

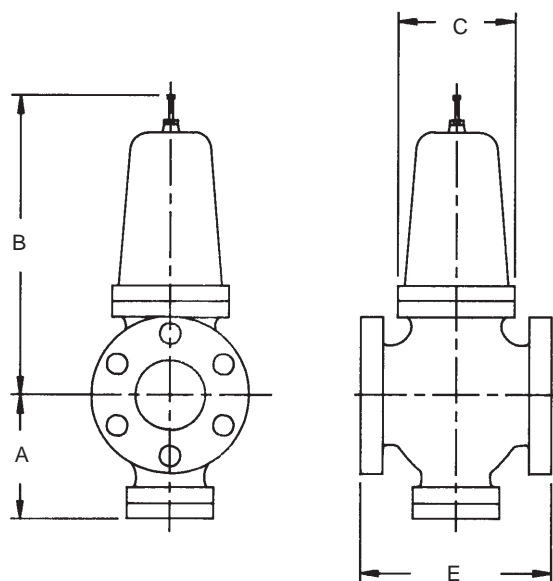


A division of CIRCOR International, Inc.

# Technical Data

**SPENCE ENGINEERING COMPANY, INC.** 150 COLDENHAM ROAD, WALDEN, NY 12586-2035

## TYPE D34 WATER PRESSURE REDUCING VALVE Sizes 1" through 6"



**TYPE D34 VALVE**

The Spence Type D34 Direct Operated Reducing Valve is designed for dead-end water service where the flow is intermittent and changes rapidly, as on domestic water systems. It is especially effective in regulating the flow of water to such fast acting equipment as flushometers and snap cocks. The design is self contained, no control pipe is required.

The preferred position for the Type D34 is in a horizontal line with the spring chamber up. When so mounted, the tendency of sediment to settle in the control ports is practically eliminated.

### RATINGS (Maximum Inlet Conditions)

Valve Ends	Pressure	(Temperature)
<input type="checkbox"/> ANSI NPT Screwed	.....200 PSIG	.....(200°F)
<input type="checkbox"/> ANSI 125 Flanged	.....165 PSIG	.....(200°F)
<input type="checkbox"/> ANSI 250 Flanged	.....200 PSIG	.....(200°F)

### SPRING RANGES

- 10 to 40 PSIG                       30 to 80 PSIG

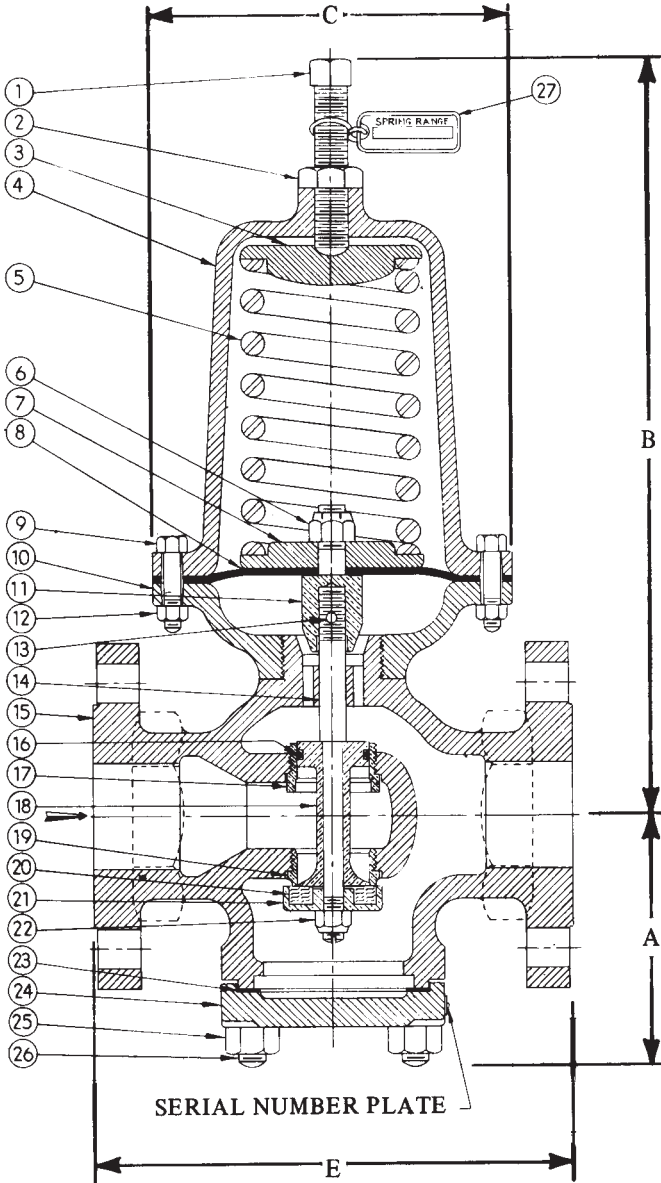
### RATED FLOW COEFFICIENTS (Cv)

