MOUNTING AND
OPERATING INSTRUCTIONS

EB 3015 EN

Translation of original instructions

Type 42-36 Flow Regulator

Self-operated Regulators

Edition March 2025

Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in these instructions are for illustration purposes only. The actual product may vary.

➔ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

➔ If you have any questions about these instructions, contact SAMSON's After-sales Service (aftersalesservice@samsongroup.com).

The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at ***www.samsongroup.com > 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

1 Safety instructions and measures

Intended use

The SAMSON Type 42-36 Regulator is a flow regulator. It consists of a Type 2423 Valve and a Type 2426 Actuator. The regulator is delivered as an assembled unit or the components of the regulators are delivered separately.

The self-operated regulator is used to control the flow rate in pipelines. Liquids, gases and vapors in processing and industrial plants can be controlled by the regulator.

The regulators are designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the regulators are only used in operating conditions that meet the specifications used for sizing the devices at the ordering stage. In case operators intend to use the regulators in applications or conditions other than those specified, contact SAMSON.

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

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

Reasonably foreseeable misuse

The regulators are 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 additional fittings mounted on the regulator

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

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

Qualifications of operating personnel

The regulator must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices must be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Personal protective equipment

SAMSON recommends checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database). Depending on the process medium and/or the activity, the protective equipment required includes:

– Protective clothing, safety gloves and eye protection in applications with hot, cold and/or corrosive media
– Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.
– Hard hat
– Safety harness, e.g. when working at height
– Safety footwear, if applicable ESD (electrostatic discharge) footwear

➔ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

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 regulator by the process medium, the operating pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warnings and caution notes in these mounting and operating instructions.

Hazards resulting from the special working conditions at the installation site of the regulator must be identified in a risk assessment and prevented through the corresponding standard operating procedures drawn up by the operator.

SAMSON also recommends checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database).

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

These mounting and operating instructions deal with the standard version of the device. Components of the device that differ to those used for the standard version described in this document can be exchanged with other certain SAMSON components. The residual hazards of these components are described in the associated mounting and operating instructions (see section 'Referenced documents').

Safety features

The Type 42-36 Regulator does not have any special safety features. When relieved of pressure, the regulator is opened by the force of the set point springs.

Responsibilities of the operator

Operators are responsible for proper use and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions as well as the referenced documents to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third parties are not exposed to any danger.
Operators are additionally responsible for ensuring that the limits for the product defined in the technical data are observed. This also applies to the start-up and shutdown procedures. Start-up and shutdown procedures fall within the scope of the operator's duties and, as such, are not part of these mounting and operating instructions. SAMSON is unable to make any statements about these procedures since the operative details (e.g. differential pressures and temperatures) vary in each individual case and are only known to the operator.

Responsibilities of operating personnel

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

Referenced standards, directives and regulations

The regulators comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and the Machinery Directive 2006/42/EC. Regulators with a CE marking have a declaration of conformity which includes information about the applied conformity assessment procedure. The declaration of conformity is included in the 'Certificates' chapter.

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

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

Referenced documents

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

– Mounting and operating instructions for

e.g.	**Type 2 N or 2 NI Strainer**	▶ EB 1015

– Data sheets for

e.g.	**Accessories · Differential pressure and flow regulators**	▶ T 3095
e.g.	**Type 2 N or 2 NI Strainer**	▶ T 1015

– Mounting and operating instructions as well as data sheets for additional fittings (e.g. shut-off valves, pressure gauges etc.).

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of bursting in pressure equipment.

Regulators and pipelines are pressure equipment. Impermissible pressure or improper opening of the pressure equipment can lead to regulator components bursting.

➔ Observe the maximum permissible pressure for regulator and plant.

➔ If necessary, a suitable overpressure protection must be installed on site in the plant section.

➔ Before starting any work on the regulator, depressurize all plant sections affected as well as the regulator.

➔ Drain the process medium from the plant sections affected as well as from the regulator.

➔ Wear personal protective equipment.

1.2 Notes on possible personal injury

⚠ WARNING

Risk of personal injury due to incorrect operation, use or installation as a result of information on the regulator being illegible.

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

➔ Keep all relevant markings and inscriptions on the device in a constantly legible state.

➔ Immediately renew damaged, missing or incorrect nameplates or labels.

Risk of hearing loss or deafness due to loud noise.

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

➔ Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

Incorrect opening of pressure equipment or mounting parts may lead to the process medium escaping to the atmosphere.

➔ Do not unscrew the control line while the valve is pressurized.

➔ Do not start up the regulator until all parts have been mounted.

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

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

➔ Allow components and pipelines to cool down or warm up to the ambient temperature.

➔ Wear protective clothing and safety gloves.

⚠ WARNING

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

While working on the regulator, 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 the plant sections affected and from the regulator.

➔ Wear protective clothing, safety gloves and eye protection.

Damage to health relating to the REACH regulation.

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

➔ Information on the safe use of the part affected (▶ www.samsongroup.com/en/about-samson/material-compliance/reach-regulation/).

1.3 Notes on possible property damage

NOTICE

Risk of regulator damage due to incorrectly attached slings.

➔ Do not attach load-bearing slings to the actuator housing (see section 'Lifting the regulator' in the 'Shipment and on-site transport' chapter).

Risk of regulator damage due to unsuitable medium properties.

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

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

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

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

➔ Flush the pipelines before start-up.

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

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

➔ Only use lubricants approved by SAMSON.
When in doubt, consult SAMSON.

Risk of leakage and regulator damage due to over- or under-torquing.

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

➔ Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).

Risk of regulator damage due to the use of unsuitable tools.

Certain tools are required to work on the regulator.

➔ Only use tools approved by SAMSON.
When in doubt, consult SAMSON.

NOTICE

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

➔ Keep the regulator and the tools used free from solvents and grease.

➔ Make sure that only suitable lubricants are used.

Risk of excess pressure damaging plant sections due to construction-related seat leakage through the regulator.

➔ Always install a safety device (e.g. safety excess pressure valve or safety relief valve) in the plant.

Note

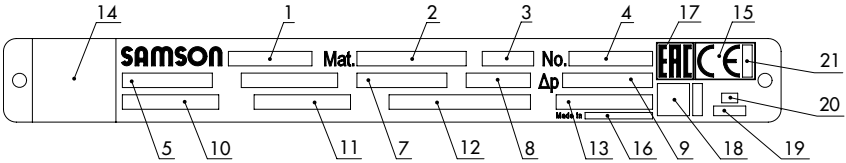
SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

2 Markings on the device

Several nameplates are affixed to the device. The nameplates shown were up to date at the time of publication of this document. The nameplates on the device may differ from the ones shown. The nameplates are used to identify the separate regulator components (see Chapter 2.1).

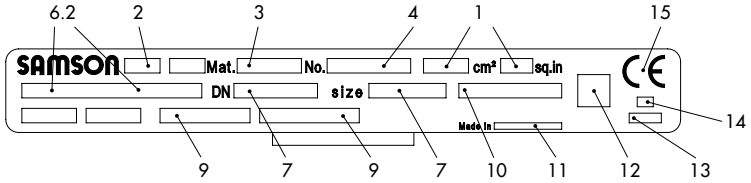
2.1 Nameplates

Nameplate for Type 2423 Valve



1	Model number with index	8	Pressure rating	15	CE marking
2	Material number/configuration ID	9	Perm. differential pressure	16	Country of origin
3	Type	10	Perm. temperature	17	EAC, if applicable
4	Production number	11	Body material	18	UKCA, if applicable
5	K_{VS}/C_V	12	Serial number	19	Year of manufacture
7	Nominal size	13	TÜV registration no.	20	Month of manufacture
		14	DataMatrix code	21	ID of the certification body

Nameplate of Type 2426 Actuator



1	Actuator area	6.2	Max. perm. pressure at actuator	12	UKCA, if applicable
2	Actuator model	7	Nominal size	13	Year of manufacture
2.1	Valve model	9	Set point range	14	Month of manufacture
3	Material number and device index	10	Diaphragm material	15	CE marking
4	ID number	11	Country of origin		

Fig. 2-1: *Nameplates of regulator parts*

2.2 Location of the nameplates

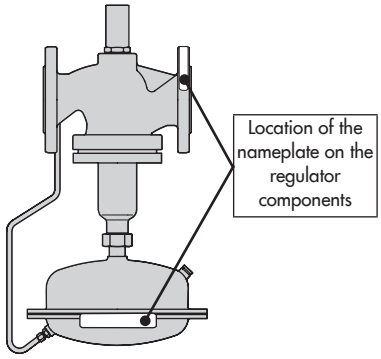


Fig. 2-2: *Nameplates of the Type 2423 Valve and the Type 2426 Diaphragm Actuator*

2.3 Material identification number

2.3.1 Type 2423 Valve

See the nameplate (11 for DIN/ANSI version, body material) for the material used. For more details on the nameplate, see Chapter 2.1.

2.3.2 Type 2426 Actuator

Specifying the material number, you can contact SAMSON to find out which material is used. It is specified on the nameplate in the 'MNo.' field (3 for DIN/ANSI). For more details on the nameplate, see Chapter 2.1.

3 Design and principle of operation

➔ See Fig. 3-1 and Fig. 3-2

Type 42-36 · The flow regulator is used to limit the flow rate in the pipeline. The set point is adjusted at the restriction.

The regulator basically consists of a Type 2423 Valve with seat, plug and set point adjuster as well as a Type 2426 Actuator (closing) with operating diaphragm.

Valve and actuator are delivered separately and must be fastened together on site using a coupling nut.

Type 42-36 DoT · This version can also control or limit the temperature by mounting a double adapter with thermostat. Read the mounting and operating instructions:

▶ EB 3019 for double adapter DoT

and

▶ EB 2231 for Type 2231 to 2234 Control Thermostats

The medium flows through the valve in the direction indicated by the arrow. The areas released by the restriction (1.4) and the valve plug (3) determine the flow rate.

In fully balanced valves, the forces acting on the valve plug created by the upstream and downstream pressures are balanced by a balancing bellows (5) or balancing diaphragm (5.1) (DN 65 to 250, balanced by a diaphragm).

Regulators balanced by a bellows or a diaphragm only differ in the pressure balancing principle applied. Valves balanced by a diaphragm have a balancing diaphragm (5.1) instead of the balancing bellows (5). The downstream pressure p_2 acts on the bottom of the diaphragm and the upstream pressure p_1 on the top of the diaphragm. As a result, the forces created by the upstream and downstream pressures acting on the plug are balanced out.

The pressure upstream of the restriction (1.4) is transferred over the control line (18) to the bottom diaphragm chamber and the pressure downstream of the restriction (1.4) is transferred through the hollow plug stem (7) past the diaphragm stem (6) to the top diaphragm chamber of the actuator. This differential pressure creates a positioning force at the operating diaphragm (12), which moves the valve plug depending on the force of the differential pressure springs (14). For example, if the flow rate increases, the differential pressure (at the restriction) increases as well. The actuator and plug stems move in the closing direction, causing the flow rate to decrease until it reaches the set point adjusted at the restriction (1.4). When the flow rate starts to drop, the described procedure is reversed.

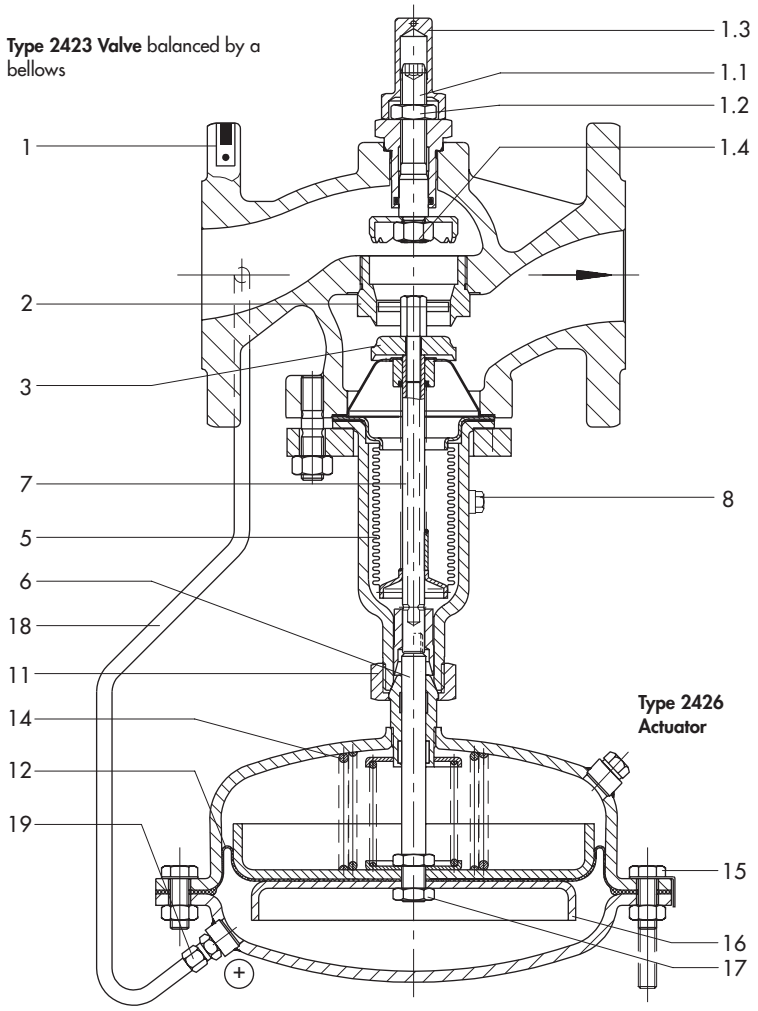


Fig. 3-1: *Functional diagram for regulators, DN 15 to 250 with balancing bellows*

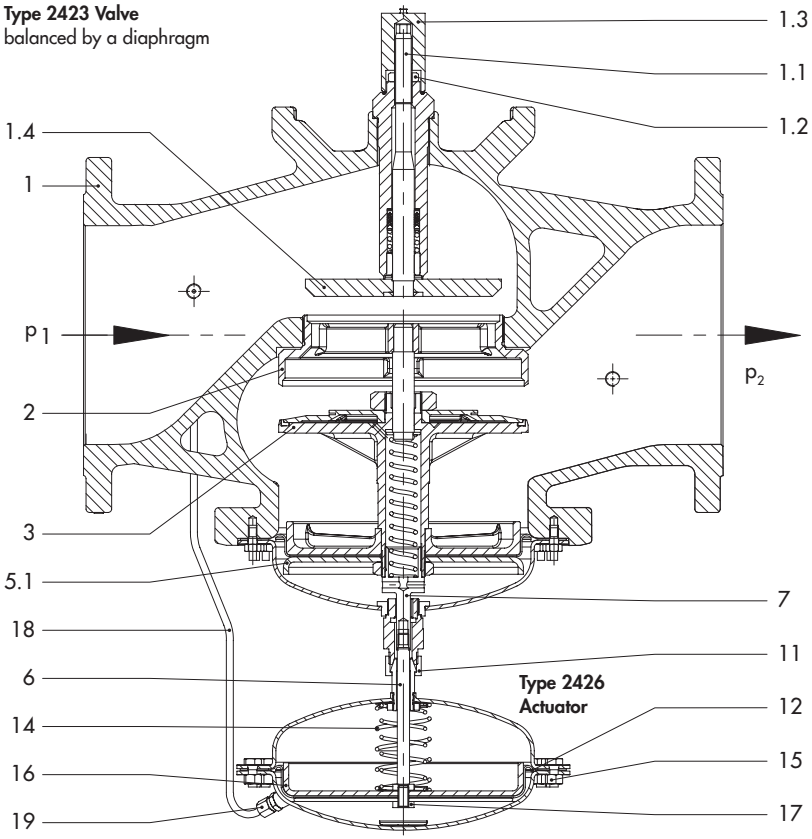


Fig. 3-2: *Functional diagram for regulators, DN 65 to 250 with balancing diaphragm*

