

Fisher™ 585C Piston Actuators

The 585C linear piston actuator is a powerful, double-acting actuator that provides accurate throttling or on-off operation for sliding-stem control valves.

The 585C piston actuator family is available in sizes 25 to 130 to cover a wide range of thrust and travel length requirements. It can be used with switching valves for on-off control, or with the DVC6200 digital valve controller or 3600 positioner for throttling applications.

The 585C has a wide-range of supply pressure capabilities, up to 150 psig. As the 585C is double-acting, the positioner supplies air to both sides of the piston, resulting in stiff, precise movement and control.

For more information contact your [Emerson sales office](#).



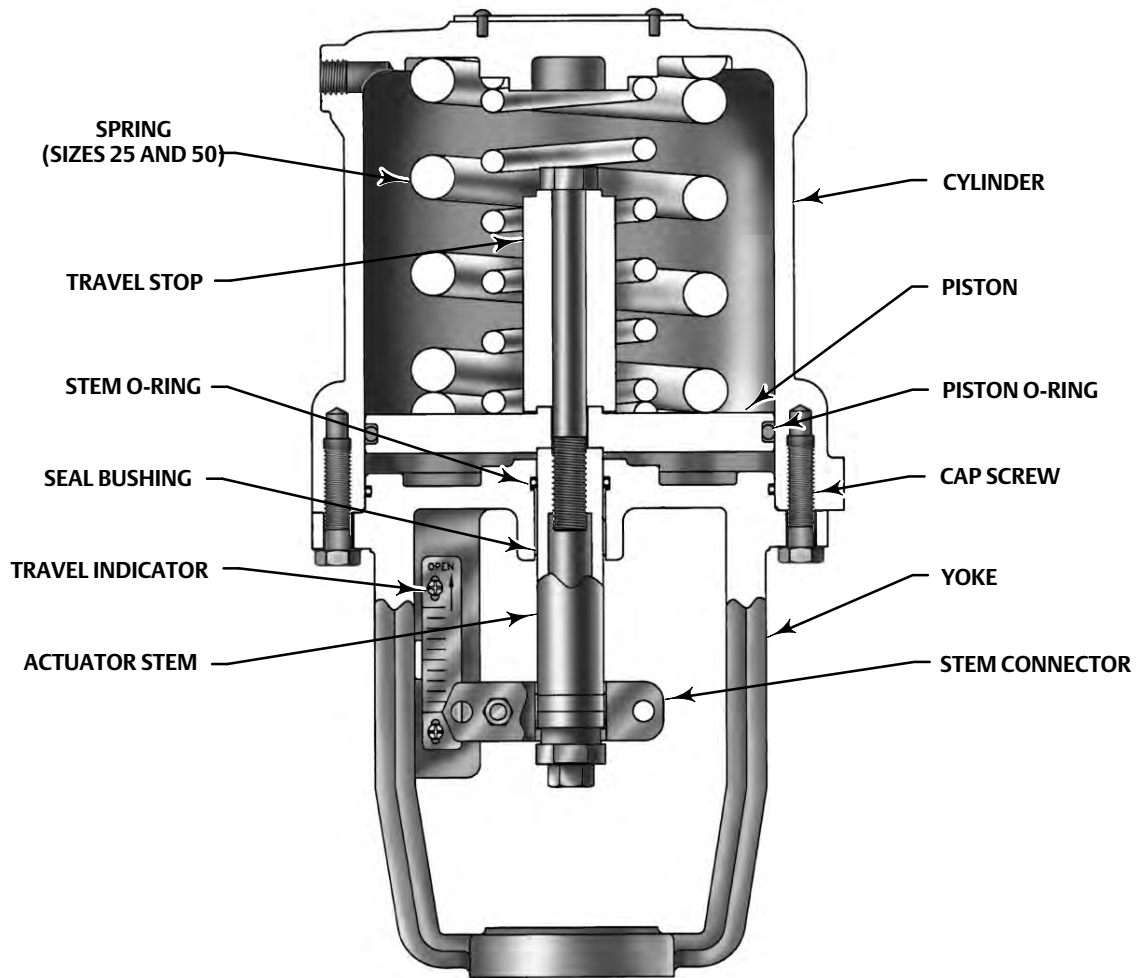
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**FISHER 585C PISTON ACTUATOR
WITH FIELDVUE™ DVC6200f DIGITAL VALVE CONTROLLER**

Features

- **High Thrust Capability**-- With standard air supply, the Size 130 Fisher 585C can produce up to 111,000 Newtons (25,000 lbs) of force.
- **Wide Range of Sizes**-- The 585C family of actuators offers a wide range of sizes, with piston areas of 168 sq cm (26 sq in) up to 1,429 sq cm (221.5 sq in).
- **Rugged Construction**-- The 585C standard yoke material is ductile iron, resulting in robust construction and increased thrust capability.
- **Broad Travel Capability**-- 585C piston actuators provide standard travel lengths of up to 203 mm (8 inches).
- **High-Performance Instrumentation**-- 585C actuators are available with a variety of positioners and accessories, including the FIELDVUE DVC6200 digital valve controller. The 377 trip valve and tank system are also available for fail-safe action.
- **Low Ambient Temperature**-- Option available for applications with ambient temperatures down to -60° C (-76° F). Uses Fluorosilicone O-rings and Nitronic 50 stem connector assembly. Compliant to GOST 15150.

Figure 1. Fisher 585C Piston Actuator Components



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Specifications

Operating Pressure⁽¹⁾

Sizes 25-50:
Maximum Allowable: 10.3 bar (150 psig)
Minimum Recommended: 1.4 bar (20 psig)
Sizes 60-130:
Maximum Allowable: See table 8.
Minimum Recommended: 2.4 bar (35 psig)

Travel

See table 2

Thrust Capabilities

See tables 4, 5, 6, 7, and 8

Stroking Speeds

Varies with actuator size, actuator spring, travel, and supply pressure. If stroking speed is critical, consult your [Emerson sales office](#)

Piston Area

See table 8

Cylinder Volumetric Displacement

See table 2

Operative Temperature Limits⁽¹⁾

For All Sizes:
Standard Construction (Nitrile O-Rings): -40 to 80°C (-40 to 175°F)
Optional Construction (Fluorocarbon O-Rings): -18 to 149°C (0 to 300°F)
For Sizes 60 through 130:
Optional Low Ambient Temperature (Fluorosilicone O-Rings): -60 to 80°C (-76 to 175°F)

Yoke Boss and Valve Stem Diameters

See table 3

Pressure Connections

Standard: ■ Sizes 25-60: 1/4 NPT internal (top/bottom) ■ Sizes 68-130: 1/2 NPT internal (top/bottom)

Optional:

Actuator Size	Air Connection Size ⁽¹⁾	
	Upper, NPT	Lower, NPT
50	1/2	NA
60	1/2	3/8
		1/2
	3/4	3/8
		1/2
68 - 100	3/4	3/4
		1/2
130	3/4	3/4
		1
	1-1/4	1