VALVE SIZE	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Cv	3.3	7.5	10.4	14.4	21.6	32	52	84	118

### DIMENSIONS (inches) AND WEIGHTS (pounds)

SIZE	FACE TO FACE			OTHER DIMENSIONS			APPROX. WT.		
	E			A	B	C	ANSI NPT	ANSI 125	ANSI 250
	ANSI NPT	ANSI 125	ANSI 250						
1	5 3/8	—	—	3 3/8	12 1/8	5 1/2	22	—	—
1 1/4	6 1/2	—	—	3 5/8	12 1/2	5 1/2	24	—	—
1 1/2	7 1/4	—	—	4 1/4	13 3/8	6	34	—	—
2	7 1/2	8 1/2	9	4 5/8	14 3/4	6 3/4	44	51	57
2 1/2	—	9 3/8	10	5 1/2	18 3/4	8	—	78	89
3	—	10	10 3/4	6	21 3/4	9	—	108	128
4	—	11 7/8	12 1/2	6 5/8	26 5/8	11 1/4	—	198	225
5	—	13 5/8	14 1/2	7 5/8	33 1/8	14 1/4	—	352	394
6*	—	15 1/8	16	9 1/8	35 7/8	16	—	500	550

\*Consult factory for parts.



**STANDARD D34 VALVE**

**STANDARD PARTS**

ITEM NO.	PART NAME	REMARKS	MATERIAL
1	Adjusting Screw		Steel
2	Adjusting Screw Locknut		Steel
3	Spring Button		Cast Iron
4	Spring Chamber		Cast Iron
5	Adjusting Spring (10-40 psi)		Steel
	Adjusting Spring (30-80 psi)		Steel
6	Coupling Nut	Note 2	Steel
7	Pressure Plate	Note 2	Cast Iron
8	Diaphragm	Note 1, 2	Hycar
9	Diaphragm Bolts		Steel
10	Base		Cast Iron
11	Stem Coupling	Note 2	St. Steel
12	Diaphragm Nut		Steel
13	Dowel Pin	Note 2	Steel
14	Stem	Note 2	St. Steel
15	Body - ANSI NPT Scr		Cast Iron
	Body - ANSI 125 Flg		Cast Iron
	Body - ANSI 250 Flg		Cast Iron
16	Sealing Ring	Note 1, 2	Hycar
17	Guide Ring		St. Steel
18	Balanced Piston		St. Steel
	Balanced Piston Assembly		St. Steel
19	Seat Ring		St. Steel
20	Composition Disc	Note 1, 2	Hycar
21	Composition Disc Holder	Note 2	St. Steel
22	Stem Nut	Note 2	Steel
23	Blind Flange Gasket	Note 1, 2	Non-asbestos
24	Blind Flange		Cast Iron
25	Blind Flange Nut		Steel
26	Blind Flange Studs		Ledloy
27	Range Tag (10-40 psi)		Aluminum
	Range Tag (30-80 psi)		Aluminum

**REPAIR KITS**

ITEM NO.	PART NAME	REMARKS	MATERIAL
	Repair Kit		

**NOTES:**

- 1 - Recommended Spare Part
- 2 - These parts furnished in Repair Kit

When ordering parts, it is essential that the valve type, size, service and serial number be stated.

Select part by item number, but order by part number.

Specify complete part number when ordering.

