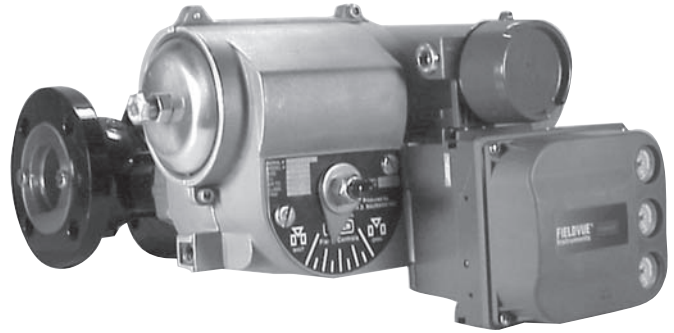


42000 Series Rotary Eccentric-Plug Control Valve

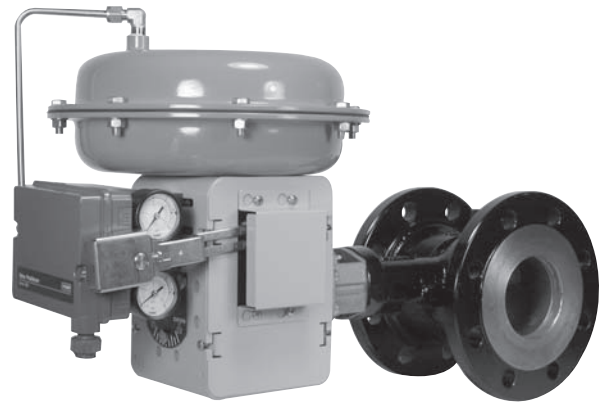
The 42000 Series control valve features Technology, Economy, and Compact Size. The package is a rotary eccentric-plug control valve, available with an integral digital controller. The 42000 control valve can be used for a variety of fluids in both industrial process and utility applications. Design features reduce maintenance time and associated costs. Unique patented shaft clamp reduces maintenance disassembly and assembly time and allows easy failure-mode reversal. Captive spring-and-diaphragm power module lowers the time to reverse action or change valve parts. The concentric design of the seat ring allows easy alignment of seat and plug without the need for matched trim sets.

FEATURES:

- CoCr-A (Alloy 6) hard facing on seat and plug is an option available for mildly erosive applications (small size valves include cast CoCr-A plug as standard).
- A PTFE Seat for Class VI Shutoff is optional. Metal backup seat helps prevent cold flow of the seat and provides a backup Class IV shutoff.
- An Attenuator Disc is optional. It can be installed on new installations to reduce noise. Special body or piping modifications are not required (available for 2"-6" sizes).
- FIELDVUE[®] Digital Valve Controller allows digital control and remote diagnostics.
- Optional ENVIRO-SEAL[®] packing systems are designed to provide excellent sealing, guiding, and loading force transmission. The superior seal of the ENVIRO-SEAL system can control emissions to below the Environmental Protection Agency (EPA) limit of 500 parts per million (ppm).
- Flexible actuator options: a size 10 and 25 actuator optimize the use of alloys and polymers to ensure resistance to atmospheric induced corrosion.
- A utility service actuator, the traditional size 54 actuator is available for utility and general service applications on valve sizes 1"-3" (DN 25-80).
- Small size and low weight make installation and handling easier.



42000 series valve with size 10 actuator and FIELDVUE[®] Digital Valve Controller



42000 series valve with size 54R actuator and 3660 Pneumatic Valve Positioner



42000 Series Control Valve

Table 1: Materials of Construction: Valve Body Subassembly

KEY NO.	QTY	DESCRIPTION	MATERIAL	
1	1	Valve Body	ASTM A216 WCC (J02503)	DIN 1.0619 (carbon steel)
			ASTM A351 CF8M (J92900)	DIN 1.4408 (stainless steel)
2	1	Seat Ring Retainer	ACI CF8M / ASTM A479 S31600 (stainless steel)	
3	1	Seat Ring, Metal Seat	ACI CF8M CoCr-A (Alloy 6) solid (optional for sizes 1" & 1-1/2") ACI CF8M with CoCr-A (Alloy 6) seating surface (optional for sizes 2"- 6")	
		Seat Ring, PTFE Seat	ACI CF8M with PTFE insert	
4	1	Seat Ring Gasket	ASTM A240 S31600 stainless steel (standard for sizes 1", 1-1/2" & 2") UNS S30400 (standard for sizes 3", 4" & 6")	
5	1	Valve Plug	CoCr-A (Alloy 6) (standard for sizes 1" & 1-1/2") Chrome-plated ACI CF8M (316 stainless steel) (standard for sizes 2"-6") ACI CF8M / 316 stainless steel with CoCr-A (Alloy 6) overlay (optional for sizes 2"- 6")	
6	1	Attenuator Disc	CF8M / 316 stainless steel (optional 2"- 6")	
7	1	Shaft	ASTM A276 S31600 (condition A) stainless steel	
8	1	Guide Bushing	ASTM A276 S44004 (440C) (standard for WCC valve body) PEEK/PTFE (standard for stainless steel valve body, optional for WCC valve body)	
9	1	Guide Bushing	CoCr-A (Alloy 6) (optional)	
10	2	Shaft Retainer	CF8M / 316 stainless steel	
11	1	Spacer	ASTM A276 S31600 stainless steel	
12	6	Packing Ring	PTFE / graphite split ring	
13	1	Packing Follower Assembly	ASTM A276 S30400 stainless steel, fiberglass/PTFE, fluoroelastomer o-rings	
14	1	Packing Flange	18-8 (stainless steel)	
15	1	Bracket	ASTM A743 CF8 (J92600)	
16	2	Bolt	A193 B8M S31600 (stainless steel)	
17	2	Packing Box Stud		
18	2	Hex Nut	A194 Grade 8M S31600 (stainless steel)	
19	2	Lock Washer	S30400 stainless steel	
20	1	Retention Bolt	ASTM A738M A4-70 (316 stainless steel)	
21	1	Gasket	ASTM A276 S31600 (stainless steel)	
23	1	Packing Box Ring	ASTM A276 S31600 (stainless steel)	
35	1	Spacer	ASTM A240 S31600 (stainless steel)	
36	1	Split Bushing	ASTM A276 S44004 (standard for WCC valve body) PEEK/PTFE (standard for stainless steel valve body, optional for WCC valve body) CoCr-A (Alloy 6) (optional WCC and stainless steel body)	

