

# Biffi FCBB-Series

Imperial and Metric Data



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## Table of Contents

### **Section 1: Performance Data**

Double-Acting Actuators - FCBB-Series.....	5
Spring-Return Actuators - FCBB-Series.....	5

### **Section 2: Dimensions (in.)**

Double-Acting Actuators - FCBBXXX.....	6
Spring-Return Actuators - FCBBXXX-SRX.....	8

### **Section 3: Dimensions (in.) - M3(HW) Override**

Double-Acting Actuators - FCBBXXX-M3(HW) .....	10
Spring-Return Actuators - FCBBXXX-SRX-M3(HW).....	11

### **Section 4: Dimensions (mm)**

Double-Acting Actuators - FCBBXXX.....	12
Spring-Return Actuators - FCBBXXX-SRX.....	14

### **Section 5: Dimensions (mm) - M3(HW) Override**

Double-Acting Actuators - FCBBXXX-M3(HW) .....	16
Spring-Return Actuators - FCBBXXX-SRX-M3(HW).....	17

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# Performance Data

## Double-Acting Actuators - FCBB-Series

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.	L	cu. in.	cu. cm.	L	psig	bar	psig	bar	lb	kg	lb	kg
FCBB 315	24	393.1	0.3931	54	885	0.885	120	8.3	200	13.8	16.5	7.5	17.4	7.9
FCBB 420	53	868.5	0.8685	115	1884	1.884	120	8.3	200	13.8	27.5	12.5	28.9	13.1
FCBB 520	83	1360.1	1.3601	148	2425	2.425	70	4.8	160	11.0	32.0	14.5	33.5	15.2
FCBB 525	105	1720.6	1.7206	207	3392	3.392	120	8.3	200	13.8	45.1	20.5	47.3	21.5
FCBB 725	208	3408.5	3.4085	327	5358	5.358	80	5.5	135	9.3	65.8	29.8	68.4	31.0

## Spring-Return Actuators - FCBB-Series

Actuator Model	Volume ▲			Maximum Operating Pressure (MOP)*		Maximum Allowable Working Pressure (MAWP)**		Approximate Weight of Actuator			
	cu. in.	cu. cm.	L					Ductile Iron Housing		Carbon Steel Housing	
				psig	bar	psig	bar	lb	kg	lb	kg
◆ FCBB 315-SR40	54	885	0.885	155	10.7	200	13.8	20.9	9.5	21.9	9.9
SR60	54	885	0.885	152	10.5	200	13.8	21.5	9.8	22.5	10.2
SR80	54	885	0.885	150	10.3	200	13.8	22.6	10.3	23.6	10.7
SR100	54	885	0.885	164	11.3	200	13.8	21.9	9.9	22.9	10.4
◆ FCBB 415-SR40	75	1229	1.229	100	6.9	174	12.0	26.5	12.0	27.8	12.6
SR60	75	1229	1.229	112	7.7	174	12.0	29.3	13.3	30.6	13.9
SR80	75	1229	1.229	117	8.1	174	12.0	30.0	13.6	31.3	14.2
SR100	75	1229	1.229	114	7.9	174	12.0	29.8	13.5	31.1	14.1
◆ FCBB 420-SR40	115	1884.5	1.884	157	10.8	200	13.8	36.2	16.4	37.9	17.2
SR60	115	1884.5	1.884	156	10.8	200	13.8	38.4	17.4	40.1	18.2
SR80	115	1884.5	1.884	161	11.0	200	13.8	39.4	17.9	41.1	18.6
SR100	115	1884.5	1.884	166	11.4	200	13.8	40.5	18.4	42.2	19.1
◆ FCBB 520-SR40	148	2425.3	2.425	110	7.6	174	12.0	44.0	20.0	46.1	20.9
SR60	148	2425.3	2.425	116	8.0	174	12.0	47.4	21.5	49.5	22.5
SR80	148	2425.3	2.425	120	8.3	174	12.0	48.0	21.8	50.1	22.7
SR100	148	2425.3	2.425	132	9.1	174	12.0	52.9	24.0	55.0	24.9
◆ FCBB 525-SR40	207	3392	3.392	146	10.1	200	13.8	59.7	27.1	62.4	28.3
SR60	207	3392	3.392	151	10.4	200	13.8	62.7	28.4	65.4	29.7
SR80	207	3392	3.392	159	11.0	200	13.8	63.3	28.7	66.0	29.9
SR100	207	3392	3.392	163	11.2	200	13.8	65.3	29.6	68.0	30.8
◆ FCBB 725-SR40	327	5358.6	5.358	102	7.0	174	12.0	95.9	43.5	99.5	45.1
SR60	327	5358.6	5.358	115	8.0	174	12.0	99.7	45.2	102.3	46.4
SR80	327	5358.6	5.358	124	8.6	174	12.0	103.8	47.1	107.4	48.7
SR100	327	5358.6	5.358	124	8.6	174	12.0	107.2	48.6	110.8	50.3

