

Series 240

Type 3241-1-Gas or Type 3241-7-Gas Pneumatic Control and Quick-acting Shut-off Valves for Gases (valve class E)

DIN-DVGW typetested acc. to DIN EN 161 (1996-08)



Application

Control valve for control systems subject to the special safety requirements governing gas supply

For gaseous fuels according to Directive 90/396/EEC

DN 15 to 150 · PN 40 · -20 to +220 °C



Control and quick-acting shut-off valve (Type 3241 Globe Valve) with:

- Type 3271 Pneumatic Actuator (Type 3241-1 Control Valve)
- Type 3277 Pneumatic Actuator for integral positioner attachment (Type 3241-7 Control Valve)

With mounted pilot valve (3/2-way solenoid valve) and a strainer (► T 1015).

The safety shut-off valves, typetested according to DIN EN 161 (1996-08), are used to control the pressure, temperature or flow rate of gas-burning appliances. In the event of a fault, the valves shut off the gas supply. They meet the strict leakage requirements of valve class E and are assigned to valve group 2.

Valve body with undivided bonnet made of:

- Cast steel or cast stainless steel
- Forged steel 1.0460 (C 22.8) or 1.4571

The control valves, designed according to the modular assembly principle, can be equipped with various accessories: Positioners, solenoid valves and other accessories according to IEC 60534-6-1 and NAMUR recommendation (see Information Sheet ► T 8350).

Version

Standard version for temperatures from -20 to +220 °C, body materials according to Table 3 · With soft-seated plug and bellows seal · With pneumatic actuator with pilot valve mounted on it and "fail-close" action · With Type 2 NI Strainer

- **Type 3241-1-Gas** · Pneumatic control and quick-acting shut-off valve with Type 3271 Actuator (see Data Sheet ► T 8310-1)
- **Type 3241-7-Gas** (Fig. 1) · Pneumatic control and quick-acting shut-off valve with Type 3277 Actuator (see Data Sheet ► T 8310-1)

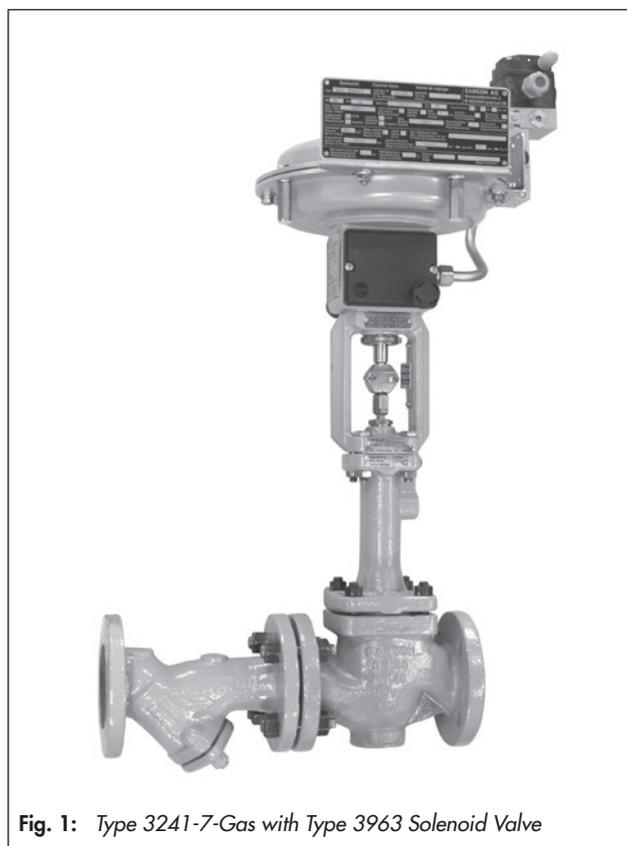


Fig. 1: Type 3241-7-Gas with Type 3963 Solenoid Valve

Special version

- **Type 3241-1-Gas or Type 3241-7-Gas** · Pneumatic control and quick-acting shut-off valve, DN 25 and PN 40, with "fail-open" action. The valve meets the TRD 412 (technical rules for steam boilers) requirements concerning leakage gas discharge on operating combustion plants.

Further versions

- **Typetested for heating systems** · See Data Sheet ► T 8016
- **ANSI version**

Principle of operation

The process medium flows through the strainer and the valve in the direction indicated by the arrow. The plug stem is sealed by the metal bellows and a backup packing. The test connection enables the bellows to be monitored for leakages.

