

# Biffi FCBB Series

Imperial and Metric Data



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# Performance Data

## Double-Acting Actuators - FCBB Series

Table 1.

Actuator Model	Volume ▲				Maximum Operating Pressure (MOP)*		Maximum Allowable Working Pressure (MAWP)**		Approximate Weight of Actuator			
	Outboard		Inboard (Housing)						Ductile Iron Housing		Carbon Steel Housing	
	cu. in.	cu. cm	cu. in.	cu. cm	psig	bar	psig	bar	lb	kg	lb	kg
FCBB 315	24	393.3	54	885.0	120	8.3	200	13.8	16.5	7.5	17.4	7.9
FCBB 420	53	868.5	115	1884.5	120	8.3	200	13.8	27.5	12.5	28.9	13.1
FCBB 520	83	1360.1	148	2425.3	70	4.8	174	12.0	32.0	14.5	33.5	15.2
FCBB 525	105	1720.6	207	3392.1	120	8.3	200	13.8	45.1	20.5	47.3	21.5
FCBB 725	208	3408.5	327	5358.6	80	5.5	174	12.0	65.8	29.8	68.4	31.0

## Spring-Return Actuators - FCBB Series

Table 2.

Actuator Model	Volume ▲		Maximum Operating Pressure (MOP)*		Maximum Allowable Working Pressure (MAWP)**		Approximate Weight of Actuator			
							Ductile Iron Housing		Carbon Steel Housing	
	cu. in.	cu. cm	psig	bar	psig	bar	lb	kg	lb	kg
♦ FCBB 315-SR40	54	885	155	10.7	200	13.8	20.9	9.5	21.9	9.9
SR60	54	885	152	10.5	200	13.8	21.5	9.8	22.5	10.2
SR80	54	885	150	10.3	200	13.8	22.6	10.3	23.6	10.7
SR100	54	885	164	11.3	200	13.8	21.9	9.9	22.9	10.4
♦ FCBB 415-SR4	75	1229	100	6.9	174	12.0	26.5	12.0	27.8	12.6
SR60	75	1229	112	7.7	174	12.0	29.3	13.3	30.6	13.9
SR80	75	1229	117	8.1	174	12.0	30.0	13.6	31.3	14.2
SR100	75	1229	114	7.9	174	12.0	29.8	13.5	31.1	14.1
♦ FCBB 420-SR40	115	1884.5	157	10.8	200	13.8	36.2	16.4	37.9	17.2
SR60	115	1884.5	156	10.8	200	13.8	38.4	17.4	40.1	18.2
SR80	115	1884.5	161	11.0	200	13.8	39.4	17.9	41.1	18.6
SR100	115	1884.5	166	11.4	200	13.8	40.5	18.4	42.2	19.1
♦ FCBB 520-SR40	148	2425.3	110	7.6	174	12.0	44.0	20.0	46.1	20.9
SR60	148	2425.3	116	8.0	174	12.0	47.4	21.5	49.5	22.5
SR80	148	2425.3	120	8.3	174	12.0	48.0	21.8	50.1	22.7
SR100	148	2425.3	132	9.1	174	12.0	52.9	24.0	55.0	24.9
♦ FCBB 525-SR40	207	3392	146	10.1	200	13.8	59.7	27.1	62.4	28.3
SR60	207	3392	151	10.4	200	13.8	62.7	28.4	65.4	29.7
SR80	207	3392	159	11.0	200	13.8	63.3	28.7	66.0	29.9
SR100	207	3392	163	11.2	200	13.8	65.3	29.6	68.0	30.8
♦ FCBB 725-SR40	327	5358.6	102	7.0	174	12.0	95.9	43.5	99.5	45.1
SR60	327	5358.6	115	8.0	174	12.0	99.7	45.2	102.3	46.4
SR80	327	5358.6	124	8.6	174	12.0	103.8	47.1	107.4	48.7
SR100	327	5358.6	124	8.6	174	12.0	107.2	48.6	110.8	50.3

**NOTES:**

- ♦ FCBB-SRXX-M mechanical handwheel overrides are available on these models. The override adds approximately 2 lb / 0.9 kg to the weight of the standard FCBB model.
  - ▲ Maximum volume including cavity required for calculating consumption per stroke.
  - \* Maximum Operating Pressure (MOP) is the pressure required to produce the maximum rated torque of the actuator.
  - \*\* Maximum Allowable Working Pressure (MAWP) is the maximum static pressure that may be applied to a fully stroked actuator against the travel stops.
- Standard installation produces clockwise rotation when the outboard side of piston is pressurized.  
 Standard installation produces counterclockwise rotation when the inboard side of piston is pressurized.  
 Note: Actuator may be installed opposite of that shown.



# Actuator Dimensions (in.)

## Double-Acting Actuators - FCBBXXX

Figure 1.

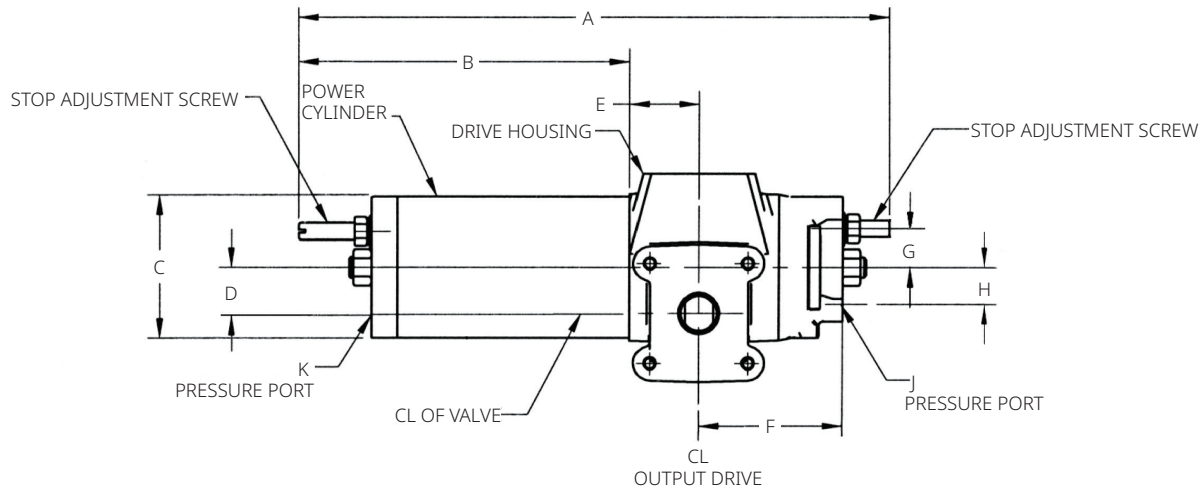


Table 3.