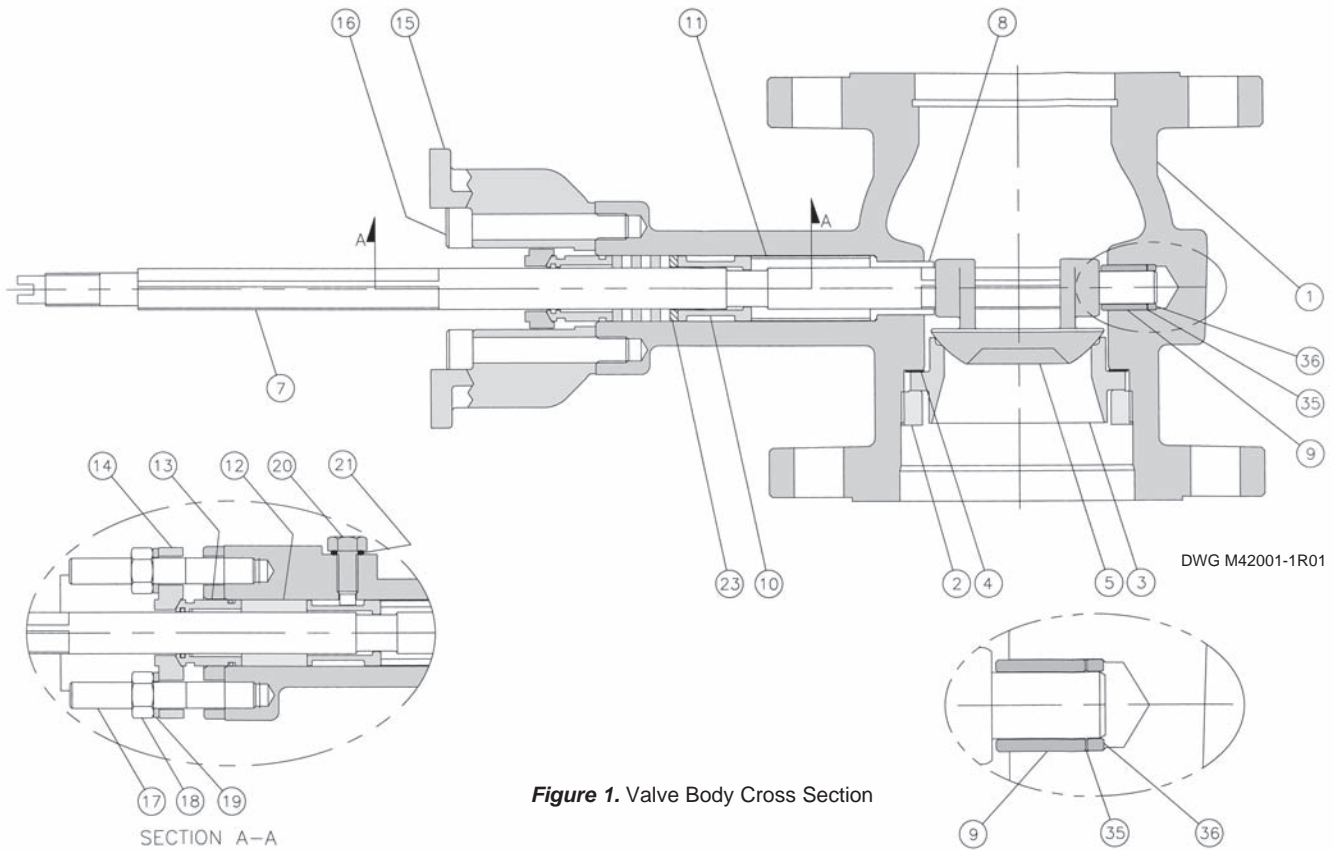


Figure 1. Valve Body Cross Section

Table 2: Packing Systems

TYPE	DESCRIPTION	PROCESS TEMPERATURE RANGE ^{(1) (2)}	
		°F	°C
Standard Packing	PTFE/Graphite split ring	-320 to 750	-196 to 400
ENVIRO-SEAL (500 ppm Service)	Single PTFE V-ring	-50 to 450	-46 to 232
	Graphite	20 to 600	-7 to 316

⁽¹⁾ Packing temperature ranges are not material property ratings but reflect acceptable process temperature ranges, assuming valve body neck is uninsulated and the proper valve constructions are selected (see table 5, page 6).

⁽²⁾ See Fisher bulletin 59.1:062 for specific material temperature ratings for ENVIRO-SEAL packing system temperatures.

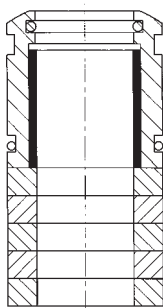


Figure 2.
Standard Packing System
Braided PTFE/Graphite
Split Rings

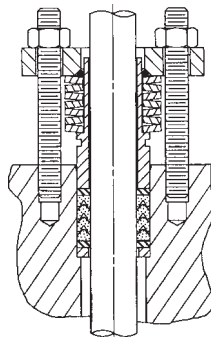


Figure 3.
Optional Packing System
PTFE ENVIRO-SEAL

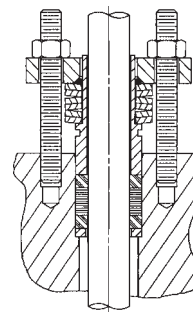


Figure 4.
Optional Packing Systems
Graphite ENVIRO-SEAL

42000 Series Control Valve

Table 3: C_v VALUES @ % PLUG OPENING for sizes 1" & 1-1/2" (ANSI/ISA/IEC)

