

T 8020-2 EN

Series 240 · Type 3241-1-Gas and Type 3241-7-Gas Automatic Shut-off Valves for Gases (valve class D)

DIN-DVGW typetested acc. to DIN EN 161 (2013-04)



Application

Control valve for control systems subject to the special safety requirements governing gas supply
For fuel gases according to Gas Appliances Regulation (EU) 2016/426.

DN 15 to 150 · PN 40 · -20 to +220 °C

Automatic shut-off valve with Type 3241 Globe Valve with pneumatic actuator:

- Type 3271 (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 control valves, typetested according to DIN EN 161 (2013-04), are used to control the pressure, temperature or flow rate of gas-burning appliances. In the event of a malfunction, the valves shut off the gas supply. They meet the strict leakage requirements of Class D.

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 with their modular design can be equipped with various accessories according to IEC 60534-6-1 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** · Automatic shut-off valve with Type 3271 Actuator (see Data Sheet ► T 8310-1)
- **Type 3241-7-Gas** · Automatic shut-off valve with Type 3277 Actuator (see Data Sheet ► T 8310-1)

Further versions

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



Fig. 1: Type 3241-7-Gas with Type 3963 Solenoid Valve and Type 3730 Positioner

¹⁾ Accessories required. See associated actuator documentation.

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 aFig. 3nd 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 quickly close.

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.

