

D1 Series

Cage Guided Control Valves

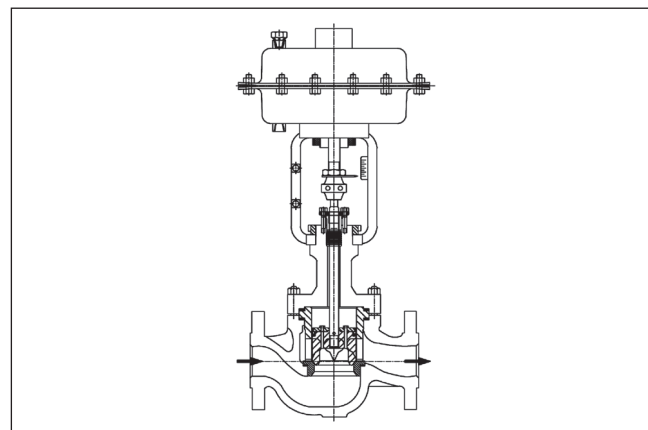
Model D1V

Overview

Model D1V are with bolted bonnet and cage guided trims. The design facilitates easy access to internal components, on-line inspection and maintenance.

Model D1V are provided with multiple spring diaphragms and piston actuators.

Model D1V are widely applicable for reliable control, with high shut-off performance, in high or low temperature process.



Specifications

Body

Type

Straight-through, cast globe valve

Nominal size:

1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36 inches

Pressure rating

- ✓ ANSI Class 150, 300, 600
- ✓ PN 25, 50, 100

End connection

- ✓ Flanged end: FF, RF, RJ, LG, SG, Tongue and groove
- ✓ Welding end: BW

Material

- ✓ Carbon steel: ASTM A216 Gr WCB, WCC, WC6, WC9, C5, C12, LCB
- ✓ Stainless steel: ASTM A351 Gr CF8, CF8M, CF3, CF3M, CF8C
- ✓ Alloy steel: Hastelloy C, Alloy 20, Nickel, Titanium, Monel (For other materials, consult your Azbil sales office.)

Bonnet

- ✓ Plain type (0 to 230°C)
- ✓ Extended plain type (-70 to 0°C)
- ✓ Extended finned type (230 to 450°C)
- ✓ Metal bellows type(0 to 450°C)

Note) Take care not to exceed the operating temperature ranges specified for respective materials.

Gland type

Bolted gland

Gland packing

- ✓ V shaped PTFE (150 to 200°C)
- ✓ Graphite (150 to 600°C)
- ✓ Low fugitive emission (With PTFE and graphite packing on request)
- ✓ Inverted V shaped PTFE (For vacuum application)

Gasket

- ✓ Stainless steel spiral wound with graphite filled
- ✓ Stainless steel spiral wound with PTFE filled

Trim

Valve plug

- Single seated, Pressure balance plug
 - Metal seat: Equal percentage, Linear
 - Soft seat: Equal percentage, Linear
- Single seated, Quick opening-type plug
 - Metal (Stellite) seat:

Seat type

Metal seat, Soft seat

Material

- ✓ Stainless steel: ASTM A479 Type SS316, SS304, SS316L, SS304L, SS904L
- ✓ Alloy steel: Hastelloy C, Alloy 20, Nickel, Titanium, Monel (For other materials, consult your Azbil sales office.)

Actuator**Type**

Single acting diaphragm actuator (Model M)
Double acting piston actuator (Model PD)

Action

Direct or reverse action

Diaphragm

Nitrile rubber with nylon insert

Supply air pressure

1.4 to 6.0 kg/cm²

Air connection

1/4", 3/8", 1/2" NPT internal thread

Ambient temperature

-40 to +80°C

Valve action

Air-to-close (Direct action actuator is combined.)

Air-to-open (Reverse action actuator is combined.)

Optional accessories

Positioner (pneumatic, smart type), pressure regulator with filter, hand wheel, limit switch, motion transmitter, booster relay, lock-up valve, and others.

Note) For the optional items, refer to the specification sheets and installation drawings of respective accessories.