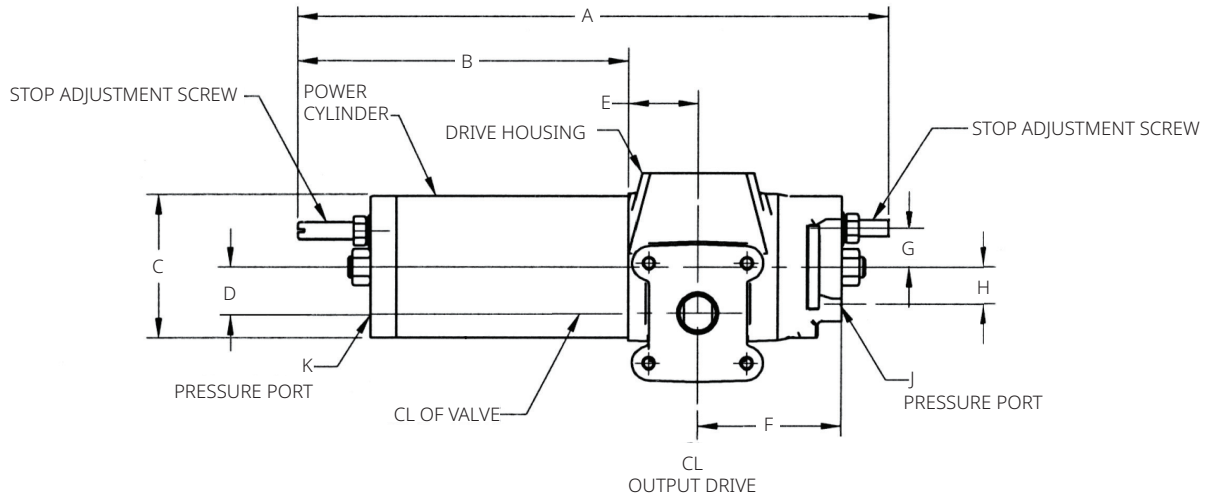
**NOTES:**

- ◆ FCBB-SRXXM mechanical handwheel overrides are available on these models. The override adds approximately 2 lb / 0.8 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.