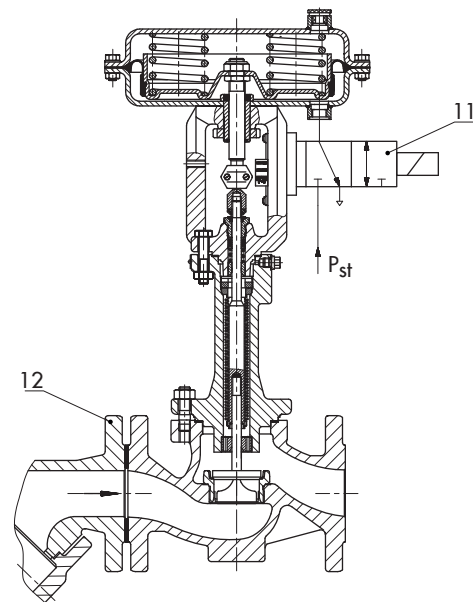


Fig. 2: Type 3241-1-Gas Automatic Shut-off Valve

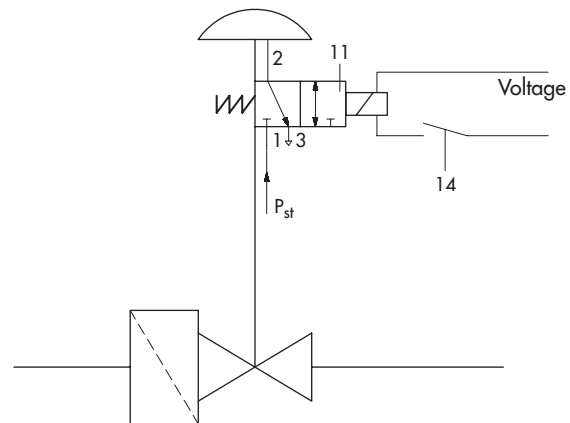


Fig. 3: Functional diagram showing version without positioner

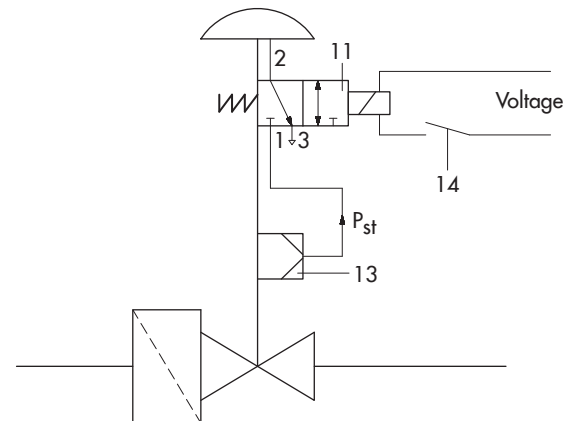


Fig. 4: Functional diagram showing version with positioner

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-0085CQ0516																				
Valve size	DN	15			25			40			50			80			100			150		
Pressure rating	PN	40																				
K _{VS} coefficient (without flow divider ST 1)		0.4	1.6	0.4	1.6	6.3	6.3	16	6.3	16	25	40	25	40	60	80	63	100	160	160	260	
		0.63	2.5	0.63	2.5	10	10	-	10	-	-	-	-	-	-	-	-	-	-	-	-	
		1.0	4.0	1.0	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K _{VS} -1 coefficient (with ST 1)		-	-	-	-	-	-	-	-	22	36	22	36	54	72	57	90	144	144	234		
Seat diameter	mm	6	12	6	12	24	24	31	24	31	38	48	38	48	63	80	63	80	100	100	130	
Permissible differential/operating pressure	bar	20									15						10			5		
Rated travel	mm	15												30								
Rangeability		50 : 1									30 : 1											
Permissible ambient temperature		-40 to +60 °C																				
Permissible medium temperature		-20 to +220 °C																				
Closing time		<5 s ¹⁾																				
Valve class		Valve class D																				
Strainer		Type 2 NI, special version for gas, 0.25 mm mesh size																				

¹⁾ Closing time <1 s when fitted with correspondingly sized pilot valves (possibly in combination with a quick exhaust valve)**Table 1.2:** Type 3271 or Type 3277 Pneumatic Actuator (versions without handwheel and without travel stop)

Actuator area in cm ²		175v2				355v2				750v2				
Bench range	bar	0.8 to 2.4		1.7 to 3.3		2.35 to 2.95				1.6 to 2.4	1.65 to 2.65			
Required supply pressure	bar	2.7		3.6		3.25	3.3	3.25	3.3	3.25	2.7	3	2.95	
Max. supply pressure	bar	6				6				6				
Closing force	kN	1.4		3		8.34	8.3	8.34	8.3	8.34	12	12.4		
Fail-safe position		Fail-close												

Table 2: Pilot valves for Type 3241-1-Gas · Valid for closing time <5 s

Valve			Solenoid valve manufacturer and model number			
Valve size DN	Actuator [cm ²]	Fail-safe position	SAMSOMATIC model K _{V5} coefficient (Attachment: threaded connection)		Norgren series Herion (Attachment: NAMUR interface)	
			3963-xxxxx13 1.4	3963-xxxxx14 4.3	24011 ¹⁾	98015
15	175	Stem extends (FA) Fail-close	•	•	•	•
25	175		•	•	•	•
40	175		•	•	•	•
50	175		•	•	•	•
	355		•	•	•	•
80	355		•	•	•	•
	750		•	•	•	•
100	750		•	•	•	•
150	750	•	•	•	•	

¹⁾ Herion Type 24011 Solenoid valve with quick exhaust module

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

Valve	DN 15 to 150		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**Table 4.1: Type 3241 Valve**

Valve	DN	15	25	40	50	80	100 ¹⁾	150 ¹⁾	
Length L	mm	130	160	200	230	310	350	480	
Length L1	mm	260	320	400	460	620	700	960	
Height H1 with 175v2, 355v2 and 750v2 cm ² actuator area	mm	222		223		262	354	390	
H2 ²⁾	Cast steel	mm	47.5	57.5	75	82.5	100	118 ³⁾	175 ³⁾
	Forged steel	mm	53 ³⁾	70 ³⁾	94 ³⁾	100 ³⁾	132 ³⁾	–	

¹⁾ Only with valve body made of 1.0619 or 1.4408

²⁾ The H2 dimension is the distance from the middle of the flow path to the lowest point of the valve. This point may be the bottom of the connecting flange or the bottom of the valve body.

³⁾ Contrary to the drawing, the lowest point is the bottom of the valve body.