Actuator Model	A	B	C	D	E	F	G	H	J/K	L	M	N
FCBB315	14.16	7.38	3.25	1.00	1.88	3.46	0.94	0.94	1/4 in. NPT	.313-18 UNC	0.38	2.250
FCBB420	16.43	8.57	4.25	1.44	2.13	4.37	1.10	1.10	3/8 in. NPT	.375-16 UNC	0.50	3.000
FCBB520	16.46	8.63	5.38	1.44	2.07	4.37	1.10	1.10	3/8 in. NPT	.375-16 UNC	0.50	3.000
FCBB525	19.22	9.88	5.38	1.44	2.56	5.00	1.25	1.25	3/8 in. NPT	.500-13 UNC	0.50	3.500
FCBB725	19.40	10.24	7.50	1.75	2.53	5.00	1.25	1.25	3/8 in. NPT	.500-13 UNC	0.50	3.500

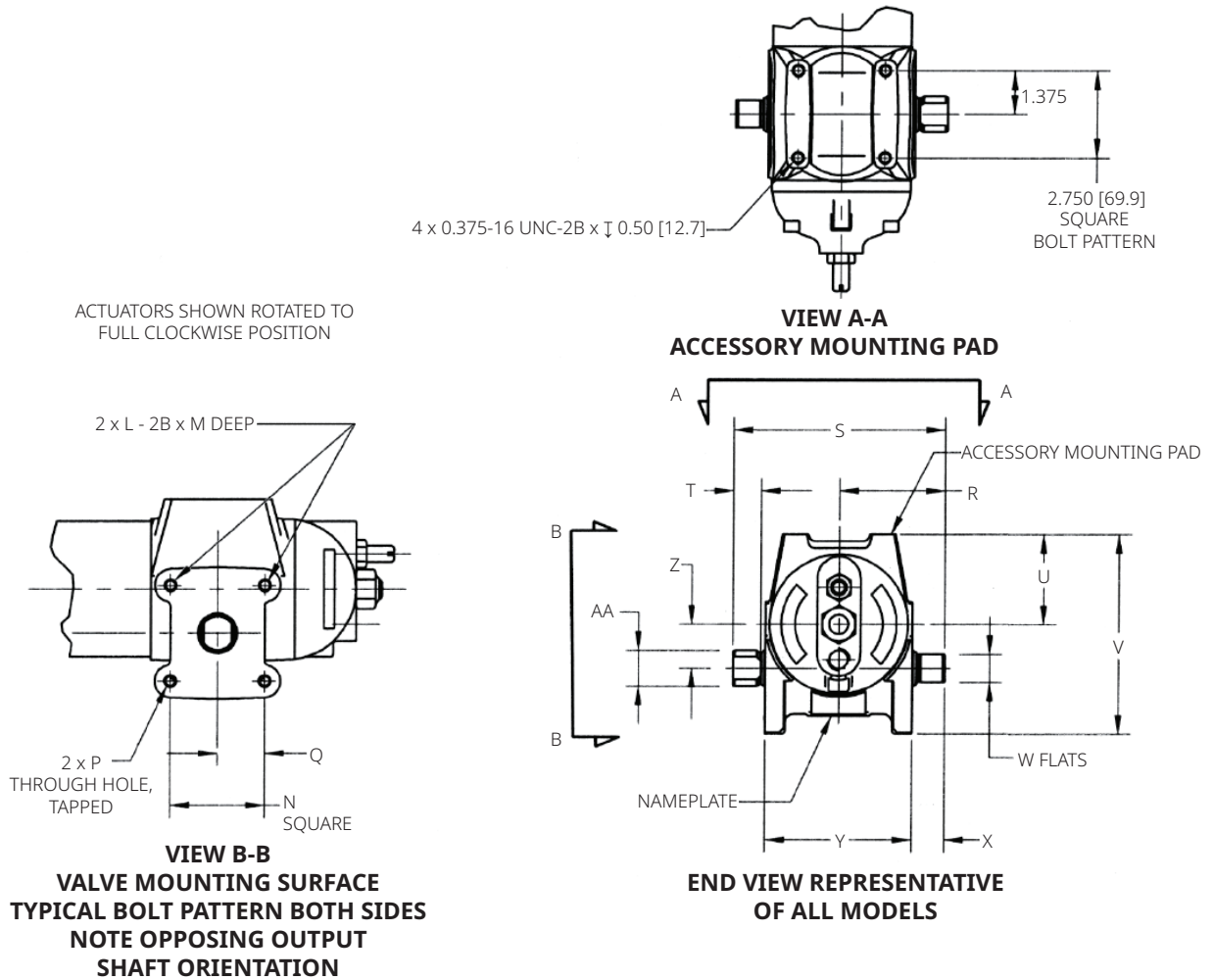
Table 4.

Actuator Model	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.873 0.875
FCBB420	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 1.125
FCBB520	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 1.125
FCBB525	.500-13 UNC	1.750	4.38	8.75	1.12	3.50	7.58	1.115 1.121	1.50	5.75	1.69	1.498 1.500
FCBB725	.500-13 UNC	1.750	4.38	8.75	1.12	3.50	7.58	1.115 1.121	1.50	5.75	1.69	1.498 1.500

**NOTES:**

Not Certified dimensional drawings. Such drawings are available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in inches.

**Figure 2.**



**NOTES:**

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### Spring-Return Actuators - FCBBXXX-SRX

Figure 3.