Legend for Fig. 3-1 and Fig. 3-2							
1	Valve body	2	Seat	8	Vent plug (DN 125 and larger)	15	Screws
1.1	Set point adjuster for flow rate	3	Plug	11	Coupling nut	16	Diaphragm plate
1.2	Lock nut	5	Balancing bellows	12	Operating diaphragm	17	Nut
1.3	Cap	5.1	Balancing diaphragm	14	Differential pressure springs	18	High-pressure control line
1.4	Restriction	6	Diaphragm stem			19	Control line connection
		7	Plug stem				

3.1 Additional fittings

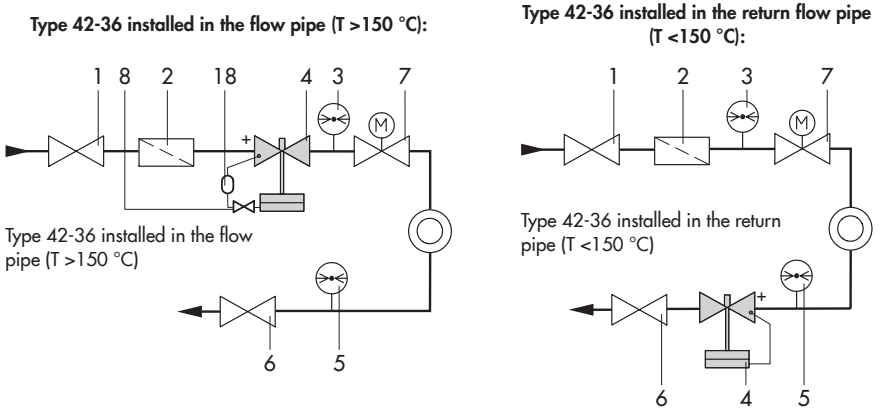
➔ See Fig. 3-3

Pressure gauges

Install a pressure gauge (3 and 5) at suitable points to monitor the pressures prevailing in the plant.

Bypass and shut-off valves

SAMSON recommends installing a shut-off valve (1 and 6) both upstream of the strainer and downstream of the regulator 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 regulator.



1	Shut-off valve	4	Flow regulator	7	Motorized valve
2	Strainer	5	Pressure gauge (return pipe)	8	Needle valve
3	Pressure gauge (flow pipe)	6	Shut-off valve	18	Compensation chamber (optional)

The minimum required plant differential pressure Δp_{min} across the valve is calculated as follows:

$$\Delta p_{min} = \Delta p_{restriction} + \left(\frac{\dot{V}}{K_{VS}} \right)^2$$

Δp_{min}	Minimum differential pressure across the valve in bar
$\Delta p_{restriction}$	Differential pressure created at the restriction for measuring the flow rate in the regulator
$\dot{V}$	Adjusted flow rate in m³/h
K_{VS}	Valve flow coefficient in m³/h

Fig. 3-3: *Installation example: Type 42-36 installed in the flow and return pipe*

Strainers

SAMSON recommends installing a SAMSON strainer (2) upstream of the valve. It prevents solid particles in the process medium from damaging the regulator.

➔ Do not use the strainer to permanently filter the process medium.

➔ Select a strainer (mesh size) suitable for the process medium.

i Note

Any impurities carried along by the process medium may impair the proper functioning of the regulator. We recommend installing a strainer (e.g. SAMSON Type 2 NI) upstream of the pressure reducing valve (▶ EB 1015).

Insulation

Regulators can be insulated to reduce heat energy transfer.
Refer to the instructions in the 'Installation' chapter.

i Note

The Type 42-36 Regulator is not a safety valve. If necessary, a suitable overpressure protection must be installed on site in the plant section.

3.2 Technical data

The valve and actuator nameplates provide information on the valve and actuator versions (see the 'Markings on the device' chapter).

i Note

More information is available in Data Sheet ▶ T 3015.

Conformity

The Type 42-36 Regulator bears the CE mark of conformity.

CE

Process medium and scope of application

The Type 42-36 Flow Regulator is designed to maintain the flow rate in a plant to the adjusted set point.

– For **liquids, gases and vapors**
– Max. temperature **150 °C/220 °C** [1)]
– Set points from **0.05 to 520 m³/h**
– Nominal size **DN 15 to 250**
– Pressure ratings from **PN 16 to 40**

The regulator is open when relieved of pressure. The valve **closes** when the flow rate **rises**.

Leakage class

The metal-seated regulator has the leakage class I according to IEC 60534-4.
The soft-seated regulator has the leakage class IV according to IEC 60534-4.

1) Valve balanced by a bellows

Temperature range

Depending on how the regulator is configured, it can be used up to temperatures of 220 °C (see Table 3-1). The minimum temperature is limited by the accessories used and the actuator's diaphragm material (▶ T 3015).

Noise emissions

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

Dimensions and weights

Table 3-4 and Table 3-5 provide an overview of the dimensions and weights. The lengths and heights in the dimensional drawings are shown on page 3-10.

Table 3-1: *Technical data · All pressures in bar (gauge)*

Type 2423 Valve · Balanced by a bellows			
Nominal size		**DN 15 to 100**	**DN 125 to 250**
Pressure rating		PN 16, 25 or 40	
Max. permissible temperature	Valve body	180 °C · Special version for steam: 220 °C	220 °C
		See also pressure-temperature diagram in ▶ T 3000	
	Actuator	With compensation chamber: steam and liquids up to 220 °C · Without compensation chamber: liquids up to 150 °C, air and nitrogen up to 150 °C [1]	
Set point (differential pressure at restriction) [2]		0.2 bar · 0.5 bar	
Leakage class according to IEC 60534-4		≤0.05 % of K_{VS} coefficient	
Conformity		CE	
Refer to Fig. 3-4 for the assignment of actuator and valve			
Type 2423 Valve · Balanced by a diaphragm			
Nominal size		**DN 65 to 250**	
Pressure rating		PN 16, 25 or 40	
Max. permissible temperature	Valve body	See pressure-temperature diagram in ▶ T 3000	
	Actuator	Liquids 150 °C, air and gases 80 °C	
Set point (differential pressure at restriction) [2]		0.2 bar · 0.5 bar	
Leakage class according to IEC 60534-4		≤0.05 % of K_{VS} coefficient	
Conformity		CE	
Refer to Fig. 3-4 for the assignment of actuator and valve			

1) Special version: valve with orifice stem seal and operating diaphragm made of FKM

2) $\Delta p_{restriction}$ in 0.3 bar possible as special version · $\Delta p_{restriction}$ in 0.1 bar only possible as special version up to DN 50

Table 3-2: *K_{VS} coefficients, x_{FZ} values, flow rate set point ranges for water and max. permissible differential pressures Δp*

Type 2423 Valve balanced by a bellows													
Nominal size DN	**15**	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**
Valve travel	10 mm						16 mm			22 mm			
K_{VS} coefficient	4	6.3	8	16	20	32	50	80	125	190	280	420	500
x_{FZ} value	0.65	0.6	0.55		0.45	0.4		0.35				0.3	
Flow rate set point ranges for water in m³/h													
Diff. press. across restriction $\Delta p_{restriction}$ 0.2 bar	0.05 to 2	0.15 to 3	0.25 to 3.5	0.4 to 7	0.6 to 11	0.9 to 16	2 to 28	3.5 to 35 [1]	6.5 to 63	11 to 80	18 to 120	20 to 180	26 to 220
Diff. press. across restriction $\Delta p_{restriction}$ 0.5 bar	0.15 to 3	0.25 to 4.5	0.4 to 5.3	0.6 to 9.5	0.9 to 16	2 to 24	3.5 to 40	6.5 to 55	11 to 90	18 to 120	20 to 180	26 to 260	30 to 300
Max. perm. differential pressure Δp	25 bar						20 bar		16 bar		12 bar	10 bar	

Type 2423 Valve balanced by a diaphragm							
Nominal size DN	**65**	**80**	**100**	**125**	**150**	**200**	**250**
K_{VS} coefficient	50	80	125	250	380	650	800
x_{FZ} value	0.4	0.35				0.3	
Flow rate set point ranges for water in m³/h							
Diff. press. across restriction $\Delta p_{restriction}$ 0.2 bar	2 to 28	3.5 to 35 [1]	6.5 to 63	11 to 120	18 to 180	20 to 320	26 to 350
Diff. press. across restriction $\Delta p_{restriction}$ 0.5 bar	3.5 to 40	6.5 to 55	11 to 90	18 to 180	20 to 260	26 to 450	30 to 520
Max. perm. differential pressure Δp	12 bar		10 bar	12 bar		10 bar	

[1] 7 to 35 m³/h (160 cm² actuator), 7 to 40 m³/h (320 cm² actuator)

Table 3-3: *Materials · Material numbers according to DIN EN*

Type 2423 Valve · Balanced by a bellows						
Pressure rating		**PN 16**	**PN 25**	**PN 16, 25 and 40**		
Valve body		Cast iron EN-GJL-250	Spheroidal graphite iron EN-GJS-400-18-LT	Cast steel 1.0619	Cast stainless steel 1.4408	Forged stainless steel 1.4404 [1]
Seat		1.4104, 1.4006			1.4404	
Plug	Up to DN 100	1.4104, 1.4006			1.4404	
	DN 125 to 250	1.4301, 1.4404 with PTFE seal				
Plug stem		1.4301				
Metal bellows		1.4571 · DN 125 and larger: 1.4404				
Bottom section		P265GH			1.4571	
Body gasket		Graphite on metal core				
Type 2423 · Balanced by a diaphragm						
Pressure rating		**PN 16**	**PN 25**	**PN 16, 25 and 40**		
Valve body		Cast iron EN-GJL-250	Spheroidal graphite iron EN-GJS-400-18-LT	Cast steel 1.0619	Cast stainless steel 1.4408	–
Valve seat		Red brass [3] [4]				
Plug (standard version)		Red brass [3] [5] · With EPDM soft seal, max. 150 °C or with PTFE soft seal, max. 150 °C				
Pressure balancing		Balancing cases made of 1.0332 · EPDM balancing diaphragm, max. 150 °C or NBR diaphragm, max. 80 °C				
Type 2426 Actuator						
Diaphragm cases		1.0332			1.4301	
Diaphragm		EPDM with fabric reinforcement · Special version for mineral oils: FKM				
Max. perm. temperature at the diaphragm		Air and gases 80 °C; liquids 120 °C · 150 °C [6]				
Guide bushing		DU bushing			PTFE	
Seals		EPDM/PTFE [2]				

1) DN 15, 25, 40 and 50 only
2) Special version for mineral oils: FKM
3) Special version 1.4409
4) DN 65 to 100: 1.4006
5) DN 65 to 80: 1.4104, DN 100: 1.4006, with metal seal
6) Only with the actuator in the suspended position (see section 'Installation conditions' in the 'Installation' chapter).

Table 3-4: *Dimensions in mm and weights · Type 2423 Valve balanced by a bellows*

Nominal size DN		**15**	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**
Length L		130	150	160	180	200	230	290	310	350	400	480	600	730
Height H1		225						300		355	460	590	730	
Height H2 [1]	Forged steel	113	–	130	–	170	176	–						
	Other materials	115			150			175	180	200	250	280	400	
Height H [5] [6]		390						465		520	625	765	895	
Actuator		(ØD = 225 mm, A = 160 cm²) [2]									(ØD = 285 mm, A = 320 cm²) [3]			
Weight for PN 16 [4] in kg (approx.)		12	12.5	13.5	20	20.5	23	39	44	59	121	171	425	485

1) Version with V-ring packing in DN 15 to 100: +60 mm.
2) Optionally with 320 cm² actuator (DN 65 to 100). For regulators with double adapter Do2 (▶ T 3019) for DN 65 to 100, actuator 320 cm² recommended.
3) Optionally with 640 cm² actuator
4) Valve in PN 25/40: +10 %
5) Minimum clearance required to remove the actuator: +100 mm
6) Actuator with two diaphragms: Height H +55 mm

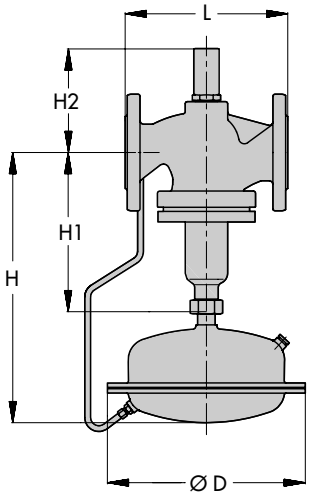
Table 3-5: *Dimensions in mm and weights · Type 2423 Valve balanced by a diaphragm*

Nominal size DN	**65**	**80**	**100**	**125**	**150**	**200**	**250**
Length L	290	310	350	400	480	600	730
Height H [2] [3]	355		380	450	475	585	
Height H2	195		220	295	325	345	375
Weight for PN 16 [1] in kg (approx.)							
Type 2423 Valve	34	39	56	65	85	250	270
Type 2426 Actuator	9			21		42	

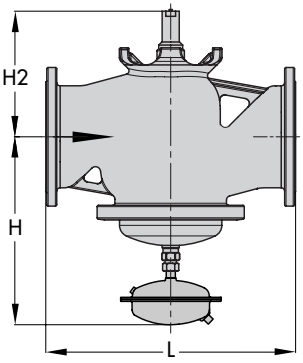
1) PN 25/40: +10 %
2) Minimum clearance required to remove the actuator: +100 mm
3) Actuator with two diaphragms: Height H +55 mm

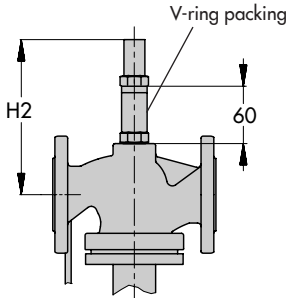
Dimensional drawings

Type 2423 Valve balanced by a bellows

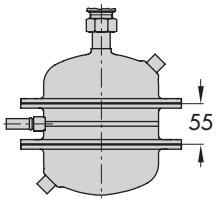


Type 2423 Valve, balanced by a diaphragm





Actuator with two diaphragms



For the version with a V-ring packing (e.g. for steam) in DN 15 to 100, add 60 mm to the specified dimension for H2.