Additional specification (by special order)

- ✓ Special inspection
Flow characteristics inspection, material inspection (Material certificate), nondestructive inspection
- ✓ Stainless steel (SUS304) Atmosphere-exposed nuts and bolts
- ✓ Special air piping and joint
- ✓ Vacuum service

Performance**Rated Cv value**

Refer to Table 1

Flow characteristics

Equal percentage, linear, quick opening

Inherent rangeability

30:1

Optional 50:1

Allowable differential pressure

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Leakage specification

Nominal size	Pressure rating	Seat leakage per IEC60534-4 and ANSI/FCI 70-2	Seat type	Seal type	Temperature range
1-1/2" to 12"	Class 150/300/600	IV	Metal	U seal ring (Graphite-filled PTFE)	Up to 200 °C
		IV	Metal	Metal seal ring	Above 200 to 450°C
		V	Metal	U seal ring (Graphite-filled PTFE)	Up to 200 °C
		VI	RPTFE	U seal ring (Graphite-filled PTFE)	Up to 200 °C
14" to 24"	Class 150/300/600	III	Metal	Carbon ring	Above 200 to 450°C
		IV		U seal ring (Graphite-filled PTFE)	Up to 200 °C
26" to 36"	Class 150/300	IV	Metal	U seal ring (Graphite-filled PTFE)	Up to 200 °C

Hysteresis error

Without positioner: Within 5% F.S.

With positioner: Within 1% F.S.

LinearityWithout positioner: Within $\pm 5\%$ F.S.With positioner: Within $\pm 1\%$ F.S.**Weight**

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Actuator orientation

Refer to Figure 2

Finish

Blue (Munsell 10B5/10) or silver, or other specified colors.

Dimensions

Refer to Figure 1, Table 2 and Table 3

Cv value and flow characteristics

Table 1. CVValue

Nominal size		Port size		Cv value
inch	mm	inch	mm	
1-1/2	40	1-1/2	40	27
		1-1/4	32	20
		1	25	13
2	50	2	50	45
		1-1/2	40	30
		1-1/4	32	20
2-1/2	65	2-1/2	65	72
		2	50	50
		1-1/2	40	30
3	80	3	80	100
		2-1/2	65	80
		2	50	50
4	100	4	100	180
		3	80	100
		2-1/2	65	80
6	150	6	150	360
		5	125	300
		4	100	200
8	200	8	200	580
		6	150	400
		5	125	300
10	250	10	250	900
		8	200	640
		6	150	400
12	300	12	300	1200
		10	250	1000
		8	200	640
14	350	14	350	1620
		12	300	1350
		10	250	1000
16	400	16	400	2100
		14	350	1800
		12	300	1350
18	450	18	450	2750
		16	400	2350
20	500	20	500	3100
		18	450	2950
22	550	22	550	4100
		20	500	3100
24	600	24	600	4950
		22	550	3500
28	700	28	700	6300
		26	650	5625
30	750	30	750	7380
		28	700	6300
32	800	32	800	9000
		30	750	6300
36	900	36	900	10000
		34	850	9500

