

NEW
PRODUCT



VALFTEK®

VTC PNEUMATIC CONTROL VALVES





PNEUMATIC GLOBE CONTROL VALVES

Continuous and Accurate Control, Superior Performance

In industrial process plants such as oil, petrochemical and chemical facilities, power plants, pharmaceutical, food, heating-cooling systems and similar industrial applications, automatic control valves are indispensable components of automation systems to precisely obtain and maintain process parameters such as pressure, temperature, flow, level, relative humidity, etc.

The primary function of these valves is to ensure operating parameters precisely without the need for human intervention, maintain 7/24 system safety and stability, provide energy efficiency and operate in harmony with existing automation system.

Depending on application and purpose of use, automatic control valves are divided into two main groups :

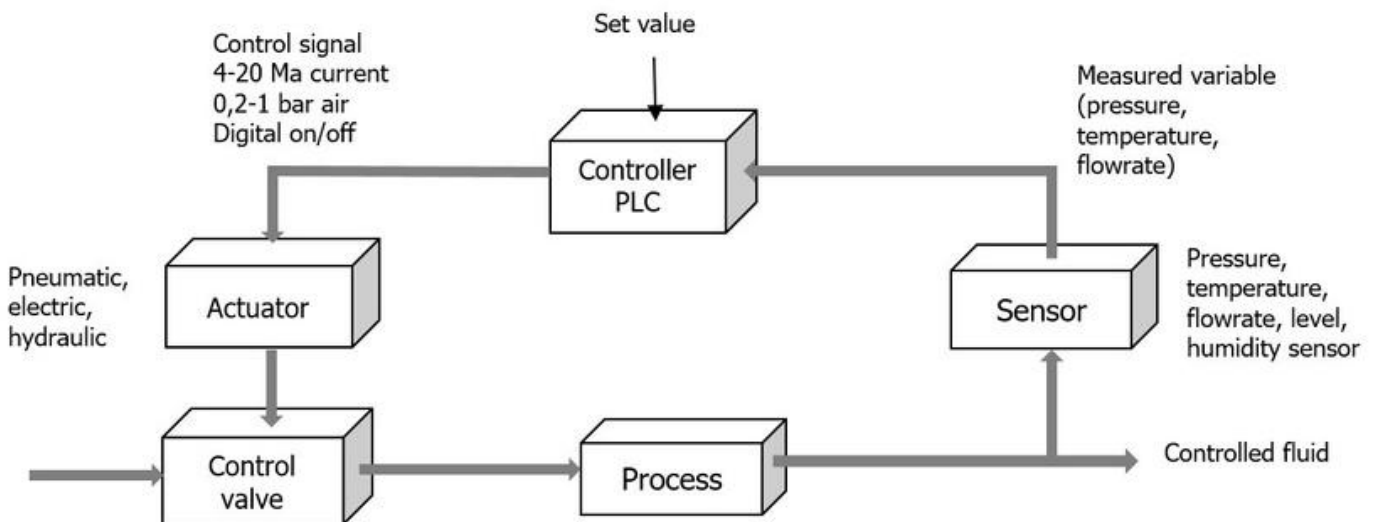
- *Linear or multi-turn types (globe, gate)
- *Quarter-turn types (ball, butterfly, plug)

Actuators which provide movement externally and are connected to valves can be pneumatic, electric or hydraulic depending on power source.

This brochure focuses on multi spring diaphragm pneumatic actuated globe control valves which are the most commonly used in the industry. These valves may be designed as on/off or proportional (linear, equal percentage) control depending on how fluid is regulated.

Globe valves inherently provide the most precise proportional flow control and thanks to specially designed trim components, they offer controllability even under high differential pressures.

Opening of valve selected in accordance with operating conditions is adjusted precisely based on control signal transmitted from a controller to a positioner. Then, actuator modulates valve position according to process conditions ensuring accurate fluid control.