VALVE SIZE (inches)								
1	1 1/4	1 1/2	2	2 1/2	3	4	5	6*
05-04860-00	05-04862-00	05-04864-00	05-04865-00	05-04866-00	05-04867-00	05-04869-00	05-04871-00	
05-02942-00	05-02942-00	05-02943-00	05-02944-00	05-02944-00	05-02945-00	05-02946-00	05-02946-00	
05-01042-00	05-01042-00	05-01043-00	05-01044-00	05-01045-00	05-01046-00	05-01047-00	05-01048-00	
04-01410-00	04-01410-00	04-01409-01	04-01412-00	04-01413-00	04-01414-00	04-01417-00	04-01416-00	
05-05111-01	05-05111-01	05-05154-00	05-05112-01	05-05114-00	05-05115-01	05-05155-00	05-05156-00	
05-05144-00	05-05144-00	05-05145-00	05-05146-00	05-05147-00	05-05148-00	05-05150-00	05-05151-00	
05-03016-00	05-03016-00	05-03016-00	05-03018-00	05-03019-00	05-03019-00	05-03020-00	05-03020-00	
04-03702-00	04-03702-00	04-03703-00	04-03645-00	04-03646-00	04-03647-00	04-03649-00	04-03650-00	
05-01608-00	05-01608-00	05-01609-00	05-01610-00	05-01611-00	05-01612-00	05-01614-00	05-01615-00	
05-04771-00	05-04771-00	05-04771-00	05-04771-00	05-04778-00	05-04777-00	05-04782-00	05-04783-00	
04-00454-01	04-00454-01	04-00456-00	04-00457-00	04-00458-00	04-00459-00	04-00461-00	04-00462-00	
04-09484-00	04-09485-00	04-11371-00	04-09486-00	04-09487-00	04-09487-00	04-01496-01	04-01496-01	
05-02872-00	05-02872-00	05-02872-00	05-02872-00	05-02875-00	05-02875-00	05-02877-00	05-02877-00	
05-03864-00	05-03246-00	05-03247-00	05-03251-00	05-03865-00	05-03865-00	05-03867-00	05-03867-00	
04-05333-01	04-05335-01	04-05336-01	04-05339-01	04-05341-00	04-05343-00	04-05346-00	04-08679-00	
04-00921-00	04-00922-00	04-00923-00	04-00926-00	—	—	—	—	
—	—	—	04-00914-00	04-00915-00	04-00918-00	04-00920-00	04-00913-00	
—	—	—	04-00925-00	04-00927-00	04-00928-01	04-00930-00	04-00931-00	
05-04015-00	05-04019-00	05-04023-00	05-04028-00	05-04033-00	05-04038-00	05-04045-00	05-04050-00	
04-04397-01	04-04399-01	04-04401-01	04-04403-01	04-04405-00	04-04407-00	04-04411-01	04-08680-00	
04-09476-00	04-09477-00	04-09478-00	04-09479-00	04-09480-00	04-09481-00	—	—	
—	—	—	—	—	—	22445	22525	
04-04167-02	04-04169-02	04-04171-02	04-04172-02	04-04175-01	04-04177-01	04-04180-02	04-08681-01	
05-01715-00	05-01716-00	05-01716-00	05-01717-00	05-01718-00	05-01719-00	05-01721-00	05-01722-00	
04-09488-00	04-09489-00	04-09490-00	04-09491-00	04-09492-00	04-09493-00	04-09494-00	04-02531-00	
05-03014-00	05-03015-00	05-03016-00	05-03016-00	05-03017-00	05-03017-00	05-03018-00	05-03019-00	
05-02381-01	05-02362-01	05-02382-01	05-02365-01	05-02366-01	05-02367-01	05-02369-01	05-02371-01	
04-02171-00	04-02173-00	04-02176-00	04-02178-00	04-02180-00	04-02183-00	04-02186-00	04-02159-00	
05-02847-00	05-02851-00	05-02854-00	05-02856-00	05-02860-00	05-02862-00	05-02860-00	05-02862-00	
04-05516-00	04-10118-00	04-05442-00	04-05443-00	04-10119-00	04-05448-00	04-10119-00	04-05448-00	
05-06221-00	05-06221-00	05-06221-00	05-06221-00	05-06221-00	05-06221-00	05-06221-00	05-06221-00	
05-06222-00	05-06222-00	05-06222-00	05-06222-00	05-06222-00	05-06222-00	05-06222-00	05-06222-00	

VALVE SIZE								
1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
33162	33163	33164	33165	33166	33167	33168	33169	33170

# INSTALLATION AND MAINTENANCE INSTRUCTIONS

(Brackets refer to item number)

## PRINCIPLES OF OPERATION

When the water supply is cut in, the valve is in wide open position. Water flowing to the system creates a rising delivery pressure which feeds back through the control ports to the underside of diaphragm [8]. As the pressure on diaphragm [8] approaches a balance with the force exerted by adjusting spring [5], disc [20] is throttled to a position where just enough water flows to maintain the set delivery pressure.