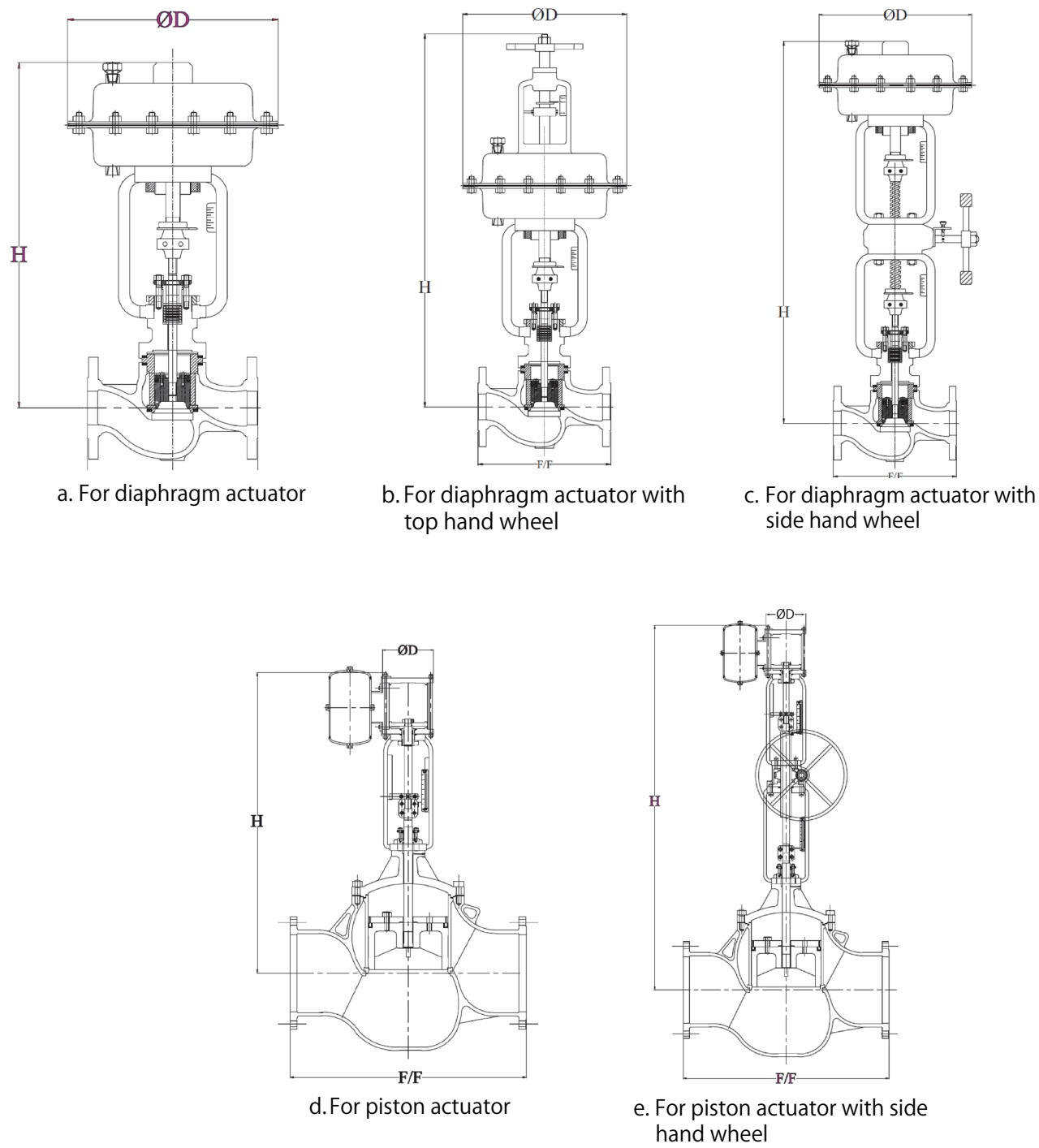


Figure1 Face-to-face and external dimensions

Table 2. Face-to-face dimensions

[Unit: mm]

Nominal size (inches)	F/F		
	Class 150RF (PN 20)	Class 300RF (PN 50)	Class 600RF (PN 100)
1-1/2	222	235	251
2	254	267	286
2-1/2	276	292	311
3	298	318	337
4	352	368	394
6	451	473	508
8	543	568	610
10	673	708	752
12	737	775	819
14	889	927	972
16	1016	1057	1108
18	1143		
20	1267		
22	1367		
24	1556		
28	1648		
30	1724		
32	1740		
36	1956		

Table 3. External dimension

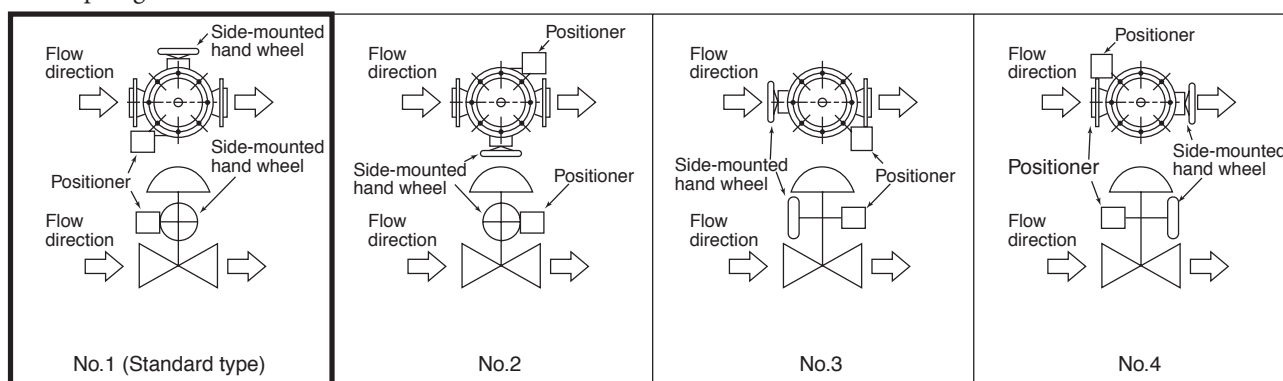
[Unit: mm]