1. Multiple air connection quantities available.

Dimensions

See figures 6 and 7

Construction Materials

Part	Material
Yoke	Ductile Iron
Piston	Aluminum
Cylinder	Aluminum
Bolting and Fasteners	Steel NCF (std)
	Stainless Steel (std and low ambient)
Springs (sizes 25 & 50 only)	Alloy Steel
O-Rings	Nitrile (std), Fluorocarbon, Fluorosilicone, or EPDM
Actuator Stem	Chrome-plated Steel
Stem Connection (sizes 60-130 only)	Zinc-plated Steel (std)
	Stainless Steel (std and low ambient)
Travel Indicator Scale	Stainless Steel
Paint	Polyester Powder
Actuator Stem (sizes 60-130 only)	S41600 (416) SST, Chrome Plate
Cylinder Seal Bushings (sizes 60-130 only)	Brass

Instrument Mounting

Universal NAMUR mounting

Approximate Weights (less positioner and handwheel)

Size 25:
2-1/8 inch yoke boss, 7 kg (16 lbs)
2-13/16 inch yoke boss, 8 kg (17 lbs)
Size 50:
2-13/16 inch yoke boss, 20 kg (45 lbs)
3-9/16 inch yoke boss, 22 kg (48 lbs)
Size 60: 31 kg (68 lbs)
Size 68: 54 kg (120 lbs)
Size 80: 102 kg (225 lbs)
Size 100: 113 kg (250 lbs)
Size 130: 188 kg (415 lbs)

Specifications Continued

Options

Sizes 25 and 50:

■ Top-mounted handwheel, see figures 6 and 7 and table 9

■ Cylinder bypass valve ■ Limit switches ■ Fisher 4200 position transmitter

Sizes 60-130:

■ Integral side-mounted handwheel, see figure 8 and

tables 9 and 12

Sizes 25-130:

■ FIELDVUE mounting options

■ Fisher 377 trip valve system to fail actuator

■ Up or ■ down or ■ lock in last position

■ TopWorx DXP M21GNEB electrical valve stem position switch

■ Micro-Switch limit switches

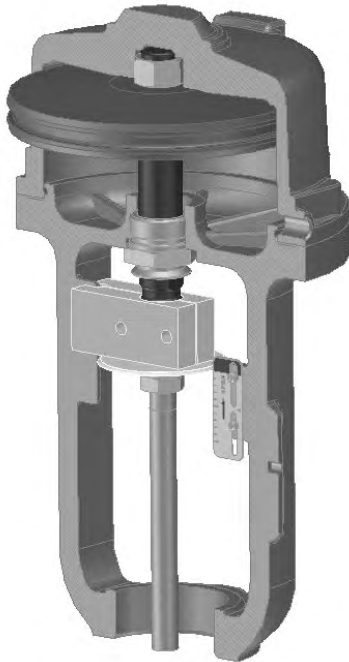
1. The pressure/temperature limits in this bulletin and any applicable standard or code limitation for valve should not be exceeded.

Features and Advantages

Table 1. Features and Advantages

FEATURES	ADVANTAGES
High thrust capability	With air supply capability of up to 150 psig, the 585C can produce up to 111,000 Newtons (25,000 pounds) thrust to overcome high valve unbalance.
Stroke Length Capability	Depending on size, strokes of up to 203 mm (8 inches) are available.
Wide range of sizes	The 585C is available in standard sizes 25, 50, 60, 68, 80, 100, and 130.
Valve mounting capability	Depending on size, the 585C can be mounted to yoke boss diameters of 2-1/8 inches through 5-inches, and valve stem diameters of up to 1-1/4 inch.
Positioner mounting capability	Universal NAMUR mounting provides a consistent mounting method for all sizes. This mounting capability provides vibration resistance per ISA-575.13.
High frequency response	The double acting construction allows quick response to instrument signals.
Stiff construction	Pressure on both sides of the piston, plus the relatively small volume of air within the cylinder, results in stiff, precise positioning.
Handwheels	585C size 25 and 50 actuators are available with a top-mounted handwheel. All other 585C actuator sizes can accommodate a side-mounted handwheel.
Bias springs	The sizes 25 and 50 are available with bias springs. A bias spring under the piston fully retracts the actuator stem upon loss of supply air, while a bias spring on top of the piston fully extends the actuator stem. The spring bias mode is easily reversed without the need for additional parts.

Figure 2. Fisher 585C Piston Actuator Without Springs



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Figure 3. Fisher 585C Piston Actuator with Handwheel



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Principle of Operation

The 585C piston actuator (figures 1 and 2) uses a piston that moves inside the actuator cylinder. An O-ring (see figure 1) provides a seal between the piston and the cylinder.

From an equilibrium state, the actuator reacts to a force unbalance that is created by increasing supply pressure on one side of the piston, and decreasing it on the other. This moves the piston up or down, and results in a repositioning of the valve control element.

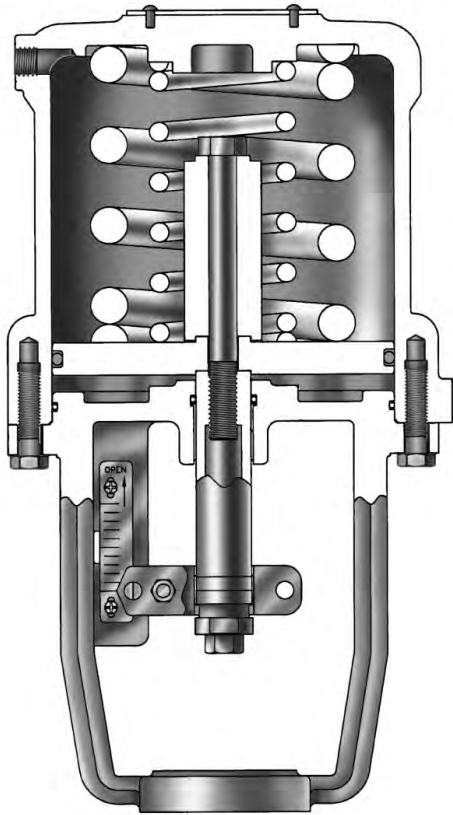
Actuator with Handwheel (figures 3 and 6)

The handwheel version can be used to open or close the valve manually (either during normal operation or in an emergency), to position the valve at any point in the stroke, or to act as a travel stop.

Size 25 and 50 actuators use an integral top-mounted handwheel. See figure 6.

Size 60 to 130 actuators use a side-mounted handwheel, and come with a spring-loaded ball detent which prevents vibration from changing the handwheel setting. Handwheels for most types are either 203 mm (8 inches) in diameter with beveled gears or 432 mm (17 inches) in diameter with worm gears.

Figure 4. Fisher 585C Piston Actuator with Spring Return



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Actuator with Spring Return (figure 4)

585C size 25 and 50 actuators are available with bias springs. The 585C actuator with bias spring has the spring under the piston and fully retracts the actuator stem upon loss of cylinder pressure. The bias spring in the 585CR actuator is on top of the piston and fully extends the actuator stem upon loss of cylinder pressure. No additional parts are required to convert from one actuator type to the other.

