

CONTROL VALVES **Z**[®] WITH QUICK CLOSURE CIRCUITS FOR GASES

APPLICATION AREA:

Control valves with pneumatic actuators fitted with quick closure circuits are designed for burners and other gas appliances, where they control the flow, and in case of emergency, cut the flow off. Time to full closure is less than 1 second.

FEATURES:

Possible applications:

- range of nominal sizes from DN15...250 for nominal pressures PN10...40; CL150; CL300,
- all surfaces exposed to fluids are resistant to flammable gases and lubricants;
- various materials of valve body and internal parts, adapted to specific working conditions
- wide range of flow coefficients and control characteristics,
- easy assembly and dismantling of valve internal parts for maintenance and service,
- possibility of mating with revers-action multi-spring actuators, types R-250; 400; 630; 1000 with no extra parts (keeping the number of springs),
- high tightness of closure due to application of soft seats,
- reliable connection between actuator stem and valve, and between seat and body,
- maintenance-free bonnet packings:
 - syphon bellows s/s with FVH-PTFE or TA-LUFT packing,
- competitive prices due to simple and functional design of valves and actuators and used materials,
- design and production process meet the requirements of Quality Management System ISO 9001 and Directive 97/23/EC, and regulations of AD2000 Merkblatt, designated for installation on pipelines.
- valves manufacture process meets requirements of ATEX Directive 94/9/EC.



Z[®] - is a trademark registered with Republic of Poland Patent Office.

Body : single-ported, flanged, cast in carbon steel or stainless steel.

Nominal size: DN15; 20; 25; 32; 40; 50; 65; 80; 100; 150; 200; 250

Nominal pressure: PN10; 16; 25; 40 (as per PN-EN 1092-1:2010 and PN-EN 1092-2:1999);
CL150; CL300 (as per PN-EN 1759-1:2005).

Steel flanges CL150; CL300 are so designed that they can be assembled with flanges executed per American standards ANSI/ASME B16.5 and MSS SP44. In American standards flanges are identified with nominal values in "Classes", to which nominal pressure (PN) values as per PN-ISO 7005-1:2002 correspond.

Equivalent identification as per PN are: CL150: PN 20 and CL300: PN 50.

Table 1. Flanged end connections

Material	Nominal pressure	Facing of flange types			
		Raised face	Groove	Recess	Ring - joint
Identification					
Grey iron	PN10; 16	B ²⁾	-	-	-
Spheroidal iron	PN10; 16; 25; 40		-	-	-
Cast steel	PN10; 16; 25; 40		D	F	-
	CL150		-	-	J (RTJ)
CL300	DL (D1 ¹⁾	F (F1)			
¹⁾ - only for CL300; ²⁾ - B1 – (Ra=12.5 mm, concentric surface structure "C"), B2 – (Ra as agreed with the customer); () - identification of connections as per ASME B16.5					
Possible execution of flanges per specification and indicated standards					

Face-to-face dimensions (body): as per PN-EN 60534-3-1; 2000r., Series 1 - for PN10; PN16; 25; 40; series 37- for CL150; series 38 - for CL300

Bellows seat bonnet - non-cast, fixed to body via mounting plate (DN15-100)
- cast (DN150-250).

Valve plug - contoured, unbalanced.

- control characteristics:
 - linear (L)
 - equal percentage (P)
 - quick-opening (S)
- rangeability:
 - 50:1

Valve seat - screwed in, with cone - centering, sealing and protecting against unscrewing, soft (PTFE packing).

Leakage class – bubble: class VI to PN-EN 60534-4

NOTE:

Other data as per catalog of Z valves and P/R actuators.

ACTUATOR ACCESSORIES:

- positioner,
- quick exhaust valve,
- solenoid valve 3/2,
- limit switches, etc.

