

SINGLE - PORTED GLOBE CONTROL VALVES SERIES 10000 A

FUNCTION

The valves are used as final elements in automatic and remote control systems. They are designed for the flow control of liquids and gases in chemical industry, heat engineering, power industry, metallurgy, shipbuilding etc. Valves can be supplied with or without drive mechanism. 37 type diaphragm spring actuators are their standard drive mechanism.

CONSTRUCTION

The valve mounted with 37 type actuator is composed of the following main parts:

body - 1, bonnet - 2, plug - 3, seat - 4, bottom plug - 5, plug stem - 6, packing box - 7, actuator yoke - 8, cases - 9, 10, diaphragm - 11, actuator stem - 12, adjusting screw - 13, spring - 14

Body (1) is made of grey cast iron, with flanged connection with a raised face, groove or key acc. to PN-H-74306:1985, ISO 2084-1974, PN-H-74307:1985, ISO 2441-1975.

Bonnet (2) standard, made of grey cast iron.

Plug (3) and seat (4) - made of acidproof steel

According to the characteristics required the following kinds of plugs can be made:

- linear contoured,
- equal percentage contoured,
- quick opening disk for on - off control.

Bottom plug (5) - made of grey cast iron - besides its basic function of closing the valve body at the bottom side and guiding the plug it can also be used for easy removing of impurity gathering during operation without the necessity of dismantling of the bonnet and actuator.

Plug stem (6) - made of acidproof steel, enables rigid attaching the plug to the actuator stem.

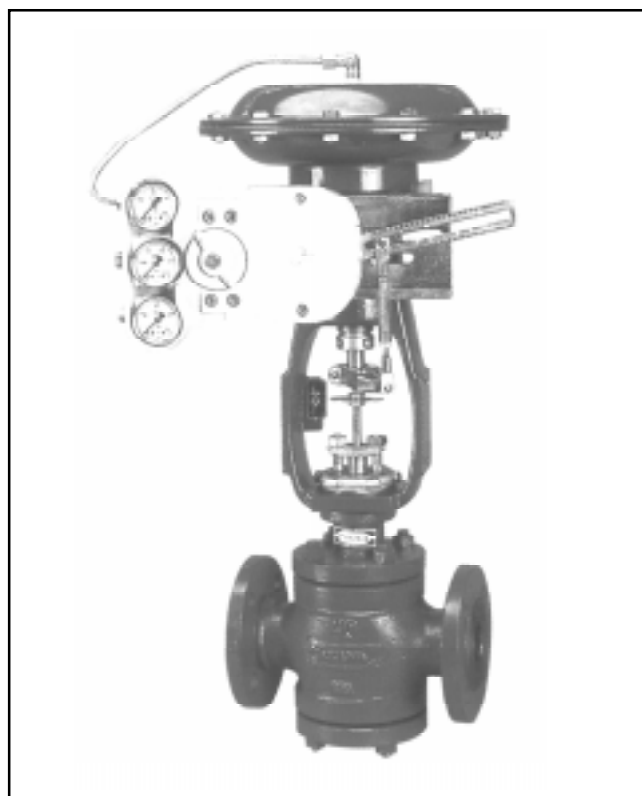
Packing box (7) - made of PTFE rings.

Actuator yoke (8) - made of grey cast iron,

Cases (9, 10) - made of pressed steel, create a pressure chamber.

Diaphragm (11) - made of neoprene with a spacer.

Actuator stem (12) - made of stainless toughened steel.