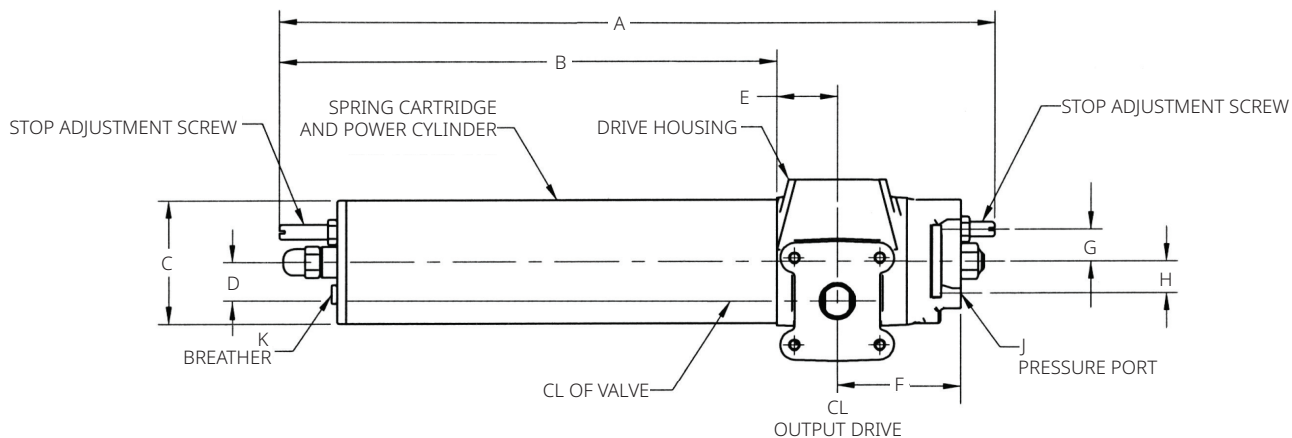


Table 5.

Actuator Model	A	B	C	D	E	F	G	H	K	L
FCBB315-SRX	20.13	13.66	3.25	0.94	1.88	3.46	0.94	0.94	1/4 in. NPT	.313-18 UNC
FCBB415-SRX	20.20	13.71	4.25	1.12	1.88	3.46	0.94	0.94	1/4 in. NPT	.313-18 UNC
FCBB420-SRX	24.54	17.07	4.25	1.12	2.13	4.37	1.10	1.10	3/8 in. NPT	.375-16 UNC
FCBB520-SRX	24.88	17.44	5.38	1.25	2.07	4.37	1.10	1.10	3/8 in. NPT	.375-16 UNC
FCBB525-SRX	28.21	18.01	5.38	1.25	2.56	5.00	1.25	1.25	3/8 in. NPT	.500-13 UNC
FCBB725-SRX	28.09	18.37	7.50	2.5	2.53	5.00	1.25	1.25	3/8 in. NPT	.500-13 UNC

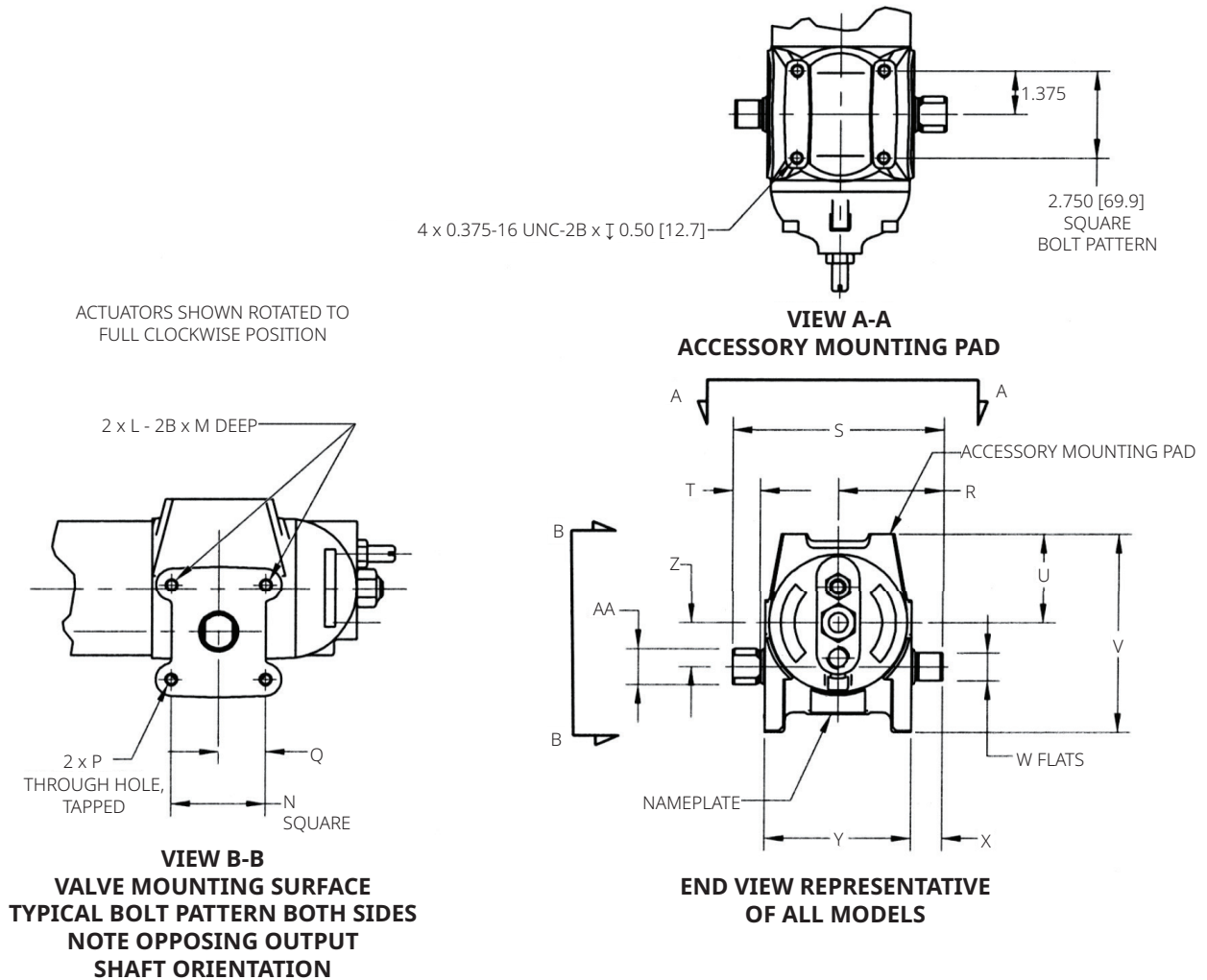
Table 6.

