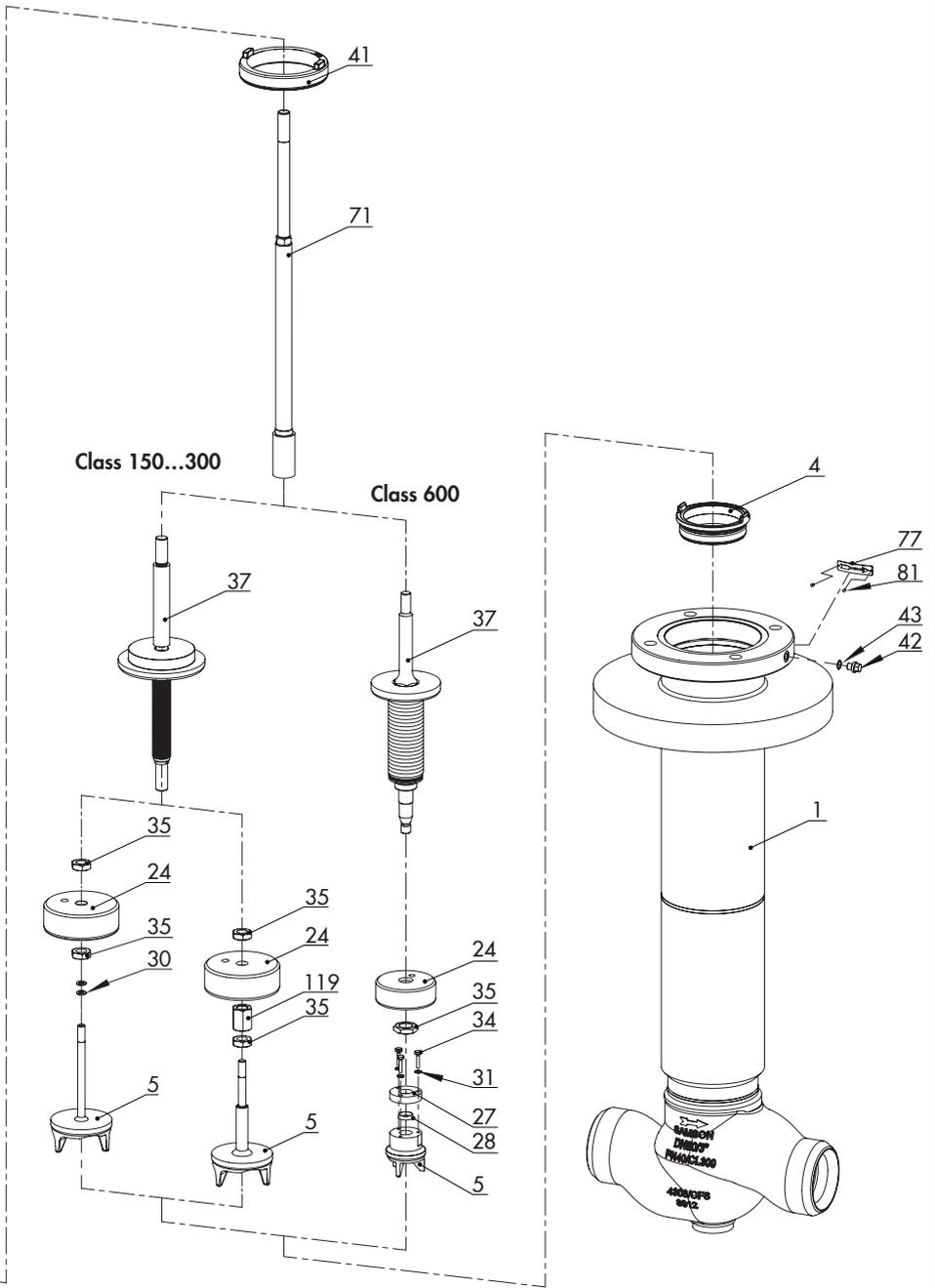
Günther Scherer
Zentralabteilungsleiter / Head of Central Department
Qualitätsmanagement / Total Quality Management

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10.3 Spare parts

1	Body	81	Grooved pin
2	Valve bonnet	82	Fillister head screw
3	Yoke	83	Hanger
4	Seat	84	Travel indicator scale
5	Plug (with plug stem)	92	Castellated nut
7	Guide bushing	119	Support nut
8	Threaded bushing (packing nut)		
9	Stem connector nut		
10	Lock nut		
11	Spring		
12	Washer		
15	Packing		
16	V-ring packing		
17	Body gasket		
19	Bushing		
24	Guide bushing		
27	Flange		
28	Clamping ring		
30	Retaining washers		
31	Washer		
32	Hexagon bolt		
33	Nut		
34	Bolt		
35	Lock nut		
37	Plug stem with metal bellows		
42	Screw plug (test connection)		
43	Seal		
71	Spacer stem		
77	Plate (direction of flow)		
80	Nameplate		





EB 8093-1 EN



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