

Self-operated Regulators



Versions with valves balanced by a diaphragm Type 2114 · Type 2422 · Type 2423

as pressure-balanced, single-seated globe valve

Application

Valves used in temperature regulators, pressure regulators, differential pressure regulators, flow regulators as well as differential pressure regulators with flow limitation · Nominal sizes **DN 125** to **DN 250** · Nominal pressure **PN 16** to **PN 40** · Suitable for water up to **150 °C** and non-flammable gases up to **80 °C**

Special features

- Very large Kvs coefficients
- Very high maximum flow rates to be controlled in flow regulators
- Plug with soft sealing to minimize seat leakage
- Seat/plug trim made of red brass
- Lower overall height compared to valves balanced by a bellows

This Data Sheet supplements the data sheets of the following regulators:

Type 4 and Type 4u Temperature Regulators

- T 2121 EN (DIN), T 2025 EN (ANSI) and T 2123 EN (DIN)

Type 2422/2424 and Type 2422/2425 Pressure Regulators

- T 2547 EN (DIN), T 2548 EN (ANSI) and T 2549 EN (DIN), T 2550 EN (ANSI)

Type 42-24 and Type 42-25 Differential Pressure Regulators

- T 3003 EN (DIN), T 3004 EN (ANSI) and T 3007 EN (DIN), T 3008 EN (ANSI)

Type 42-36 Flow Regulator

- T 3015 EN (DIN), T 3016 EN (ANSI)

Type 42-34 Differential Pressure Regulator with Flow Limitation

- T 3013 EN

Type 42-37 Differential Pressure and Flow Regulator

Type 42-39 Differential Pressure and Flow or Pressure and Flow Regulator

- T 3017 EN

Type 42-36 E Flow Regulator with Electric Actuator

Type 42-37 E Differential Pressure and Flow Regulator with Electric Actuator

Type 42-39 E Differential Pressure and Flow or Pressure and Flow Regulator with Electric Actuator

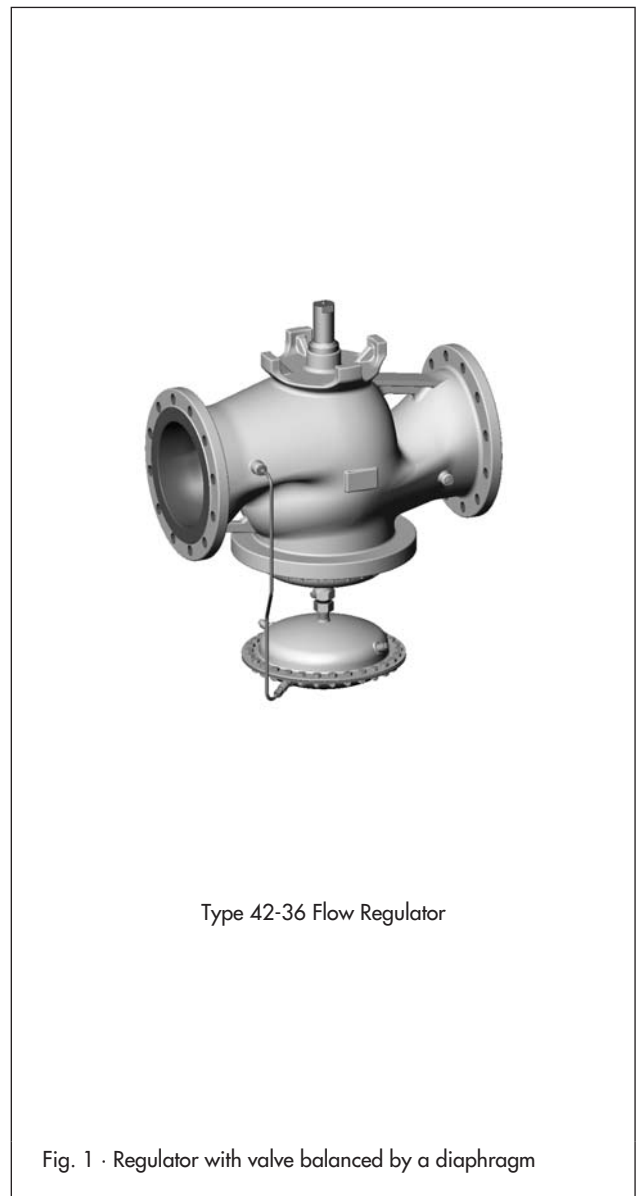
- T 3018 EN

Regulators with double connections

- T 3018 EN

Versions

Valves with soft-seated plug · Valve body made of cast iron (EN-JL1040), spheroidal graphite iron (EN-JS1049) and cast steel (1.0619), stainless cast steel (1.4581)