Actuator Model	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315-SRX	0.38	2.250	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.873 0.875
FCBB415-SRX	0.38	2.250	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.871 0.875
FCBB420-SRX	0.50	3.000	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 1.125
FCBB520-SRX	0.50	3.000	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 1.125
FCBB525-SRX	0.50	3.500	.500-13 UNC	1.750	4.38	8.75	1.12	3.50	7.58	1.115 1.121	1.50	5.75	1.69	1.498 1.500
FCBB725-SRX	0.50	3.500	.500-13 UNC	1.750	4.38	8.75	1.12	3.50	7.58	1.115 1.121	1.50	5.75	1.69	1.498 1.500

**NOTES:**

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 All dimensions are expressed in inches.

**Figure 4.**



**NOTES:**

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# Handwheel Override Dimensions (in.)

## Double-Acting Actuators - FCBBXXX-M3HW

Figure 5.

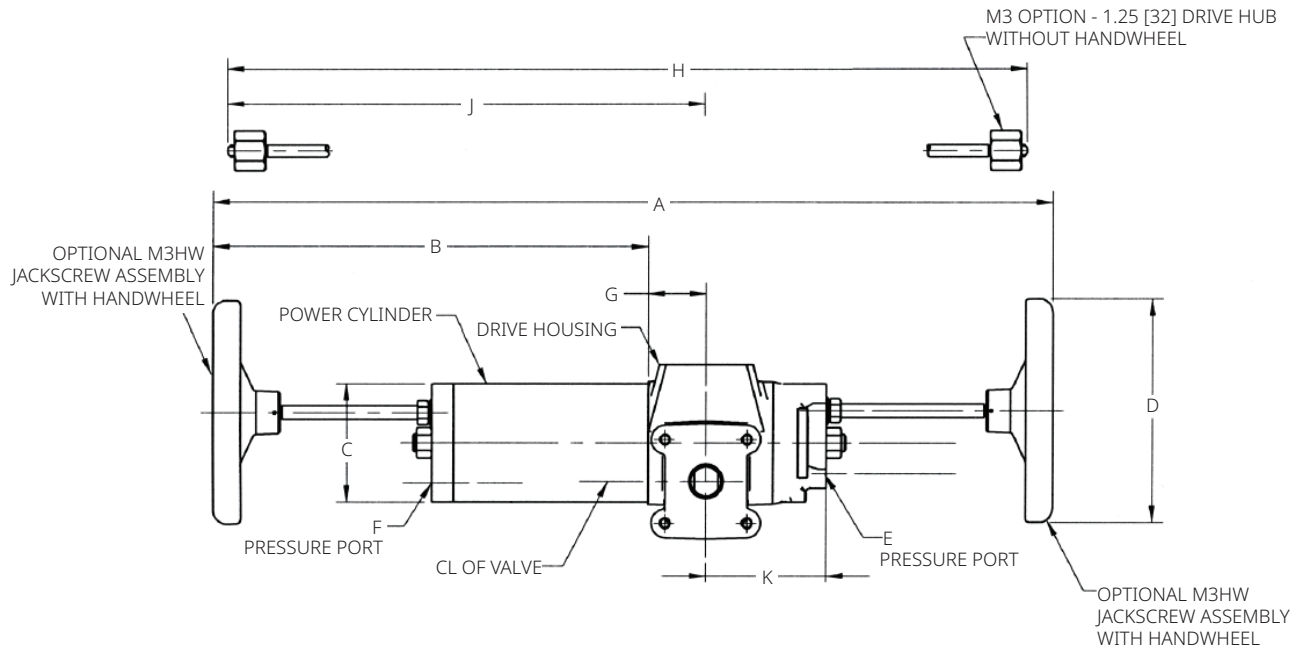


Table 7.

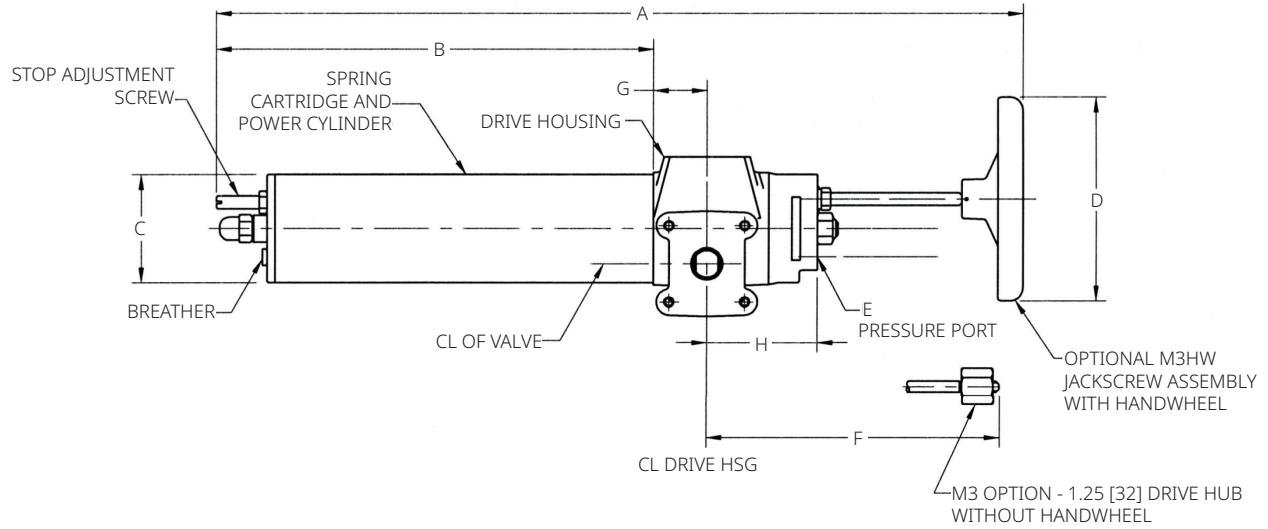
Actuator Model	A	B	C	D	E	F	G	H	J	K
FCBB315-M3HW	26.25	13.79	3.25	6.00	1/4 in. NPT	1/4 in. NPT	1.88	25.18	15.13	3.46
FCBB420-M3HW	31.20	16.15	4.25	8.00	3/8 in. NPT	3/8 in. NPT	2.13	29.21	17.28	4.37
FCBB520-M3HW	31.20	16.21	5.38	8.00	3/8 in. NPT	3/8 in. NPT	2.07	29.21	17.28	4.37
FCBB525-M3HW	37.23	19.44	5.38	10.00	3/8 in. NPT	3/8 in. NPT	2.56	33.90	20.08	5.00
FCBB725-M3HW	37.23	19.47	7.50	10.00	3/8 in. NPT	3/8 in. NPT	2.53	34.65	20.71	5.00

**NOTES:**

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 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in inches and dimensions in brackets are in millimeters.