• Valve accessories:

- Strainers are to be installed upstream the valve (Strainer class 600 meshes/cm²)

• Additional information:

- used electric appliances – for application in explosion hazard areas (EEx).
- valves are suitable for application based on **Technical Approval No. 05-003/96 (edition IV/2001)**, issued by OIL AND GAS INSTITUTE.
- valves manufactured based on recommendations of standard **PN-EN 161**.

OPERATION:

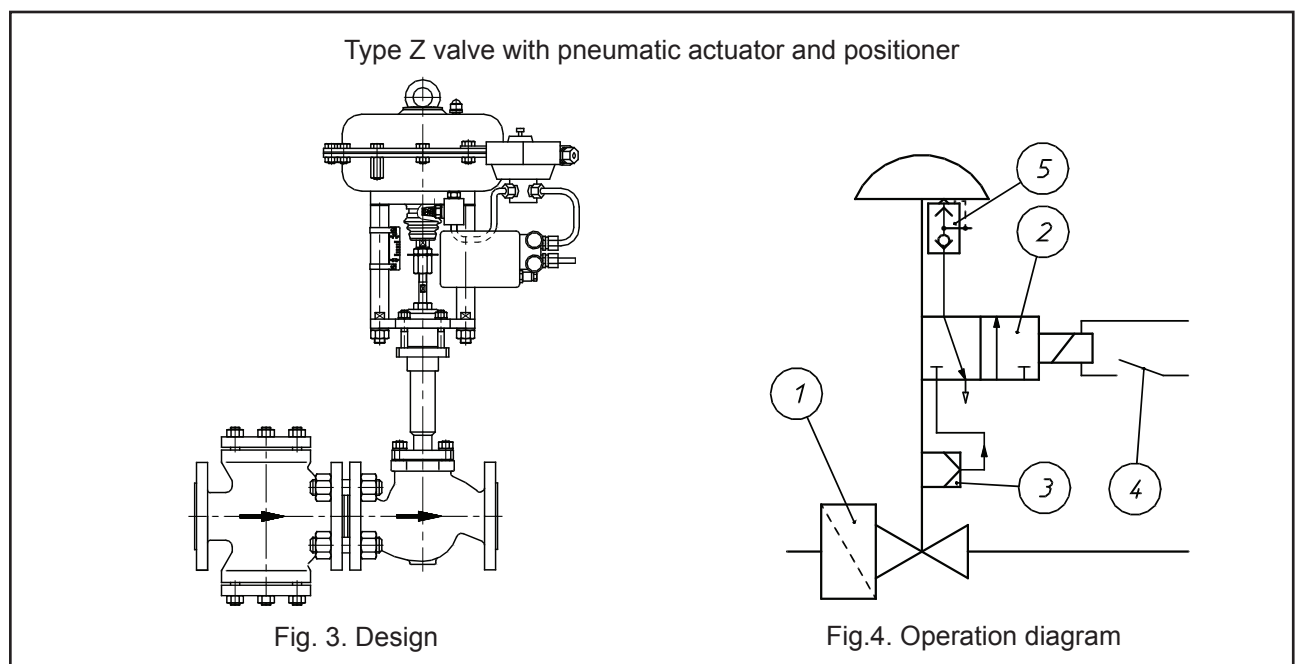
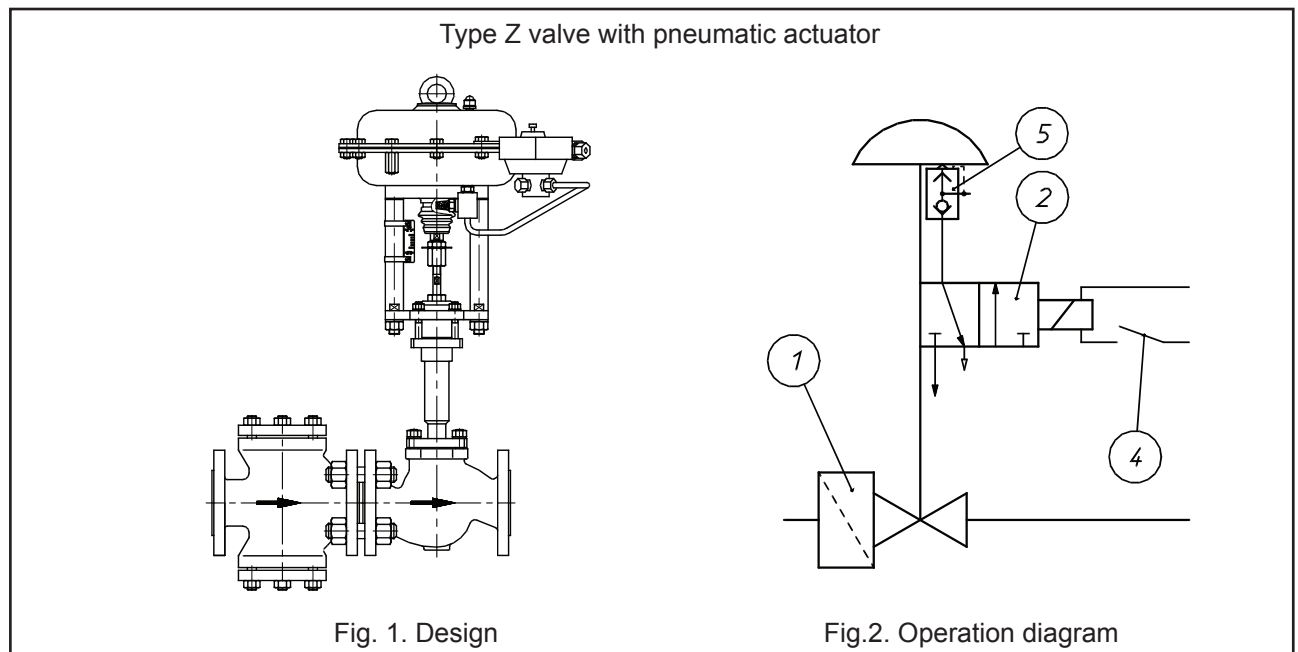
Pneumatic control signal is supplied to pressure chamber of actuator through activated three-way solenoid valve (open to control signal). Increase in pneumatic control signal generates force which moves the counteracting springs, causing movement of stem with plug towards open position. Any break of the electric circuit (e.g. due to power supply failure) causes de-energizing of the solenoid valve and valve pressure relief. Spring force causes movements of actuator and valve motion elements towards closed position and cutting-off media flow. Air is vented from the actuator chamber to atmosphere. Cutting-off (closure of valve) occurs also in the case of pneumatic signal fading (supply pressure failure).