Fig. 3-4: *Dimensions*

4 Shipment and on-site transport

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

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

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

4.2 Removing the packaging from the regulator

The components (valve, actuator and, if applicable, control line) of the regulator are delivered separately. A tested regulator is delivered as an assembled unit.

Proceed as follows to lift and install the valve:

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

➔ Leave the regulator components in its transport container or on the pallet to transport it on site.

➔ Do not remove the protective caps from the inlet and outlet until immediately before installing the valve into the pipeline. They prevent foreign particles from entering the valve.

➔ Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting and lifting the regulator

⚠ DANGER

Danger due to suspended loads falling.

➔ *Stay clear of suspended or moving loads.*

➔ *Close off and secure the transport paths.*

⚠ WARNING

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

Lifting the regulator without the use of lifting equipment may lead to injuries (back injuries in particular) depending on the weight of the regulator and/or actuator.

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

➔ *Observe the guideline weight for manual handling: 15 to max. 55 kg taking into account age, gender and physical fitness*

➔ *When the actuator is filled with medium, take the weight of the medium also into account.*

➔ *Refer to the 'Design and principle of operation' chapter for the weights of the regulator and actuator.*

⚠ WARNING

Risk of personal injury due to the regulator tipping.

➔ *Observe the regulator's center of gravity.*

➔ *Secure the regulator against tipping over or turning.*

⚠ WARNING

Risk of lifting equipment tipping over and risk of damage to lifting accessories due to exceeding the rated lifting capacity.

➔ *Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator and packaging, if applicable).*

➔ *Refer to the 'Design and principle of operation' chapter for the weights.*

Tip

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

4.3.1 Transporting the regulator

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

➔ Leave the regulator in its transport container or on the pallet to transport it.

➔ Observe the transport instructions.

Transport instructions

➔ Protect the regulator against external influences (e.g. impact).

➔ Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

➔ Protect the regulator against moisture and dirt.

➔ Protect the piping and any mounted valve accessories against damage.

➔ The permissible ambient temperature of standard regulators is –20 to +80 °C.

4.3.2 Lifting the regulator

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

Lifting instructions

➔ Use a hook with safety latch to secure the slings from slipping off the hook during lifting and transporting (see Fig. 4-1).

➔ Secure slings against slipping.

➔ Make sure the slings can be removed from the device once it has been installed into the pipeline.

➔ Prevent the regulator 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

1. Attach one sling to the body flange and one sling to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-1).
2. Carefully lift the regulator. Check whether the lifting equipment and accessories can bear the weight.
3. Move the regulator at an even pace to the site of installation.
4. Install the regulator into the pipeline (see the 'Installation' chapter).
5. After installation in the pipeline, check whether the regulator flanges are bolted tight.
6. Remove slings.

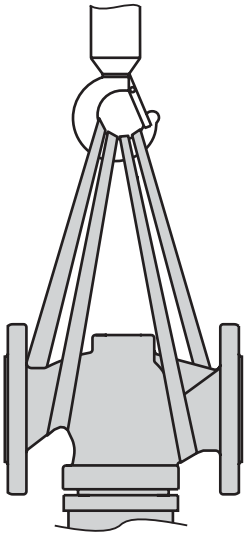


Fig. 4-1: *Schematic drawing of lifting points on the regulator*

4.4 Storing the regulator

NOTICE

Risk of regulator damage due to improper storage.

➔ *Observe the storage instructions.*

➔ *Avoid longer storage periods.*

➔ *Contact SAMSON in case of different storage conditions or longer storage times.*

Note

SAMSON recommends to regularly check the regulator and the prevailing storage conditions during long storage periods.

Storage instructions

➔ Protect the regulator against external influences (e.g. impact).

➔ Secure the regulator in the stored position against slipping or tipping over.

➔ Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

➔ Protect the regulator 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 regulators is –20 to +65 °C.

➔ Do not place any objects on the regulator.

Special storage instructions for elastomers

Elastomer, e.g. operating diaphragm

➔ To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.

➔ Store elastomers away from lubricants, chemicals, solutions and fuels.

– SAMSON recommends a storage temperature of 15 °C for elastomers.

Tip

Our after-sales service can provide more detailed storage instructions on request.

5 Installation

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

5.1 Installation conditions

Work position

The work position for the regulator is the front view onto all operating controls on the regulator (including any additional fittings) seen from the position of operating personnel.

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

Pipeline routing

The inlet and outlet lengths vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.

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

➔ Observe the inlet and outlet lengths (see Table 5-1). Contact SAMSON if the regulator conditions or state of the process medium are different from those specified.

➔ Install the regulator free of stress and with the least amount of vibrations as possible. Read sections "Mounting position" and "Support or suspension" in this chapter.

➔ For media with a tendency to condensate, an automatic drainage must be installed. Install the pipeline with a slight downward slope on both sides of the regulator to prevent condensate from collecting in the valve.

➔ Install the regulator allowing sufficient space to remove the actuator and valve or to perform service work on them.

Mounting position

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

➔ Standard mounting position: install the actuator housing suspended downward in horizontal pipelines (see Fig. 5-1).

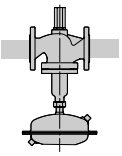
➔ Make sure the direction of flow matches the direction indicated by the arrow on the body.

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

NOTICE

Damage due to freezing.

Protect the regulator from icing up when controlling media that can freeze. Unless the regulator is installed in locations where no frost occurs, remove the regulator from the pipeline when the plant is shut down.

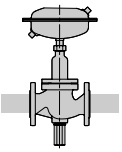


Standard mounting position, suspended

Balanced by a bellows or diaphragm
All versions
– Air and gases up to 80 °C
– Liquids up to 150 °C

Balanced by a bellows
– All media above 80 °C
– Steam applications

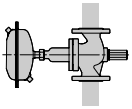
Alternative mounting position, actuator on top



Balanced by a diaphragm · DN 65 and 80
– Air and gases up to 80 °C
– Liquids up to 120 °C

Balanced by a bellows · DN 15 to 80
All versions plus:
– Air and gases up to 80 °C
– Liquids up to 120 °C

Alternative mounting position in riser pipes · Balanced by a bellows



Version with fixed plug guide plus:
– Air and gases up to 80 °C
– Liquids up to 120 °C

Fig. 5-1: *Mounting position*

Support or suspension

Note

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

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

NOTICE

Risk of regulator damage due to incorrect support.

➔ *Do not attach supports to the valve, to moving parts on the actuator or to the control lines.*

➔ *Contact SAMSON if the mounting position differs from the standard mounting position.*

Control line kit

After the actuator has been mounted, attach the supplied high-pressure control line to the regulator (see the 'Design and principle of operation' chapter).

A control line kit for tapping pressure at the valve body is available as an accessory part from SAMSON (▶ T 3095).

Tip

Needle valves, compensation chambers and compression-type screw fittings can be supplied as required. These accessories are listed in ▶ T 3095.

Compensation chamber

A compensation chamber (18) is required for liquids above 150 °C as well as for steam. Install the compensation chamber at the highest point of the pipeline. The mounting position of the compensation chamber is indicated by an adhesive label on the cham-

ber itself as well as by an arrow and the word "top" stamped on the top of the chamber.

This mounting position must be adhered to; otherwise the safe functioning of the regulator cannot be guaranteed.

Needle valve

If the regulator tends to hunt, we recommend installing a needle valve in the control line in addition to the standard SAMSON screw joint with restriction.

5.2 Preparation for installation

The valve and actuator of regulators that have not yet been assembled or have been tested beforehand can be assembled before or after the valve has been installed in the pipeline. SAMSON recommends first installing the valve without the actuator into the pipeline.

Before installation, make sure that the following conditions are met:

- The valve is clean.
- The valve, actuator and all piping are not damaged.
- Install a strainer upstream of the regulator.
- The valve data on the nameplate (type designation, nominal size, material, pressure rating and temperature range) match the plant conditions (nominal size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' chapter for nameplate details.
- The requested or required additional fittings (see the 'Design and principle of operation' chapter) have been installed or prepared as necessary before installing the valve.

Proceed as follows:

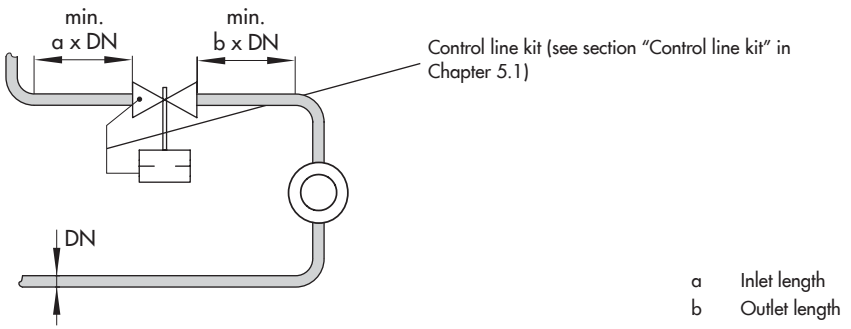
➔ Lay out the necessary material and tools to have them ready during installation work.

➔ Flush the pipeline **before** installing the regulator.
The plant operator is responsible for cleaning the pipelines in the plant.

➔ For steam applications, dry the pipelines. Moisture will damage the inside of the regulator.

➔ Check any mounted pressure gauges to make sure they function properly.

Table 5-1: *Inlet and outlet lengths*



State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	Ma ≤ 0.3	2	4
Vapors [1]	Ma ≤ 0.3	2	4
Liquid	Free of cavitation/w < 3 m/s	2	4
	Cavitation producing noise/w ≤ 3 m/s	2	4

[1] No wet steam

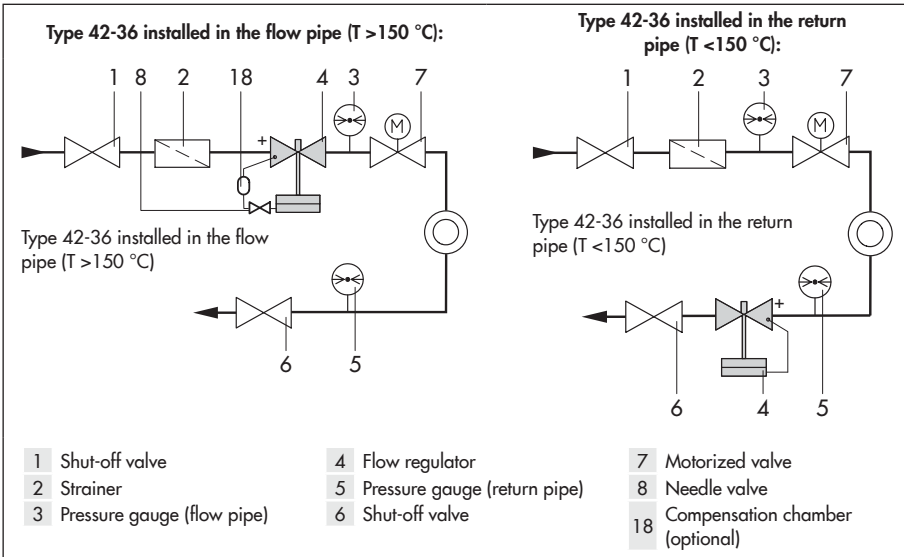


Fig. 5-2: *Installation example: Type 42-36 installed in the flow and return pipe*

5.3 Installation

Tested SAMSON regulators are delivered as an assembled unit. In all other cases, the separate components (valve, actuator, control line and accessories) of the regulator are delivered separately. Upon delivery, the separate components must be assembled together. The activities listed below are necessary for installation and before start-up of the regulator.

⚠ DANGER

Danger due to suspended loads falling.

➔ *Stay clear of suspended or moving loads.*

➔ *Close off and secure the transport paths.*

⚠ WARNING

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

Lifting the regulator without the use of lifting equipment may lead to injuries (back injuries in particular) depending on the weight of the regulator and/or actuator.

➔ *Observe the guideline weight for manual handling: 15 to max. 55 kg per person taking into account age, gender and physical fitness.*

➔ *When the actuator is filled with medium, take the weight of the medium also into account.*

➔ *Refer to the 'Design and principle of operation' chapter for the weights of the regulator and actuator.*

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

⚠ WARNING

Risk of lifting equipment tipping over and risk of damage to lifting accessories due to exceeding the rated lifting capacity.

➔ *Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator and packaging, if applicable).*

➔ *Refer to the 'Design and principle of operation' chapter for the weights.*

⚠ WARNING

Risk of personal injury due to the regulator tipping.

➔ *Observe the regulator's center of gravity.*

➔ *Secure the regulator against tipping over or turning.*

❗ NOTICE

Risk of regulator damage due to the use of unsuitable tools.

➔ *Only use tools approved by SAMSON (see the 'Tools' chapter in the Appendix).*

NOTICE

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

➔ *Only use lubricants approved by SAMSON (see the 'Lubricants' chapter in the Appendix).*

NOTICE

Risk of regulator damage due to over- or under-torquing.

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

➔ *Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).*

5.3.1 Installing the regulator

Note

Before installing the regulator, tighten the blanking plug(s) at the side of the valve body using a suitable box wrench.
Tightening torque:
50 Nm (G ¼), 70 Nm (G ⅜).

The regulator can be installed into the downstream pressure pipe (return pipe) or the upstream pressure pipe (flow pipe) of the plant. See installation examples in Fig. 5-2.

1. Close the shut-off valves (1, 6) upstream and downstream of the regulator while the regulator is being installed.
2. Remove the protective caps from the valve ports before installing the valve.

➔ **Procedure for ready-assembled device**

3. Lift the regulator using suitable lifting equipment to the site of installation. 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.

➔ **Procedure for regulator delivered as separate components**

1. Lift the valve using suitable lifting equipment to the site of installation. Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
2. Make sure that the correct flange gaskets are used.
3. Bolt the pipe to the valve free of stress.
4. Mount the actuator.

– Fasten the actuator on the valve by tightening the coupling nut (11). Observe the alignment of the control line connection. Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).

5. Mount the control line.

– Mount the control line onto the valve and actuator. Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
– For **steam** or **liquids above 150 °C** install the compensation chamber and fill it with the process medium. Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).

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

5.4 Testing the regulator

⚠ DANGER

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

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

Before working on the regulator:

➔ *Depressurize all plant sections concerned and the regulator.*

➔ *Disconnect the control line.*

➔ *Drain the process medium from the plant sections affected as well as from the valve.*

⚠ WARNING

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

Incorrect opening of pressure equipment or mounting parts may lead to the process medium escaping to the atmosphere.

➔ *Do not unscrew the control line while the valve is pressurized.*

➔ *Do not start up the regulator until all parts have been mounted.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the regulator.*

⚠ WARNING

Risk of burn injuries due to hot or very 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.*

The regulator components are delivered by SAMSON ready for use. To test the regulator functioning before start-up or putting back the regulator into operation, perform the following tests:

5.4.1 Leakage

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

Tip

SAMSON's After-sales Service can support you to plan and perform a leak test for your plant.