## Spring-Return Actuators - FCBBXXX-SRX-M3HW

**Figure 6.**



**Table 8.**

Actuator Model	A	B	C	D	E	F	G	H
FCBB315-SR-M3HW	26.66	14.43	3.25	6.00	1/4 in. NPT	10.05	1.88	3.46
FCBB415-SR-M3HW	26.74	14.51	4.25	6.00	1/4 in. NPT	10.05	1.88	3.46
FCBB420-SR-M3HW	32.13	17.37	4.25	8.00	3/8 in. NPT	11.93	2.13	4.37
FCBB520-SR-M3HW	32.16	17.43	5.38	8.00	3/8 in. NPT	11.93	2.07	4.37
FCBB525-SR-M3HW	36.93	19.33	5.25	10.00	3/8 in. NPT	13.94	2.56	5.00
FCBB725-SR-M3HW	36.98	19.41	7.50	10.00	3/8 in. NPT	13.94	2.53	5.00

**NOTES:**

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Contact factory with correct model designation and serial number.  
All dimensions are expressed in inches and dimensions in brackets are in millimeters.

# Actuator Dimensions (mm)

## Double-Acting Actuators - FCBBXXX

Figure 7.

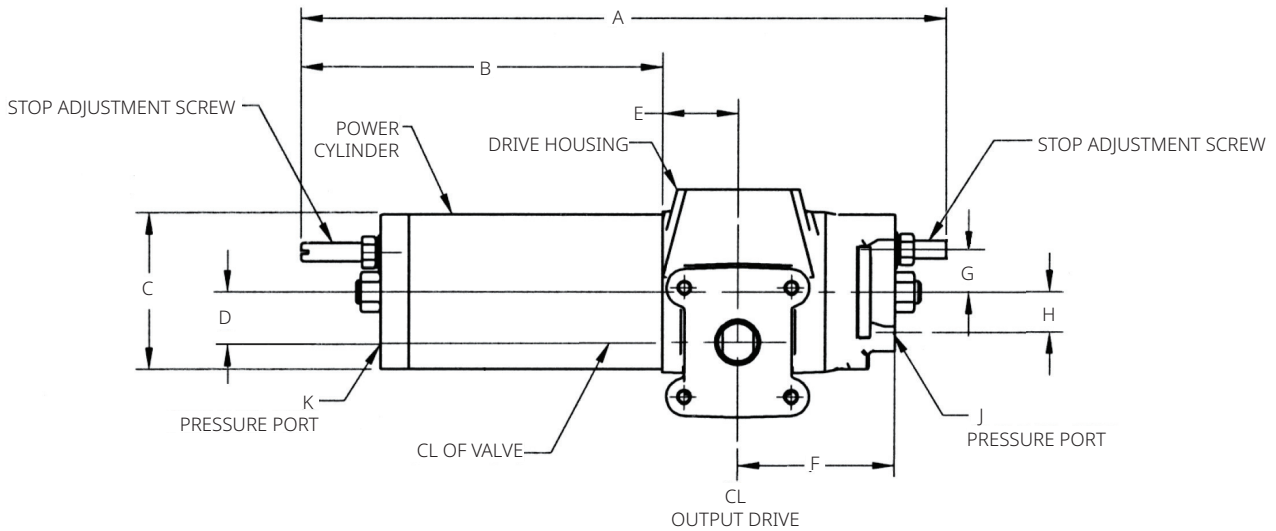


Table 9.

Actuator Model	A	B	C	D	E	F	G	H	J/K	L	M	N
FCBB315	359.8	187.5	82.6	25.4	47.8	87.8	23.8	23.9	1/4 in. NPT	.313-18 UNC	9.7	57.2
FCBB420	417.3	217.6	108.0	36.6	54.1	111.0	27.9	27.9	3/8 in. NPT	.375-16 UNC	12.7	76.2
FCBB520	418.1	219.2	136.7	36.6	52.6	111.0	27.9	27.9	3/8 in. NPT	.375-16 UNC	12.7	76.2
FCBB525	488.1	250.9	136.7	36.6	65.0	127.0	31.8	31.8	3/8 in. NPT	.500-13 UNC	12.7	88.9
FCBB725	492.7	260.1	190.5	44.5	64.2	127.0	31.8	31.8	3/8 in. NPT	.500-13 UNC	12.7	88.9