Nominal size (inches)	Actuator Model No.	Pressure rating	H		φD
			Without hand wheel	With side hand wheel	
1-1/2	M-11	Class 150/300	515	810	290
		Class 600	545	845	
	M-22	Class 150/300	540	860	380
		Class 600	570	890	
6	M-33	Class 150/300	875	1310	448
		Class 600	910	1355	
8	M-34	Class 150/300	950	1370	600
		Class 600	1010	1465	
10	M-44	Class 150/300	1210	1680	600
		Class 600	1260	1730	
12	M-44	Class 150/300	1390	1820	600
		Class 600	1430	1865	
14	M-44	Class 150/300	*	*	600
		Class 600	*	*	
16	M-44	Class 150/300	1480	2010	600
		Class 600	1520	2060	
18	PD-200-178	Class 150/300/600	1140	1540	262
	PD-250-178		1160	1580	325
20	PD-200-178	Class 150/300/600	1480	1740	262
	PD-250-178		1522	2140	325
22	PD-250-198	Class 150/300/600	1720	2320	325
	PD-300-198		1790	2490	380
24	PD-250-198	Class 150/300/600	1935	2685	325
	PD-300-198		1980	2730	380
28	PD-300-308	Class 150/300/600	2220	3020	380
	PD-350-308		2280	3180	418
30	PD-300-308	Class 150/300/600	2450	3250	380
	PD-350-308		2570	3250	418
32	PD-300-308	Class 150/300/600	2608	3350	380
	PD-350-308		2690	3450	418
36	PD-300-308	Class 150/300/600	2800	3550	380
	PD-350-308		2840	3620	418

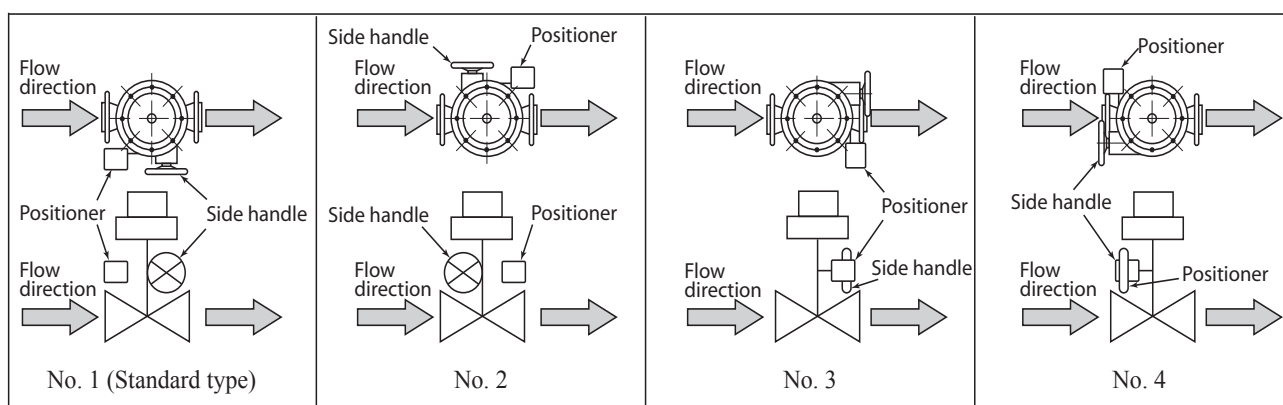
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Actuator orientation

Diaphragm actuator



Piston actuator



Note) Indicate by position number when installation other than the standard type is required.

Figure2 Actuator orientation

Ordering information

When ordering, please specify;

- | | |
|---|---|
| <ol style="list-style-type: none"> 1) Model Number: D1V 2) Nominal size × Port size 3) Type and rating of end connections 4) Body and trim material, necessity of hardening 5) Type of bonnet 6) Valve and plug characteristics 7) Type of actuator, air to diaphragm 8) Valve action (direct or reverse) 9) Accessories (positioner, hand wheel, pressure regulator etc.) | <ol style="list-style-type: none"> 10) Special requirement of degreasing, free from copper and etc. 11) Name of flow medium 12) Normal flow and maximum required flow 13) Pressure of flow medium upstream and downstream pressure at maximum and minimum, required flow 14) Temperature and specific gravity of flow medium 15) Viscosity of flow medium, inclusive or exclusive of slurry |
|---|---|

Please, read 'Terms and Conditions' from following URL before the order and use.

<http://www.azbil.com/products/bi/order.html>

Specifications are subject to change without notice.

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