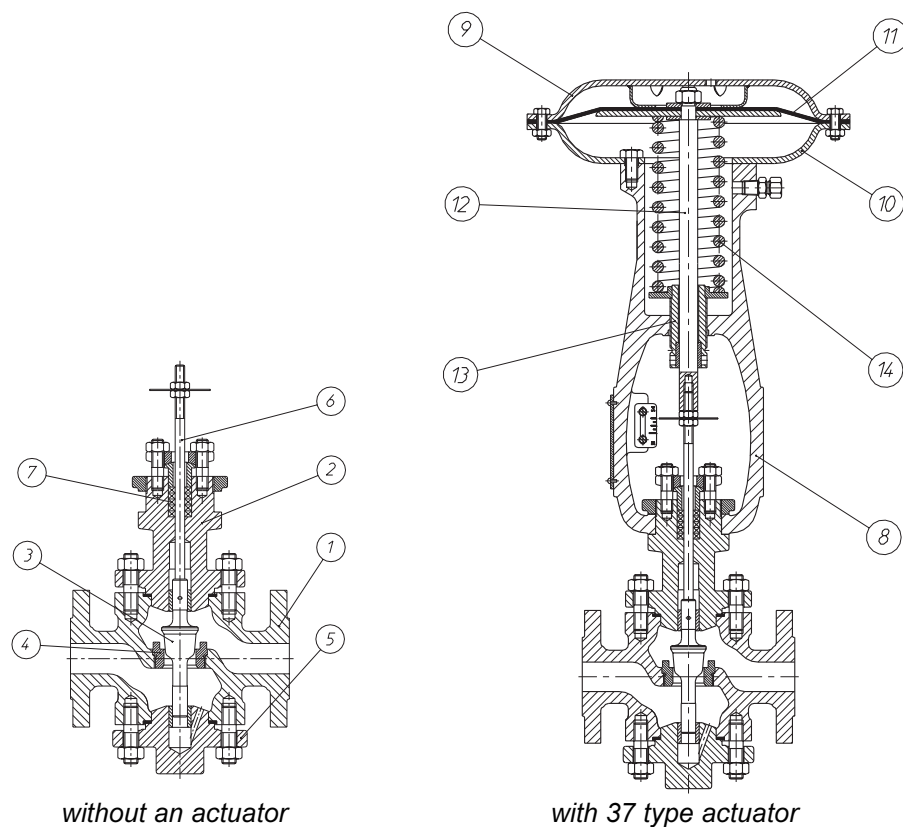


Fig. 1 Construction of the valve

Table 1. Kinds of plugs and marking of the valves

Kind and characteristic of plug	Plug symbol	Valve marking	
		close	open
Equal percentage contoured	121 123	37-10121A	37-10123A
Quick - opening disk	161 163	37-10161A	37-10163A
Linear contoured	171 173	37-10171A	37-10173A

Plugs are made for full seat capacity and reduced up to 40% of rated capacity

Table 2. Available trim sizes.

Plug symbol	Seat capacity	
	full	reduced 0,4
	DN	DN
	millimeters	
121 123	20 ... 300	-
161 163	20 ... 300	32, 40, 50, 80, 100
171 173	20 ... 300	32, 40, 50, 65, 80, 100, 150

OPERATION PRINCIPLE

Under the influence of air pressure the actuator diaphragm presses on the diaphragm plate and overcoming the resistance of the spring causes linear displacement of the actuator stem and connected with it the valve stem. This displacement of valve stem attached to the plug causes the change of the seat flow area owing to that the volumetric rate of flow changes in relation to the plug position. Full rated plug stroke is being reached at the change of air pressure within the limits corresponding to the normal pneumatic signal 20 ... 100 kPa or raised signal 40 ... 200 kPa. Valves are reversible that means that their construction enables the change of valve action „air to close“ into „air to open“ through turning of the body and plug by 180° around the pipeline axis without the necessity of changing the actuator type and application of additional parts of the valve.

TECHNICAL DATA

Characteristic of flow	equal percentage, linear, quick - opening.
Hysteresis	
without positioner	4% of rated stroke range.
with positioner	1% of rated stroke range.
Basic error	
without positioner	± 4% of rated stroke range.
with positioner	± 1,5% of rated stroke range.
Dead band	
without positioner	2% of input signal variation range.
with positioner	0,5% of input signal variation range.
Pneumatic setting signal	
normal	20 ... 100 kPa.
raised	40 ... 200 kPa.
Maximum supply pressure	240 kPa
Medium temperature range	0 ... 250°C
Nominal pressure range NP	10 ... 16
Nominal diameters range ND	20 ... 300
Tightness of closed valve	below 0,01% Kv _s

Table 3. Flow coefficients Kv_s [m³/h]

Nominal diameter DN [mm]	Type and size of actuator	Stroke	Full capacity		0,4 reduced capacity	
			Plug symbol			
			121,171 123,173	161 163	171 173	161 173
20	37-9	12,7	5,2	6,8	—	—
25	37-9	12,7	7,7	10,3	—	—
32	37-9	19,1	12	15,4	—	6,2
40	37-9	19,1	18	23	4,3	9,2
50	37-11	25,4	31	41	6,8	16,4
65	37-11	25,4	46,5	62	12	—
80	37-13	38,1	64	86	18,8	—
100	37-13	38,1	106	150	25,6	34,4
150	37-15	50,8	230	344	43	60,0
200	37-18	63,5	410	656	93	—
250	37-18	63,5	645	941	—	—
300	37-18L	88,9	930	1330	—	—