Instrument and Accessory Selection

An excellent selection of sensitive and accurate instruments and accessories is available for 585C piston actuators. These include FIELDVUE DVC6200 digital valve controllers, 3600 pneumatic (P/P) and electro-pneumatic (I/P) positioners, TopWorx™ DXP M21GNEB electrical valve stem position switch, 377 trip valve, 4200 electronic position transmitter, and limit switches. They are described in separate publications. Contact your [Emerson sales office](#) for details.

normal installation is with the actuator vertical above the valve. Actuator and positioner dimensions are shown in figures 6, 7, and 8.

If the supply source is capable of exceeding the maximum actuator operating pressure or instrument supply pressure, appropriate steps must be taken during installation to protect the instrument and all connected equipment against overpressure.

Installation

The actuator may be installed in any orientation but

Actuator Data

See table 2 for piston cylinder clearance volumes, table 3 for yoke boss and valve stem diameters, and tables 4, 5, 6, 7, and 8 for actuator thrust capabilities.

Table 2. Fisher 585C Piston Cylinder Clearance Volumes

PISTON AT TOP OF CYLINDER (SPRINGS BELOW PISTON FOR SIZE 25 AND 50)								
Actuator Size	Piston Area		Maximum Actuator Travel ⁽¹⁾		Upper Clearance Volume (figure 5)		Volume Below Piston (figure 5)	
	cm ²	Inches ²	mm	Inches	cm ³	Inches ³	cm ³	Inches ³
25	168	26	29	1.125	104	6.3	1750	107
50	303	47	51	2	330	20	5200	320
60	358	55.5	51	2	310	19	2700	163
			100	4	310	19	4400	270
			200	8	310	19	8200	500
68	571	88.5	51	2	1230	75	7500	460
			102	4	1230	75	7500	460
			203	8	1230	75	13300	810
80	571	88.5	102	4	1230	75	7500	460
			203	8	1230	75	13300	810
100	842	130.5	102	4	1700	104	10700	650
			203	8	1700	104	19200	1170
130	1430	221.5	102	4	4600	280	18500	1130
			203	8	4600	280	33000	2000
PISTON AT BOTTOM OF CYLINDER (SPRINGS ABOVE PISTON FOR SIZE 25 AND 50)								
Actuator Size	Piston Area		Maximum Actuator Travel		Lower Clearance Volume (figure 5)		Volume Above Piston (figure 5)	
	cm ²	Inches ²	mm	Inches	cm ³	Inches ³	cm ³	Inches ³
25	168	26	29	1.125	77	4.7	1790	109
50	303	47	51	2	350	22	5200	320

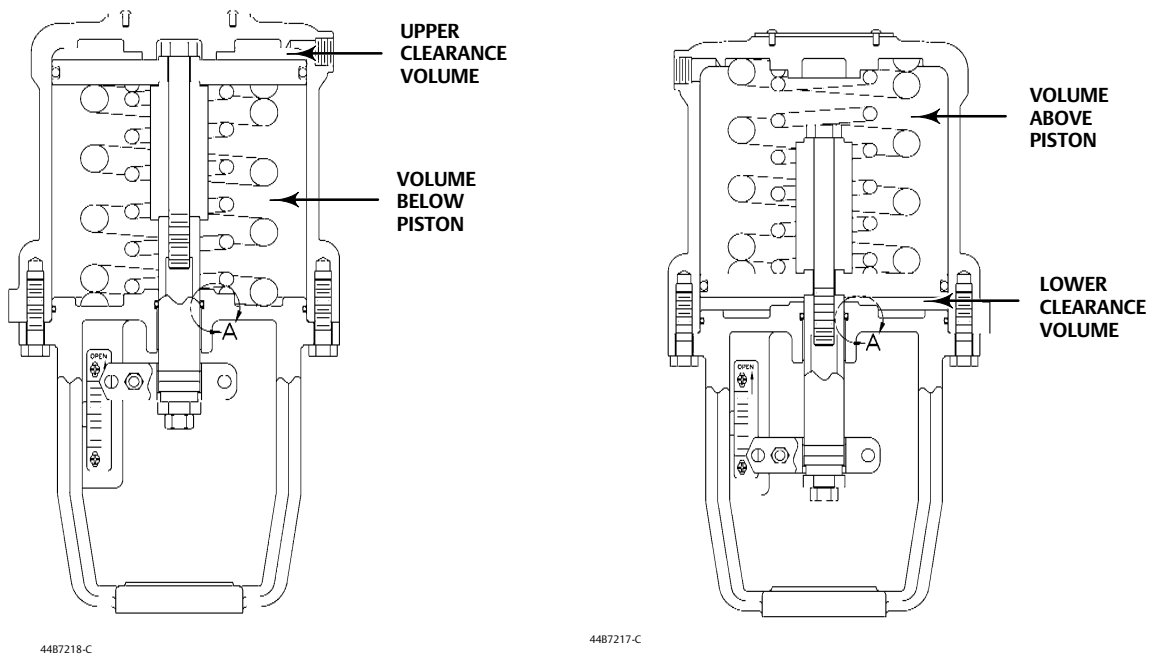
1. Maximum available travel may decrease with larger air pressure connections. Please contact your Emerson Sales Office for more information.

Table 3. Yoke Boss and Valve Stem Diameters

ACTUATOR SIZE	YOKE BOSS DIAMETER		VALVE STEM DIAMETER	
	mm	Inches	mm	Inches
25	54	2-1/8	9.5	3/8
	71	2-13/16	12.7	1/2
50	71	2-13/16	12.7	1/2
	90	3-9/16	19.1	3/4
60	90	3-9/16	19.1	3/4
68	90	3-9/16	19.1	3/4
80	127	5, 5H	25.4	1
			31.8	1-1/4
100	127	5, 5H	25.4	1
			31.8	1-1/4
130	127	5, 5H	25.4	1
			31.8	1-1/4

1. Heavy actuator to bonnet bolting.

Figure 5. Clearance Volumes



Actuator Thrust Capabilities

Table 4. Fisher 585C Size 25 and 50 Actuator Thrust Capabilities, U.S. Units (Spring Retracts Stem)