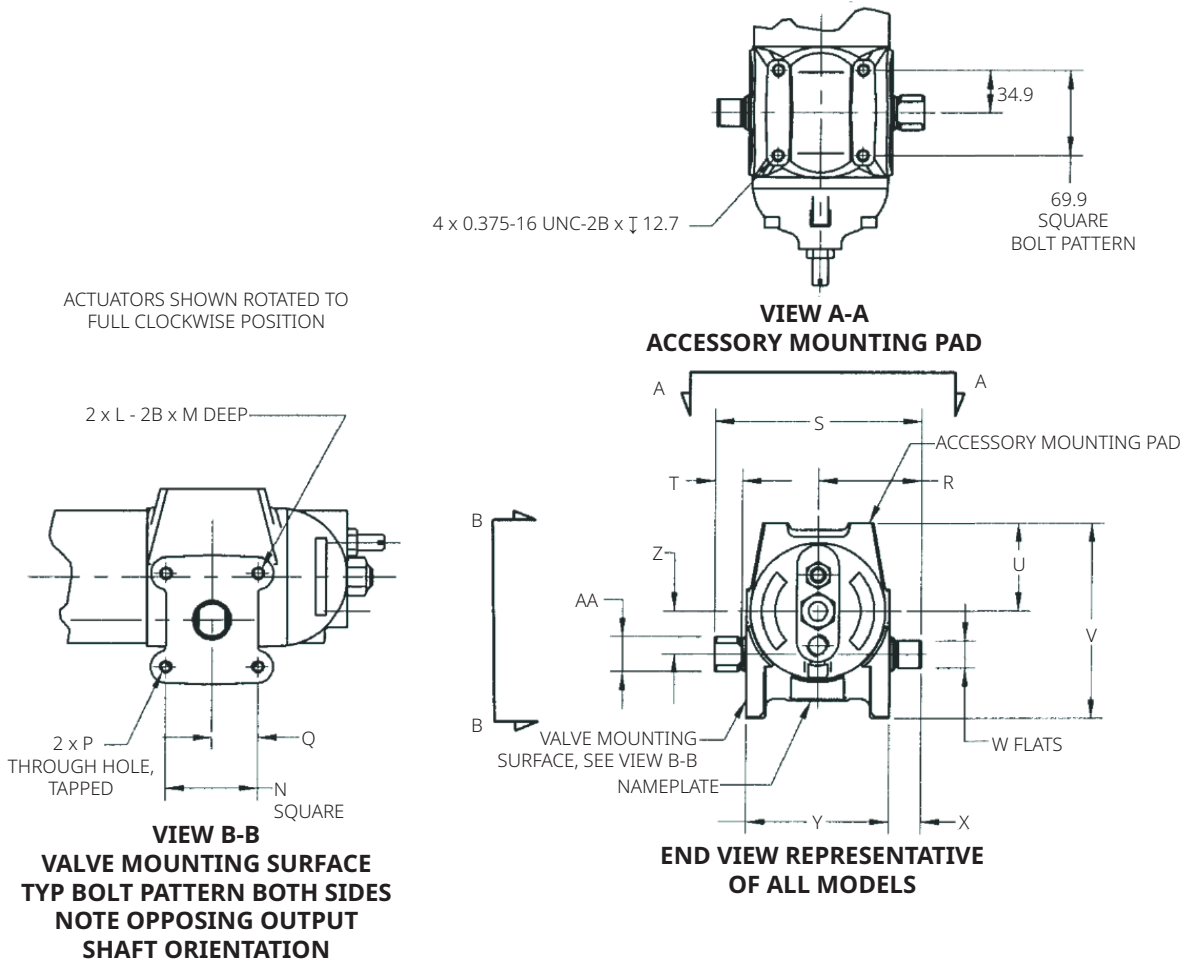
Table 10.

Actuator Model	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315	.313-18 UNC	28.6	73.8	147.6	19.1	56.4	131.5	15.60 15.75	26.2	95.3	27.8	22.17 22.23
FCBB420	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	28.52 28.58
FCBB520	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	28.52 28.58
FCBB520	.500-13 UNC	44.5	111.3	222.3	28.4	88.9	192.6	28.32 28.47	38.1	146.1	42.9	38.05 38.10
FCBB725	.500-13 UNC	44.5	111.3	222.3	28.4	88.9	192.6	28.32 28.47	38.1	146.1	42.9	38.05 38.10

**NOTES:**

Not Certified dimensional drawings. Such drawings are available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in millimeters.

**Figure 8.**



**NOTES:**

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## Spring-Return Actuators - FCBBXXX-SRX

Figure 9.

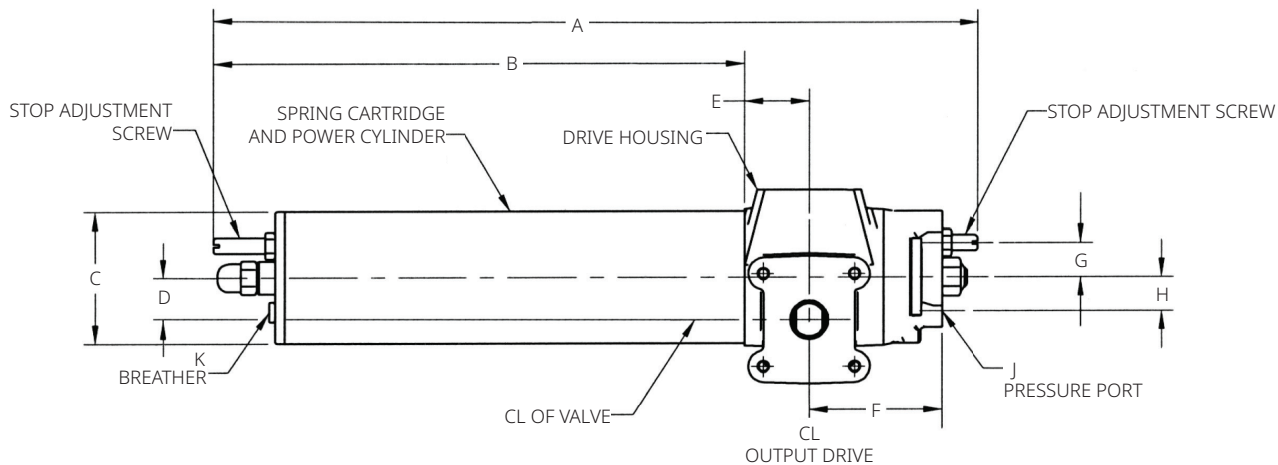


Table 11.

Actuator Model	A	B	C	D	E	F	G	H	J	K	L
FCBB315-SRX	511.2	347.0	82.6	23.9	47.8	87.8	23.8	23.9	1/4 in. NPT	1/4 in. NPT	.313-18 UNC
FCBB415-SRX	513.3	348.2	108.0	28.4	47.8	87.8	23.9	23.9	1/4 in. NPT	1/4 in. NPT	.313-18 UNC
FCBB420-SRX	623.3	433.5	108.0	28.4	54.1	111.0	27.9	27.9	3/8 in. NPT	1/4 in. NPT	.375-16 UNC
FCBB520-SRX	631.9	442.9	136.7	31.8	52.6	111.0	27.9	27.9	3/8 in. NPT	1/4 in. NPT	.375-16 UNC
FCBB525-SRX	716.6	457.4	136.7	31.8	65.0	127.0	31.8	31.8	3/8 in. NPT	1/4 in. NPT	.500-13 UNC
FCBB725-SRX	713.6	466.7	190.5	63.5	64.2	127.0	31.8	31.8	3/8 in. NPT	1/4 in. NPT	.500-13 UNC