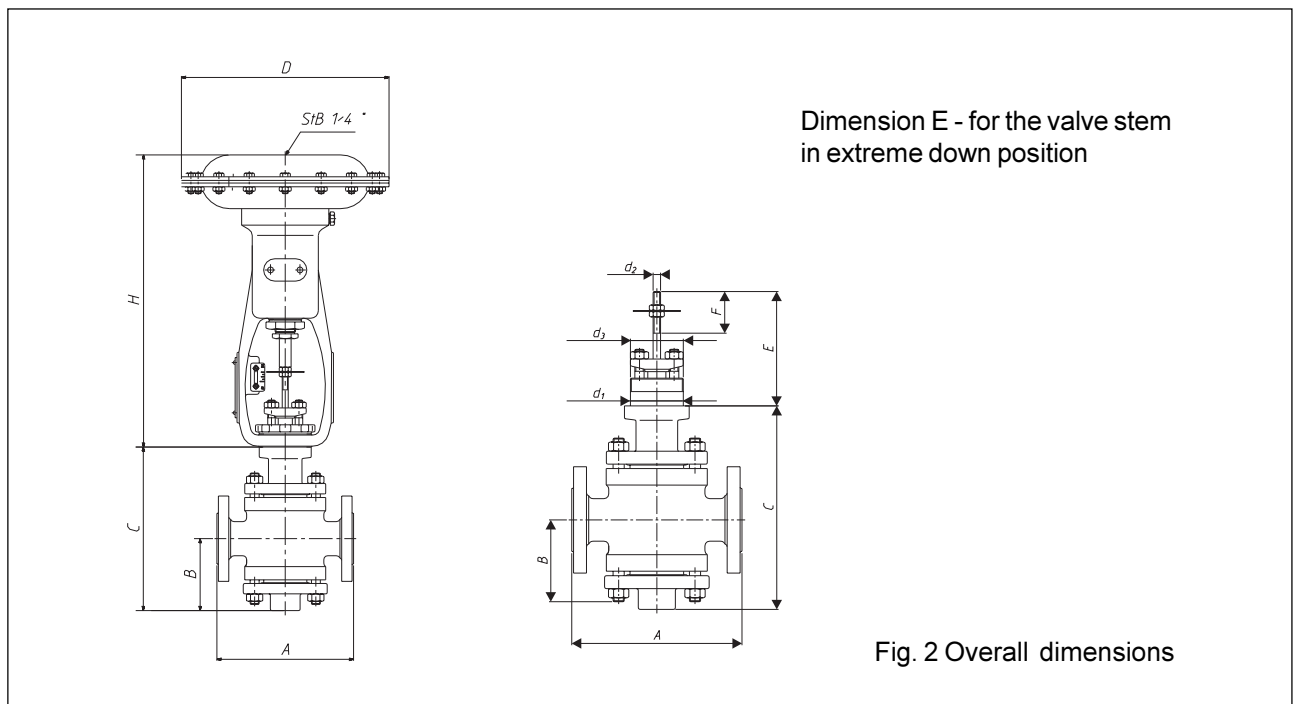
AVAILABLE ACCESORIES

Pneumatic actuators are basic drive mechanisms for control valves. These actuators can be fitted with:

- side handwheel,
- top handwheel,
- pneumatic positioner,
- electropneumatic positioner,
- air filter regulator,
- three - way solenoid valve,
- limit switches,
- lock - up valve.

Table 4. Dimensions and mass of valves

Nominal diameter	Nominal pressure	A	B	C	D	d ₁	d ₂	d ₃	E	F	H	Mass
[mm]	[MPa]	millimeters					inches		millimeters			[kg]
20	1,0...1,6	184	98,5	125	280	57,15	5/16"-24UNF3A	2 1/4"-16UNF2A	115	45	395	6,5
25		184	98,5	125	280	57,15	5/16"-24UNF3A	2 1/4"-16UNF2A	115	45	395	7
32		200	98,5	145	280	57,15	5/16"-24UNF3A	2 1/4"-16UNF2A	112	45	395	9
40		222,5	101,5	150	280	57,15	5/16"-24UNF3A	2 1/4"-16UNF2A	104	45	395	14
50		254	116	155	330	57,15	3/8"-24UNF3A	2 1/4"-16UNF2A	108,5	50	405	21
65		276	132	160	330	57,15	3/8"-24UNF3A	2 1/4"-16UNF2A	106	50	405	27
80		298,5	165	200	381	57,15	1/2"-20UNF3A	2 1/4"-16UNF2A	120	60	500	33
100		352,5	180	210	381	57,15	1/2"-20UNF3A	2 1/4"-16UNF2A	109	60	500	60
150		451	241	280	444	84,15	5/8"-18UNF3A	3 5/16"-16NS2	129	60	635	130
200		543	283	315	527	84,15	3/4"-16UNF3A	3 5/16"-16NS2	128	35	670	190
250		625	293	330	527	84,15	3/4"-16UNF3A	3 5/16"-16NS2	124,5	35	670	330
300		730	347	400	527	95,25	3/4"-16UNF3A	3 5/4"-12UN2A	144,5	75	830	500



OTHER DRIVE MECHANISMS

1. Hand operated actuator type 20 produced by Zakłady Automatyki POLNA S.A.
2. Electric or electrohydraulic actuators.

Detailed information and technical data of actuator - acc. to individual catalogue cards.

ORDERING VALVES

An order should include name, type and constructional performance details as well as attached technical data sheet. Sheets can be obtained from the producer.

In case of difficulties with specifying of all parameters we come to assistance in the choice of the valve.

All informations can be obtained from Marketing Department or Technology and Development Department.



Producer and distributor

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