ACTUATOR SIZE	SPRING RATE, lb/in	ACTUATOR STEM TRAVEL, INCHES	SPRING THRUST, POUNDS		NET THRUST FOR 585C WITH ACTUATOR STEM FULLY EXTENDED AT FULL TRAVEL										SPRING COLOR
			Stem Retracted	Stem Extended	Operating Pressure, psig ⁽¹⁾										
					40	50	60	70	80	90	100	110	125	150	
			Force, Pounds												
25	0	All	0	0	1040	1300	1560	1820	2080	2340	2600	2860	3250	3900	Springs Not Used
	200	0.5625	200	313	730	990	1250	1510	1760	2020	2280	2540	2930	3580	Gold
		0.75	200	350	690	950	1210	1470	1730	1990	2250	2510	2900	3550	
		0.875	200	375	660	920	1180	1440	1700	1960	2220	2480	2870	3520	
		1.125	200	425	610	870	1130	1390	1650	1910	2170	2430	2820	3470	
	400	0.5625	400	625	410	670	930	1190	1450	1710	1970	2230	2620	3270	Light Green
		0.75	400	700	340	600	860	1120	1380	1640	1900	2160	2550	3200	
		0.875	400	750	290	550	810	1070	1330	1590	1850	2110	2500	3150	
		1.125	400	850	190	450	710	970	1230	1490	1750	2010	2400	3050	
	500	0.5625	500	781	260	520	780	1040	1300	1560	1820	2080	2460	3110	White
		0.75	500	875	160	420	680	940	1200	1460	1720	1980	2370	3020	
		0.875	500	938	100	360	620	880	1140	1400	1660	1920	2310	2960	
1.125		500	1063	X	240	500	760	1010	1270	1530	1790	2180	2830		
700	0.5625	700	1094	X	200	460	720	980	1240	1500	1760	2150	2800	Gold & White	
	0.75	700	1225	X	70	330	590	850	1110	1370	1630	2020	2670		
	0.875	700	1313	X	X	250	510	760	1020	1280	1540	1930	2580		
	1.125	700	1488	X	X	70	330	590	850	1110	1370	1760	2410		
900	0.5625	900	1406	X	X	150	410	670	930	1190	1450	1840	2490	Light Green & White	
	0.75	900	1575	X	X	X	240	500	760	1020	1280	1670	2320		
	0.875	900	1688	X	X	X	130	390	650	910	1170	1560	2210		
	1.125	900	1913	X	X	X	X	160	420	680	940	1330	1980		
50	0	All	0	0	1840	2300	2760	3220	3680	4140	4600	5060	5750	6900	Springs Not Used
	330	0.75	330	578	1310	1780	2250	2720	3190	3660	4140	4610	5310	6490	Pink
		0.875	330	619	1270	1740	2210	2680	3150	3620	4090	4570	5270	6450	
		1.125	330	701	1180	1660	2130	2600	3070	3540	4010	4480	5190	6370	
		1.5	330	825	1060	1530	2000	2470	2950	3420	3890	4360	5070	6250	
		2	330	990	900	1370	1840	2310	2780	3250	3720	4190	4900	6080	
	600	0.75	600	1050	840	1310	1780	2250	2720	3190	3660	4130	4840	6020	Light Blue
		0.875	600	1125	760	1230	1700	2170	2650	3120	3590	4060	4770	5950	
		1.125	600	1275	610	1080	1550	2020	2500	2970	3440	3910	4620	5800	
		1.5	600	1500	390	860	1330	1800	2270	2740	3210	3680	4390	5570	
		2	600	1800	90	560	1030	1500	1970	2440	2910	3380	4090	5270	
	930	0.75	930	1628	260	730	1200	1670	2140	2610	3090	3560	4260	5440	Pink & Light Blue
		0.875	930	1744	140	610	1080	1560	2030	2500	2970	3440	4150	5330	
		1.125	930	1976	X	380	850	1320	1790	2270	2740	3210	3910	5090	
		1.5	930	2325	X	30	500	970	1450	1920	2390	2860	3570	4750	
		2	930	2790	X	X	40	510	980	1450	1920	2390	3100	4280	
	1550	0.75	1550	2710	X	X	110	580	1050	1520	1990	2460	3165	4345	Green
		0.875	1550	2906	X	X	X	385	855	1325	1795	2265	2970	4150	
1.125		1550	3294	X	X	X	X	465	935	1405	1875	2580	3760		
1.5		1550	3875	X	X	X	X	X	355	825	1295	2000	3180		
2		1550	4650	X	X	X	X	X	X	50	520	1225	2405		
1880	0.75	1880	3290	X	X	X	X	470	940	1410	1880	2585	3765	Pink & Green	
	0.875	1880	3525	X	X	X	X	235	705	1175	1645	2350	3530		
	1.125	1880	3995	X	X	X	X	X	235	705	1175	1880	3060		
	1.5	1880	4700	X	X	X	X	X	X	X	470	1175	2355		
	2	1880	5640	X	X	X	X	X	X	X	X	235	1415		

X indicates where the listed supply pressure is not sufficient to overcome the opposing bias spring effect.
1. The maximum design pressure for size 25 and 50 actuator is 150 psig. Maximum rating for applications is 125 psig.

Table 5. Fisher 585C Size 25 and 50 Actuator Thrust Capabilities, Metric Units (Spring Retracts Stem)