## INSTALLATION

Carefully clear inlet piping system of foreign matter and mount regulator with the flow arrow pointing in the direction of flow. Preferred position for D34 valves is in a horizontal line with spring chamber up. When so mounted, the tendency of sediment to settle in the control ports is practically eliminated.

Provide a three-valve by-pass to facilitate inspection of the reducing valve without interrupting service. Avoid damaging effects of foreign matter in the flow by using a strainer ahead of the valve.

## OPERATION

On starting up, proceed as follows:

1. Open the inlet stop valve gradually until the reducing valve takes control as indicated by the delivery pressure gage.
2. Turn adjusting screw [1] clockwise to increase the delivery pressure, counter-clockwise to lower it.

## TROUBLESHOOTING

Inadequate flow or delivery pressure:

1. Check initial pressure to see if full intended line pressure is applied at the valve inlet.

Reduced pressure builds up:

1. Foreign matter may be lodged between disc [20] and seat ring [19]. Remove blind flange [24] to inspect.
2. Diaphragm [8] may be ruptured. Remove spring chamber [4] to inspect.
3. Sealing ring [16] may be damaged. See dismantling instructions below to replace.

## ERRATIC OPERATION

Complete dismantling is recommended.

1. Check for clogged control ports connecting body outlet with diaphragm chamber.
2. Check for deposits causing sticking of sealing ring [16] or stem [14] in their respective guides.

## DISMANTLING

To change or inspect composition disc or sealing ring:

1. Remove blind flange [24].
2. Remove stem nuts [22]. Keep stem from turning by inserting screw driver in slot on end of stem.
3. Disc holder [21] will drop out. Carefully remove balance piston [18] so as not to damage sealing ring [16] as it is pulled through seat ring [19].

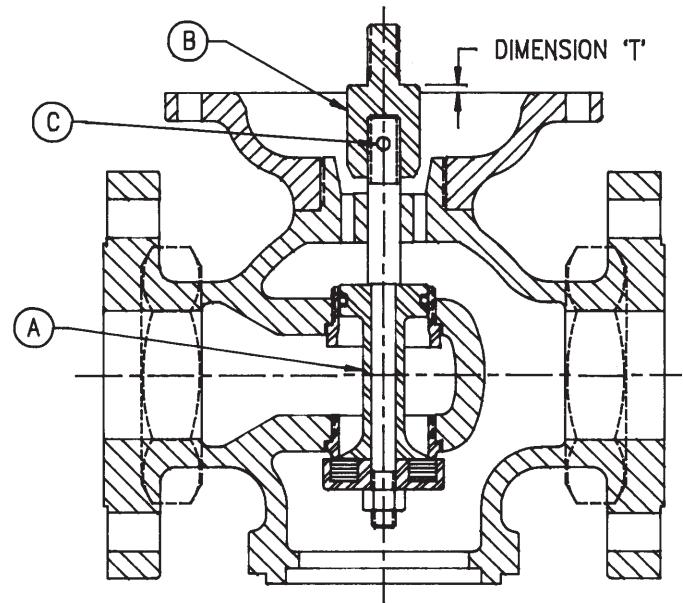
To examine diaphragm or stem:

1. Remove compression from spring by turning adjusting screw [1] counterclockwise.
2. Remove diaphragm bolts [9] and lift off spring chamber [4].
3. Lift pressure plate [7] to withdraw diaphragm and stem from valve.
4. To examine diaphragm, disassemble coupling nut [6] and lift off pressure plate [7].

## VALVE SETTING

Should the threaded connection between stem coupling [11] and stem [14] be disturbed, proceed as follows:

1. Insert stem assembly [A] and hold disc on seat ring in closed position, as shown.
2. Screw stem coupling [B] on stem until travel setting T is reached.
3. Remove stem assembly [A] and lock setting by drilling hole and inserting dowel pin [C].



Valve Size	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Dimension T	1/16	3/32	1/8	9/64	11/64	3/16	17/64	11/32	3/8