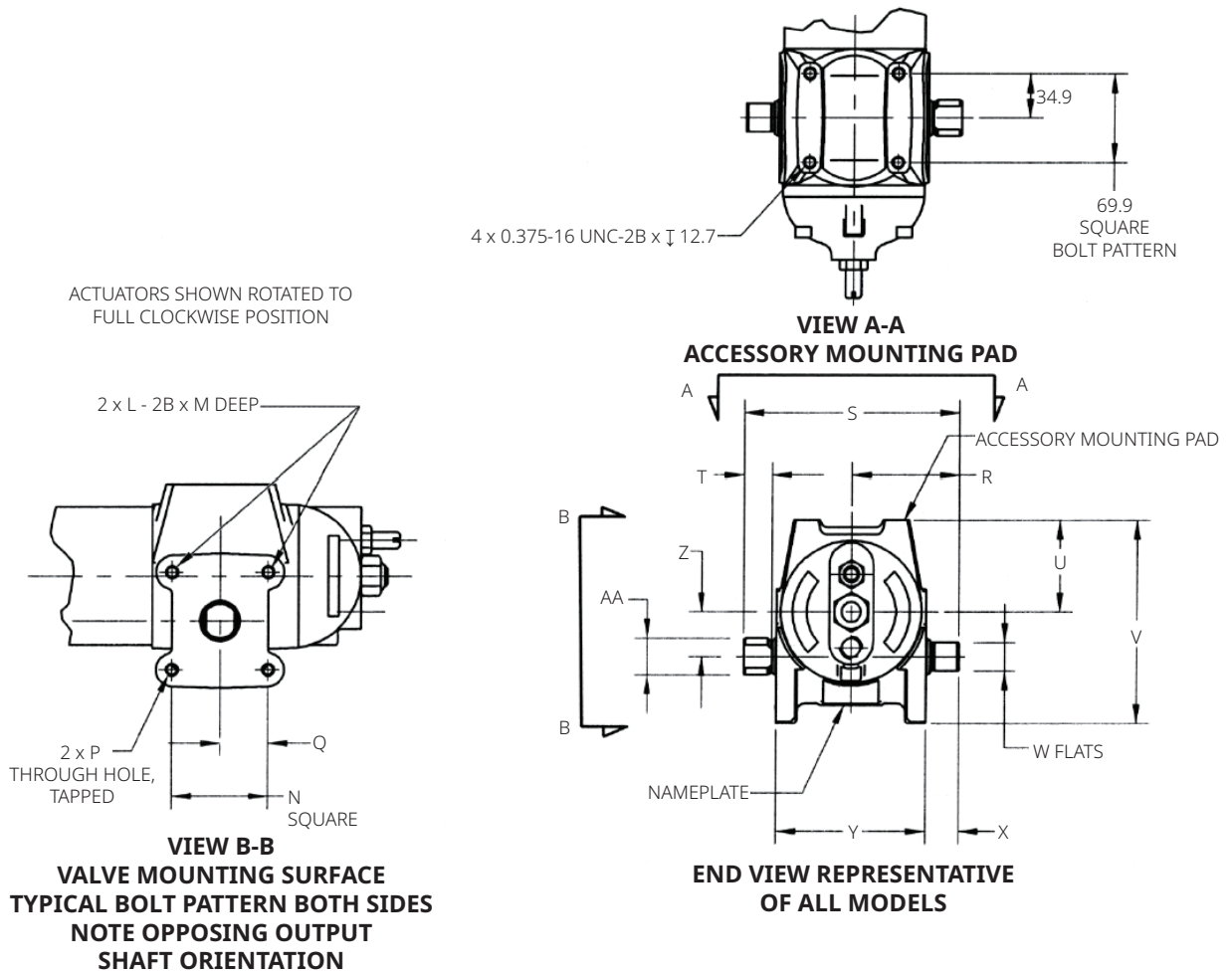
Table 12.

Actuator Model	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315-SRX	9.7	57.2	.313-18 UNC	28.6	73.8	147.6	19.1	56.4	131.5	15.60 15.75	26.2	95.3	27.8	22.17 22.23
FCBB415-SRX	9.7	57.2	.313-18 UNC	28.6	73.8	147.6	19.1	56.4	131.5	15.60 15.75	26.2	95.3	27.8	22.17 22.23
FCBB420-SRX	12.7	76.2	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	28.52 28.58
FCBB520-SRX	12.7	76.2	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	28.52 28.58
FCBB525-SRX	12.7	88.9	.500-13 UNC	44.5	111.1	222.3	28.4	88.9	192.6	28.32 28.47	38.1	146.1	42.9	38.05 38.10
FCBB725-SRX	12.7	88.9	.500-13 UNC	44.5	111.1	222.3	28.4	88.9	192.6	28.32 28.47	38.1	146.1	42.9	38.05 38.10

**NOTES:**

Not Certified dimensional drawings. Such drawings are available on request. Contact factory with correct model designation and serial number. All dimensions are expressed in millimeters.

**Figure 10.**



**NOTES:**

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 Contact factory with correct model designation and serial number.  
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# Handwheel Override Dimensions (mm)

## Double-Acting Actuators - FCBBXXX-M3HW

Figure 11.