ACTUATOR SIZE	SPRING RATE, N/mm	ACTUATOR STEM TRAVEL, mm	SPRING THRUST, N		NET THRUST FOR 585C WITH ACTUATOR STEM FULLY EXTENDED AT FULL TRAVEL										SPRING COLOR
			Stem Retracted	Stem Extended	Operating Pressure, bar ⁽¹⁾										
					2.8	3.4	4.1	4.8	5.5	6.2	6.9	7.6	8.6	10.3	
			Force, N												
25	0	All	0	0	4626	5783	6939	8096	9252	10,409	11,565	12,722	14,457	17,348	Springs Not Used
	35.0	14.3	890	1393	3247	4404	5560	6717	7829	8985	10,142	11,298	13,033	15,925	Gold
		19.1	890	1558	3069	4226	5382	6539	7695	8852	10,008	11,165	12,900	15,791	
		22.2	890	1669	2936	4092	5249	6405	7562	8718	9875	11,032	12,766	15,658	
		28.6	890	1891	2713	3870	5026	6183	7340	8496	9653	10,809	12,544	15,435	
	70.1	14.3	1780	2781	1824	2980	4137	5293	6450	7606	8763	9919	11,654	14,546	Light Green
		19.1	1780	3115	1512	2669	3825	4982	6139	7295	8452	9608	11,343	14,234	
22.2		1780	3338	1290	2447	3603	4760	5916	7073	8229	9386	11,121	14,012		
28.6		1780	3783	845	2002	3158	4315	5471	6628	7784	8941	10,676	13,567		
87.6	14.3	2225	3475	1156	2313	3470	4626	5783	6939	8096	9252	10,943	13,834	White	
	19.1	2225	3894	712	1868	3025	4181	5338	6494	7651	8807	10,542	13,434		
	22.2	2225	4174	445	1601	2758	3914	5071	6227	7384	8541	10,275	13,167		
	28.6	2225	4730	X	1068	2224	3381	4493	5649	6806	7962	9697	12,588		
122.6	14.3	3115	4868	X	890	2046	3203	4359	5516	6672	7829	9564	12,455	Gold & White	
	19.1	3115	5451	X	311	1468	2624	3781	4938	6094	7251	8985	11,877		
	22.2	3115	5843	X	X	1112	2269	3381	4537	5694	6850	8585	11,476		
	28.6	3115	6622	X	X	311	1468	2624	3781	4938	6094	7829	10,720		
157.7	14.3	4005	6257	X	X	667	1824	2980	4137	5293	6450	8185	11,076	Light Green & White	
	19.1	4005	7009	X	X	X	1068	2224	3381	4537	5694	7428	10,320		
	22.2	4005	7512	X	X	X	578	1735	2891	4048	5204	6939	9831		
	28.6	4005	8513	X	X	X	X	712	1868	3025	4181	5916	8807		
50	0	All	0	0	8180	10,200	12,300	14,300	16,400	18,400	20,500	22,500	25,600	30,700	Springs Not Used
	57.8	19.1	1468	2571	5827	7918	10,008	12,099	14,190	16,280	18,416	20,506	23,620	28,869	Pink
		22.2	1468	2753	5649	7740	9831	11,921	14,012	16,102	18,193	20,328	23,442	28,691	
		28.6	1468	3118	5249	7384	9475	11,565	13,656	15,747	17,837	19,928	23,086	28,335	
		38.1	1468	3670	4715	6806	8896	10,987	13,122	15,213	17,303	19,394	22,552	27,801	
		50.8	1468	4404	4003	6094	8185	10,275	12,366	14,457	16,547	18,638	21,796	27,045	
	105.1	19.1	2669	4671	3736	5827	7918	10,008	12,099	14,190	16,280	18,371	21,529	26,778	Light Blue
22.2		2669	5004	3381	5471	7562	9653	11,788	13,878	15,969	18,060	21,218	26,467		
28.6		2669	5671	2713	4804	6895	8985	11,121	13,211	15,302	17,392	20,551	25,800		
38.1		2669	6672	1735	3825	5916	8007	10,097	12,188	14,279	16,369	19,528	24,777		
162.9	19.1	4137	7242	1157	3247	5338	7428	9519	11,610	13,745	15,836	18,949	24,198	Pink & Light Blue	
	22.2	4137	7758	623	2713	4804	6939	9030	11,121	13,211	15,302	18,460	23,709		
	28.6	4137	8790	X	1690	3781	5872	7962	10,097	12,188	14,279	17,392	22,641		
	38.1	4137	10,342	X	133	2224	4315	6450	8541	10,631	12,722	15,880	21,129		
271.4	19.1	6894	12054	X	X	489	2580	4670	6761	8852	10942	14078	19,328	Green	
	22.2	6894	12925	X	X	X	1712	3803	5894	7984	10075	13211	18,460		
	28.6	6894	14652	X	X	X	X	2068	4159	6249	8340	11476	16,725		
	38.1	6894	17236	X	X	X	X	X	1579	3670	5760	8896	14,145		
329.2	19.1	8362	14634	X	X	X	X	2091	4181	6272	8362	11498	16,748	Pink & Green	
	22.2	8362	15679	X	X	X	X	1045	3136	5226	7317	10453	15,702		
	28.6	8362	17770	X	X	X	X	X	1045	3136	5226	8362	13,612		
	38.1	8362	20906	X	X	X	X	X	X	X	2091	5226	10,476		
50.8	19.1	8362	25087	X	X	X	X	X	X	X	X	1045	6294		
	22.2	8362	25087	X	X	X	X	X	X	X	X	X	X		
	28.6	8362	25087	X	X	X	X	X	X	X	X	X	X		
	38.1	8362	25087	X	X	X	X	X	X	X	X	X	X		

X—Indicates where the listed supply pressure is not sufficient to overcome the opposing bias spring effect.
1. The maximum design pressure for size 25 and 50 actuator is 10.3 bar. Maximum rating for applications is 8.6 bar.

Table 6. Fisher 585CR Size 25 and 50 Actuator Thrust Capabilities, U.S. Units (Spring Extends Stem)

ACTUATOR SIZE	SPRING RATE, lb/in	SPRING THRUST W/ ACTUATOR STEM EXTENDED, POUNDS	TOTAL THRUST FOR 585CR WITH ACTUATOR STEM FULLY EXTENDED										SPRINGS USED, BY COLOR
			Operating Pressure, psig ⁽¹⁾										
			40	50	60	70	80	90	100	110	125	150	
			Force, Pounds										
25 ⁽²⁾	0	0	1040	1300	1560	1820	2080	2340	2600	2860	3250	3900	Springs Not Used
	200	200	1240	1500	1760	2020	2280	2540	2800	3060	3450	X	Gold
	400	400	1440	1700	1960	2220	2480	2740	3000	3260	3650	X	Light Green
	500	500	1540	1800	2060	2320	2580	2840	3100	3360	3750	X	White
	700	700	1740	2000	2260	2520	2780	3040	3300	3560	X	X	Gold & White
	900	900	1940	2200	2460	2720	2980	3240	3500	3760	X	X	Light Green & White
50 ⁽³⁾	0	0	1840	2300	2760	3220	3680	4140	4600	5060	5750	6900	Springs Not Used
	330	330	2210	2680	3150	3620	4090	4560	5030	5500	6205	X	Pink
	600	600	2480	2950	3420	3890	4360	4830	5300	5770	6475	X	Light Blue
	930	930	2810	3280	3750	4220	4690	5160	5630	6100	6805	X	Pink & Light Blue
	1550	1550	3430	3900	4370	4840	5310	5780	6250	6720	X	X	Green
	1880	1880	3760	4230	4700	5170	5640	6110	6580	7050	X	X	Pink & Green

X indicates where the listed supply pressure is not sufficient to overcome the opposing bias spring effect.
1. The maximum design pressure for size 25 and 50 actuator is 150 psig.
2. Maximum thrust is 3900 lbs.
3. Maximum thrust is 6900 lbs.

Table 7. Fisher 585CR Size 25 and 50 Actuator Thrust Capabilities, Metric Units (Spring Extends Stem)

ACTUATOR SIZE	SPRING RATE, N/mm	SPRING THRUST W/ ACTUATOR STEM EXTENDED, N	TOTAL THRUST FOR 585CR WITH ACTUATOR STEM FULLY EXTENDED										SPRINGS USED, BY COLOR
			Operating Pressure, bar ⁽¹⁾										
			2.8	3.4	4.1	4.8	5.5	6.2	6.9	7.6	8.6	10.3	
			Force, N										
25 ⁽²⁾	0	0	4626	5782	6939	8095	9251	10408	11565	12721	14456	17347	Springs Not Used
	35.0	890	5516	6672	7828	8985	10141	11298	12454	13610	15346	X	Gold
	70.0	1780	6405	7562	8718	9874	11031	12188	13344	14500	16235	X	Light Green
	87.6	2225	6850	8006	9163	10319	11476	12632	13789	14945	16680	X	White
	122.6	3115	7740	8896	10052	11209	12365	13655	14678	15835	X	X	Gold & White
	157.6	4005	8629	9786	10942	12099	13255	14412	15568	16724	X	X	Light Green & White
50 ⁽³⁾	0	0	8180	10200	12300	14300	16400	18400	20500	22500	25600	30700	Springs Not Used
	57.8	1468	9830	11921	14011	16102	18192	20282	22373	24464	27600	X	Pink
	105.1	2670	11031	13122	15212	17303	19393	21484	23574	25665	28800	X	Light Blue
	162.8	4135	12499	14589	16680	18770	20861	22952	25042	27133	30269	X	Pink & Light Blue
	271.4	6894	15256	17347	19438	21528	23619	25709	27800	29891	X	X	Green
	329.2	8362	16724	18815	20906	22996	25087	27177	29268	31358	X	X	Pink & Green

X indicates where the listed supply pressure is not sufficient to overcome the opposing bias spring effect.
1. The maximum design pressure for size 25 and 50 actuator is 10.3 bar.
2. Maximum thrust is 17347 N.
3. Maximum thrust is 30700 N.