The signal pressure p_{st} is applied to the pilot valve (11) whose coil is connected to the safety interlock circuit (switch 14, Fig. 3 and Fig. 4). During operation, the coil is energized and the signal pressure p_{st} acts on the diaphragm. In the event of a malfunction, the pilot valve is activated and the pressure acting on the diaphragm is relieved, causing the control valve to close quickly.

DIN DVGW test mark

The valves were typetested by TÜV (German technical surveillance association) and received the test mark by DVGW (German Technical and Scientific Association for Gas and Water) as specified in Table 1.1.

Installation

Install the valves in horizontal pipelines in an upright position (diaphragm actuator on top). The process medium must flow through the valve in the direction indicated by the arrow.

Prior to start-up, make sure that the vent of the pilot valve and the pressure connection on the top case of the actuator are open.

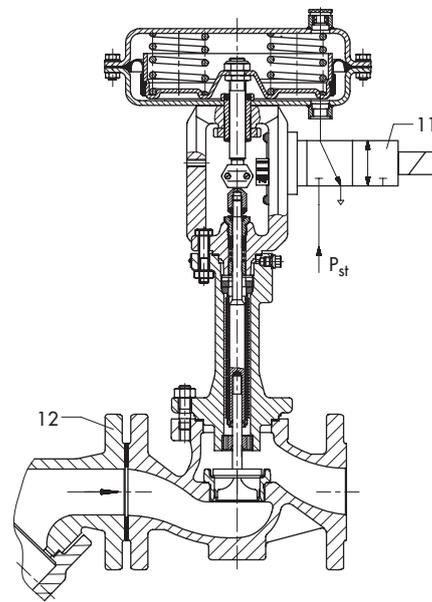


Fig. 2: Type 3241-1-Gas Pneumatic Control and Quick-acting Shut-off Valve

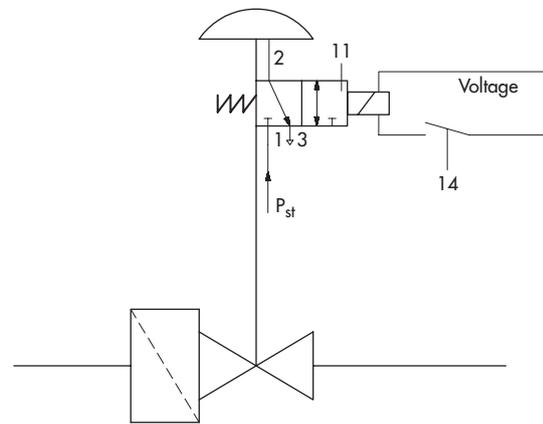


Fig. 3: Functional diagram showing version without positioner

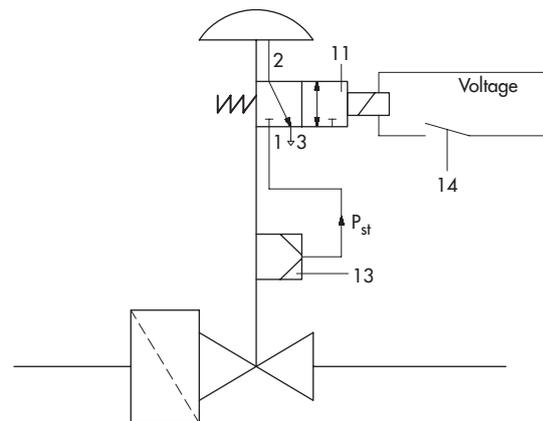


Fig. 4: Functional diagram showing version with positioner

Legend for Fig. 2 to Fig. 4

- 11 Pilot valve
- 12 Strainer
- 13 Positioner
- 14 Switch for safety interlock circuit

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

Table 1.1: Type 3241-1-Gas and Type 3241-7-Gas

Cast body: DN 15 to 150 · Forged body: DN 15 to 80

DIN-DVGW test mark	CE-0085AQ 0787																							-0734 ¹⁾	
Nominal size	DN	15		25		40		50		80				100				150		25 ¹⁾					
Nominal pressure	PN	40																							
K _{VS} coefficient (without flow divider St I)		0.4	1.6	0.4	1.6	6.3	6.3	16	6.3	16	25	40	25	40	60	80	60	80	63	100	160	160	160	260	10
		0.63	2.5	0.63	2.5	10	10	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	4.0	1.0	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K _{VS} I (with flow divider St I)		-	-	-	-	-	-	-	-	-	22	36	22	36	54	72	54	72	57	90	144	144	144	234	-
Seat diameter	mm	6	12	6	12	24	24	31	24	31	38	48	38	48	63	80	63	80	63	80	100	100	100	130	24
Permissible differential/operating pressure	bar	25												15	6	25	15	15	10	4	10	4	3	20	
Rated travel	mm	15												30				15							
Rangeability		50:1												30:1				50:1							
Perm. ambient temperature		-40 to +60 °C																							
Perm. medium temperature		-20 to +220 °C																							
Closing time		<1 s																							
Valve class		Valve class E · Valve group 2, class 2																							
Strainer		Type 2 NI, special version for gas, 0.25 mm mesh size																							