Typical Automatic Control System Components

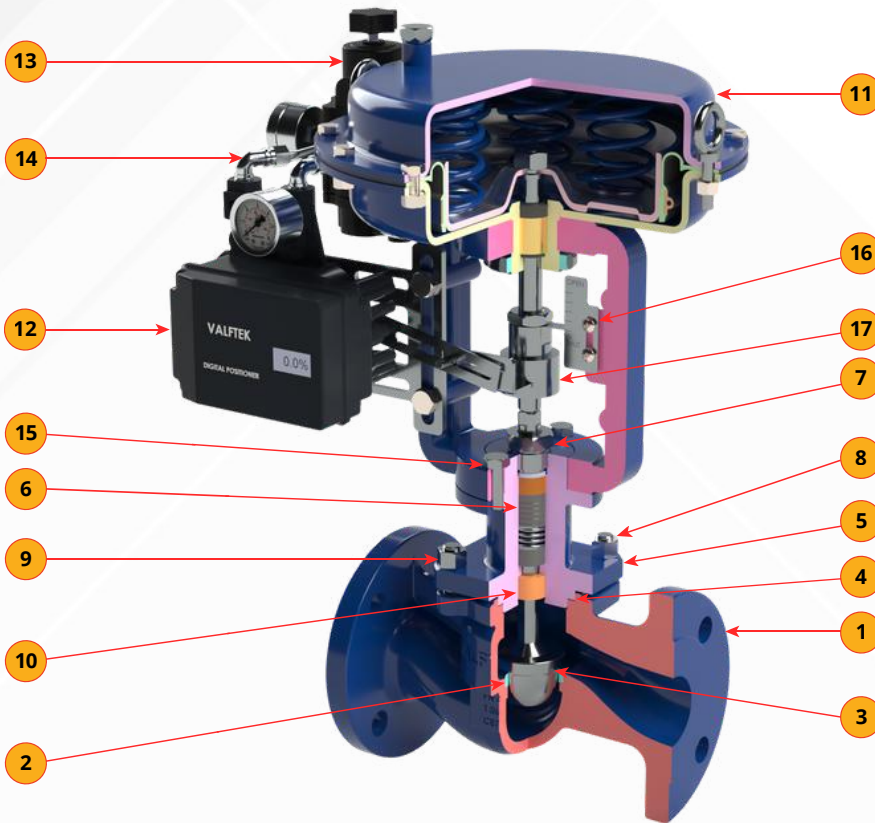


VALFTEK VTC Pneumatic Control Valves



General Features

- **Pressure Rating** PN 16 / PN 25 / PN40
- **Nominal Diameter** DN15 – DN200
- **Connections** Flanged (RF)
- **Body Materials** Grey cast iron (5.1301), Nodular cast iron (5.3103), Carbon steel (1.0619)
- **Trim Materials** AISI 420 / AISI 316
- **Packing Materials** PTFE / Graphite
- **Temperature Range** For PN 16 (5.1301), -10 +300 °C , for PN 25 (5.3103), -20 +350 °C, for PN 40 (1.0619), -20 +400 °C
- **Actuator Type** Multi spring diaphragm pneumatic (reverse or direct action)
- **Control Signal** 4 – 20 mA , 0-10V, 3-15 psi, On/off
- **Leakage Class** Class IV-V-VI
- **Flow Characteristics** On-off / Linear / Equal percentage
- **Applications** Water, hot water, steam, compressed air, thermal oil, chemicals, other process fluids



No	Part Name	Material
1	Body	5.1301 / 5.3103 / 1.0619
2	Seat	AISI420/316
3	Plug / Stem	AISI420/316
4	Body gasket	Graphite
5	Bonnet	5.1301 / 5.3103 / 1.0619
6	Packing	PTFE/Graphite
7	Packing gland	AISI304
8	Stud bolt	St52
9	Nut	8
10	Bushing	PTFE/Bronz
11	Actuator	Spring diaphragm, NO/NC
12	Positioner	Pneumatic - Elec.Pneumatic - Digital
13	Filter regulator	1/4" NPT
14	Air piping	AISI316
15	Bolt	8,8
16	Position indicator	AISI304
17	Connector	AISI304