Valve Size	Port Diameter		Coefficients	Percentage of Plug Opening										F _d	
	in	mm		10	20	30	40	50	60	70	80	90	100		
1" (DN25)	0.321	8.15	C _v	0.8	1.8	2.2	2.4	2.6	2.6	2.6	2.6	2.6	2.6	0.27	
			F _L	0.95	0.95	0.95	0.95	0.94	0.93	0.93	0.93	0.93	0.93		0.93
			X _T	0.59	0.59	0.67	0.71	0.74	0.76	0.77	0.75	0.73	0.70		
	0.500	12.70	C _v	1.5	3.2	4.4	5.2	5.8	6.4	6.8	6.8	6.9	6.9	0.29	
			F _L	0.95	0.95	0.95	0.94	0.93	0.93	0.93	0.93	0.93	0.93		0.93
			X _T	0.59	0.60	0.66	0.69	0.71	0.74	0.75	0.73	0.71	0.69		
	0.579	14.7	C _v	1.5	3.7	4.8	6.0	7.2	8.0	8.6	9.0	9.2	9.4	0.31	
			F _L	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92		0.92
			X _T	0.66	0.66	0.68	0.70	0.72	0.74	0.75	0.74	0.72	0.69		
	0.718	18.2	C _v	1.7	3.5	5.5	7.5	9.4	11	12	13	13	14	0.45	
			F _L	0.88	0.88	0.89	0.88	0.87	0.87	0.87	0.86	0.86	0.86		0.86
			X _T	0.56	0.55	0.56	0.59	0.63	0.62	0.63	0.65	0.62	0.57		
1-1/2" (DN40)	0.503	12.8	C _v	1.4	3.1	4.5	5.1	5.9	6.0	6.3	6.4	6.4	6.4	0.27	
			F _L	0.94	0.94	0.94	0.94	0.95	0.94	0.94	0.93	0.93	0.93		0.93
			X _T	0.53	0.55	0.65	0.69	0.70	0.74	0.75	0.71	0.69	0.68		
	0.750	19.1	C _v	2.3	5.2	7.4	9.4	10	12	13	14	15	15	0.29	
			F _L	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93	0.93	0.93		0.92
			X _T	0.57	0.57	0.65	0.69	0.71	0.73	0.74	0.70	0.68	0.67		
	0.907	23.0	C _v	2.9	5.2	8.0	11	13	16	18	20	22	23	0.31	
			F _L	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92		0.92
			X _T	0.61	0.61	0.65	0.67	0.69	0.72	0.73	0.71	0.68	0.66		
	1.06	26.9	C _v	3.3	6.1	9.5	13	17	20	24	27	29	30	0.45	
			F _L	0.88	0.88	0.87	0.87	0.87	0.86	0.86	0.86	0.86	0.86		0.86
			X _T	0.54	0.53	0.54	0.57	0.61	0.61	0.61	0.63	0.60	0.56		

Table 4: C_v VALUES @ % PLUG OPENING for sizes 2" - 6" (ANSI/ISA/IEC)

Valve Size	Port Diameter		Coefficients *	Percentage of Plug Opening										F _d
	in	mm		10	20	30	40	50	60	70	80	90	100	
2" (DN50)	1.25	31.8	C _v	3.5	7.0	11	15	19	22	24	26	28	30	0.31
			C _v *	3.0	6.2	9.9	14	19	21	23	24	26	28	
			F _L	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	
			X _T	0.51	0.50	0.61	0.65	0.67	0.72	0.74	0.70	0.64	0.56	
	1.56	39.7	C _v	3.8	7.9	12	17	21	27	33	37	41	45	0.45
			C _v *	4.1	8.2	12	17	21	26	30	34	36	39	
			F _L	0.87	0.87	0.87	0.87	0.86	0.86	0.86	0.86	0.86	0.86	
			X _T	0.47	0.46	0.42	0.47	0.56	0.58	0.60	0.62	0.60	0.57	
3" (DN80)	1.81	46.0	C _v	9	18	26	35	45	53	61	67	73	77	0.31
			C _v *	8.9	18	27	36	44	51	57	61	65	67	
			F _L	0.94	0.94	0.94	0.92	0.89	0.89	0.89	0.88	0.89	0.90	
			X _T	0.65	0.61	0.67	0.71	0.74	0.69	0.64	0.60	0.59	0.60	
	2.25	57.2	C _v	7.5	15	24	37	51	65	79	92	101	107	0.45
			C _v *	8.3	17	26	38	51	61	71	77	82	86	
			F _L	0.92	0.92	0.92	0.90	0.88	0.87	0.87	0.87	0.87	0.86	
			X _T	0.61	0.61	0.62	0.59	0.55	0.57	0.58	0.57	0.57	0.56	
4" (DN100)	2.31	58.7	C _v	11	24	42	57	69	80	91	103	111	118	0.31
			C _v *	11	25	43	56	68	78	88	99	105	110	
			F _L	0.96	0.93	0.91	0.89	0.88	0.88	0.88	0.88	0.88	0.88	
			X _T	0.70	0.65	0.61	0.63	0.69	0.71	0.70	0.63	0.60	0.61	
	3.00	76.2	C _v	16	33	51	72	94	123	149	170	184	195	0.45
			C _v *	16	33	51	71	93	114	132	144	154	162	
			F _L	0.94	0.91	0.89	0.88	0.87	0.86	0.86	0.86	0.86	0.85	
			X _T	0.49	0.48	0.47	0.50	0.57	0.56	0.56	0.57	0.57	0.58	
6" (DN150)	3.38	85.7	C _v	23	48	77	109	142	164	183	196	210	224	0.31
			C _v *	23	48	76	107	138	157	174	186	198	210	
			F _L	0.92	0.92	0.91	0.91	0.91	0.90	0.90	0.88	0.88	0.88	
			X _T	0.72	0.70	0.68	0.69	0.70	0.69	0.68	0.66	0.66	0.66	
	4.00	102	C _v	23	49	79	120	167	196	226	259	286	310	0.40
			C _v *	23	48	78	118	162	187	213	239	261	281	
			F _L	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.88	0.88	0.88	
			X _T	0.72	0.72	0.76	0.73	0.66	0.68	0.69	0.67	0.65	0.63	
	4.50	114	C _v	42	80	114	157	204	245	288	338	376	408	0.45
			C _v *	39	76	112	154	199	236	273	312	340	362	
			F _L	0.89	0.89	0.88	0.88	0.88	0.87	0.87	0.87	0.86	0.85	
			X _T	0.74	0.69	0.62	0.63	0.67	0.68	0.66	0.62	0.60	0.60	

* Installed with Attenuator Disc

Table 5: Valve Body Specifications

SIZES				1", 1-1/2", 2", 3", 4", 6"	DN 25, 40, 50, 80, 100, 150
END CONNECTIONS				ANSI 150 RF and 300 RF	DIN PN 10-16, 25-40
MAXIMUM INLET PRESSURE				Consistent with applicable ASME B16.34 or DIN flange ratings and body materials as applicable.	
SHUT-OFF CLASSIFICATION				ANSI/FCI 70-2 1991 and per IEC 534-4 Metal Seat - Class IV, PTFE Seat - Class VI	
INHERENT FLOW CHARACTERISTICS				Linear	
FLOW DIRECTION				Forward Flow (Into the face of the plug)	
VALVE PLUG ROTATION				60 degrees	
OPTIONAL				Attenuator Disc (2"- 6")	
TEMPERATURE RANGE	ASTM A216 WCC	Metal	UNS S44004 Stainless Steel	- 20 to 750	-29 to 400
			PEEK/PTFE (optional)	- 20 to 450	-29 to 232
			CoCr-A (Alloy 6) (optional)	- 20 to 750	-29 to 400
		PTFE (optional)	UNS S44004 Stainless Steel	- 20 to 450	-29 to 232
			PEEK/PTFE (optional)		
			CoCr-A (Alloy 6) (optional)		
	ASTM A351 CF8M	Metal	PEEK/PTFE (optional)	-320 to 450	-196 to 232
			CoCr-A (Alloy 6) (optional)	-320 to 750	-196 to 400
		PTFE (optional)	PEEK/PTFE (optional)	-320 to 450	-196 to 232
			CoCr-A (Alloy 6) (optional)		