¹⁾ Test mark: CE-0085AQ 0734 for special version with "fail-open" action

Table 1.2: Type 3271 or Type 3277 Pneumatic Actuator (versions without handwheel and without travel stop)

Actuator area in cm ²	240		350						700						350		
Signal pressure range	0.4 to 2.0	0.6 to 2.2	0.3 to 1.9	0.4 to 2.0	0.8 to 2.4	0.8 to 2.4	1.4 to 2.3	0.8 to 2.4	1.4 to 2.3	1.2 to 2.0		1.85 to 2.3	1.4 to 2.3		2.1 to 3.3	1.4 to 2.3	0.4 to 2.0
Required supply pressure	2.2	2.4	2.1	2.2	2.6	2.6	2.5	2.6	2.5	2.2		2.5	2.5		3.5	2.5	3.0
Max. supply pressure	6.0									3.5						3.0	
Closing force	0.96	1.44	1.05	1.4	2.8	2.8	4.9	2.8	4.9	8.4		12.95	9.8		14.7	9.8	3.5
Fail-safe position	Fail-close															Fail-open	

Table 2: Pilot valves for Type 3241-1-Gas

Valve				Solenoid valve manufacturer and model number			
Type 3241	DN	Actuator	Fail-safe position	SAMSOMATIC model K _{VS} coefficient (Attachment: threaded connection)		Norgren Herion series (Attachment: NAMUR interface)	
				3963-xxxxx13 1.4	3963-xxxxx14 4.3	24011 ¹⁾	98015
-0261	15	240	Stem extends Fail-close	•	•	•	•
-0263	25	350		•	•	•	•
-0265	40	350		•	•	•	•
-0266	50	700		–	•	–	•
-0267		350		•	•	•	•
-0269	80	700		–	•	–	•
-0271	100	700		–	•	–	•
-0275	150	700		–	•	–	•
-4321	25	350	Stem retracts Fail-open	•	•	•	•

¹⁾ Herion Type 24011 Solenoid Valve with quick exhaust module

Table 3: Materials (material numbers according to DIN EN)

Valve	DN 15 to 150 (NPS ½ to 6)		DN 15 to 80		Strainer		
Body ¹⁾	Cast steel 1.0619	Cast stainless steel 1.4408	Forged steel 1.0460	Forged stainless steel 1.4571	Cast steel 1.0619	Cast stainless steel 1.4408	
Valve bonnet	1.0460	1.4404	1.0460	1.4404	Standard strainer insert and dual strainer insert 1.4401		
Seat and plug	1.4404 Plug with soft seal, PTFE seal with 15 % glass fiber						
Guide bushing	1.4104	1.4404	1.4104	1.4404			
Packing	V-ring packing: PTFE with carbon · Spring: 1.4310						
Intermediate piece	1.0460	1.4404	1.0460	1.4404			
Metal bellows	1.4571						
Body gaskets	Graphite on metal core						

¹⁾ Special version: A216 WCC or A351 CF8M in Class 300. As a DIN version of the Type 2 NI Strainer is only available, a central strainer facility must be installed.

Table 4: Dimensions in mm**Table 4.1: Type 3241 Valve**

Valve	DN	15	25	40	50	80	100 ¹⁾	150 ¹⁾
Length L		130	160	200	230	310	350	480
Length L1		260	320	400	460	620	700	960
Height H1 with actuator area [cm ²]	240	408	-					
	350	-	408	408	408	-		
	700	-			408	450	635	672
H2	Cast	44		72		98	118	175
	Forged steel	53	70	92	98	128	-	

¹⁾ Only with valve body made of 1.0619 or 1.4408

Table 4.2: Type 3271 and Type 3277 Pneumatic Actuators

Actuator area	cm ²	240	350	700
Diaphragm ØD	mm	240	280	390
H ¹⁾	mm	62	82	199
H3 ²⁾	mm	110	110	190
H5	Type 3277 mm	101	101	101
Thread	Type 3271	M30 x 1.5		
	Type 3277	M30 x 1.5		
α	Type 3271	G ¼ (¼ NPT)	G ⅜ (⅜ NPT)	G ¾ (¾ NPT)
α2	Type 3277	G ⅜	G ⅜	G ⅜