Kvs Values and Thrust Forces

DN			15			20				25					32			
Parabolic Plug	Kvs	m³/h	0,25 0,16 0,1	0,63 0,4	4 2,5 1,6 1	0,25 0,16 0,1	0,63 0,4	4 2,5 1,6 1	7	0,25 0,16 0,1	0,63 0,4	4 2,5 1,6 1	7	11	7	11	16	
	Seat-Ø	(mm)	5	7	20	5	7	16	20	5	7	16	20	27	22	27	27	
280 cm² reverse action (air opens)	Stroke		(mm)		16			16			16				16			
	Spring range (bar)	0,2-1,0	(bar)	40	40	7,8	40	40	12,3	7,8	40	40	12,3	7,8	4,2	6,5	4,2	4,2
		0,4-2,0	(bar)			20,7			32,5	20,7			32,5	20,7	11,4	14	9,4	9,4
		0,8-2,4	(bar)			40			40	40			40	40	21,5	32,5	21,5	21,5
400 cm² reverse action (air opens)	Stroke		(mm)		25			25			25				25			
	Spring range (bar)	0,2-1,0	(bar)															
		0,4-2,0	(bar)															
		0,8-2,4	(bar)												35	40	35	35

DN			40			50			65			80			100			
Parabolic Plug	Kvs		m³/h	11	16	27	16	27	45	27	45	70	45	70	100	70	100	160
	Seat-Ø		(mm)	27	30	40	33	40	50	42	50	65	53	65	80	70	80	100
280 cm² reverse action (air opens)	Stroke		(mm)	16			16			16			16			16		
	Spring range (bar)	0,2-1,0	(bar)	4,3	3,4	1,9												
		0,4-2,0	(bar)	11,4	9,2	5,2	7,6	5,2	3,3									
		0,8-2,4	(bar)	25,5	20,7	11,6	17,1	11,6	7,4									
400 cm² reverse action (air opens)	Stroke		(mm)	25			25			25			25			25		
	Spring range (bar)	0,2-1,0	(bar)							1,8								
		0,4-2,0	(bar)							6,0	4,3	2,5	3,8	2,5	1,6			
		0,8-2,4	(bar)	35	28,4	16	23,5	16	10,2	14,5	10,2	6	9,1	6	4			
600 cm² reverse action (air opens)	Stroke		(mm)	40			40			40			40			40		
	Spring range (bar)	0,2-1,0	(bar)															
		0,4-2,0	(bar)															
		0,8-2,4	(bar)	40	40	22,6	33	22,6	14,5	20,5	14,5	8,6	12,8	8,6	5,6	7,4	5,6	3,6

Notes : Please consult for the missing sizes.

The above values are valid for reverse action actuators, for direct action, please contact us.

Kvs Calculation

Kvs (valve flow coefficient) : The maximum flowrate (m³/h) of 5-30 °C water through a valve with 1 bar differential pressure

$$Kv = \frac{Q}{\sqrt{\Delta P / \rho}} \quad (\text{for liquids})$$

Kv: Flow coefficient (m³/h)