Table 6: Actuator Specifications

ACTUATORS	10R, 25R	54R
STYLE	Spring return rolling diaphragm, single acting	
MAXIMUM DESIGN PRESSURE	80 psig (5.5 barg)	35 psig (2.4 barg)
MAXIMUM RECOMMENDED OPERATING PRESSURE	70 psig (4.8 barg) See Tables 8 - 10	20 psig (1.4 barg)
AMBIENT TEMPERATURE RANGE	-40°F to 180°F (-40°C to 82°C)	-20°F to 160°F (-29°C to 71°C)
OPTIONAL	Handwheel, Travel Stops (see table 16)	

Table 7: Noise Calculation Coefficients for Valve with Attenuator Disc Installed

VALVE SIZE	PORT DIAMETER		Factors for calculating noise when using the optional attenuator disc		
	in	mm	F_L^*	F_d^*	X_T^*
2" (DN50)	1.25	31.8	0.6	0.084	0.69
	1.56	39.7			0.71
3"(DN80)	1.81	46.0			0.62
	2.25	57.2			0.65
4" (DN100)	2.31	58.7		0.071	0.65
	3.00	76.2			0.58
6" (DN150)	3.38	85.7			0.61
	4.00	102			0.58
	4.50	114			0.63

EXAMPLE: Sizing a 42000 for required C_v and calculating noise with and without an attenuator disc.

(Note: Results obtained from Fisher's IEC Noise Sizing Program.)

A) Service Conditions

Process:	Saturated Steam	Line Size:	4" schedule 40 piping
Mass Flow:	22,000 lb/hr	Molecular Weight:	18
P_1 :	150 psig	Fluid Compressibility Factor:	1
ΔP :	75 psi	Ratio of Specific Heats:	1.33
T:	366 °F		

B) Sizing for Required C_v

Referring to Table 4, assume a 4" reduced port 42000 with a rated $C_v = 118$ and pick F_L , X_T and F_d for a given valve opening.

$$F_L = 0.88 \quad X_T = 0.73 \quad F_d = 0.31 \quad (40^\circ \text{ open})$$

Result: Required $C_v = 89$

(Approximately 41 degrees open for valve without attenuator disc or 43 degrees open with attenuator)

C) Calculating Noise

1) Valve installed without the attenuator disc

Using the flow coefficients from Table 4 (same as part (B) above.)

$$F_L = 0.88 \quad X_T = 0.73 \quad F_d = 0.31$$

Result: Valve noise = 103 dBa

2) Valve installed with the attenuator disc.

Using Table 8, select the following values for a 4" reduced port valve (Note: Table 7 is to be used only for calculating noise of the valve with the attenuator disc installed. Ignore the resultant C_v from this calculation.)

$$F_L^* = 0.60 \quad X_T^* = 0.65 \quad F_d^* = 0.071$$

Result: Valve noise with attenuator disc installed = 89 dBa

D) Summary

Valve selected:	4" Reduced Port
Required C_v:	89
Noise:	103 dBa (without attenuator disc) 89 dBa (with attenuator disc)

42000 Series Control Valve

Table 8: Size 10R Actuator - Air Supply and Maximum Pressure Drops for CLIV and CLVI Seat Leakage

ACTUATOR SIZE	VALVE SIZE	RATED C _v	SPRING*	AIR SUPPLY PRESSURE		AIR-TO-OPEN				AIR SUPPLY PRESSURE		AIR-TO-CLOSE				
						Bench Range		Max. Pressure Drop				Bench Range		Max. Pressure Drop		
				psig	barg	psig	barg	psi	bar	psig	barg	psig	barg	psi	bar	
10R	1" (DN25)	14 9.4 6.9 2.6	L (A)	40	2.8	20-35	1.4-2.4	750	51.7	40	2.8	5-20	0.3-1.4	750	51.7	
				50	3.4					50	3.4	8-23	0.6-1.6			
			S (B)	60	4.1	25-57	1.7-3.9			60	4.1	10-42	0.7-2.9			
				70	4.8					70	4.8	11-43	0.8-3.0			
				80	5.5					80	5.5	21-53	1.4-3.7			
	1-1/2" (DN40)	30 23 15 6.4	L (A)	40	2.8	20-35	1.4-2.4	750	51.7	40	2.8	5-20	0.3-1.4	750	51.7	
				50	3.4					50	3.4	8-23	0.6-1.6			
			S (B)	60	4.1	25-57	1.7-3.9			60	4.1	10-42	0.7-2.9			
				70	4.8					70	4.8	11-43	0.8-3.0			
				80	5.5					80	5.5	21-53	1.4-3.7			
	2" (DN50)	45	L (A)	40	2.8	20-35	1.4-2.4	706	48.7	40	2.8	5-20	0.3-1.4	694	47.9	
				50	3.4					50	3.4	8-23	0.6-1.6	750	51.7	
			S (B)	60	4.1	25-57	1.7-3.9			60	4.1	10-42	0.7-2.9	626	43.2	
				70	4.8					70	4.8	11-43	0.8-3.0	750	51.7	
				80	5.5					80	5.5	21-53	1.4-3.7			
		30	L (A)	40	2.8	20-35	1.4-2.4	750	51.7	40	2.8	5-20	0.3-1.4	750	51.7	
				50	3.4					50	3.4	8-23	0.6-1.6			
			S (B)	60	4.1	25-57	1.7-3.9			60	4.1	10-42	0.7-2.9			
				70	4.8					70	4.8	11-43	0.8-3.0			
				80	5.5					80	5.5	21-53	1.4-3.7			
3" (DN80)	107	L (A)	40	2.8	20-35	1.4-2.4	187	12.9	40	2.8	5-20	0.3-1.4	184	12.7		
			50	3.4					50	3.4	8-23	0.6-1.6	280	19.3		
		S (B)	60	4.1	25-57	1.7-3.9			253	17.4	60	4.1	10-42	0.7-2.9	162	11.2
			70	4.8							70	4.8	11-43	0.8-3.0	280	19.3
			80	5.5							80	5.5	21-53	1.4-3.7		
	77	L (A)	40	2.8	20-35	1.4-2.4	311	21.4			40	2.8	5-20	0.3-1.4	305	21.0
			50	3.4							50	3.4	8-23	0.6-1.6	454	31.3
		S (B)	60	4.1	25-57	1.7-3.9			413	28.5	60	4.1	10-42	0.7-2.9	271	18.7
			70	4.8							70	4.8	11-43	0.8-3.0	454	31.3
			80	5.5							80	5.5	21-53	1.4-3.7		

Note: Do not exceed valve pressure rating.