# Dimensions (in.)

## Double-Acting Actuators - FCBBXXX

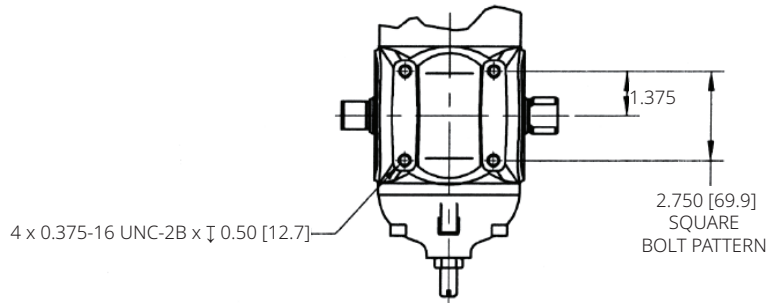


Actuator Model	A	B	C	D	E	F	G	H	J/K	L	M	N
FCBB315	14.16	7.38	3.25	1.00	1.88	3.46	0.94	0.94	1/4" NPT	.313-18 UNC	0.38	2.250
FCBB420	16.43	8.57	4.25	1.44	2.13	4.37	1.10	1.10	3/8" NPT	.375-16 UNC	0.50	3.000
FCBB520	16.46	8.63	5.38	1.44	2.07	4.37	1.10	1.10	3/8" NPT	.375-16 UNC	0.50	3.000
FCBB525	19.22	9.88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

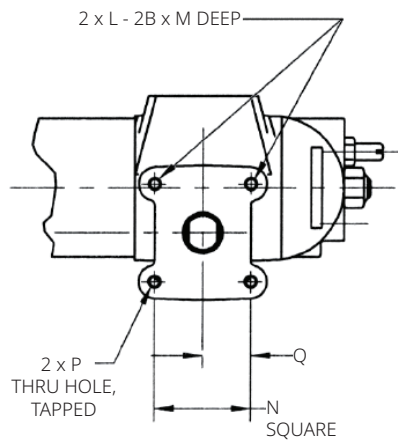
Actuator Model	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.873 0.875
FCBB420	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 1.125
FCBB520	.375-16 UNC	1.500	3.35	6.69	0.75	2.81	6.25	0.864 0.870	1.03	4.63	1.38	1.123 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:**

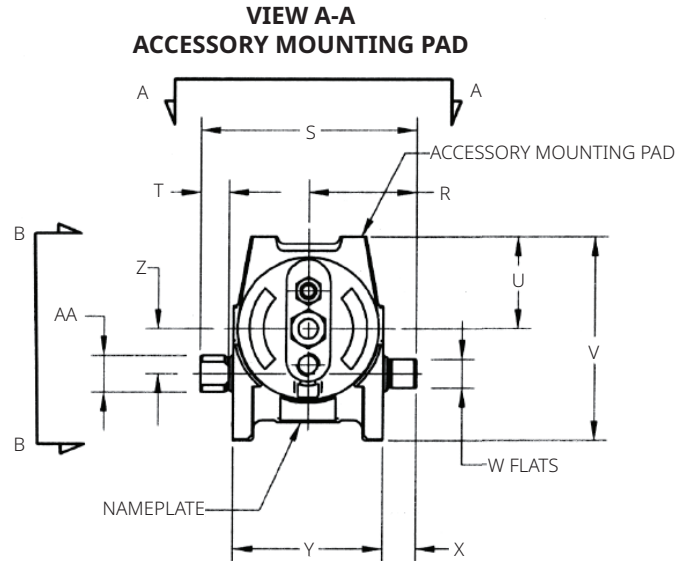
Not Certified dimensional drawings. Such drawings are available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in inches.



ACTUATORS SHOWN ROTATED TO  
FULL CLOCKWISE POSITION



**VIEW B-B**  
**VALVE MOUNTING SURFACE**  
**TYPICAL BOLT PATTERN BOTH SIDES**  
**NOTE OPPOSING OUTPUT**  
**SHAFT ORIENTATION**