Table 8. Fisher 585C Thrust (Springless Construction)

ACTUATOR SIZE	PISTON AREA	TOTAL THRUST FOR 585C ⁽¹⁾										MAXIMUM ALLOWABLE THRUST
		Operating Pressure, bar ⁽³⁾										
	cm ²	2.8	3.4	4.1	4.8	5.5	6.2	6.9	7.6	8.6	10.3	Newtons
25	168	4630	5780	6940	8100	9260	10400	11600	12700	14500	17300	17300
50	303	8180	10200	12300	14300	16400	18400	20500	22500	25600	30700	31400
60 ⁽³⁾	358	9880	12300	14800	17300	19800	22200	24700	27200	30900	36900	36900
68 ⁽³⁾	571	15700	19700	23600	27600	31500	35400	39400	43300	49200	X	55600 ⁽⁴⁾
80 ⁽³⁾	571	15700	19700	23600	27600	31500	35400	39400	43300	49200	58700	58700
100 ⁽³⁾	842	23200	29000	34800	40600	46400	52200	58000	63900	72600	86700	86700
130 ⁽³⁾	1430	39400	49300	59100	69000	78700	88500	98800	108100	X	X	111200
ACTUATOR SIZE	PISTON AREA	Operating Pressure, psig ⁽³⁾										MAXIMUM ALLOWABLE THRUST
		40	50	60	70	80	90	100	110	125	150	
	Inches ²	Force, Pounds ⁽²⁾										Pounds
25	26	1040	1300	1560	1820	2080	2340	2600	2860	3250	3900	3900
50	47	1840	2300	2760	3220	3680	4140	4600	5060	5750	6900	7050
60 ⁽³⁾	55.5	2220	2780	3330	3890	4440	5000	5550	6110	6940	8300	8300
68 ⁽³⁾	88.5	3540	4430	5310	6200	7080	7970	8850	9740	11100	X	12500 ⁽⁴⁾
80 ⁽³⁾	88.5	3540	4430	5310	6200	7080	7970	8850	9740	11100	13200	13200
100 ⁽³⁾	130.5	5220	6530	7830	9140	10440	11700	13100	14400	16300	19500	19500
130 ⁽³⁾	221.5	8860	11100	13300	15500	17700	19900	22200	24300	X	X	25000

X indicates where the listed supply pressure will exceed the maximum thrust allowable.
 1. The maximum design pressure for size 25 through 100 actuators is 10.3 bar (150 psig). Size 68 and 130 actuators are limited to 9.7 and 7.8 bar (140 and 113 psig) respectively.
 2. The size 25 and 50 data is for the construction without a bias spring.
 3. Minimum operating pressure for sizes 60-130 actuators is 2.4 bar (35 psig).
 4. The size 68 actuator with a handwheel is limited to 40000 Newtons (9000 lb) thrust.

Handwheel Specifications

Table 9. Fisher 585C Handwheel Specifications

ACTUATOR SIZE	HANDWHEEL MOUNTING	HANDWHEEL DIAMETER	TURNS PER mm TRAVEL	MAXIMUM RIM FORCE REQUIRED	HANDWHEEL OUTPUT FORCE	HANDWHEEL WEIGHT
		mm		Newtons	Newtons	kg
25	Top-Mounted	356	0.5	325	12,810	17
50		482	0.5	445	23,790	20
60 ⁽¹⁾	Integral Side-Mounted	203	0.6	276	40000	28
60 ⁽²⁾		356	0.6	160	40000	30
68 ⁽¹⁾		203	0.6	276	40000	30
68 ⁽²⁾		356	0.6	160	40000	33
80		432	0.4	423	50000	35
100		432	0.4	623	75600	94
130		432	0.4	623	75600	123
ACTUATOR SIZE	HANDWHEEL MOUNTING	HANDWHEEL DIAMETER	TURNS PER INCH TRAVEL	MAXIMUM RIM FORCE REQUIRED	HANDWHEEL OUTPUT FORCE	HANDWHEEL WEIGHT
		Inches		Pounds	Pounds	Pounds
25	Top-Mounted	14	12	73	2880	37
50		19	12	100	5350	45
60 ⁽¹⁾	Integral Side-Mounted	8	16	62	9000	61
60 ⁽²⁾		14	16	36	9000	66
68 ⁽¹⁾		8	16	62	9000	66
68 ⁽²⁾		14	16	36	9000	71
80		17	10	95	11250	77
100		17	10	140	17000	208
130		17	10	140	17000	272

1. 2 and 4 inch maximum travel constructions.
2. 8 inch maximum travel construction.

Table 10. Fisher 585C Dimensions—Size 25 and 50 Actuator with 3611 Pneumatic (P/P) Positioner

ACTUATOR SIZE	YOKE BOSS SIZE	E	H	C	AR ⁽¹⁾	F	∅jc	L	P	T	X
mm											
25	54.0	324.4	693.7	205.2	127.0	259.6	355.6	47.8	255.8	19.1	114.3
	71.4	352.3	720.9	205.2	176.3	259.6	355.6	19.8	255.8	23.9	139.3
50	71.4	464.3	841.5	257.0	176.3	265.4	482.6	13.7	281.7	23.9	152.4
	90.5	503.4	881.1	257.0	225.6	265.4	482.6	---	281.7	35.1	193.5
Inches											
25	2-1/8	12.77	27.31	8.08	5.00	10.22	14.00	1.88	10.07	0.75	4.50
	2-13/16	13.87	28.38	8.08	6.94	10.22	14.00	0.78	10.07	0.94	5.50
50	2-13/16	18.28	33.13	10.12	6.94	10.45	19.00	0.54	11.09	0.94	6.00
	3-9/16	19.82	34.69	10.12	8.88	10.45	19.00	---	11.09	1.38	7.62

1. Actuator removal clearance

Figure 6. Fisher 585C Dimensions—Size 25 and 50 Actuator with 3611 Pneumatic (P/P) Positioner (See Table 10)