➔ All required control lines are connected to the actuator and are not shut off.

1. Install the regulator into the pipeline (see the 'Installation' chapter).
2. Apply the required test pressure.
3. Check the regulator for leakage to the atmosphere.
4. Depressurize the pipeline section and valve.
5. Rework any parts that leak and repeat the leak test.

5.4.2 Pressure test

⚠ WARNING

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

Incorrect opening of pressure equipment or mounting parts may lead to the process medium escaping to the atmosphere.

➔ *Do not unscrew the control line while the valve is pressurized.*

➔ *Do not start up the regulator until all parts have been mounted.*

Note

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

NOTICE

Risk of valve damage due to a sudden pressure increase.

– Slowly open the shut-off valves.

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

Pressure test with mounted diaphragm actuator

➔ All required control lines are connected to the actuator and are not shut off.

➔ Do not allow the pressure to exceed the 1.5 times the pressure rating of the valve body.

➔ Do not apply a pressure higher than the maximum specified pressure rating or maximum operating pressure to the actuator (see section 'Technical data' in the 'Design and principle of operation' chapter).

➔ Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the balancing bellows or the balancing diaphragm.

If the **test pressure** of the valve is **higher** than the specified maximum permissible operating pressure of the diaphragm actuator, the pressure test is always performed **without** a mounted diaphragm actuator.

Pressure test without mounted diaphragm actuator

➔ Depressurize the plant and remove the control line. Close any control line connection in the plant by closing the installed shut-off valve or inserting a blanking plug.

➔ Seal the body connections with blanking plugs.

If the valve is not sealed off, the test medium escapes at the connection where the actuator is connected to the valve. It is not possible to perform a pressure test on the valve in this case (see Fig. 5-3).

➔ Seal off the valve using a coupling nut (0250-1037) with seal (0340-1962).

Fig. 5-3: *Medium escaping when an actuator is not mounted on the valve*

5.4.3 Filling the plant

Open the shut-off valves slowly over a time period of several minutes preferably starting from the upstream pressure side to fill the plant (all consumers and control lines are open).

➔ Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the balancing bellows or the balancing diaphragm.

NOTICE

Risk of regulator damage due to steam hammering.

Steam hammering is possible when the process medium is a liquid with a boiling point at atmospheric pressure.

➔ *Open the shut-off valves slowly preferably starting from the downstream side to fill the plant over a time period of several minutes.*

5.4.4 Cleaning the pipeline

We recommend additionally flushing the pipeline with installed regulator over a time period of several minutes before start-up.

➔ All required control lines are connected and not shut off.

➔ Before flushing the plant with the process medium, read the section 'Starting up the plant' in the 'Start-up' chapter.

➔ A lower set point is adjusted at the controller and all consumers are open to guarantee a high flow rate.

➔ Observe the mesh size of the upstream strainer for the maximum particle size. Use strainers to suit the process medium.

➔ Check the strainer for dirt each time the pipeline is flushed and clean it, if necessary.

If the regulator malfunctions due to clogging after flushing the pipeline, proceed as described in the 'Troubleshooting' chapter.

5.5 Insulation

To insulate cold systems, SAMSON recommends first filling the plant and carefully rinsing it. The regulator must not yet be insulated at this stage.

1. Start up the plant and adjust the set point (see the 'Start-up' chapter).
2. Shut down the plant again and let it heat up until the condensation water has dried off.
3. Insulate the regulator and pipes conveying the process medium using insulation material with a water vapor barrier. If a control line is to be routed through the insulation, special care must be taken with the sealing since slight changes in shape may occur. The insulation thickness depends on the medium temperature and the ambient conditions. 50 mm is a typical thickness.

! *NOTICE*

Risk of regulator damage due to incorrect insulation.

➔ *The actuator must be insulated for medium temperatures below 0 °C.*

➔ *The regulator must only be insulated up to the bottom section with balancing bellows or up to the connection of the actuator for medium temperatures above 80 °C.*

6 Start-up

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

⚠ WARNING

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

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

➔ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

➔ *Do not unscrew the control line while the valve is pressurized.*

➔ *Do not start up the regulator until all parts have been mounted.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

⚠ DANGER

Risk of personal injury due to process medium escaping.

➔ *Do not start up the regulator until all parts have been mounted.*

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

– The regulator is properly installed in the pipeline (see the 'Installation' chapter).

– The leak and function tests have been completed successfully (see section 'Testing the regulator' in the 'Installation' chapter).

– The prevailing conditions in the plant section concerned meet the regulator sizing requirements (see section 'Intended use' in the 'Safety instructions and measures' chapter).

6.1 Start-up and putting the device back into operation

1. Depending on the field of application, allow the regulator to cool down or warm up to reach ambient temperature before start up.
2. Open the shut-off valves slowly over a time period of several minutes. Slowly opening these valves prevents a sudden surge in pressure which may damage the regulator parts.
3. Check the regulator to ensure it functions properly (see section 'Adjusting the flow rate in the 'Operation' chapter).

Before starting up the plant, make sure the following conditions are met:

– The control line is connected correctly.

6.2 Starting up the plant

⚠ WARNING

Risk of personal injury due to process medium escaping.

Depending on the conditions in the plant in operation, it may be necessary to install compensation chambers to protect the regulator.

➔ *Proceed as described in Chapter 6.2.1 and Chapter 6.2.2 for liquids or steam above 150 °C before starting up the plant.*

1. The plant (e.g. consumer valve) must be open while the plant is being filled.
2. The control lines are correctly connected.
3. **For media that do not reach their boiling point:**
   Open the shut-off valves **slowly** over a time period of several minutes starting from the upstream pressure side. Fill the plant with the medium.

   For media that reach their boiling point:
   Open the shut-off valves **slowly** starting from the downstream side to avoid steam hammering.
4. Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the balancing bellows.

i Note

On filling the plant, make sure the restriction (1.4) is open by turning the adjustment screw counterclockwise (↺) as far as it will go.

i Note

Vent the bellows housing of valves balanced by a bellows (DN 125 and larger) at the stopper (8) located at the side.

6.2.1 Control applications with liquids

➔ For liquid medium temperatures above 150 °C, first fill the compensation chamber with the process medium. Proceed as follows:

1. Unscrew filler plug from the compensation chamber.
2. Use the included plastic funnel or a jug to pour in the process medium until it starts to overflow.
3. Screw the filler plug back in and tighten it.

6.2.2 Control applications with steam

➔ Warm up the plant very slowly. During this procedure, drain off any condensate and vent the plant.

➔ First fill the compensation chamber with water. Proceed as follows:

1. Unscrew filler plug from the compensation chamber.
2. Use the included plastic funnel or a jug to pour in water until it starts to overflow.
3. Screw the filler plug back in and tighten it.

– All pipes conveying the process medium must be completely drained and dry.

– Air and condensate must be allowed to escape from the plant.

– Allow time for the pipes and valves to heat up.

7 Operation

Immediately after completing start-up or placing the regulator back into service (see the 'Start-up' chapter), the regulator is ready for use.

⚠ WARNING

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

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

➔ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

➔ *Do not unscrew the control line while the valve is pressurized.*

➔ *Do not start up the regulator until all parts have been mounted.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

7.1 Adjusting the set point

➔ The control and shut-off valves as well as all consumers or a bypass valve (if installed) must be open to ensure that the maximum flow rate is reached.

➔ Set the required flow rate by adjusting the restriction (1.4), while watching, for example the reading of a flow rate measuring unit at the heat meter (see Table 7-1).

i *Note*

Adjustment is always based on the closed restriction.

– Turning it clockwise (↻) closes the restriction; the flow rate drops.

– Turning it counterclockwise (↺) opens the restriction; the flow rate rises.

To adjust the flow rate, use the adjustment diagrams for water (Fig. 7-1 to Fig. 7-8).

i *Note*

Observe the differential pressure across the restriction $\Delta p_{restriction}$ of 0.2 bar or 0.5 bar. It is determined by the differential pressure springs (14) installed in the actuator (see the 'Markings on the device' chapter).

7.2 Adjusting the flow rate

1. Unscrew the cap (1.3).
2. Undo lock nut (1.2). Turn restriction screw clockwise as far as it will go.
3. Find the flow rate set point in the diagram and determine the associated number of turns.
4. Based on a closed restriction, turn the restriction screw counterclockwise (↺) to adjust this value. Wait until the plant has settled. If necessary, readjust.
5. Check the flow rate at the heat meter and correct it, if necessary.
6. Lock the restriction screw in place with the nut (1.2) and screw the cap (1.3) back on after the required flow rate is reached.
7. Close a possibly open bypass valve again.
8. Lead-seal the setting, if necessary.

Table 7-1: *Flow rate set point ranges for water*

Type 2423 · Balanced by a bellows

Nominal size DN		**15**	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**
Flow rate set point ranges for water in m³/h														
Differential pressure across the restriction $\Delta p_{restriction}$	0.2 bar	0.05 to 2	0.15 to 3	0.25 to 3.5	0.4 to 7	0.6 to 11	0.9 to 16	2 to 28	3.5 to 35 [1]	6.5 to 63	11 to 80	18 to 120	20 to 180	26 to 220
	0.5 bar	0.15 to 3	0.25 to 4.5	0.4 to 5.3	0.6 to 9.5	0.9 to 16	2 to 24	3.5 to 40	6.5 to 55	11 to 90	18 to 120	20 to 180	26 to 260	30 to 300
Max. perm. differential pressure Δp		25 bar						20 bar		16 bar		12 bar	10 bar	

Type 2423 · Balanced by a diaphragm

Nominal size DN		**65**	**80**	**100**	**125**	**150**	**200**	**250**
Flow rate set point ranges for water in m³/h								
Differential pressure across the restriction $\Delta p_{restriction}$	0.2 bar	2 to 28	3.5 to 35 [1]	6.5 to 63	11 to 120	18 to 180	20 to 320	26 to 350
	0.5 bar	3.5 to 40	6.5 to 55	11 to 90	18 to 180	20 to 260	26 to 450	30 to 520
Max. perm. differential pressure Δp		10 bar			12 bar		10 bar	

[1] 7 to 35 m³/h (160 cm² actuator), 7 to 40 m³/h (320 cm² actuator)

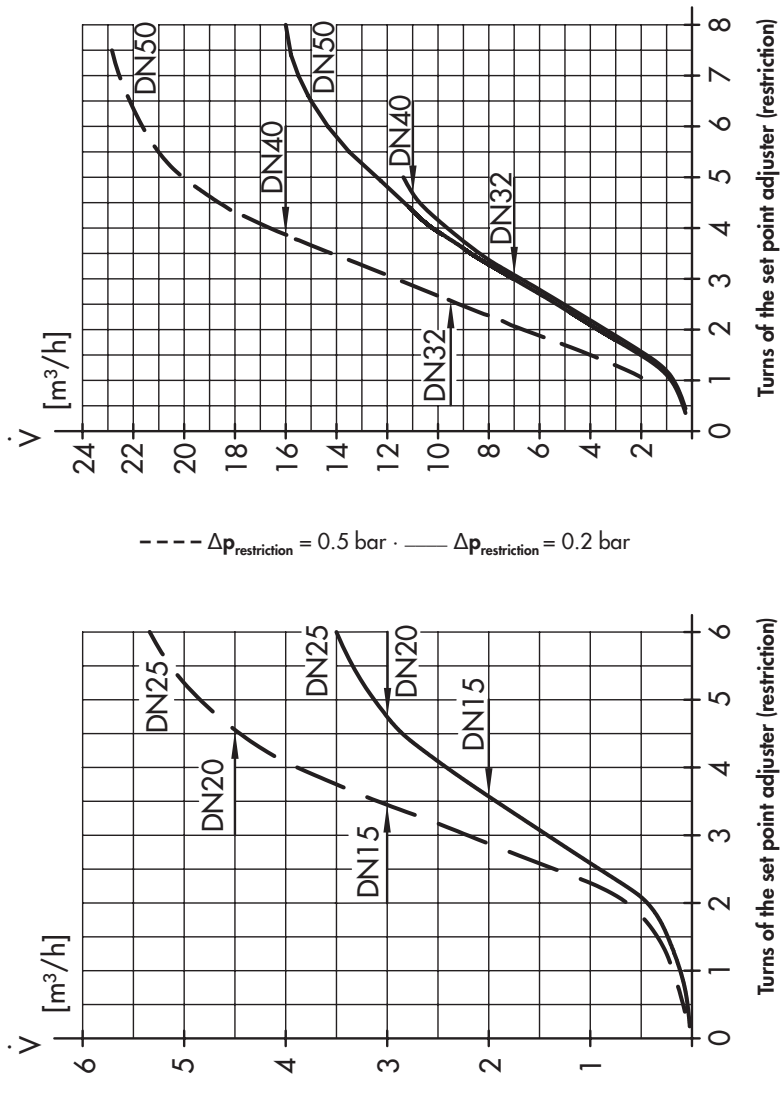


Fig. 7-1: *Adjustment diagram for Type 2423, balanced by a bellows, DN 15 to 50*

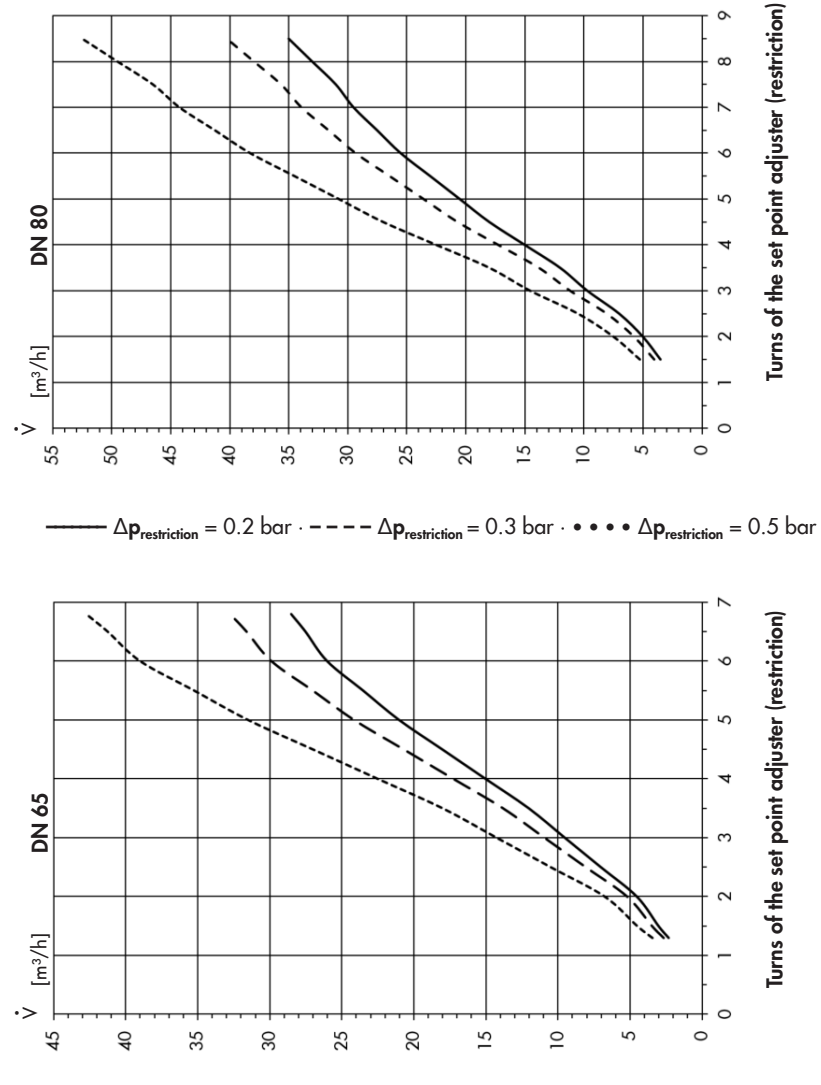


Fig. 7-2: *Adjustment diagram for Type 2423, balanced by a bellows, DN 65 and 80*