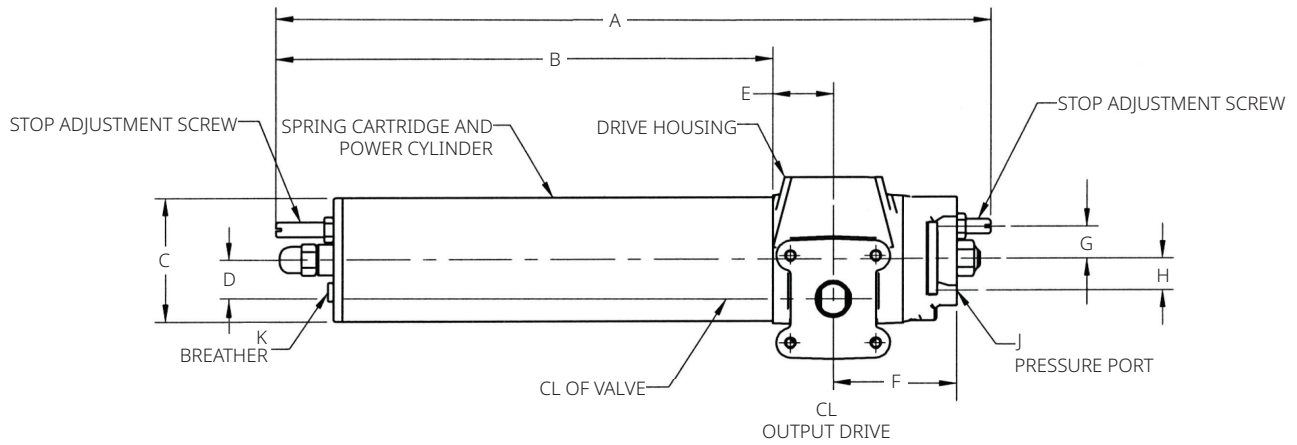


**END VIEW REPRESENTATIVE**  
**OF ALL MODELS**

**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 and dimensions in brackets are in millimeters.

## Spring-Return Actuators - FCBBXXX-SRX

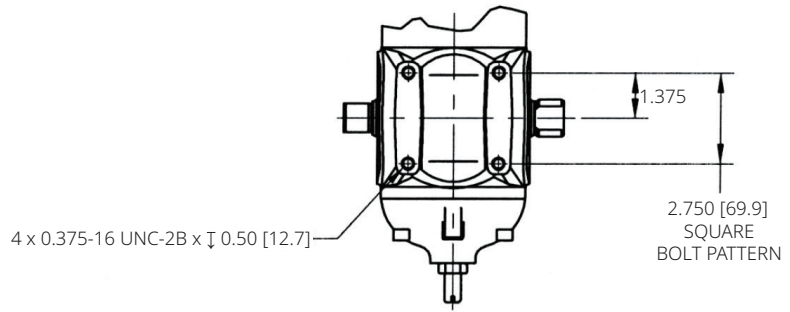


Actuator Model	A	B	C	D	E	F	G	H	K	L
FCBB315-SRX	20.13	13.66	3.25	0.94	1.88	3.46	0.94	0.94	1/4" NPT	.313-18 UNC
FCBB415-SRX	20.20	13.71	4.25	1.12	1.88	3.46	0.94	0.94	1/4" NPT	.313-18 UNC
FCBB420-SRX	24.54	17.07	4.25	1.12	2.13	4.37	1.10	1.10	3/8" NPT	.375-16 UNC
FCBB520-SRX	24.88	17.44	5.38	1.25	2.07	4.37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

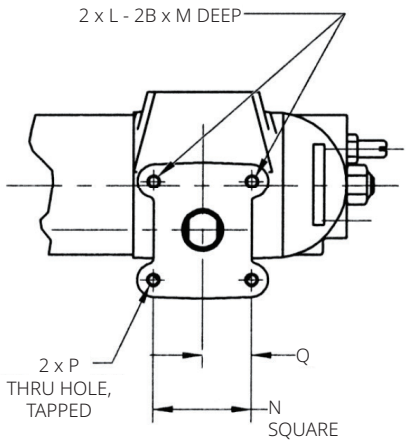
Actuator Model	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315-SRX	0.38	2.250	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.873 0.875
FCBB415-SRX	0.38	2.250	.313-18 UNC	1.125	2.91	5.81	0.75	2.22	5.18	0.614 0.620	1.03	3.75	1.09	0.871 0.875
FCBB420-SRX	0.50	3.000	.375-16 UNC	1.500	3.35	6.69	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:**

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.