Table 4.2: Types 3271 and 3277 Pneumatic Actuators

Actuator area	cm ²	175v2	355v2	750v2
Diaphragm ØD	mm	215	280	394
H ¹⁾	mm	78	121	236
H3 ²⁾	mm	110	110	190
H5	Type 3277 mm	101	101	101
Thread	Type 3271	M30x1.5		
	Type 3277	M30x1.5		
α	Type 3271	G ¼ (¼ NPT)	G ⅜ (⅜ NPT)	G ⅝ (⅝ 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 hoist may differ. Actuators up to 355v2 cm² without lifting eyelet

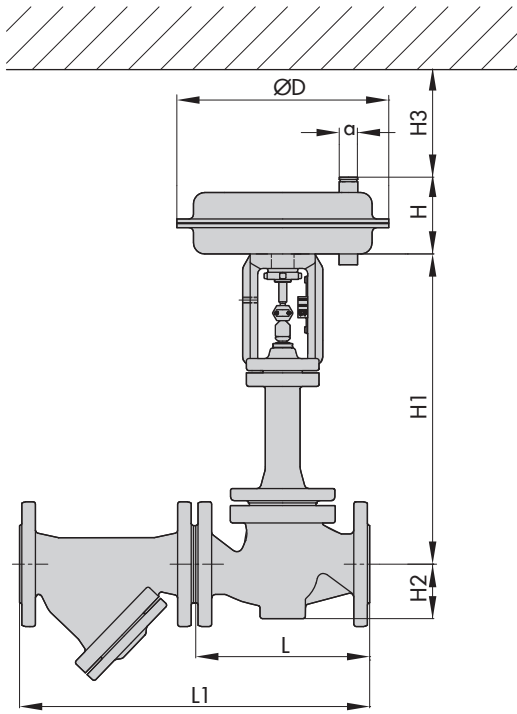
²⁾ Minimum clearance to remove actuator due to solenoid valve and bracket (see Fig. 1)

Table 5: Weights

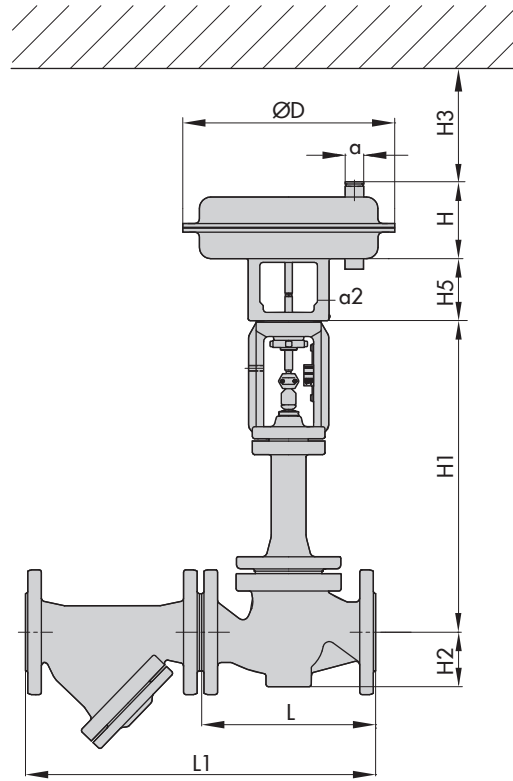
Valve	DN	15	25	40	50	80	100	150
Weight without actuator	kg (approx.)	8	10	18	21	38	60	150
Strainer								
Weight	kg (approx.)	2	4	7	10	19	28	60
Actuator								
		cm ²	175v2	355v2	750v2			
Weight of Type 3271 ¹⁾	kg (approx.)		6	15	36			
Weight of Type 3277 ¹⁾	kg (approx.)		10	19	40			
Solenoid valve		kg (approx.)	1					

¹⁾ Without handwheel

Dimensional drawings



Type 3241-1-Gas Automatic Shut-off Valve with Type 3271 Pneumatic Actuator



Type 3241-7-Gas Automatic Shut-off Valve with Type 3277 Pneumatic Actuator

Ordering text

Automatic Shut-off Valve for Gas	Type 3241-1-Gas or Type 3241-7-Gas
Valve size	DN ...
Pressure rating	PN ...
Flow coefficient	K_{VS} ...
Housing material	Refer to Table 3
Characteristic	Equal percentage or linear
Flow divider ST 1	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

Associated Information Sheet	▶ T 8000-X
Associated Data Sheets for Pneumatic actuator	▶ T 8310-1
Associated Mounting and Operating Instructions	▶ EB 8020

