

D1 Series

Top Guided Single Seated Control Valves

Model D1S

Overview

Model D1S globe control valves are with bolted bonnet and top guided contoured trims. The design facilitates easy access to internal components, online inspection and maintenance. Model D1S are provided with multiple spring diaphragms actuators.

Model D1S are applicable to reliable shut-off and flow control performance.

Specifications

Body

Type

Straight-through, cast globe valve

Nominal size:

1/2, 3/4, 1, 1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10, 12 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.)

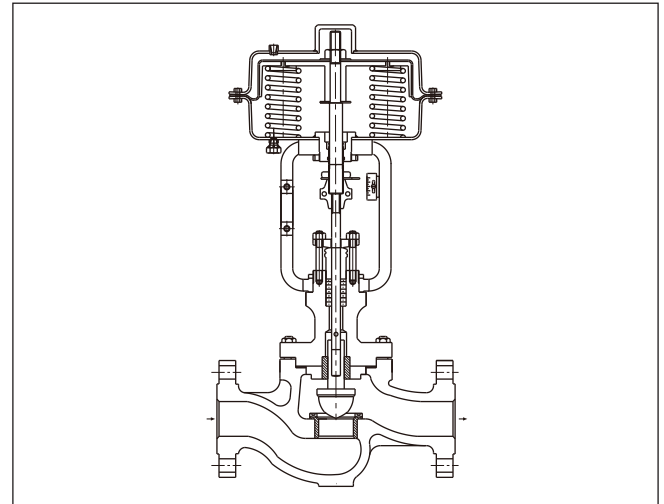
Bonnet

- ✓ Plain type (0 to 230°C)
- ✓ Extended plain type (-70 to 0°C)
- ✓ Extended finned type (230 to 600°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, Contoured-type 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)

Action

Direct or reverse action

Diaphragm

Nitrile rubber with nylon insert

Supply air pressure

1.4 to 3.2 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

Contact your Azbil sales office

Leakage specification

IEC60534-4 or ANSI/FCI 70-2

Metal seat: Class IV

Metal (Stellite) seat: Class V

Soft seat: Class VI

Hysteresis error

Without positioner: Within 5% F.S.

With positioner: Within 1% F.S.

Linearity

Without positioner: Within ±5% F.S.

With positioner: Within ±1% F.S.

Dimensions

Refer to Figure 1, Table 2 and Table 3

Weight

Contact your Azbil sales office

Actuator orientation

Refer to Figure 2

Finish

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

Cv value and flow characteristics

Table 1. Cv Value

Nominal size		Port size		Cv value
inch	mm	inch	mm	
1/2, 3/4 and 1	15, 20 and 25	1/8	3	1
		3/16	5	1.5
		1/4	6	2
		5/16	8	3
		3/8	10	4
		1/2	15	5
		3/4	20	9
1-1/2	40	1	25	13
		1-1/2	40	30
		1-1/4	32	20
2	50	2	50	50
		1-1/2	40	30
		1-1/4	32	20
2-1/2	65	2-1/2	65	80
		2	50	50
		1-1/2	40	30
3	80	3	80	110
		2-1/2	65	80
		2	50	50
4	100	4	100	200
		3	80	110
		2-1/2	65	80
6	150	6	150	400
		5	125	300
		4	100	200
8	200	8	200	640
		6	150	400
		5	125	300
10	250	10	250	*
		8	200	*
		6	150	*
12	300	12	300	*
		10	250	*
		8	200	*

* Contact your Azbil sales office.