* "L" refers to the spring that accomodates lower air supplies . "S" refers to the standard spring that accomodates higher air supplies.

ALWAYS specify air supply when ordering to ensure proper bench range.

A. 50 psig (3.4 barg) air supply is used at the factory for calibration purposes.

B. 70 psig (4.8 barg) air supply is used at the factory for calibration purposes.

Table 9: Size 25R Actuator - Air Supply and Maximum Pressure Drops for CLIV and CLVI Seat Leakage

ACTUATOR SIZE	VALVE SIZE	RATED C _v	SPRING*	AIR SUPPLY PRESSURE		AIR-TO-OPEN				AIR SUPPLY PRESSURE		AIR-TO-CLOSE			
						Bench Range		Max. Pressure Drop				Bench Range		Max. Pressure Drop	
				psig	barg	psig	barg	psi	bar	psig	barg	psig	barg	psi	bar
25R	4" (DN100)	195	L (A)	40	2.8	19-34	1.3-2.3	321	22.1	40	2.8	10-25	0.7-1.7	233	16.1
				50	3.4					50	3.4			432	29.8
				60	4.1					60	4.1			20-35	1.4-2.4
			S (B)	70	4.8	25-65	1.7-4.5	440	30.3	70	4.8	6-47	0.4-3.2	403	27.8
				80	5.5					80	5.5	15-55	1.0-3.8	441	30.4
		118	L (A)	40	2.8	19-34	1.3-2.3	562	38.8	40	2.8	10-25	0.7-1.7	414	28.6
				50	3.4					50	3.4			750	51.7
				60	4.1					60	4.1			20-35	1.4-2.4
			S (B)	70	4.8	25-65	1.7-4.5	750	51.7	70	4.8	6-47	0.4-3.2	701	48.3
				80	5.5					80	5.5	15-55	1.0-3.8	750	51.7
	6" (DN150)	408	L (A)	40	2.8	19-34	1.3-2.3	89	6.1	40	2.8	10-25	0.7-1.7	59	4.1
				50	3.4					50	3.4			126	8.7
				60	4.1					60	4.1			20-35	1.4-2.4
			S (B)	70	4.8	25-65	1.7-4.5	128	8.8	70	4.8	6-47	0.4-3.2	116	8.0
				80	5.5					80	5.5	15-55	1.0-3.8	129	8.9
		310	L (A)	40	2.8	19-34	1.3-2.3	117	8.1	40	2.8	10-25	0.7-1.7	80	5.5
				50	3.4					50	3.4			164	11.3
				60	4.1					60	4.1			20-35	1.4-2.4
			S (B)	70	4.8	25-65	1.7-4.5	167	11.5	70	4.8	6-47	0.4-3.2	152	10.5
				80	5.5					80	5.5	15-55	1.0-3.8	168	11.6
224	L (A)	40	2.8	19-34	1.3-2.3	173	11.9	40	2.8	10-25	0.7-1.7	121	8.3		
		50	3.4					50	3.4			240	16.6		
		60	4.1					60	4.1			20-35	1.4-2.4	244	16.8
	S (B)	70	4.8	25-65	1.7-4.5	244	16.8	70	4.8	6-47	0.4-3.2	222	15.3		
		80	5.5					80	5.5	15-55	1.0-3.8	244	16.8		

Note: Do not exceed valve pressure rating.

* "L" refers to the spring that accommodates lower air supplies . "S" refers to the standard spring that accommodates higher air supplies .

ALWAYS specify air supply when ordering to ensure proper bench range.

A. 50 psig (3.4 barg) air supply is used at the factory for calibration purposes.

B. 70 psig (4.8 barg) air supply is used at the factory for calibration purposes.

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Table 10: Size 54R Actuator for General Utility Applications -
Air Supply and Maximum Pressure Drops for CLIV and CLVI Seat Leakage

ACTUATOR SIZE	VALVE SIZE	RATED C _v	AIR-TO-OPEN						AIR-TO-CLOSE							
			BENCH RANGE ⁽¹⁾		Maximum Shutoff Pressure				BENCH RANGE		Maximum Shutoff Pressure					
					3-15 psig (0.21-1.0 barg) SIGNAL TO ACTUATOR		WITH POSITIONER 20 psig (1.4 barg) AIR SUPPLY PRESSURE				3-15 psig (0.21-1.0 barg) SIGNAL TO ACTUATOR		WITH POSITIONER 20 psig (1.4 barg) AIR SUPPLY PRESSURE			
					psig	barg	psig	barg			psig	barg	psig	barg	psig	barg
54R	1" (DN25)	14	7-15	0.5-1.0	750	51.7	750	51.7	5-10	0.3-0.7	750	51.7	750	51.7		
		9.4			---	---					---	---	---			
		6.9	8-16	0.6-1.1	---	---	---	---	---	---	---	---	---	---	---	
	1-1/2" (DN40)	23	15	7-15	0.5-1.0	750	51.7	750	51.7	5-10	0.3-0.7	750	51.7	750	51.7	
																6.4
		30	7-15	0.5-1.0	600	41.4	606	41.8	678	46.8	5-10	0.3-0.7	687	47.4	750	51.7
					8-16	0.6-1.1							---	---		
	2" (DN50)	30	7-15	0.5-1.0	361	24.9	606	41.8	678	46.8	5-10	0.3-0.7	418	28.8	750	51.7
					8-16	0.6-1.1							---	---		
		45	7-15	0.5-1.0	245	16.9	421	29.0	473	32.6	5-10	0.3-0.7	286	19.7	599	41.3
					8-16	0.6-1.1							---	---		
	3" (DN80)	77	7-15	0.5-1.0	73	5.0	138	9.5	159	11.0	5-10	0.3-0.7	92	6.3	217	15.0
					8-16	0.6-1.1							---	---		
		107	7-15	0.5-1.0	40	2.8	84	5.8	100	6.9	5-10	0.3-0.7	53	3.7	140	9.7
					8-16	0.6-1.1							---	---		

Note: Do not exceed valve pressure rating.