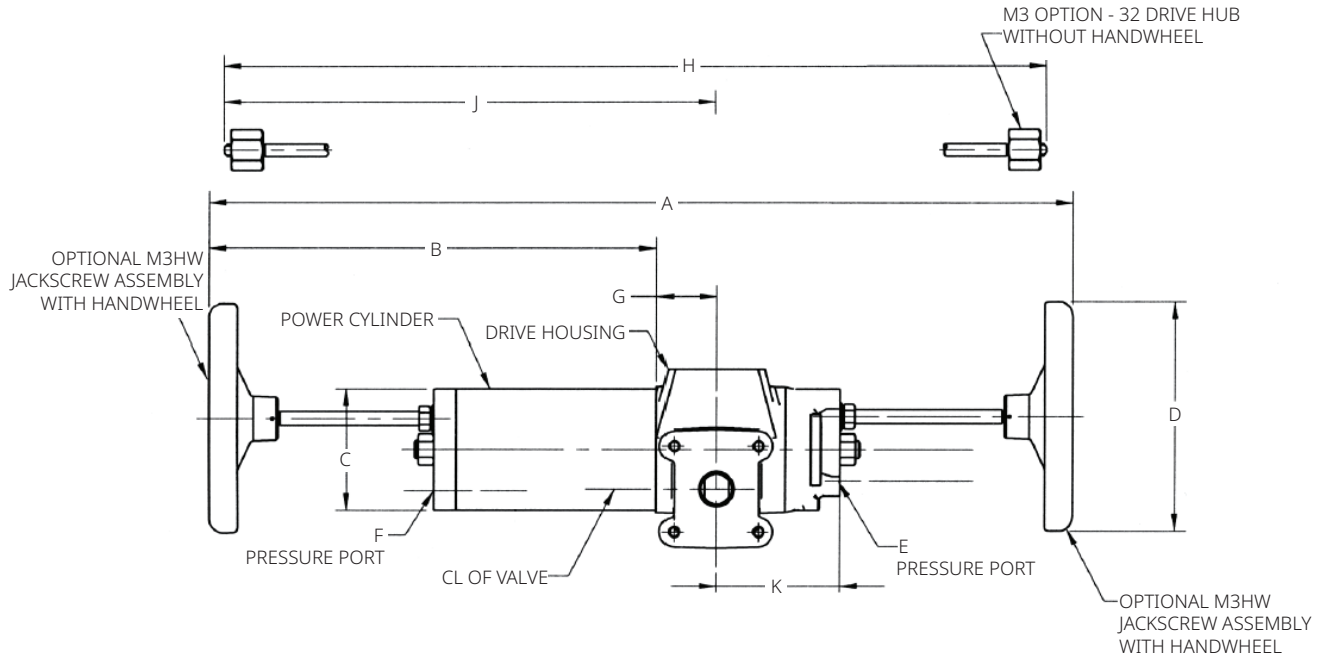


Table 13.

Actuator Model	A	B	C	D	E	F	G	H	J	K
FCBB315-M3HW	666.8	350.3	82.6	152.4	1/4 in. NPT	1/4 in. NPT	47.6	639.6	384.3	87.9
FCBB420-M3HW	792.5	410.2	108.0	203.2	3/8 in. NPT	3/8 in. NPT	54.0	741.9	438.9	111.1
FCBB520-M3HW	792.5	411.7	136.7	203.2	3/8 in. NPT	3/8 in. NPT	52.6	741.9	438.9	111.1
FCBB525-M3HW	945.6	493.8	136.7	254.0	3/8 in. NPT	3/8 in. NPT	65.0	861.1	510.0	127.0
FCBB725-M3HW	945.6	494.5	190.5	254.0	3/8 in. NPT	3/8 in. NPT	64.2	880.1	526.0	127.0

**NOTES:**

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## Spring-Return Actuators - FCBBXXX-SRX-M3HW

Figure 12.

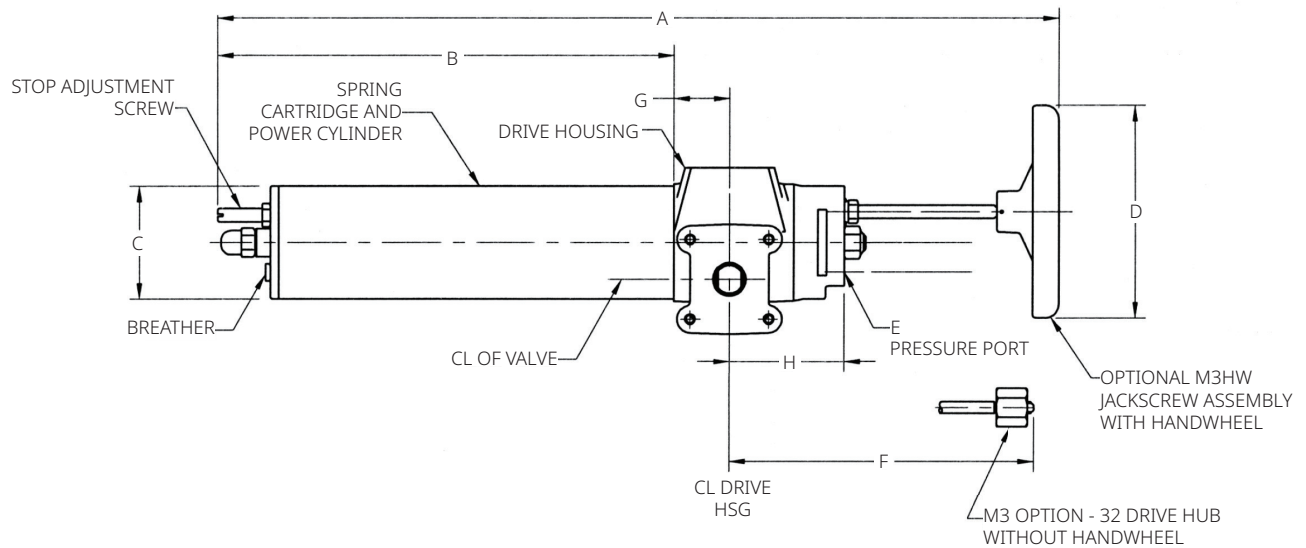


Table 14.

Actuator Model	A	B	C	D	E	F	G	H
FCBB315-SR-M3HW	677.1	366.5	82.6	152.4	1/4 in. NPT	255.3	47.6	87.9
FCBB415-SR-M3HW	679.1	368.6	108.0	152.4	1/4 in. NPT	255.3	47.6	87.9
FCBB420-SR-M3HW	816.2	441.3	108.0	203.2	3/8 in. NPT	303.0	54.0	111.1
FCBB420-SR-M3HW	816.8	442.7	136.7	203.2	3/8 in. NPT	303.0	52.6	111.1
FCBB525-SR-M3HW	937.9	491.0	133.4	254.0	3/8 in. NPT	354.1	65.0	127.0
FCBB725-SR-M3HW	939.2	493.1	190.5	254.0	3/8 in. NPT	354.1	64.2	127.0

**NOTES:**

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 All dimensions are expressed in millimeters.

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