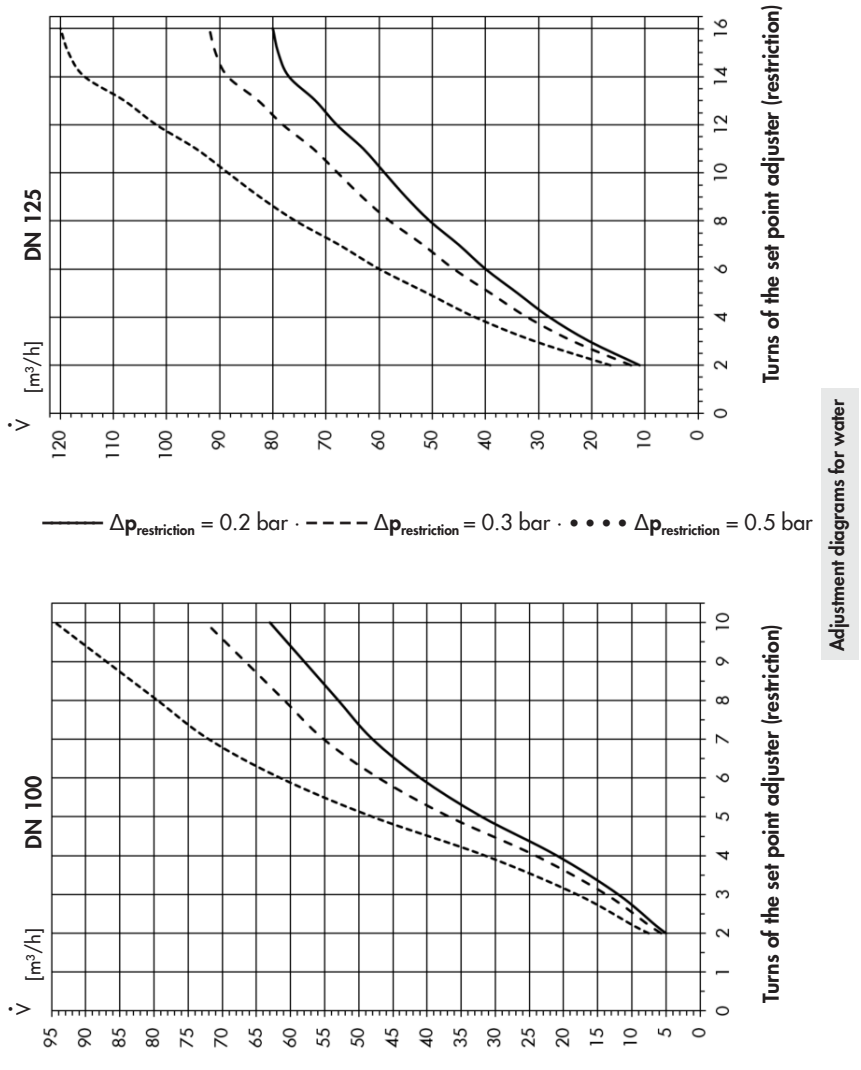


Fig. 7-3: *Adjustment diagram for Type 2423, balanced by a bellows, DN 100 and 125*

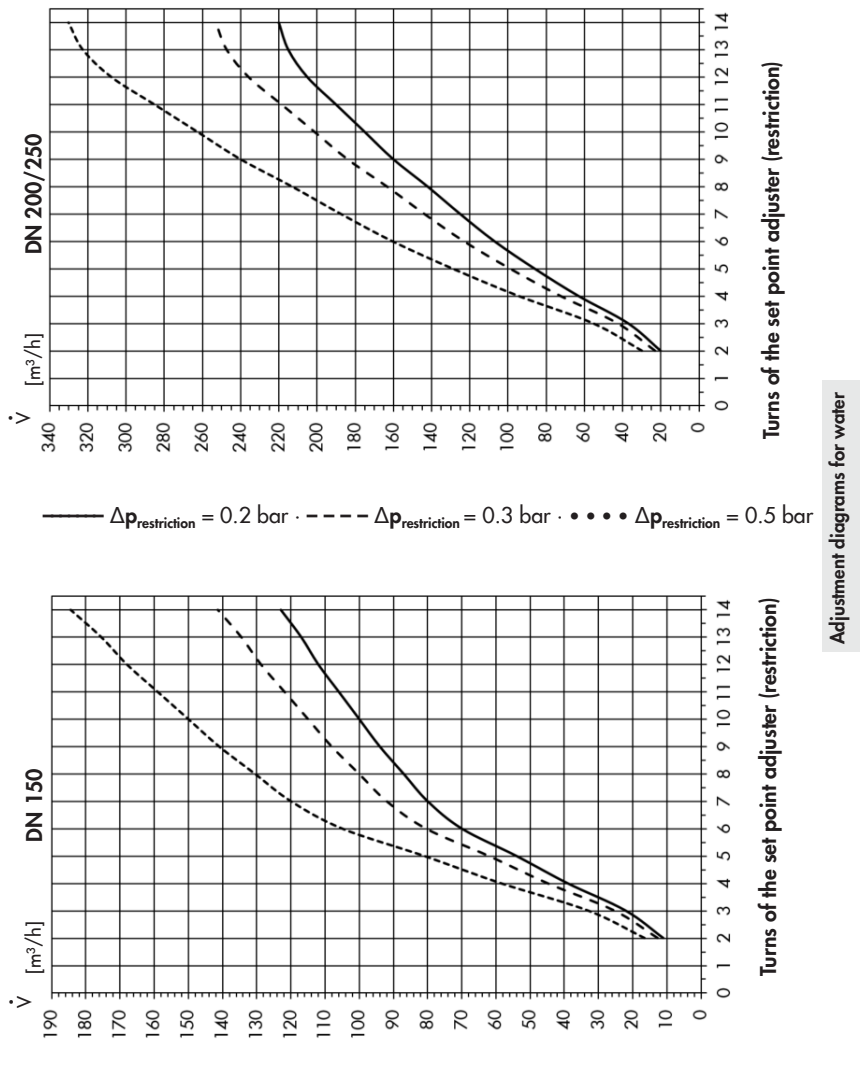


Fig. 7-4: *Adjustment diagram for Type 2423, balanced by a bellows, DN 150 to 250*

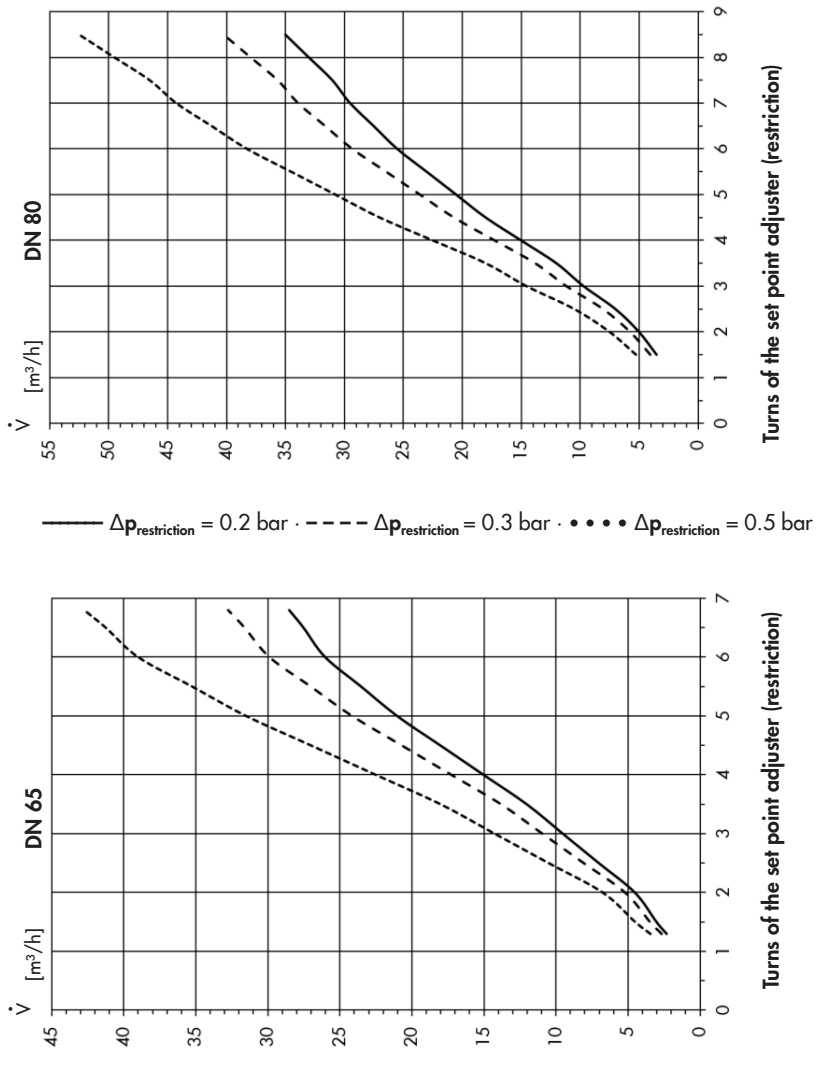


Fig. 7-5: *Adjustment diagram for Type 2423, balanced by a diaphragm, DN 65 to 80*

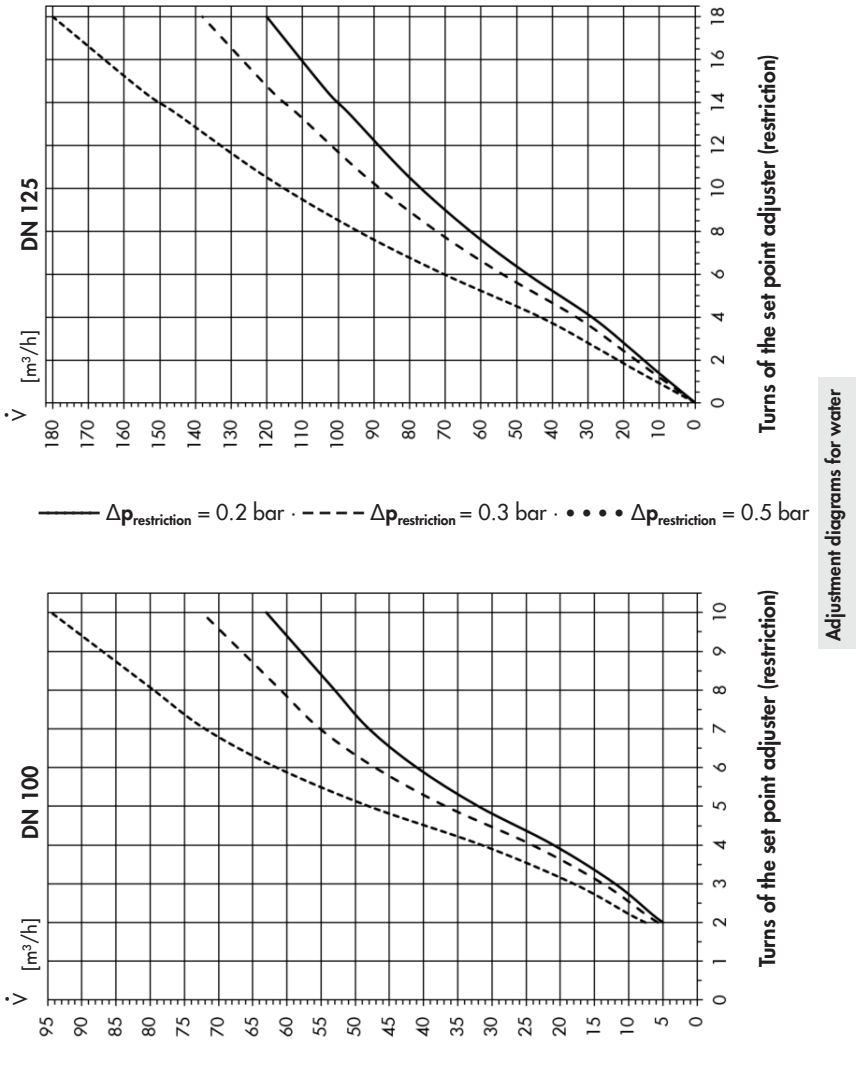


Fig. 7-6: *Adjustment diagram for Type 2423, balanced by a diaphragm, DN 100 to 125*

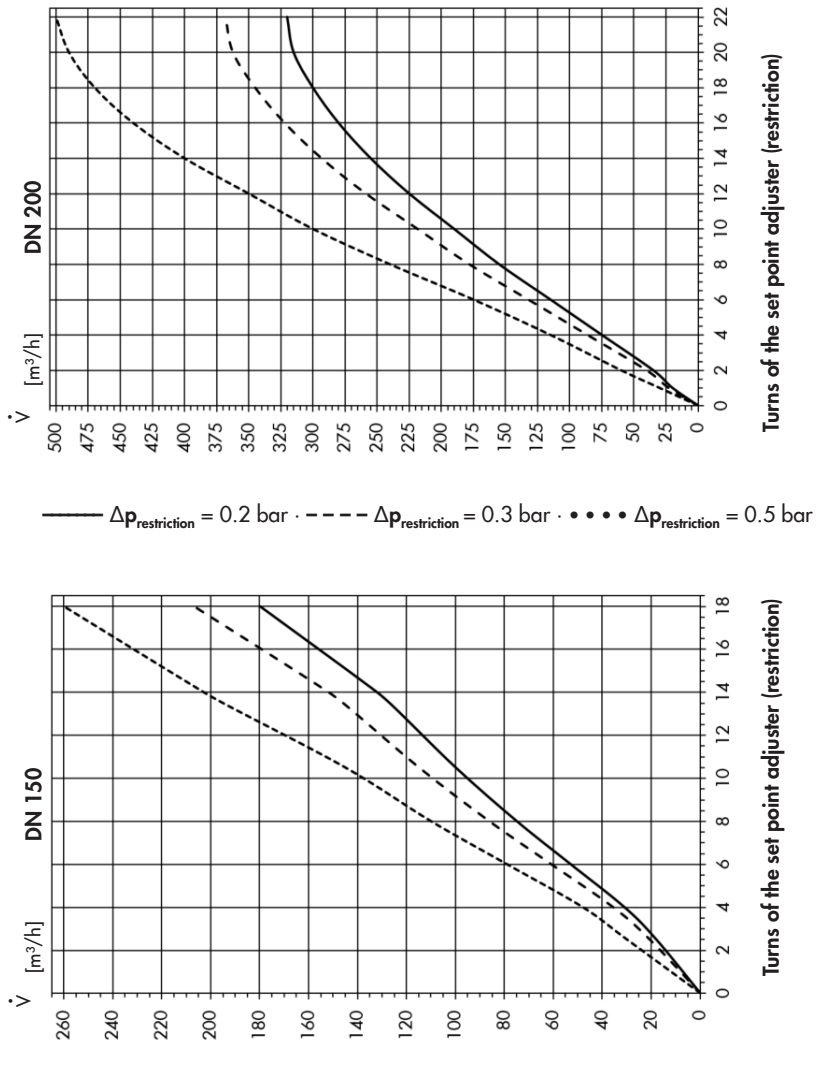


Fig. 7-7: *Adjustment diagram for Type 2423, balanced by a diaphragm, DN 150 to 200*