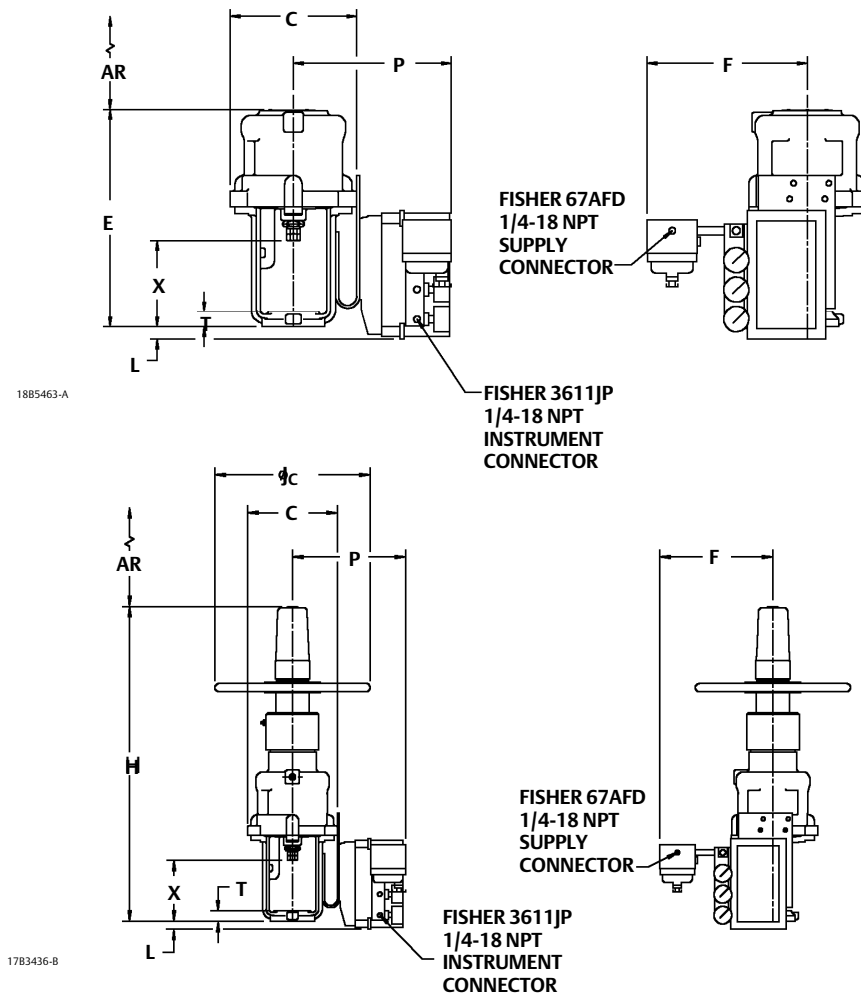


Table 11. Fisher 585C Dimensions—Size 25 and 50 Actuator with 3621 Electro-Pneumatic (I/P) Positioner

ACTUATOR SIZE	YOKE BOSS SIZE	E	H	C	AR ⁽¹⁾	F	∅Jc	L	P
mm									
25	54.0	322.1	681.0	205.2	127.0	216.7	355.6	96.0	303.5
	71.4	350.0	720.9	205.2	176.3	216.7	355.6	68.1	303.5
50	71.4	462.0	836.4	257.0	176.3	222.5	482.6	62.5	329.4
	90.5	501.1	875.6	257.0	225.6	222.5	482.6	23.4	329.4
Inches									
25	2-1/8	12.68	26.81	8.08	5.00	8.53	14.00	3.78	11.95
	2-13/16	13.78	28.38	8.08	6.94	8.53	14.00	2.68	11.95
50	2-13/16	18.19	32.93	10.12	6.94	8.76	19.00	2.46	12.97
	3-9/16	19.73	34.47	10.12	8.88	8.76	19.00	0.92	12.97

1. Actuator removal clearance

Figure 7. Fisher 585C Dimensions—Size 25 and 50 Actuator with 3621 Electro-Pneumatic (I/P) Positioner (See Table 11)