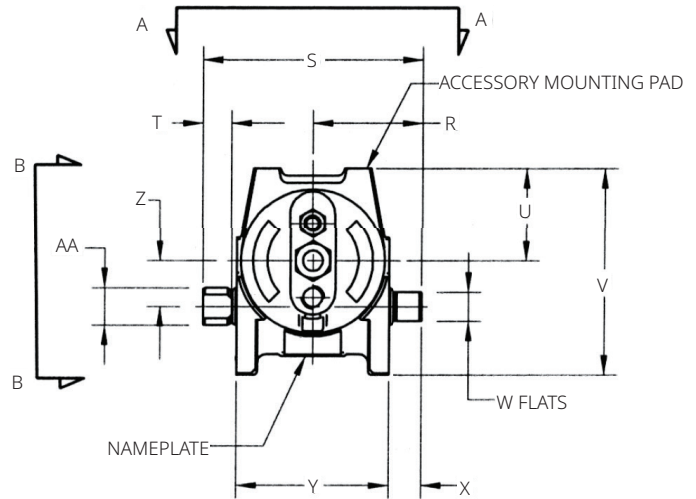


ACTUATORS SHOWN ROTATED TO  
FULL CLOCKWISE POSITION



**VIEW B-B**  
**VALVE MOUNTING SURFACE**  
**TYPICAL BOLT PATTERN BOTH SIDES**  
**NOTE OPPOSING OUTPUT**  
**SHAFT ORIENTATION**

**VIEW A-A**  
**ACCESSORY MOUNTING PAD**



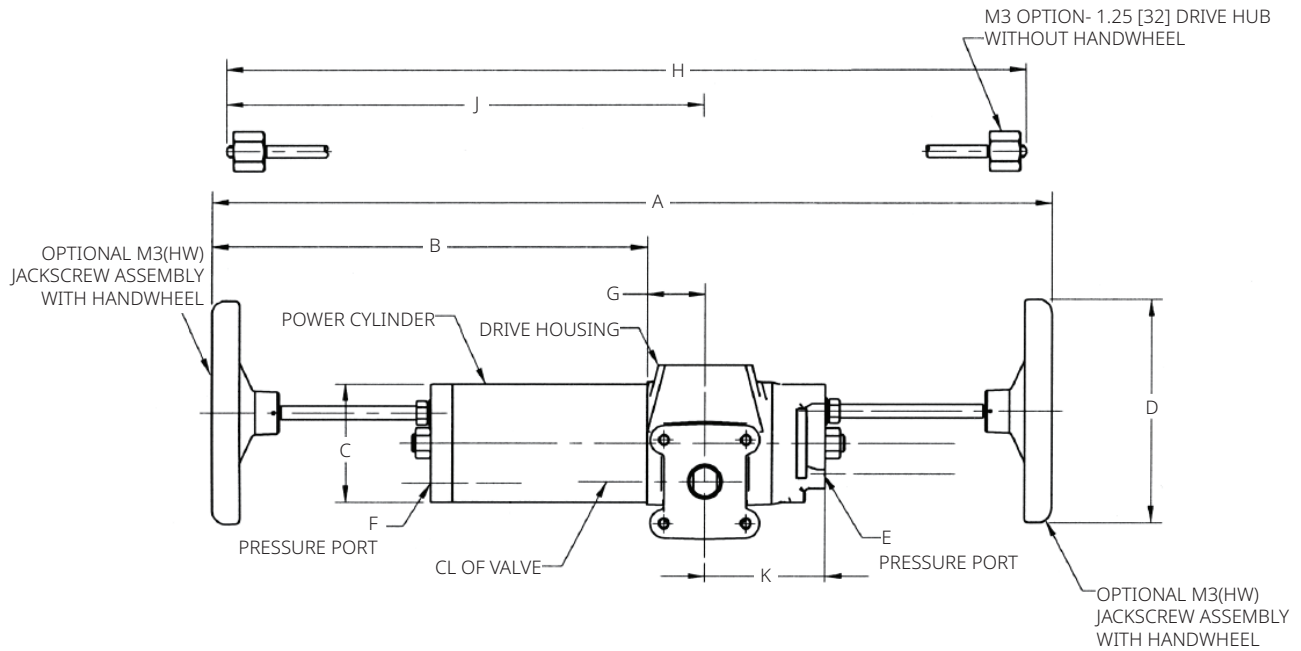
**END VIEW REPRESENTATIVE**  
**OF ALL MODELS**