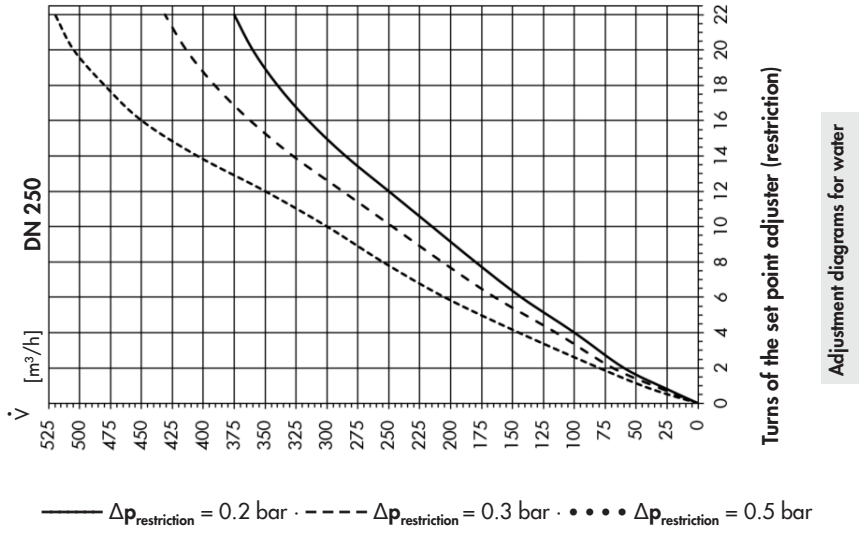


Fig. 7-8: *Adjustment diagram for Type 2423, balanced by a diaphragm, DN 250*

8 Malfunctions

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Flow rate exceeds adjusted set point.	Insufficient pressure pulses on the operating diaphragm	➔ Clean the control line and screw fittings.
	Foreign particles blocking the plug	➔ Remove foreign particles. ➔ Replace damaged parts. ➔ Contact SAMSON's After-sales Service.
	Seat and plug are worn or leak.	➔ Replace the damaged seat and plug. ➔ Contact SAMSON's After-sales Service.
	Valve too large for control task (flow rate) or too small (differential pressure)	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	Defective operating diaphragm	➔ Replace damaged diaphragm.
Flow set point not reached.	Regulator installed against the flow	➔ Install the regulator so that the direction of flow matches the direction indicated by the arrow on the body.
	Regulator or K_{VS}/C_V coefficient too small	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	Incorrect set point range selected	➔ Check set point range ➔ Contact SAMSON's After-sales Service.
	Safety device, e.g. pressure limiter, has been triggered	➔ Check plant. If necessary, unlock safety device.
	Plant differential pressure Δp too low	➔ Compare differential pressure in the plant with the plant's drag. Differential pressure across the plant: $\Delta p_{min} = \Delta p_{restriction} + (\dot{V}/K_{VS})^2$
	Foreign particles blocking the plug	➔ Remove foreign particles. ➔ Replace damaged parts. ➔ Contact SAMSON's After-sales Service.
	Control line blocked	➔ Clean the control line and screw fittings.
	Strainer blocked	➔ Clean the strainer.

Malfunction	Possible reasons	Recommended action
Flow rate fluctuates	Regulator or K_{VS}/C_V coefficient too large	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	The restriction in the control line for pressure tapping is too large or missing.	➔ Install a restriction. ➔ Install a smaller restriction.
Slow control response	Restriction in the screw joint of the actuator dirty or too small	➔ Clean screw joint or install larger screw joint.
	Dirt in the control line	➔ Clean the control line.
Jerky control response	Increased friction, e.g. due to foreign particles between seat and plug	➔ Remove foreign particles. ➔ Replace damaged parts. ➔ Contact SAMSON's After-sales Service.
Loud noises	High flow velocity, cavitation	➔ Check the sizing. ➔ Install larger regulator, if necessary.
Leakage at the actuator	Defective operating diaphragm	➔ Replace damaged diaphragm.

i ***Note***

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

The malfunctions listed in Chapter 8.1 are caused by mechanical faults and incorrect regulator sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required to rectify the fault.

Exceptional operating and installation conditions may lead to changed situations that may affect the control response and lead to malfunctions. For troubleshooting, the conditions, such as installation, process medium, temperature and pressure conditions, must be taken into account.

Tip

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

8.2 Emergency action

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

SAMSON recommends removing the regulator from the pipeline before repairing it.

In the event of a regulator malfunction:

1. Close the shut-off valves upstream and downstream of the regulator to stop the process medium from flowing through the regulator.
2. Perform troubleshooting (see Chapter 8.1).
3. Rectify those malfunctions that can be remedied following the information given in this document. Contact SAMSON's After-sales Service in all other cases.

Putting the device back into operation after a malfunction

See the 'Start-up' chapter.

9 Servicing

The regulator does not require much maintenance. Nevertheless, it is subject to natural wear, particularly at the seat, plug and operating diaphragm. Depending on the operating conditions, check the regulator at regular intervals to avoid possible malfunctions. Plant operators are responsible for drawing up an inspection and test plan. Details on faults and how to remedy them can be found in the 'Malfunctions' chapter.

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

SAMSON recommends removing the regulator from the pipeline before performing any maintenance or service work.

⚠ DANGER

Danger due to suspended loads falling.

➔ *Stay clear of suspended or moving loads.*

➔ *Close off and secure the transport paths.*

⚠ WARNING

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

While working on the regulator, 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 eye protection.*

⚠ WARNING

Risk of personal injury due to the regulator tipping.

➔ *Observe the regulator's center of gravity.*

➔ *Secure the regulator against tipping over or turning.*

⚠ WARNING

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

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

➔ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of lifting equipment tipping over and risk of damage to lifting accessories due to exceeding the rated lifting capacity.

➔ *Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator and packaging, if applicable).*

➔ *Refer to the 'Design and principle of operation' chapter for the weights.*

⚠ WARNING

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

Lifting the regulator without the use of lifting equipment may lead to injuries (back injuries in particular) depending on the weight of the regulator and/or actuator.

- ➔ *Observe the occupational health and safety regulations valid in the country of use.*
- ➔ *Observe the guideline weight for manual handling: 15 to max. 55 kg per person taking into account age, gender and physical fitness.*
- ➔ *When the actuator is filled with medium, take the weight of the medium also into account.*
- ➔ *Refer to the 'Design and principle of operation' chapter for the weights of the regulator and actuator.*

NOTICE

Risk of regulator damage due to over- or under-torquing.

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

- ➔ *Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).*

NOTICE

Risk of regulator damage due to the use of unsuitable tools.

- ➔ *Only use tools approved by SAMSON (see the 'Tools' chapter in the Appendix).*

NOTICE

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

- ➔ *Only use lubricants approved by SAMSON (see the 'Lubricants' chapter in the Appendix).*

Note

The regulator was checked by SAMSON before it left the factory.

- *Certain test results certified by SAMSON lose their validity when the regulator is opened. Such testing includes seat leakage and leak tests.*
- *The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service.*
- *Only use original spare parts by SAMSON, which comply with the original specifications.*

Tip

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

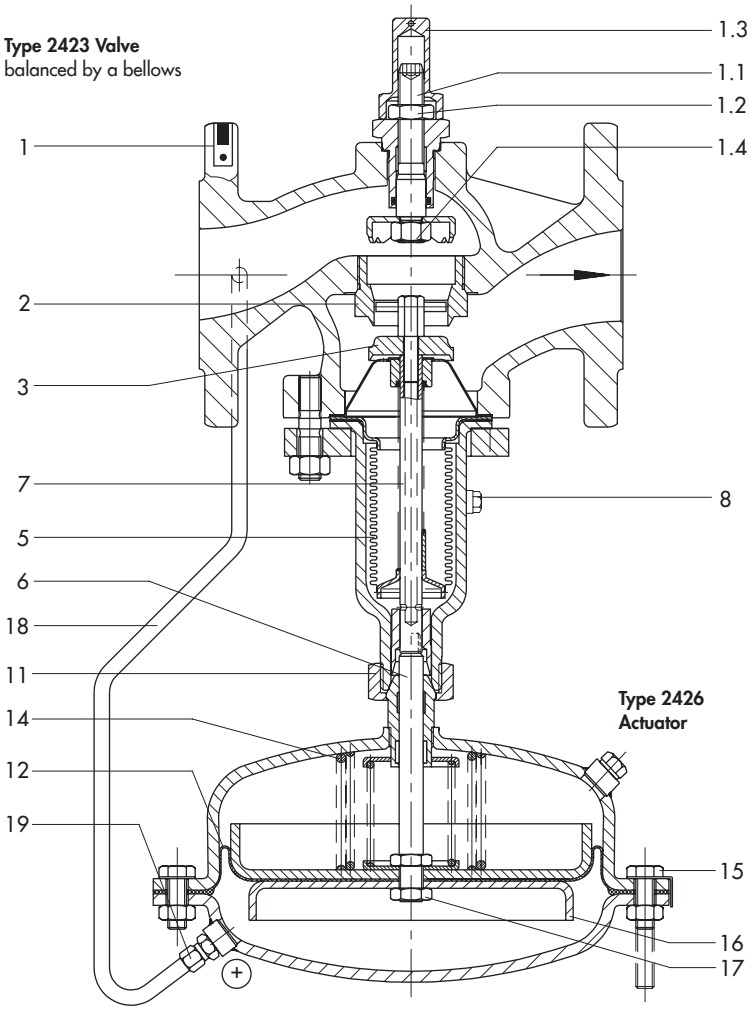


Fig. 9-1: *Functional diagram for regulators, DN 15 to 250 with balancing bellows*

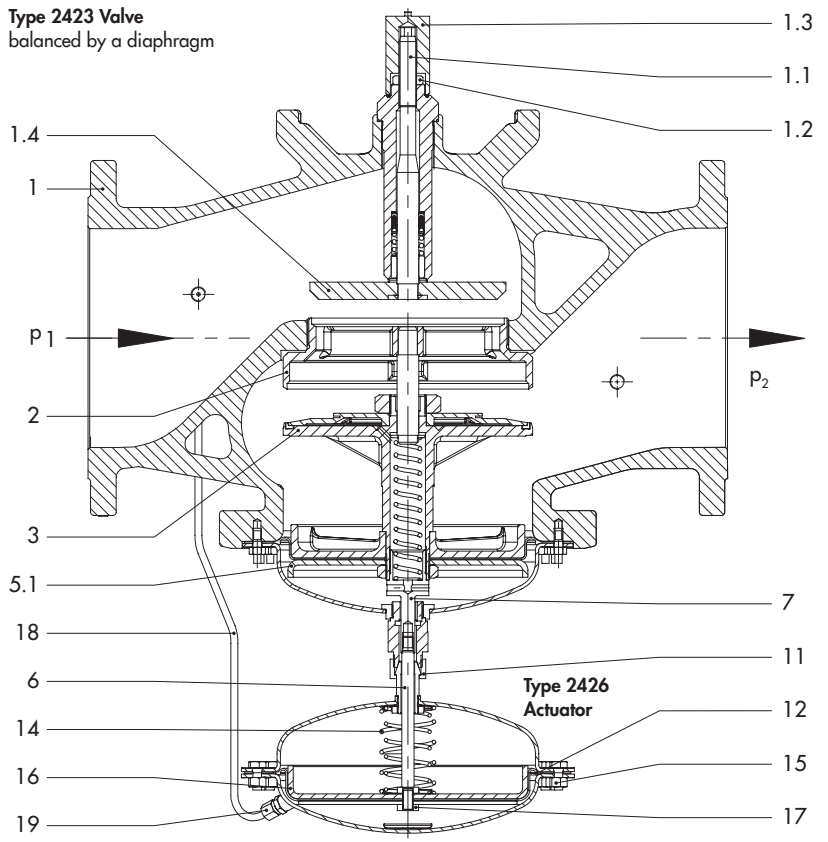


Fig. 9-2: *Functional diagram for regulators, DN 65 to 250 with balancing diaphragm*

Legend for Fig. 9-1 and Fig. 9-2

1	Valve body	5	Balancing bellows	14	Differential pressure springs
1.1	Set point adjuster for flow rate	5.1	Balancing diaphragm	15	Bolts, nuts
1.2	Lock nut	6	Diaphragm stem	16	Diaphragm plate
1.3	Cap	7	Plug stem	17	Diaphragm plate nut
1.4	Restriction	8	Vent plug (DN 125 and larger)	18	High-pressure control line
2	Seat	11	Coupling nut	19	Control line connection
3	Plug	12	Operating diaphragm		

9.1 Service work preparations

1. Lay out the necessary material and tools to have them ready for the service work.
2. Put the regulator out of operation (see the 'Decommissioning' chapter).

Tip

SAMSON recommends removing the regulator from the pipeline before performing any service work (see the 'Removing the regulator from the pipeline' chapter).

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

– Replace the actuator (see Chapter 9.3.1)
– Replace the seat and plug (see Chapter 9.3.2)
– Replace the actuator's operating diaphragm (see Chapter 9.3.3)

9.2 Installing the regulator after service work

➔ Put the regulator back into operation (see the 'Start-up' chapter). Make sure the requirements and conditions for start-up or putting the valve back into operation are met.

9.3 Service work

➔ Before performing any service work, preparations must be made to the regulator (see Chapter 9.1).

➔ After all service work is completed, check the regulator before putting it back into operation (see section 'Testing the regulator' in the 'Installation' chapter).

9.3.1 Replacing the actuator

➔ See Fig. 9-1 and Fig. 9-2

Removing the actuator

1. Put the regulator out of operation (see the 'Decommissioning' chapter).
2. Unscrew the control line (18).
3. Unscrew the coupling nut (11) of the diaphragm actuator from the valve. Remove the actuator.