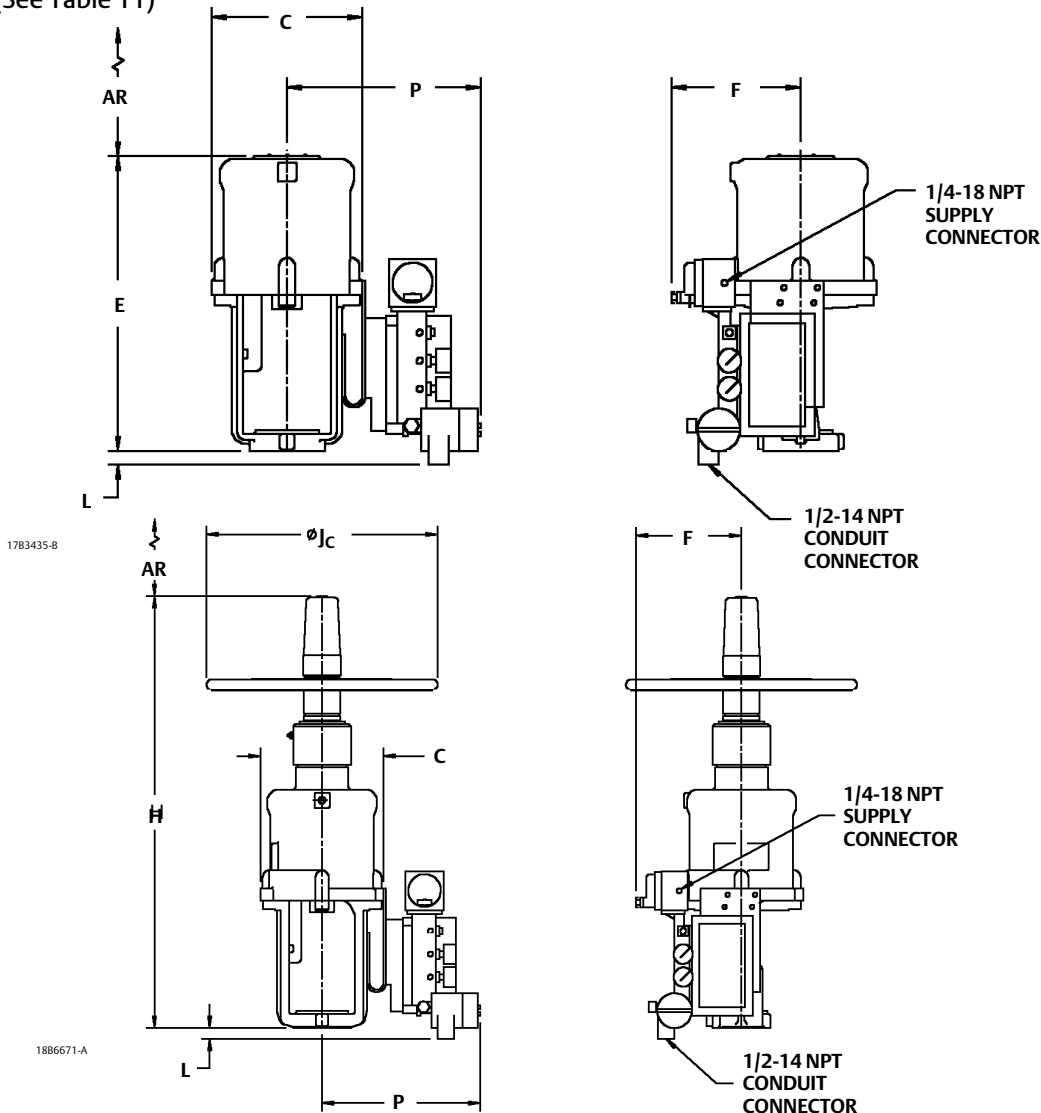
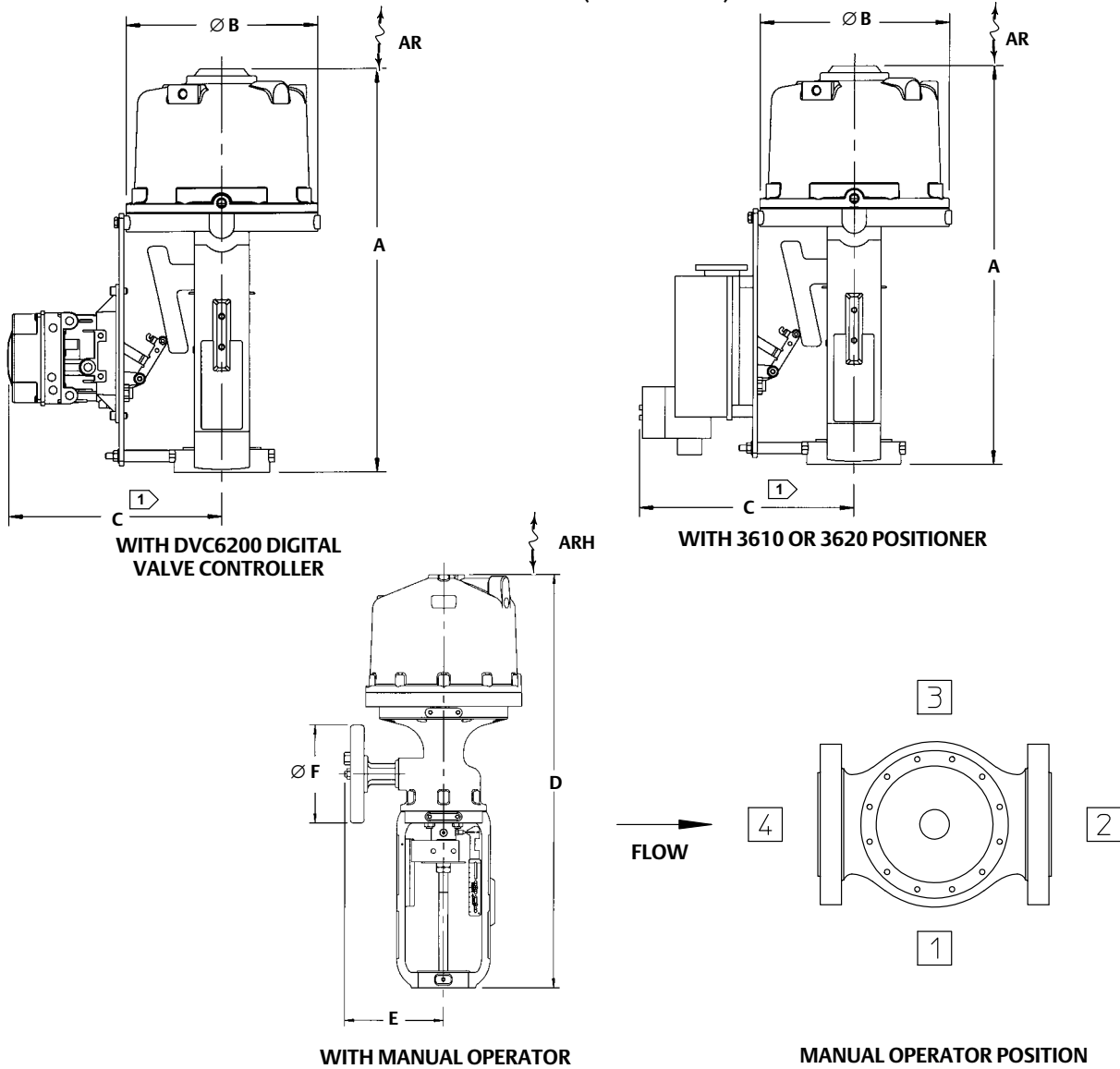


Table 12. Fisher 585C Dimensions—Size 60 to 130 Actuator

ACTUATOR		A		B DIAMETER		C ⁽¹⁾		AR ⁽²⁾		D		E		F DIAMETER		ARH ⁽²⁾	
SIZE	TRAVEL	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
60	2	462	18.2	267	10.5	305	12.0	232	9.1	734	28.9	206	8.1	203	8.0	232	9.1
	4	564	22.2	267	10.5	305	12.0	292	11.5	785	30.9	206	8.1	203	8.0	241	9.5
	8	782	30.8	267	10.5	305	12.0	279	11.0	1074	42.3	206	8.1	356	14.0	279	11.0
68	2	597	23.5	325	12.8	330	13.0	232	9.1	853	33.6	206	8.1	203	8.0	232	9.1
	4	729	28.7	325	12.8	330	13.0	292	11.5	853	33.6	206	8.1	203	8.0	241	9.5
	8	828	32.6	325	12.8	330	13.0	279	11.0	1143	45.0	206	8.1	356	14.0	279	11.0
80	4	714	28.1	325	12.8	330	13.0	321	12.6	1245	49.0	305	12	432	17.0	321	12.6
	8	965	38.0	325	12.8	330	13.0	406	16.0	1344	52.9	305	12	432	17.0	406	16.0
100	4	714	28.1	381	15.0	361	14.2	321	12.6	1245	49.0	305	12	432	17.0	321	12.6
	8	958	37.7	381	15.0	361	14.2	321	12.6	1346	53.0	305	12	432	17.0	406	16.0
130	4	833	32.8	483	19.0	411	16.2	321	12.6	1410	55.5	305	12	432	17.0	321	12.6
	8	1006	39.6	483	19.0	411	16.2	406	16.0	1725	67.9	305	12	432	17.0	406	16.0

1. The C dimension shown is for FIELDVUE DVC6200 digital valve controllers. Add 38.1 mm (1.5 inches) to this dimension for 3620JP positioners. Subtract 12.7 mm (0.5 inches) from this dimension for 3610JP positioners.
2. Actuator removal clearance.

Figure 8. Fisher 585C Dimensions—Size 60 to 130 Actuator (See Table 12)



1 The C dimension listed in the table is for the actuator with the FIELDVUE digital valve controller. Add to this dimension for 3620JP positioners. Subtract from this dimension for 3610JP positioners. Refer to the footnote in the table.

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585C Actuator
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Emerson Automation Solutions

Marshalltown, Iowa 50158 USA

Sorocaba, 18087 Brazil

Cernay 68700 France

Dubai, United Arab Emirates

Singapore 128461 Singapore

www.Fisher.com