**NOTES:**

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# Dimensions (in.) - M3(HW) Override

## Double-Acting Actuators - FCBBXXX-M3(HW)

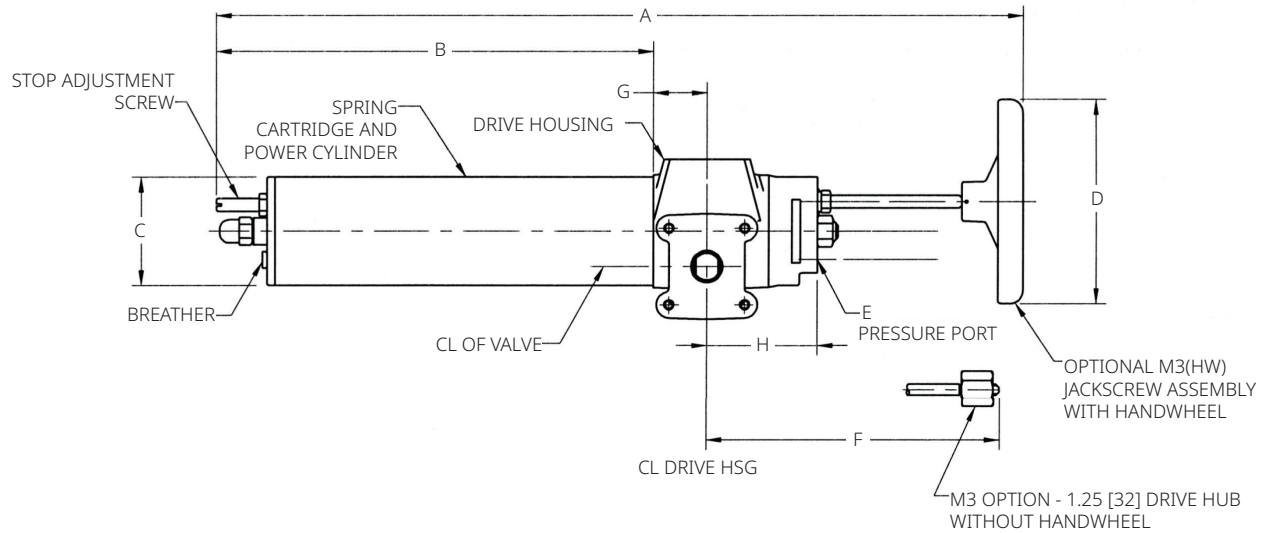


Actuator Model	A	B	C	D	E	F	G	H	J	K
FCBB315-M3HW	26.25	13.79	3.25	6.00	1/4" NPT	1/4" NPT	1.88	25.18	15.13	3.46
FCBB420-M3HW	31.2	16.15	4.25	8.00	3/8" NPT	3/8" NPT	2.13	29.21	17.28	4.37
FCBB520-M3HW	31.2	16.21	5.38	8.00	3/8" NPT	3/8" NPT	2.07	29.21	17.28	4.37
FCBB525-M3HW	37.23	19.44	5.38	10.00	3/8" NPT	3/8" NPT	2.56	33.90	20.08	5.00
FCBB725-M3HW	37.23	19.47	7.50	10.00	3/8" NPT	3/8" NPT	2.53	34.65	20.71	5.00

**NOTES:**

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### Spring-Return Actuators - FCBBXXX-SRX-M3(HW)