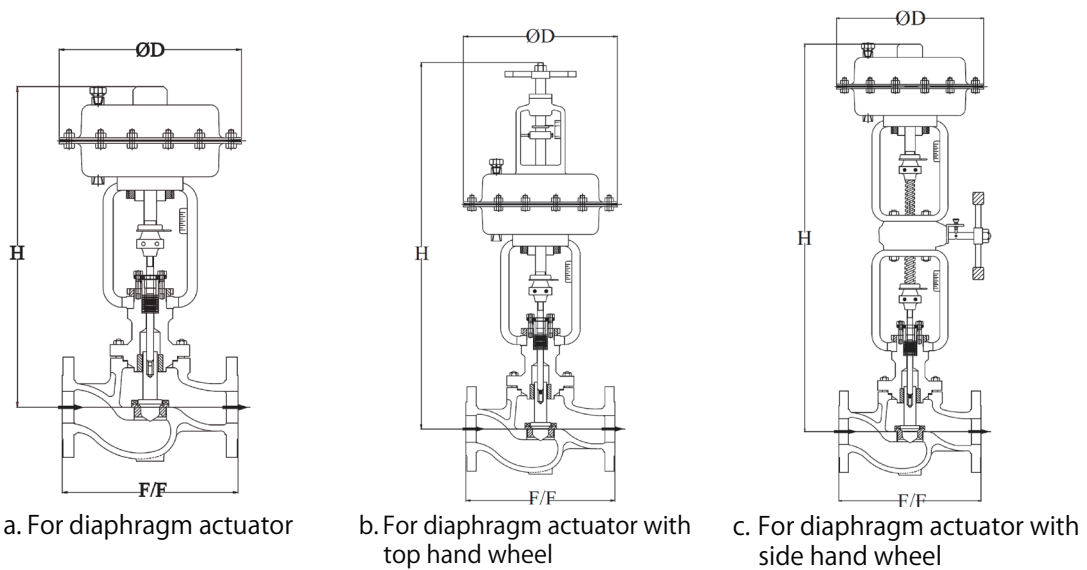


Figure1 Face-to-face and external dimensions

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)
1/2	184	190	203
3/4	184	194	206
1	184	197	210
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

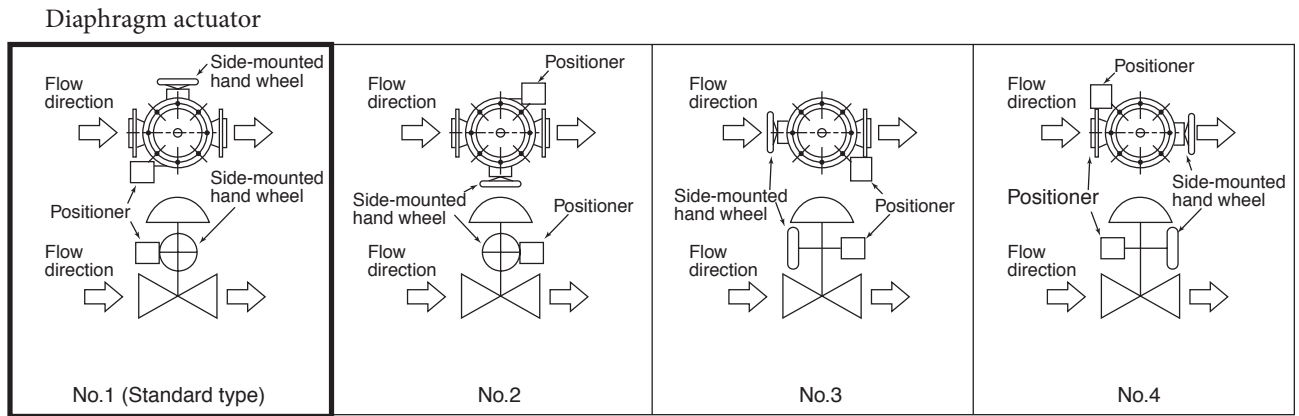
Table 3. External dimension

[Unit: mm]

Nominal size (inches)	Actuator Model No.	Pressure rating	H			φD
			Without hand wheel	With top hand wheel	With side hand wheel	
1/2, 3/4	M-00	Class 150	475	715	760	240
		Class 300	475	715	760	
		Class 600	485	730	780	
1	M-01	Class 150	475	715	760	240
		Class 300	475	715	760	
		Class 600	500	750	800	
1-1/2	M-11	Class 150	525	750	830	380
		Class 300	525	750	830	
		Class 600	545	770	855	
2	M-11	Class 150	540	760	840	380
		Class 300	540	760	840	
		Class 600	565	795	875	
2-1/2	M-11	Class 150	675	1040	1070	448
		Class 300	675	1040	1070	
		Class 600	690	1075	1095	
3	M-22	Class 150	675	1040	1070	448
		Class 300	675	1040	1070	
		Class 600	690	1075	1095	
4	M-22	Class 150	675	1040	1070	448
		Class 300	675	1040	1070	
		Class 600	705	1085	1080	
6	M-33	Class 150	875	1230	1310	448
		Class 300	895	1270	1350	
		Class 600	910	1300	1375	
8	M-34	Class 150	950	1320	1370	600
		Class 300	990	1360	1420	
		Class 600	1010	1380	1450	
10	*	Class 150	*	*	*	*
		Class 300	*	*	*	
		Class 600	*	*	*	
12	*	Class 150	*	*	*	*
		Class 300	*	*	*	
		Class 600	*	*	*	

*Contact your Azbil sales office.

Actuator orientation



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

Figure2 Actuator orientation

Ordering information

When ordering, please specify;

- 1) Model Number: D1S
- 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.)
- 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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