Mounting the actuator

1. Place the diaphragm actuator on the valve and tighten the coupling nut (11). Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
2. Screw on the control line (18). Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
3. Put the regulator back into operation (see the 'Start-up' chapter).

9.3.2 Replacing the seat and plug

To replace seat and plug, contact SAMSON's After-sales Service.

Further information is available in the 'After-sales service' chapter in the Appendix.

9.3.3 Replacing the actuator's operating diaphragm

NOTICE

Do not exchange the operating diaphragm in an FDA-compliant regulator version.
SAMSON's After-sales Service can support you to perform such service work.

Tip

The associated order number is written on the actual operating diaphragm.

➔ See Fig. 9-1 and Fig. 9-2

Removing the operating diaphragm

1. Put the regulator out of operation (see the 'Decommissioning' chapter).
2. Unscrew the control line (18).
3. Unscrew the coupling nut (11) of the diaphragm actuator from the valve. Remove the actuator.
4. Clamp the coupling nut (11) into a suitable fixture.
5. Unscrew nuts and bolts (15) from the actuator. Remove the actuator case.

6. Unscrew the diaphragm plate nut (17) and remove the operating diaphragm (12) from the diaphragm plate (16).

Mounting the operating diaphragm

1. Place a new operating diaphragm (12) onto the diaphragm plate (16) (ensuring the pressurized side is facing in the correct direction) and tighten the diaphragm plate nut (17). Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
2. Place on the actuator case.
3. Insert nuts and bolts (15) and tighten gradually in a crisscross pattern. Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
4. Place the diaphragm actuator on the valve and tighten the coupling nut (11). Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
5. Screw on the control line (18). Observe the specified tightening torques (see the 'Tightening torques' chapter in the Appendix).
6. Put the regulator back into operation (see the 'Start-up' chapter).

9.4 Ordering spare parts and operating supplies

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

Spare parts

See the Appendix for details on spare parts.

Lubricants

Contact SAMSON's After-sales Service for more information on lubricants.

Tools

Contact SAMSON's After-sales Service for more information on tools.

10 Decommissioning

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

⚠ DANGER

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

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

Before working on the regulator:

- ➔ *Depressurize all plant sections concerned and the regulator.*
- ➔ *Drain the process medium from the plant sections affected as well as from the valve.*

⚠ WARNING

Risk of personal injury due to pressurized components and as a result of process medium being discharged.

Incorrect opening of pressure equipment or mounting parts may lead to the process medium escaping to the atmosphere.

- ➔ *Do not unscrew the control line while the valve is pressurized.*
- ➔ *Do not start up the regulator until all parts have been mounted.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation) may occur during operation caused by the process medium and the operating conditions.

- ➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

⚠ WARNING

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

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

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

⚠ WARNING

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

While working on the regulator, 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 eye protection.*

To put the regulator out of operation for service work or before removing it from the pipeline, proceed as follows:

1. Close the shut-off valve (1) on the upstream side of the regulator.
2. Close the shut-off valve (6) on the downstream side of the regulator.
3. Depressurize the plant.
4. Completely drain the pipelines and valve.
5. If necessary, allow the pipeline and regulator components to cool down or warm up to the ambient temperature.

11 Removal

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

⚠ WARNING

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

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

➔ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

While working on the regulator, 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 eye protection.*

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

– The regulator is put out of operation (see the 'Decommissioning' chapter).

11.1 Removing the regulator from the pipeline

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

11.2 Removing the actuator from the valve

See the 'Servicing' chapter.

12 Repairs

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

NOTICE

Risk of regulator damage due to incorrect service or repair work.

➔ *Do not perform any repair work on your own.*

➔ *Contact SAMSON's After-sales Service for service and repair work.*

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
   ▶ www.samsongroup.com > Service > After-sales Service.
2. Send an e-mail ▶ retouren@samsongroup.com to register the return shipment including the following information:
   – Type
   – Material number
   – Item numbers of accessories
   – Original order
   – Completed Declaration on Contamination, which can be downloaded from our website at ▶ www.samsongroup.com > Service > After-sales Service.

   After checking your registration, we will send you a return merchandise authorization (RMA).
3. Attach the RMA (together with the Declaration on Decontamination) to the outside of your shipment so that the documents are clearly visible.
4. Send the shipment to the address given on the RMA.

Note

Further information on returned devices and how they are handled can be found at ▶ www.samsongroup.com > Service > After-sales Service.

13 Disposal

SAMSON is a producer registered in Europe, agency in charge ▶ https://www.samsongroup.com/en/about-samson/environment-social-governance/material-compliance/waste-electrical-and-electronic-equipment-weee-and-its-safe-disposal/.
WEEE reg. no.: DE 62194439

Information on substances listed as substances of very high concern (SVHC) on the candidate list of the REACH regulation can be found in the document "Additional Information on Your Inquiry/Order", which is added to the order documents, if applicable. This document includes the SCIP number assigned to the devices concerned. This number can be entered into the database on the European Chemicals Agency (ECHA) website (▶ https://www.echa.europa.eu/scip-database) to find out more information on the SVHC contained in the device.

Note

SAMSON can provide you with a recycling passport on request. Simply e-mail us at aftersalesservice@samsongroup.com giving details of your company address.

Tip

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

➔ Observe local, national and international refuse regulations.

➔ Do not dispose of components together with your other household waste.

14 Certificates

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

- EU declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU on page 14-2.
- EU declaration of conformity in compliance with Machinery Directive 2006/42/EC for Type 42-36 Regulator on page 14-8.
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for Type 2423 Valve and Type 2426 Actuator on page 14-9.

EU DECLARATION OF CONFORMITY
TRANSLATION

Module A

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

Devices	Series	Type	Version
Self-operated Regulators	43	2432	DIN EN, body, CC499K and EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
	43	2436	DIN EN, body, CC499K and EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
	43	2437	DIN EN, body, CC499K and EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
	---	2111	DIN EN, body, EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 40-50, PN 40, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 300, fluids G2, L2, L1[1)]
Three-way valve	---	2119	DIN EN, body, EN-GJL-250 and 1.0619, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 40-50, PN 40, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-4, Class 150, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½, Class 300, fluids G2, L2, L1[1)]
Control valve	---	3222	DIN EN, body, EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, CC499K, DN 32-40, PN 25, all fluids
Three-way valve	---	3226	DIN EN, body, CC499K, DN 50, PN 25, fluids G2, L2[2)]
Three-way valve	---	3260	DIN EN, body, EN-GJL-250, DN 65-200, PN 16, fluids G2, L2[2)]
Globe valve Three-way valve	V2001	3531 3535	DIN EN, body, EN-GJS-400-18-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 32-40, PN 25, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
Control valve	---	3214	DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
Self-operated Regulators	42	2423	DIN EN, body, EN-GJL-250 and EN-GJS-400-18-LT, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-418-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 32-50, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 32-40, PN 25, all fluids
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
	42	2422	DIN EN, body, EN-GJL-250 and EN-GJS-400-18-LT, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619, 1.4408 and 1.6220+QT, DN 32-50, PN 16, all fluids
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC, A351 CF8M and A352 LCC, NPS 1½-2, Class 150, all fluids
Strainers	1N/1NI	2601	DIN EN, body, CB752S, G 2 (DN50), PN25, fluids G2, L2[2)]
Strainers	2N/2NI	2602	DIN EN, body, EN-GJL-250, DN 200-250, PN 10, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.4408, DN 32-50, PN 16, all fluids
Self-operated Regulators	---	2373/2375	ANSI, body, A995 4A and A995 5A, NPS 1½-2, Class 150, all fluids
	44	2440 (44-0B) 2441 (44-1B) 2446 (44-6B)	DIN EN, body, EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
		2442 (44-2) 2443 (44-3) 2444 (44-4) 2447 (44-7) 2449 (44-9)	DIN EN, body, EN-GJS-400-18-LT and CC499K, DN 50, PN 25, fluids G2, L2, L1[1)]

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Devices	Series	Type	Version
Self-operated Regulators	45	2451 (45-1) 2452 (45-2) 2453 (45-3) 2454 (45-4) 2456 (45-6) 2459 (45-9)	DIN EN, body, EN-GJS-400-18-LT and CC499K, DN 50, PN 25, fluids G2, L2, L1[1)]
	46	2465 (46-5) 2466 (46-6) 2467 (46-7) 2469 (46-9)	DIN EN, body, EN-GJS-400-18-LT and CC499K, DN 50, PN 25, fluids G2, L2, L1[1)]
	47	2471 (47-1) 2474 (47-4) 2475 (47-5) 2479 (47-9)	DIN EN, body, EN-GJS-400-18-LT and CC499K, DN 50, PN 25, fluids G2, L2, L1[1)]
	48	2488 2489	DIN EN, body, EN-GJS-400-18-LT and CC499K, DN 50, PN 25, fluids G2, L2, L1[1)]
	40	2405	DIN EN, body, EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
		2406	DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 50, PN 25, fluids G2, L2, L1[1)]
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
	41	2412 2417	DIN EN, body, EN-GJL-250, DN 65-100, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 50-80, PN 25, fluids G2, L2, L1[1)]
			ANSI body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-2, Class 150, all fluids
	42	2421 RS	DIN EN, body, 1.0619, 1.4408, 1.4571 and 1.4401/1.4404, DN 32-50, PN 16, all fluids
			DIN EN, body, 1.0619, 1.4408, 1.4571 and 1.4401/1.4404, DN 32-40, PN 25, all fluids
			ANSI, body, A216 WCC, A351 CF8M and A182 F316/A182 F316L, NPS 1½-2, Class 150, all fluids
	---	2331	DIN EN, body, EN-GJL-250, DN 65-200, PN 16, fluids G2, L2[2)]
			DIN EN, body, EN-GJS-400-18-LT, DN 65-150, PN 16, fluids G2, L2[2)]
			DIN EN, body, EN-GJS-400-18-LT, DN 65-125, PN 25, fluids G2, L2[2)]
			DIN EN, body 1.0619, DN 65-200, PN 16, fluids G2, L2[2)]
			DIN EN, body 1.0619, DN 65-100, PN 40, fluids G2, L2[2)]
	---	2337	DIN EN, body 1.0619, DN 250, PN 25, fluids L1[1)]
			DIN EN, body 1.0619, DN 250, PN 40, fluids L1[1)]
	---	2333 2335	DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 65-80, PN 25, fluids G2, L2, L1[1)]
			ANSI body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
	---	2334	DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 65-80, PN 25, fluids G2, L2, L1[1)]
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
	---	2404-1	DIN EN, body, EN-GJL-250, DN 65-125, PN16, fluids G2, L2, L1[1)]
			ANSI body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC und A351 CF8M, NPS 1½-2, Class 150, all fluids
	---	2404-2	DIN EN, body, EN-GJL-250, DN 65-125, PN 16, fluids G2, L2, L1[1)]
			ANSI, body, A126 B, NPS 3-4, Class 125, fluids G2, L2, L1[1)]

[1)] Gases according to Article 4(1)(c.i), second indent
Liquids according to Article 4(1)(c.ii)

[2)] Gases according to Article 4(1)(c.i), second indent
Liquids according to Article 4(1)(c.ii), second indent

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

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment	**2014/68/EU**	**of 15. May 2014**
Applied conformity assessment procedure for fluids according to Article 4(1)	**Module A**	

Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

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

Frankfurt am Main, 05. June 2024

ppa. Norbert Tollas
Senior Vice President
Global Operations

i.V. Peter Scheermesser
Director
Product Maintenance & Engineered Products

EU DECLARATION OF CONFORMITY
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Module H / N° CE-0062-PED-H-SAM 001-22-DEU-rev-A

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

Devices	Series	Type	Version
Three-way valve	---	2119	DIN EN, body, EN-GJL-250 and 1.0619, DN 150, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 65-150, PN 40, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 6, Class 150, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2-6, Class 300, fluids G2, L2, L1[1)]
Self-operated Regulators	---	3222	DIN EN, body, CC499K, DN 50, PN 25, all fluids
Three-way valve	---	3260	DIN EN, body, EN-GJL-250, DN 250-300, PN 16, fluids G2, L2[1)]
Globe valve Three-way valve	V2001	3531 3535	DIN EN, body, 1.0619 and 1.4408, DN 50-80, PN 25, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-3, Class 150, all fluids
Control valve	---	3214	DIN EN, body, EN-GJL-250, DN 150-400, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619, DN 32-400, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-10, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC, NPS 2½-10, Class 150, all fluids
			ANSI, body, A216 WCC, NPS 1½-10, Class 300, all fluids
Self-operated Regulators	42	2423	DIN EN, body, EN-GJL-250, DN 150-250, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 150, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 65-250, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 50-250, PN 25, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 32-250, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-10, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-10, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-10, Class 300, all fluids
	42	2422	DIN EN, body, EN-GJL-250, DN 150-400, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 65-400, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 200-400, PN 25, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 32-400, PN 40, all fluids
			DIN EN, body, 1.0460, DN 40-50, PN 40, all Fluids
			DIN EN, body, 1.6220+QT, DN 65-250, PN 16, all fluids
			DIN EN, body, 1.6220+QT, DN 200-250, PN 25, all fluids
			DIN EN, body, 1.6220+QT, DN 32-250, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-16, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351CF8M, NPS 2½-16, Class 150, all fluids
			ANSI, body, A216 WCC and A351CF8M, NPS 1½-16, Class 300, all fluids
			ANSI, body, A105, NPS 1½-2, Class 300, all fluids
			ANSI, body, A352 LCC, NPS 2½-10, Class 150, all fluids
			ANSI, body, A352 LCC, NPS 1½-10, Class 300, all fluids
	42	2421RS	DIN EN, body, 1.0619 and 1.4408, DN 65-150, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 50-150, PN 25, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 32-150, PN 40, all fluids
			DIN EN, body, 1.4571 and 1.4401/1.4404, DN 50, PN 25, all fluids
			DIN EN, body, 1.4571 and 1.4401/1.4404, DN 32-50, PN 40, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-6, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-6, Class 300, all fluids