Type 42-36 Flow Regulator

Fig. 1 · Regulator with valve balanced by a diaphragm

Special versions

- Version for oxygen, materials according to BAM list
- Dimensions and materials according to ANSI

Principle of operation

The regulators with valves balanced by a diaphragm differ in their principle of operation in comparison to valves balanced by a bellows only where the pressure balancing is concerned.

The valves are fitted with a balancing diaphragm. The downstream pressure p_2 acts on one side of the diaphragm and the upstream pressure p_1 on the other side of the diaphragm. As a result, the forces created by the upstream and downstream pressures acting on the valve plug are compensated for.

Installation

- Mount the valve in horizontally running pipelines.
- The medium must flow through the valve in the direction indicated by the arrow on the body.
- The balancing diaphragm and actuator must face downwards.
- Install a strainer upstream of the regulator, e.g. SAMSON Type 2 N/Type 2 NI Strainer.

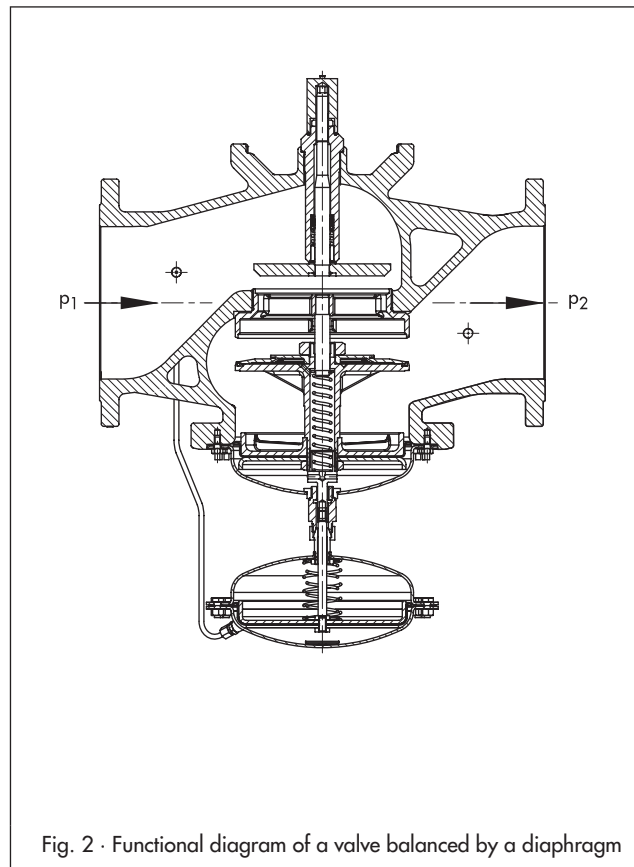


Fig. 2 · Functional diagram of a valve balanced by a diaphragm

Table 1 · Technical data**Type 2114 · Type 2422 · Type 2423 · Type 2423 E · Balanced by a diaphragm**

Nominal size DN		125	150	200	250
K _{VS} in m ³ /h	22 mm travel	190	290	550	600
	35 mm travel ¹⁾	250	380	650	800
Max. perm. differential pressure Δp in bar		12	12	10	10

¹⁾ Not with Type 2114**Flow rate set point range \dot{V} for water in m³/h****Type 2423 · Type 2423 E · Balanced by a diaphragm**

Nominal size DN		125	150	200	250
Flow rate set point range in m ³ /h with ΔP _{Restriction} = 0.2 bar	Type 2423 · 22/35 mm travel	11 to 120	18 to 180	20 to 320	26 to 350
	Type 2423 E · 22/35 mm travel	40 to 80	50 to 120	70 to 180	90 to 220

Weight in kg (cast iron valves)