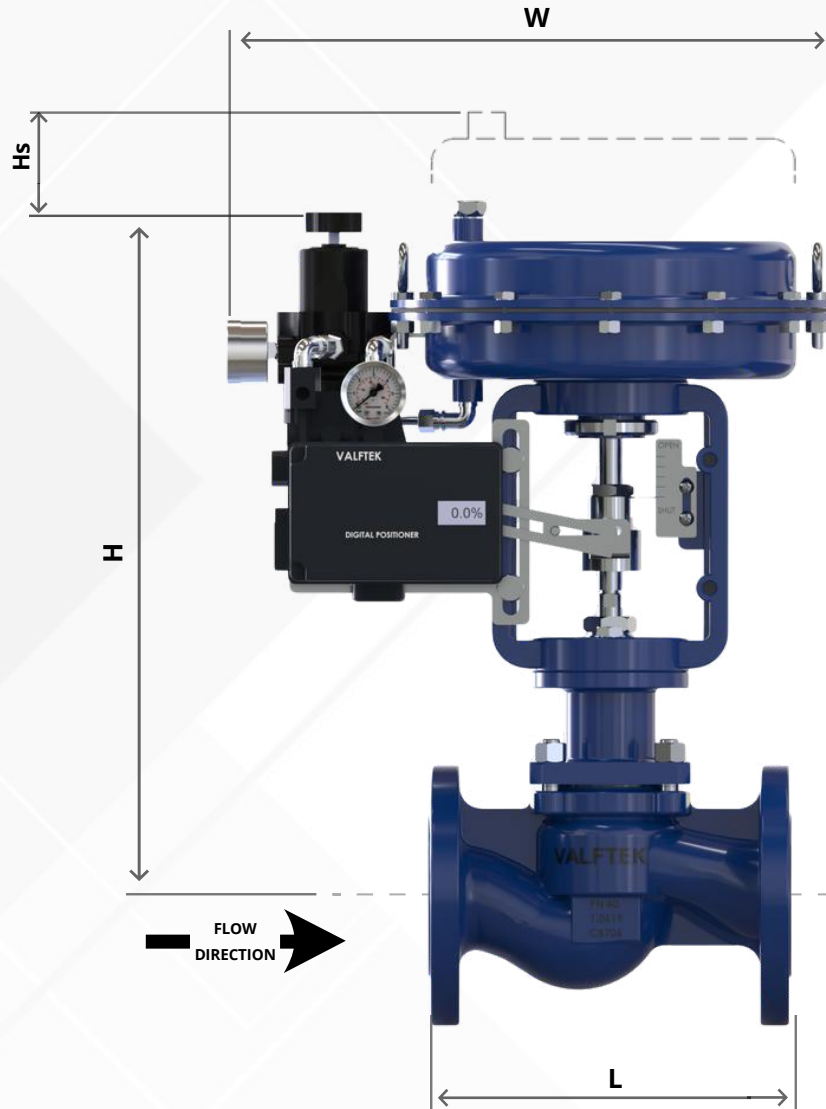
Q: Flowrate (m³/h)

Δp: Differential pressure (bar)

ρ: Fluid density (kg/m³)



Overall Dimensions



Size		Actuator	Face to face (L)	Height (H)	Width (Wa)	Free distance (Hs)	Weight
DN	İnç	cm2	mm	mm	mm	mm	Kg
15	1/2"	280	130	395	382	140	16
20	3/4"		150	395			16
25	1"	280	160	405			18
		400		460	408	170	25
32	1 1/4"	280	180	410	382	140	19
		400		470	408	170	26
40	1 1/2"	280	200	420	382	140	22
		400		480	408	170	29
		600		530	500	260	44
50	2"	280	230	440	382	140	24
		400		490	408	170	31
		600		550	500	260	46
65	2 1/2"	400	290	510	408	170	37
		600		575	500	260	51
80	3"	400	310	525	408	170	40
		600		590	500	260	55
100	4"		350	605			68

Note: The dimensions in this catalog are in mm. We reserve the right to change materials and construction.



Flow Characteristics

There are two types of flow characteristics in proportional control valves :

- Linear :

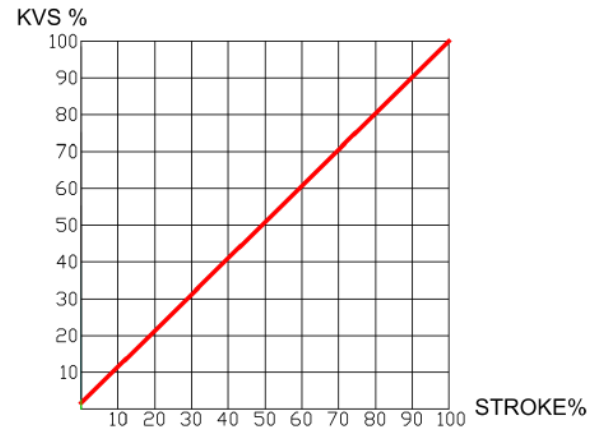
Relationship between valve opening and flow is linear. Suitable for applications requiring predictable control.