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Devices	Series	Type	Version
Self-operated Regulators	40	2405	DIN EN, body, 1.0619, 1.4571, 1.4404, 1.4408, 1.0460, DN 32-50, PN40, all fluids
			ANSI, body, A105, A182 F316L, A351 CF8M, A216 WCC, NPS 1½-2, Class 300, all fluids
		2406	DIN EN, body, EN-GJL-250, DN 150, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 32-150, PN 40, all fluids
			DIN EN, body, 1.0460 and 1.4404, DN 32-50, PN 40, all fluids
			ANSI, body, A126 B, NPS 6, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-6, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-6, Class 300, all fluids
			ANSI, body, A105 and A182 F316L, NPS 1½-2, Class 300, all fluids
	41	2412 2417	DIN EN, body, EN-GJS-400-18-LT, DN 100, PN25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 32-100, PN 40, all fluids
			DIN EN, body, 1.0460, 1.4571 and 1.4404, DN 32-80, PN 40, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-4, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 1½-4, Class 300, all fluids
			ANSI, body, A105 and A182 F316L, NPS 1½-3, Class 300, all fluids
	---	2404-1	DIN EN, body, EN-GJL-250, DN 150, PN16, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 und 1.4408, DN 32-150, PN 40, all fluids
			ANSI, body, A126 B, NPS 6, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC und A351 CF8M, NPS 2½-6, Class 150, all fluids
			ANSI, body, A216 WCC und A351 CF8M, NPS 1½-6, Class 300, all fluids
	---	2404-2	DIN EN, body, EN-GJL-250, DN 150-400, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 und 1.4408, DN 65-400, PN 16, all fluids
			DIN EN, body, 1.0619 und 1.4408, DN 65-400, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-16, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC und A351 CF8M, NPS 2½-16, Class 150, all fluids
			ANSI, body, A216 WCC und A351 CF8M, NPS 2½-10, Class 300, all fluids
	---	2331	DIN EN, body, EN-GJL-250, DN 250, PN 16, fluids G2, L2[1)]
			DIN EN, body, 1.0619, DN 250, PN 16, fluids G2, L2[1)]
			DIN EN, body, 1.0619, DN 200-250, PN 25, fluids G2, L2[1)]
			DIN EN, body, 1.0619, DN 125-250, PN 40, fluids G2, L2[1)]
	---	2333 2335	DIN EN, body, EN-GJL-250, DN 150-400, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 65-400, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 200-400, PN 25, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 65-400, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-16, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-16, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-16, Class 300, all fluids
	---	2334	DIN EN, body, EN-GJL-250, DN 150-400, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 150, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619 and 1.4408, DN 65-400, PN 16, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 200-400, PN 25, all fluids
			DIN EN, body, 1.0619 and 1.4408, DN 65-400, PN 40, all fluids
			ANSI, body, A126 B, NPS 6-16, Class 125, fluids G2, L2, L1[1)]
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-16, Class 150, all fluids
			ANSI, body, A216 WCC and A351 CF8M, NPS 2½-16, Class 300, all fluids
	---	2373 2375	DIN EN, body, 1.4469 and 1.4470, DN 32-50, PN 40, all fluids
			ANSI, body, A995 5A and A995 4A, NPS 1½-2, Class 300, all fluids
Strainers	2N/2NI	2602	DIN EN, body, EN-GJL-250, DN 150-250, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 150, PN 16, fluids G2, L2, L1[1)]
			DIN EN, body, EN-GJS-400-18-LT, DN 100-150, PN 25, fluids G2, L2, L1[1)]
			DIN EN, body, 1.0619, DN 100-250, PN 16, all fluids

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Devices	Series	Type	Version
Strainers	2N/2NI	2602	DIN EN, body, 1.0619, DN 200-250, PN 25, all fluids
			DIN EN, body, 1.0619, DN 32-250, PN 40, all fluids
			DIN EN, body, 1.4408, DN 65-100, PN 16, all fluids
			DIN EN, body, 1.4408, DN 32-100, PN 40, all fluids

[1] Gases according to Article 4(1)(c.i), second indent
Liquids according to Article 4(1)(c.ii)

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

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment	**2014/68/EU**	**of 15. May 2014**
Applied conformity assessment procedure for fluids according to Article 4(1)	**Module H**	**by Bureau Veritas 0062**

The manufafacturer's quality management system is monitored by the following notified body:
Bureau Veritas Services SAS, 4 place des Saisons, 92400 Courbevoie, France
Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

Manufacturer: SAMSON AG, Weismuellerstrasse 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 05. June 2024

ppa. Norbert Tollas
Senior Vice President
Global Operations

i.V. Peter Scheermesser
Director
Product Maintenance & Engineered Products

Revision 01

DECLARATION OF INCORPORATION
TRANSLATION

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

For the following product:
Type 2423 Valve

We certify that the Type 2423 Valve is partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

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

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

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

For product descriptions refer to:
- Type 42-34 and Type 42-38 Differential Pressure Regulators with Flow Limitation: Mounting and Operating Instructions EB 3013
- Type 42-36 Flow Regulator: Mounting and Operating Instructions EB 3015
- Type 42-36 E Pressure-independent Control Valve (PICV): Mounting and Operating Instructions EB 3018
- Type 42-37 Flow and Differential Pressure Regulator as well as Type 42-39 Flow and Differential Pressure or Pressure Regulator: Mounting and Operating Instructions EB 3017

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

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

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 10 November 2021

i.V.

Stephan Giesen
Director
Product Management

i. V. P.

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

Revision no. 00

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15 Appendix

15.1 Tightening torques

Table 15-1: *Tightening torque*

Part	Width across flats	Nominal size or actuator area	Tightening torque in Nm
Cap (1.3)	A/F 30	DN 15 to 100	20
	A/F 36	DN 125 to 250	40
Coupling nuts (11)	A/F 36	All	120
Diaphragm plate nut (17)	A/F 12	40 to 640 cm²	40
Nuts and bolts (15)	–	40 to 640 cm²	25
Control line connection (17)	–	40 to 640 cm²	22

15.2 Lubricants

SAMSON's After-sales Service can support you concerning lubricants and sealants approved by SAMSON.

15.3 Tools

SAMSON's After-sales Service can support you concerning tools approved by SAMSON.

15.4 Accessories

Table 15-2: *Assignment of compensation chamber (18) to regulator, with item no.*

Type 2426 Actuator Actuator area A	**Item number · Compensation chamber**	
	DN 15 to 50	**DN 65 to 100**
640 cm²	1190-8789	1190-8790
320 cm²	1190-8788	1190-8789
160, 80, 40 cm²	1190-8788	

15.5 Spare parts

Legend for Fig. 15-1 and Fig. 15-2			
2	Bellows	34	Flange
5	Restriction	35	Screw plug
12	Balancing screw	46	Graphite seal on metal core
16	Seat	51	Stud
17	Plug	52	Hex nut
20	Body	81	Cap
21	Guide cap	82	Hex nut
22	Label	94	Set point adjuster
24	Compression spring	132	O-ring
26	Guide tube	171	Clamping ring
27	Bottom section	172	Seal

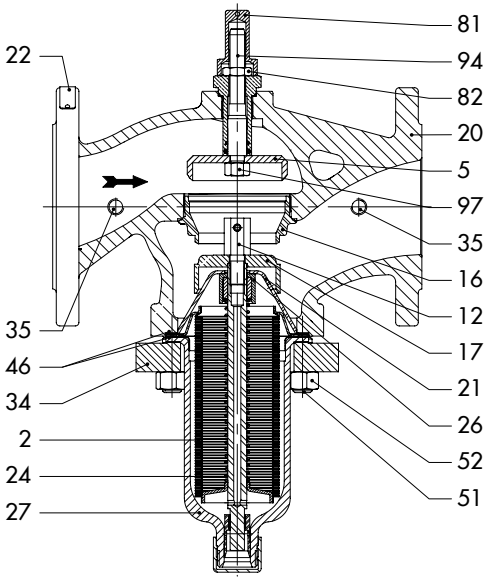

Fig. 15-1: *Type 2423 Valve, DN 15 to 100 · Balanced by a bellows*

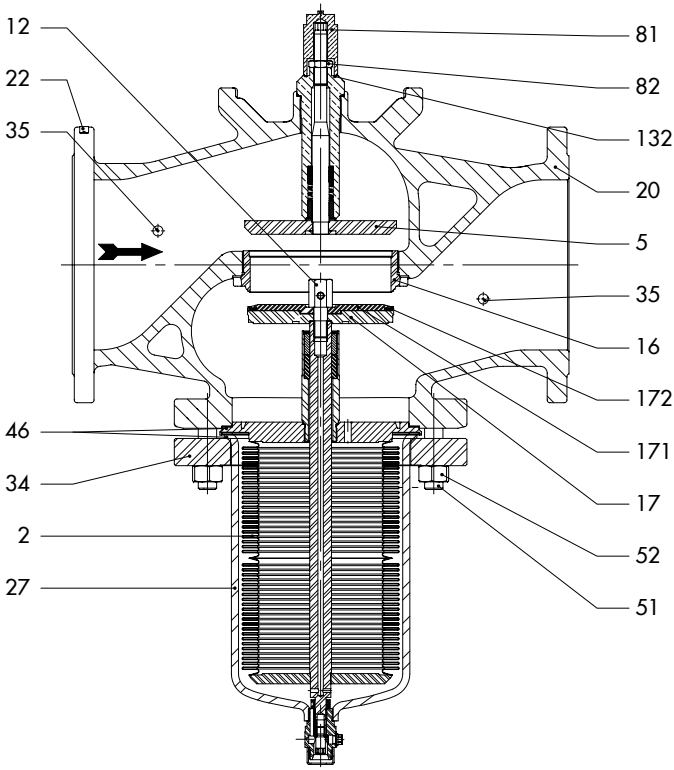

Fig. 15-2: *Type 2423 Valve, DN 125 to 250 · Balanced by a bellows*

Legend for Fig. 15-3

5	Restriction
8	Compression spring
10	Diaphragm plate
11	Diaphragm
12	Castle nut
13	Washer
14	Plug stem
16	Seat
18	Plug
19	Screw
20	Body
21	Guide cap
22	Label
27	Diaphragm case
34	Ring
46	Gasket
51	Stud
52	Hex nut
53	Screw plug
81	Cap
82	Hex nut
94	Set point adjuster
97	Hex nut (self-locking)

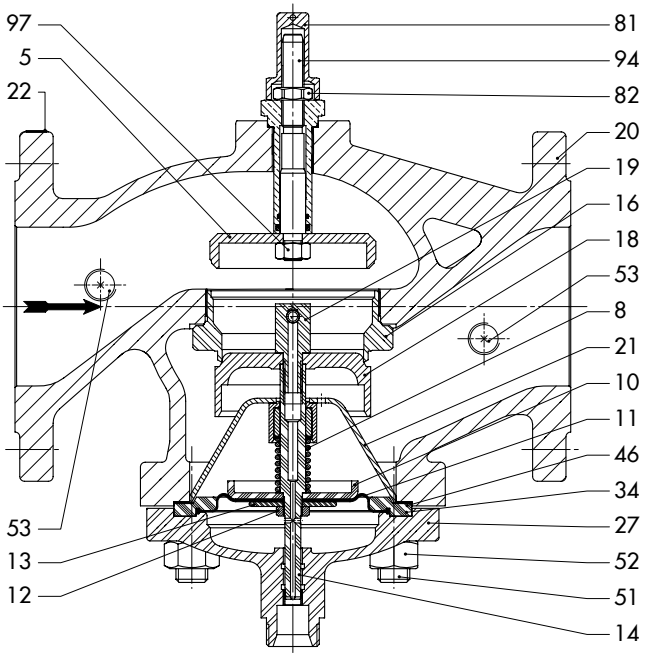

Fig. 15-3: *Type 2423 Valve, DN 65 to 100 · Balanced by a diaphragm*

Legend for Fig. 15-4

2	Restriction
5	Seat
6	Diaphragm case
11	Cap
12	Body
17	Label
19	Plug
21	Nipple
24	Nut
38	Diaphragm plate
39	Diaphragm plate
42	Clamping disk
46	Seal
47	Diaphragm
49	Screw plug
50	Screw plug
51	Stud
52	Hex nut
53	Hex nut
54	Hex nut
57	O-ring

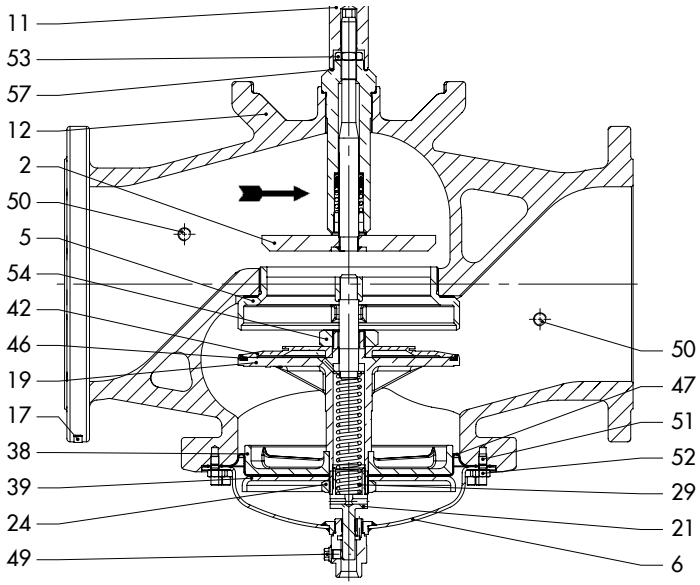

Fig. 15-4: *Type 2423 Valve, DN 125 to 250 · Balanced by a diaphragm*

Legend for Fig. 15-5

1	Diaphragm case
2	Diaphragm case
3	Screw joint with restriction
6	Nut
8	Diaphragm stem
13	Diaphragm plate
14	Washer
15	Diaphragm
17	Hex bolt
19	Hex nut
23	Hanger
26	Compression spring
27	Compression spring

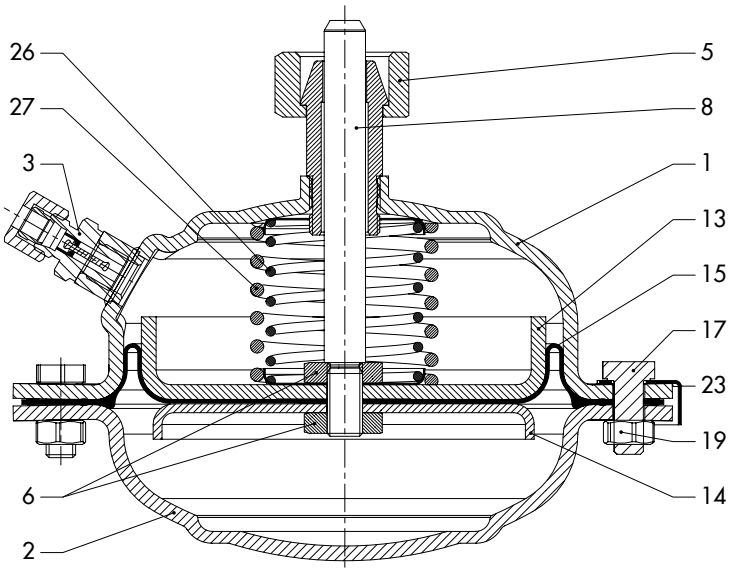

Fig. 15-5: *Type 2426 Diaphragm Actuator, DN 15 to 250*

15.6 After-sales service

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

E-mail address

You can reach our after-sales service at aftersalesservice@samsongroup.com.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON, its subsidiaries, representatives and service facilities worldwide can be found on our website (▶ www.samsongroup.com) or in all SAMSON product catalogs.

Required specifications

Please submit the following details:

- Device type and nominal size
- Valve balanced by a bellows or diaphragm
- Model number or material number
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate in m^3/h
- Is a strainer installed?
- Installation drawing showing the exact location of the regulator and all the additionally installed components (shut-off valves, pressure gauge etc.)

EB 3015 EN

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