NOTE:

In case of need for quick emergency opening of valve (pressure fading, breaking of electric circuit) there is a possibility of executing valve with quick opening functionality by application of P type pneumatic actuators.

TECHNICAL SPECIFICATION:

- nominal sizes: DN15...250
- nominal pressures: PN10...40; CL150; CL300
- flow ratios: Kvs 0,01...160
- max. stroke 38 mm
- ambient temperature: - 40°C ... + 80°C
- fluid temperature: max. + 220°C
- leakage class: class VI as per PN-EN 60534-4
- reset time: about 1sec.



- 1) Strainer
- 2) Solenoid valve 3/2 (control)
- 3) Positioner
- 4) Auxiliary emergency closure circuit switch - optional
- 5) Quick exhaust valve

ORDERING:

The order should contain:

- valve type and size, or technical and operational parameters, to allow calculations and selection of valve (as per technical specification questionnaire),
- valve designation: type of utilities, operation mode, etc.,
- actuator accessories: pneumatic or electro-pneumatic positioner, air-set, three-way solenoid valve, quick drainage valve, limit switches, etc.,
- valve accessories: strainer (mesh density/cm²),
- reset time,
- valve identification as per relevant data sheets.

For assistance in selecting valve please contact the personnel of Sales and Marketing Department or Technical Department.

NOTE:

For detailed technical specification of accessories refer to separate catalogs of respective accessories.