⁽¹⁾ Nominal bench spring range of 8-16 psig (7.6-16 psig actual); 0.6-1.1 barg (0.52-1.1 barg actual).

Table 11: Actuator Orientations for Size 54R Actuator

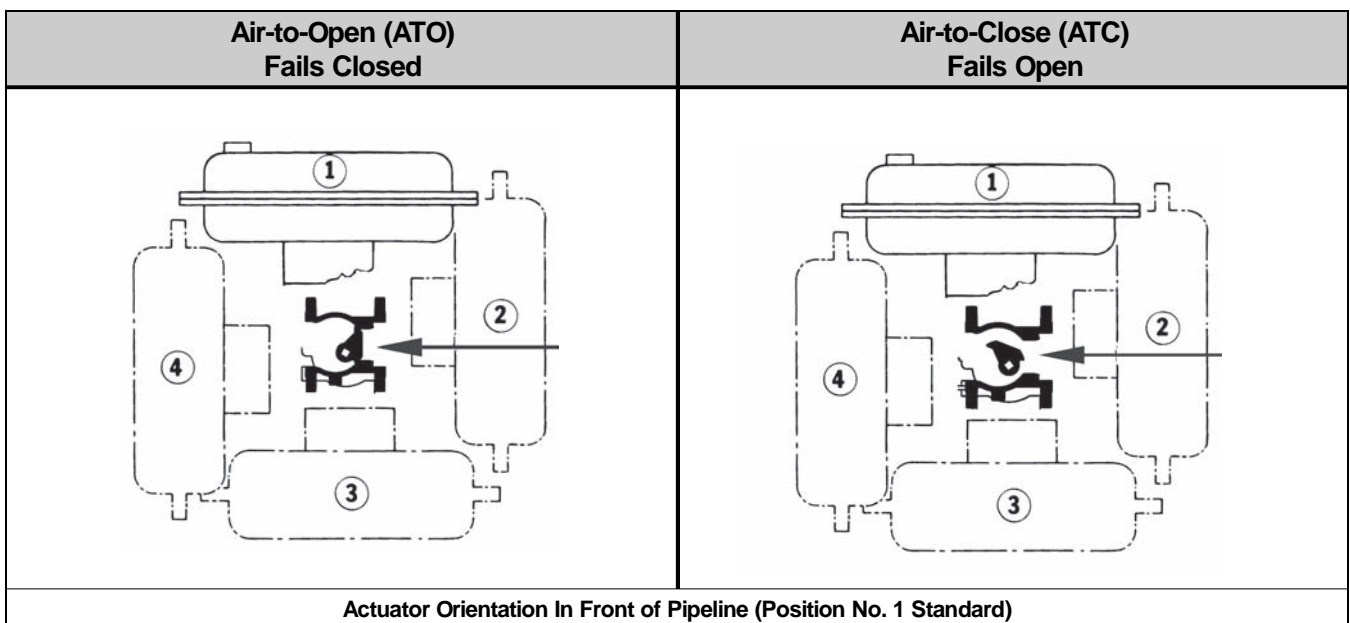


Table 12: Actuator Orientations - Viewed With Actuator In Front of Valve (For size 10R and 25R actuators only)

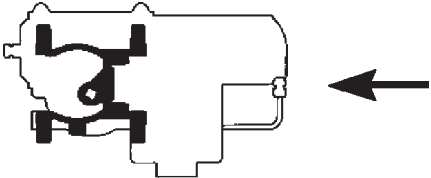


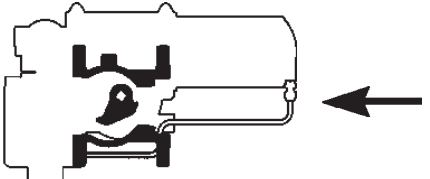
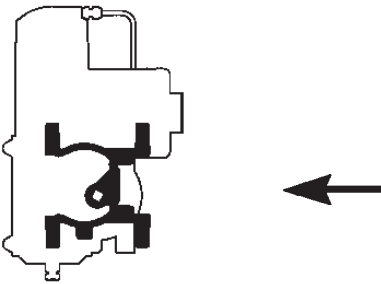
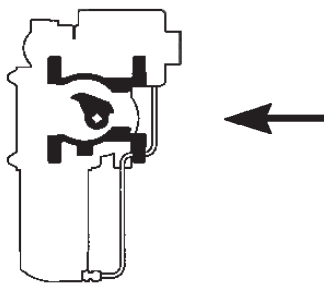
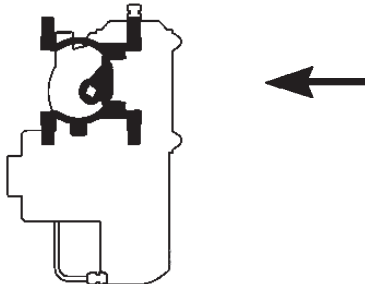
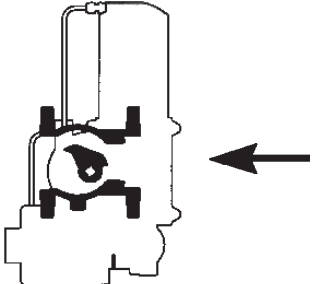
Mounting Option	Air-to-Open (ATO) / Fails Closed	Air-to-Close (ATC) / Fails Open
<p style="text-align: center;">1 Standard</p>		
<p style="text-align: center;">2</p>		
<p style="text-align: center;">3</p>		
<p style="text-align: center;">4</p>		