Nominal size DN		125	150	200	250
Type 2114	22 mm travel	52	72	217	227
Type 2422	22/35 mm travel	52	72	217	227
Type 2423	22/35 mm travel	65	85	248	268
Type 2423 E	22/35 mm travel	65	85	248	268
Actuator					
Type 2424/2425	22 mm travel	15	15	22	22
	35 mm travel	20	20	30	30
Type 2427/2429	22 mm travel	27	27	35	35
	35 mm travel	32	32	55	55

Table 2 · Materials · Material acc. to DIN EN

Type 2114 Valve · Type 2422 Valve · Type 2423 Valve · Type 2423 E · Balanced by a diaphragm				
Nominal pressure PN	16	16/25	16/25/40	16/25/40
Body	Cast iron EN-JL1040	Spheroidal graphite iron EN-JS1049	Cast steel 1.0619	Stainless cast steel 1.4581
Valve seat	Red brass			
Plug Standard version	Red brass · With EPDM soft sealing, max. 150 °C or with PTFE soft sealing, max. 150 °C			
Pressure balancing	Balancing diaphragm case made of sheet steel DD11 · EPDM balancing diaphragm, max. 150 °C or NBR diaphragm, max. 60 °C			
Flat gasket	Graphite with metal core			

Dimensions**Type 2114**

Nominal size DN	125	150	200	250
Length L	400	480	600	730
Height H1	575	600	670	
Height H2	145	175	260	

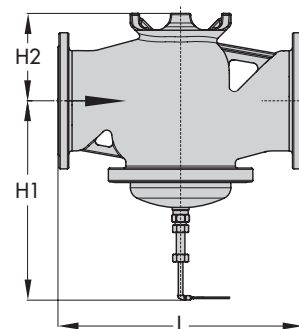
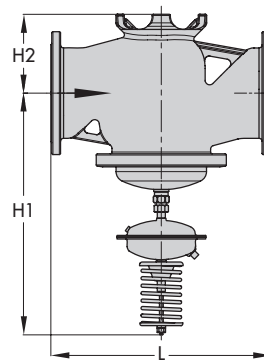


Fig. 3 · Dimensions of the Type 2114 Valve balanced by a diaphragm and with a thermostat connection

Dimensions

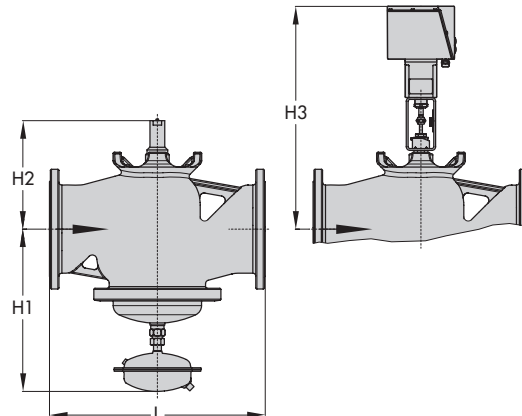
Type 42-24 · Type 42-25

Nominal size DN	125	150	200	250
Length L	400	480	600	730
Height H1	720	745	960	
Height H2	145	175	260	



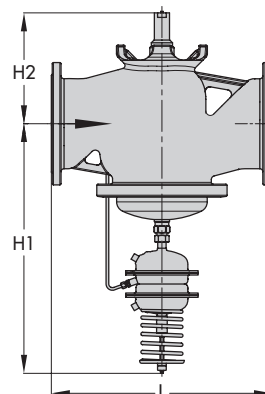
Type 42-36 · Type 42-36 E · Type 42-37 E · Type 42-39 E

Nominal size DN	125	150	200	250
Length L	400	480	600	730
Height H1	460	485	580	
Height H2	295	325	345	375
Height H3	680	710	825	



Type 42-37 · Type 42-39

Nominal size DN	125	150	200	250
Length L	400	480	600	730
Height H1	910	935	1020	
Height H2	295	325	345	375



Type 42-34

Nominal size DN	125	150	200	250
Nominal size L	400	480	600	730
Height H1	720	745	960	
Height H2	295	325	345	375

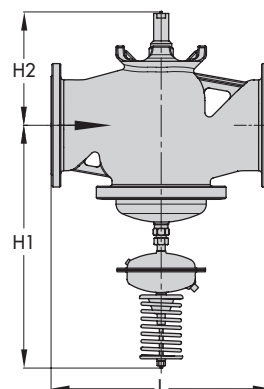


Fig. 4 · Dimensions of regulators and valves balanced by a diaphragm