- Equal percentage :

When valve opening increases by a certain percentage, the flow increases by a fixed percentage of the existing flow. i.e. slow response at small openings and fast response at large openings.

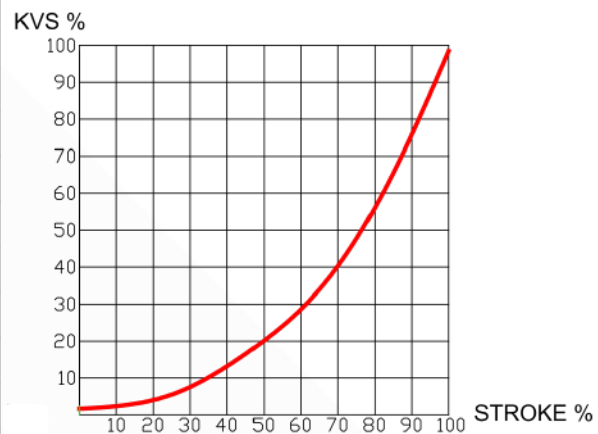
KVs values for linear flow characteristics										
Kvs (m ³ /h)	Valve Opening									
	%10	%20	%30	%40	%50	%60	%70	%80	%90	%100
4	0,4	0,8	1,2	1,6	2	2,4	2,8	3,2	3,6	4
7	0,7	1,4	2,1	2,8	3,5	4,2	4,9	5,6	6,3	7
11	1,1	2,2	3,3	4,4	5,5	6,6	7,7	8,8	9,9	11
16	1,6	3,2	4,8	6,4	8	9,6	11,2	12,8	14,4	16
27	2,7	5,4	8,1	10,8	13,5	16,2	18,9	21,6	24,3	27
45	4,5	9	13,5	18	22,5	27	31,5	36	40,5	45
70	7	14	21	28	35	42	49	56	63	70
100	10	20	30	40	50	60	70	80	90	100

Linear flow characteristics



KVs values for equal percentage flow characteristics										
Kvs (m ³ /h)	Valve Opening									
	%10	%20	%30	%40	%50	%60	%70	%80	%90	%100
4	0,12	0,16	0,32	0,52	0,8	1,16	1,6	2,24	3,04	4
7	0,21	0,28	0,56	0,91	1,4	2,03	2,8	3,92	5,32	7
11	0,33	0,44	0,88	1,43	2,2	3,19	4,4	6,16	8,36	11
16	0,48	0,64	1,28	2,08	3,2	4,64	6,4	8,96	12,16	16
27	0,81	1,08	2,16	3,51	5,4	7,83	10,8	15,12	20,52	27
45	1,35	1,8	3,6	5,85	9	13,05	18	25,2	34,2	45
70	2,1	2,8	5,6	9,1	14	20,3	28	39,2	53,2	70
100	3	4	8	13	20	29	40	56	76	100

Equal percentage flow characteristics



Notes: The values for standard design, full trim, single seated, upper guided stem, flow under disc and normally closed valves.

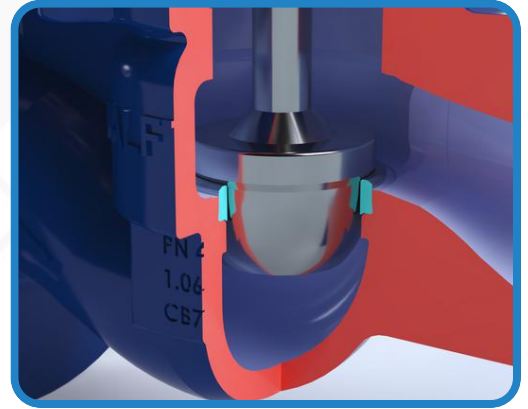
For smaller seats , values will differ.