Figure 5. Valves with Size 10R or 25R Actuator with and without Handwheel

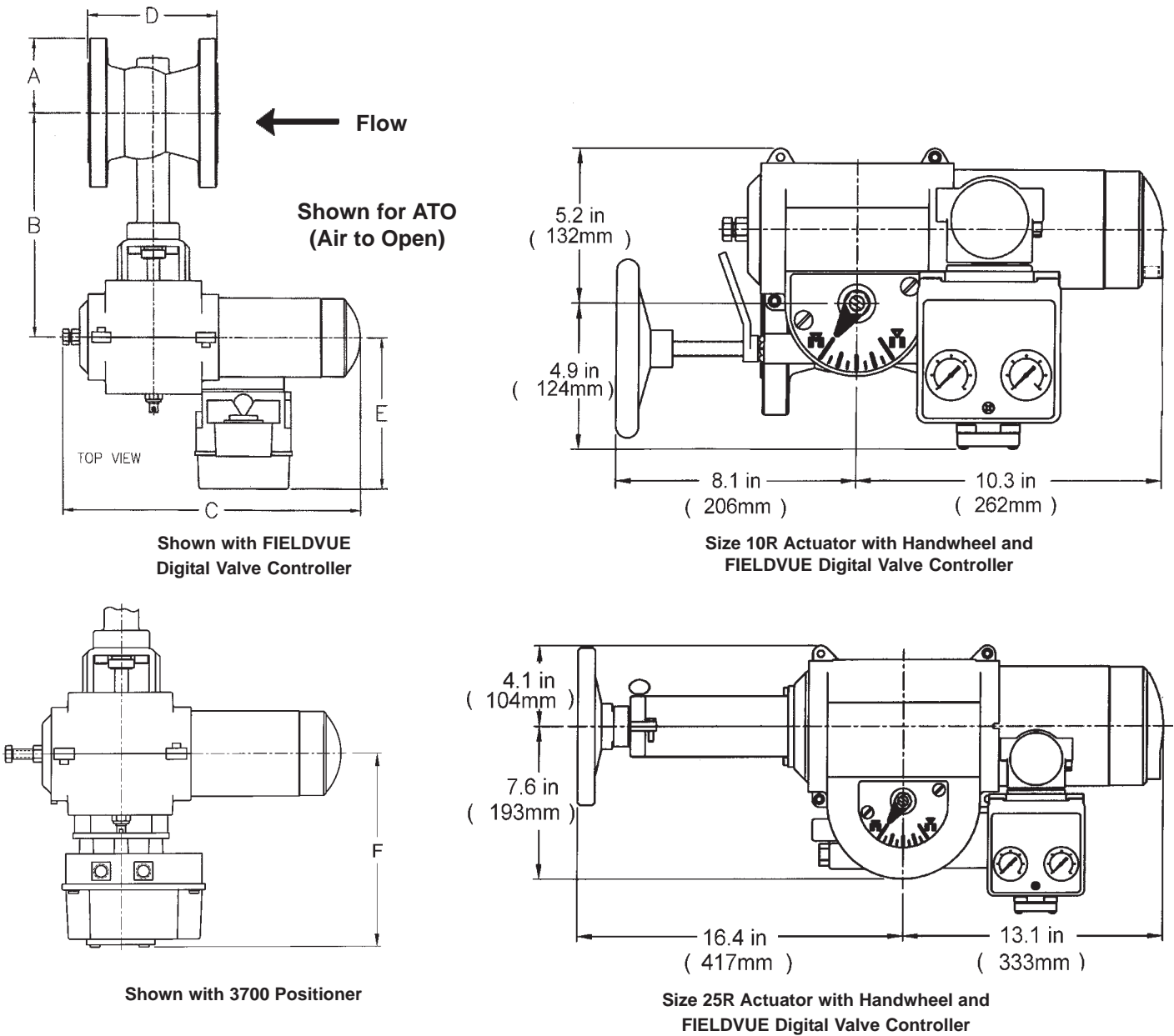


Table 13: Dimensions for Valves with Size 10R and 25R Actuator

VALVE SIZE	ACTUATOR SIZE	A				B	C ⁽¹⁾	D	E ⁽²⁾	F ⁽³⁾
		CL 150	CL 300	PN 10-16	PN 25-40					
in		inches								
1	10R	2.13	2.44	2.27	2.27	9.47	15.80	4.00	7.60	9.20
1-1/2	10R	2.50	3.06	2.96	2.96	9.97	15.80	4.50	7.60	9.20
2	10R	3.00	3.25	3.25	3.25	10.22	15.80	4.88	7.60	9.20
3	10R	3.75	4.13	3.94	3.94	11.35	15.80	6.50	7.60	9.20
4	25R	4.50	5.00	4.33	4.63	15.66	21.70	7.62	8.50	10.30
6	25R	5.50	6.25	5.61	5.91	16.91	21.70	9.00	8.50	10.30
DN		millimeters								
25	10R	54.1	62.0	57.7	57.7	241	401	102	193	234
40	10R	63.5	77.7	75.2	75.2	253	401	114	193	234
50	10R	76.2	82.6	82.6	86.2	260	401	124	193	234
80	10R	95.3	105	100	100	288	401	165	193	234
100	25R	114	127	110	118	298	551	194	216	262
150	25R	140	159	142	150	430	551	229	216	262