¹⁾ Height with welded-on lifting eyelet or height of eyebolt according to DIN 580. Height of the swivel lifting hook may differ. Actuators up to 355 cm² without lifting eyelet

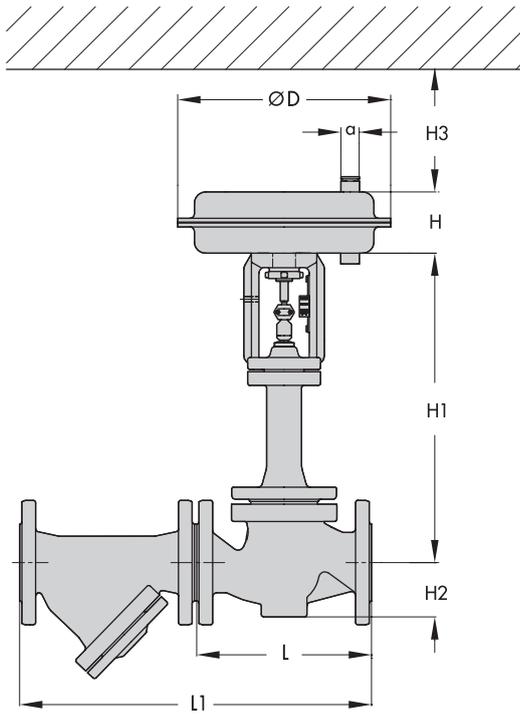
²⁾ Minimum clearance to remove actuator due to solenoid valve and bracket (see Fig. 1)

Table 5: Weights in kg**Table 5.1: Type 3241 Valve**

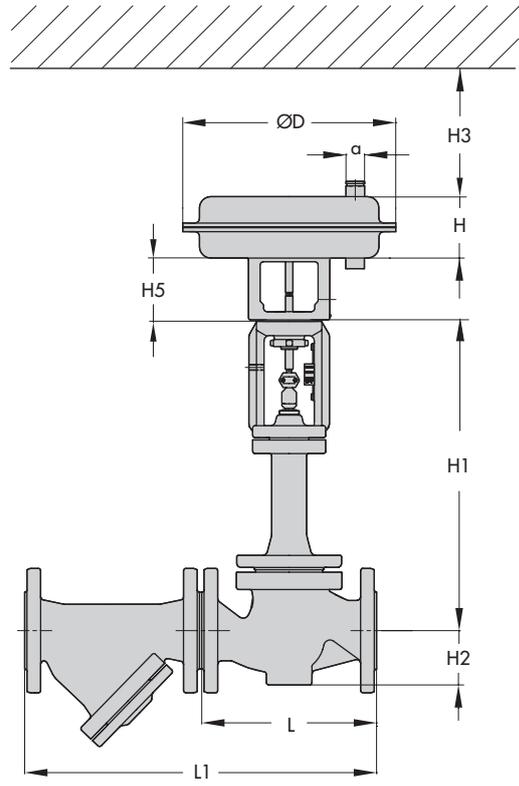
Valve	DN	15	25	40	50	80	100	150
Valve weight without actuator	kg (approx.)	8	10	18	21	38	60	150
Strainer								
Weight	kg (approx.)	2	4	7	10	19	28	60
Actuator								
	cm ²	240		350		700		
Weight of Type 3271 ¹⁾	kg (approx.)	5		8		22		
Weight of Type 3277 ¹⁾	kg (approx.)	9		12		26		
Solenoid valve	kg (approx.)	1						

¹⁾ Without handwheel

Dimensional drawings



Type 3241-1-Gas Control and Quick-acting Shut-off Valve with Type 3271 Pneumatic Actuator



Type 3241-7-Gas Control and Quick-acting Shut-off Valve with Type 3277 Pneumatic Actuator

Ordering text

Control and quick-acting shut-off valve for gases	Type 3241-1-Gas or Type 3241-7-Gas
Valve size	DN ...
Nominal pressure	PN ...
Flow coefficient	K_{VS} ...
Body material	According to Table 3
Characteristic	Equal percentage or linear
Flow divider St I	With/without
Actuator	Type 3271 or Type 3277
Actuator area	... cm ²
Fail-safe position	Fail-close or fail-open
Pilot valve	Manufacturer and type according to Table 2
Positioner	Type ...
Strainer	Type 2 NI

Specifications subject to change without notice



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

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