Different Seat – Plug Design Options

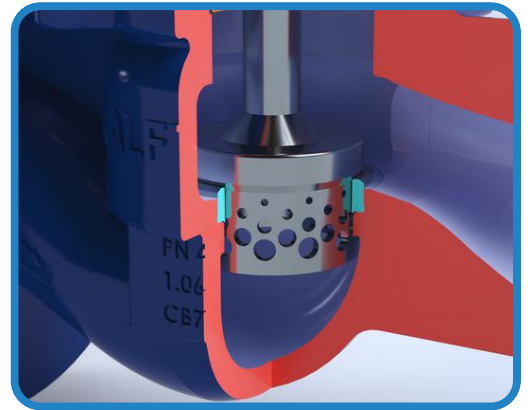
Parabolic Plug (Linear and equal percentage)

Plug surface facing flow is parabolic. This form offers high precision flow at small strokes and high capacity flow at large strokes. Therefore stability at low flows and also efficiency at high flows are achieved.



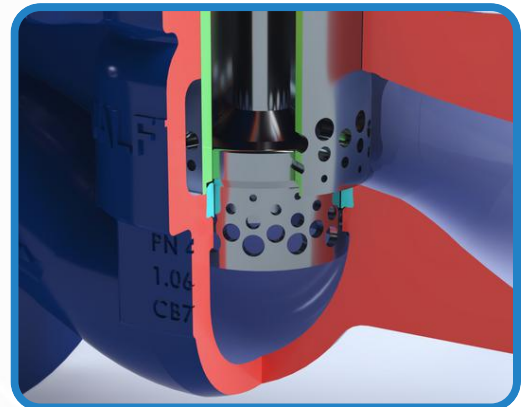
Multi hole Plug (Linear and equal percentage)

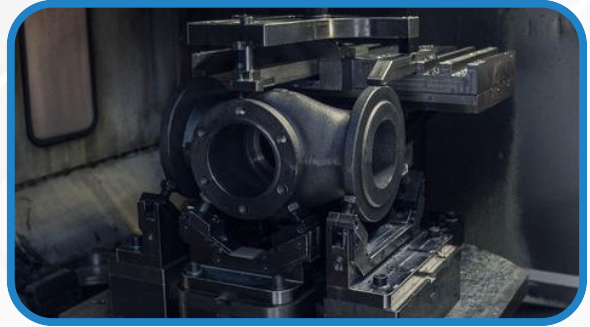
Multi hole plugs assures to reduce noise in gas applications under high differential pressures by leading flow to pass through multiple small holes instead of a single large seat.



Multi hole + Cage Guided Plug (Linear and equal percentage)

A cage added to multi hole plug provides multi stage pressure reduction. This design prevents damage under high pressure drops and is optimized for severe service conditions.





VALFTEK Valf Teknik Tesisat Elemanları San. ve Tic. A.Ş.

Headquarters & Factory

Sarımeşe Mh. Suadiye Caddesi No:19 41250 Kartepe / Kocaeli / Türkiye
Phone : +90 262 371 61 62
E-mail : valftekt@valftekt.com.tr | Web : www.valftekt.com

Istanbul Sales Office

İdealtepe Mh. Turgut Özal Bulvarı No:95/1 34841
Maltepe / İstanbul / Türkiye
Tel : +90 216 415 40 20 | E-mail : valftekt@valftekt.com.tr

Sales Regional Offices

Istanbul Anatolian Office

GSM: +90 532 655 00 15 | istanbulanadolu@valftekt.com.tr

Istanbul European Office

GSM: +90 533 315 70 85 | istanbulavrupa@valftekt.com.tr

Adana Office

GSM: +90 532 292 35 14 | adana@valftekt.com.tr

Ankara Office

GSM: +90 532 292 35 09 | ankara@valftekt.com.tr

Bursa Office

GSM: +90 533 629 97 75 | bursa@valftekt.com.tr

İzmir Office

GSM: +90 532 402 74 68 | izmir@valftekt.com.tr

Trakya Office

GSM: +90 533 315 70 85 | trakya@valftekt.com.tr