⁽¹⁾ Maximum dimension; ⁽²⁾ With FIELDVUE; ⁽³⁾ With 3700

Figure 6. Size 54R Actuator with Handwheel

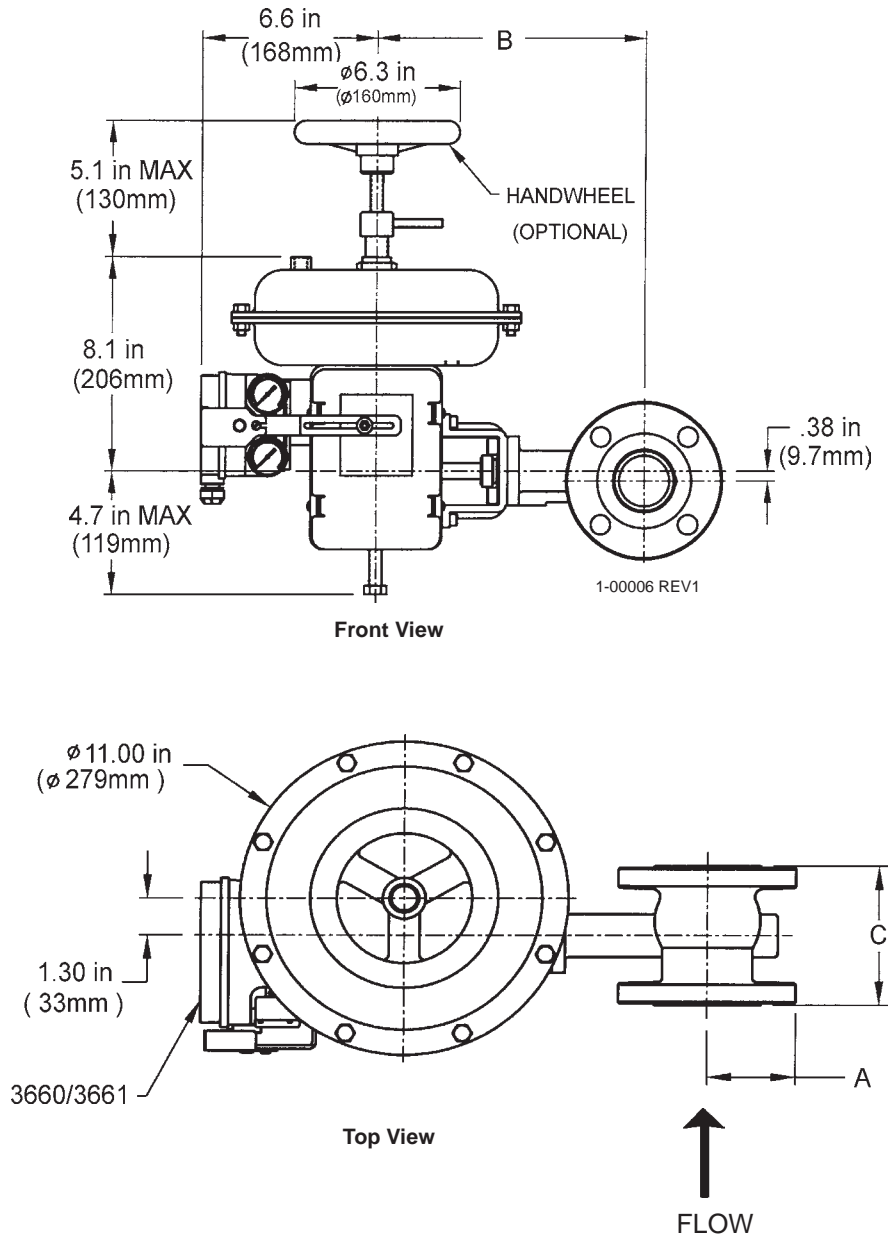


Table 14: Dimensions for Valves with Size 54R Actuator

VALVE SIZE	ACTUATOR SIZE	A				B	C
		CL 150	CL 300	PN 10-16	PN 25-40		
in		inches					
1	54R	2.13	2.44	2.27	2.27	9.50	4.00
1-1/2		2.50	3.06	2.96	2.96	10.00	4.50
2		3.00	3.25	3.25	3.25	10.22	4.88
3		3.75	4.13	3.94	3.94	11.35	6.50
DN	ACTUATOR SIZE	millimeters					
25	54R	54	62	58	58	241	102
40		64	78	75	75	254	114
50		76	83	83	83	260	124
80		95	105	100	100	288	165

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Table 15: Positioner Options

TYPE	POSITIONER MODEL		AVAILABLE SIGNAL RANGES	ACTION ⁽¹⁾	VALVE FLOW CHARACTERISTICS
	for 10/25-42000	for 54R-42000			
Pneumatic	N/A	865-1	3-15 psig	Direct	Linear
	3710	3660 3710	3-15 psig 3-9 psig 9-15 psig	Direct or Reverse	Linear or EQ % (optional)
Electropneumatic	N/A	863-1	4-20 mA	Direct	Linear
	3720	3661 3720	4-20 mA 4-12 mA 12-20 mA	Direct or Reverse	Linear or EQ % (optional)
Digital Controller	DVC5030 / DVC6030		4-20 mA or User Defined Span	Direct or Reverse (DVC6030 only)	Linear , EQ % or User Defined

⁽¹⁾ Direct - Increasing input signal, increasing air output to actuator; Reverse - Increasing input signal, decreasing air output to actuator.

Table 16: Accessory Mounting Options

ACTUATOR	POSITIONER	HANDWHEEL ⁽¹⁾	TRAVEL STOP LIMITS PLUG OPENING	TRAVEL STOP LIMITS PLUG CLOSURE
Size 10R ATO Fail Closed	3710 3720	Optional	Optional	Optional (if no handwheel)
	DVC5030 DVC6030		Standard	
	None-ON/OFF		Optional	
Size 10R ATC Fail Open	3710 3720	Optional	Optional (if no handwheel)	Optional
	DVC5030 DVC6030	Optional ⁽²⁾	Optional	Standard
	None-ON/OFF	Optional	Optional (if no handwheel)	Optional
Size 25R ATO Fail Closed	3710 3720	Optional	Optional	Optional (if no handwheel)
	DVC5030 DVC6030			
	None-ON/OFF			
Size 25R ATC Fail Open	3710 3720	Optional	Optional (if no handwheel)	Optional
	DVC5030 DVC6030			Standard
	None-ON/OFF			Optional
54R ATO Fail Closed	865-1 863-1	Optional	Standard	Optional
	3710 3720			
	3660 3661			
	DVC5030 DVC6030			
54R ATC Fail Open	865-1 863-1	Optional	Optional	Standard
	3710 3720			
	3660 3661			
	DVC5030 DVC6030			

⁽¹⁾ For Handwheel: ATO Construction - handwheel limits valve closure only; ATC Construction - handwheel limits valve opening only.

⁽²⁾ Requires shaft - mounting of DVC digital controller.

Table 17: Model Numbering System

ACTUATOR	VALVE BODY MATERIAL		TRIM NUMBER	VALVE SIZE		PLUG	SEAT RING	SEAT LEAKAGE
				in	DN			
10R	42	WCC (J02503)	477	1 & 1-1/2	25 & 40	Co-Cr-A (Alloy 6)	S31600 with PTFE seating surface	CL VI
25R	42S	CF8M (J92900)		2, 3, 4, & 6	50, 80, 100, & 150	S31600 Chrome-Plated		
54R	42	WCC (J02503)	488	1 & 1-1/2	25 & 40	Co-Cr-A (Alloy 6)	S31600	CLIV
				2, 3, 4, & 6	50, 80, 100, & 150	S31600 Chrome-Plated		
	42S	CF8M (J92900)	499	1 & 1-1/2	25 & 40	Co-Cr-A (Alloy 6)	S31600 with Co-Cr-A (Alloy 6) seating surface	
				2, 3, 4, & 6	50, 80, 100, & 150	S31600 Chrome-Plated		
42	WCC (J02503)	500	1 & 1-1/2	25 & 40	Co-Cr-A (Alloy 6)	Solid Alloy C		
			2, 3, 4, & 6	50, 80, 100, & 150	S31600 Chrome-Plated with Co-Cr-A (Alloy 6) overlay	S31600 with Co-Cr-A (Alloy 6) seating surface		

Table 18: Approximate Valve Weights

VALVE SIZE		APPROXIMATE VALVE WEIGHT					
		Class 150		Class 300		PN 10-40	
in	DN	lb	kg	lb	kg	lb	kg
1	25	13	5.9	17	7.7	19	8.6
1-1/2	40	17	7.7	20	9.1	20	9.1
2	50	19	8.6	23	10	21	9.5
3	80	34	15	44	20	42	19
4	100	70	32	84	38	82	37
6	150	105	48	135	61	133	60

Table 19: Actuator Weights

ACTUATOR SIZE	APPROXIMATE ACTUATOR WEIGHT	
	lb	kg
54R	25	13.4
10R	25	13.4
25R	65	34.8

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