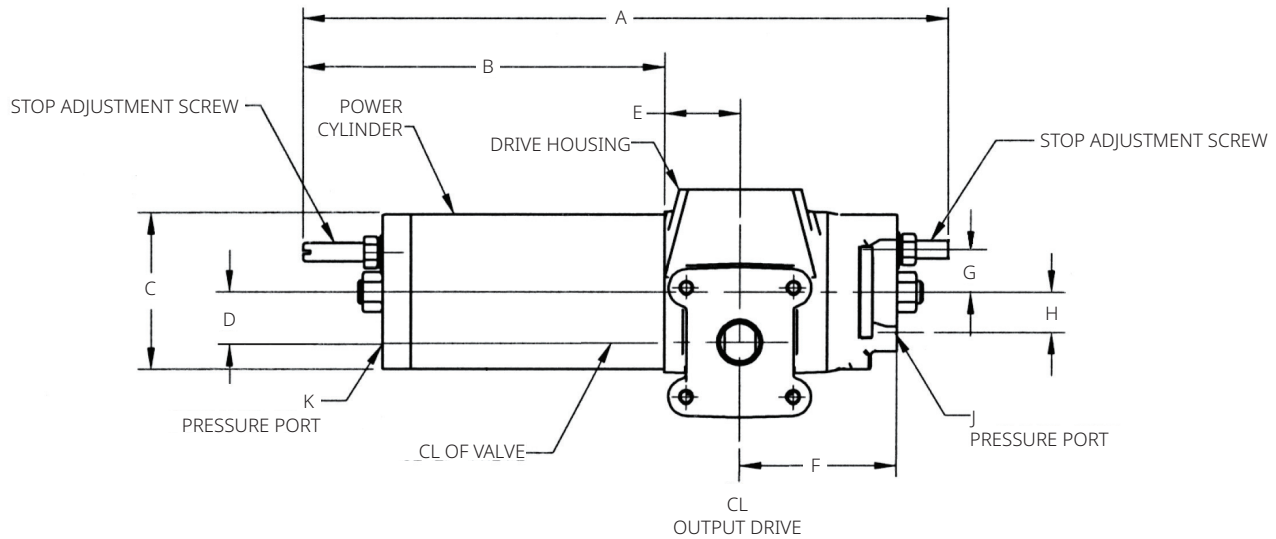
Actuator Model	A	B	C	D	E	F	G	H
FCBB315-SR-M3HW	26.66	14.43	3.25	6.00	1/4" NPT	10.05	1.88	3.46
FCBB415-SR-M3HW	26.74	14.51	4.25	6.00	1/4" NPT	10.05	1.88	3.46
FCBB420-SR-M3HW	32.13	17.37	4.25	8.00	3/8" NPT	11.93	2.13	4.37
FCBB520-SR-M3HW	32.16	17.43	5.38	8.00	3/8" NPT	11.93	2.07	4.37
FCBB525-SR-M3HW	36.93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

**NOTES:**

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# Dimensions (mm)

## Double-Acting Actuators - FCBBXXX

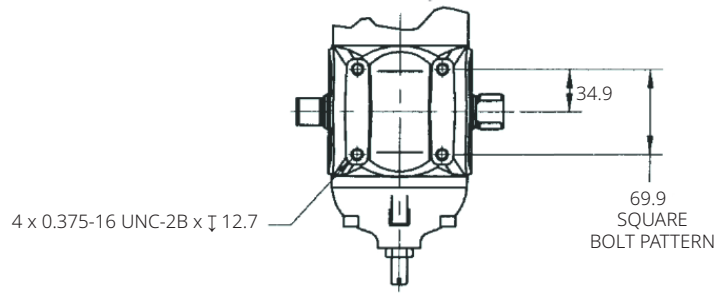


Actuator Model	A	B	C	D	E	F	G	H	J/K	L	M	N
FCBB315	359.8	187.5	82.6	25.4	47.8	87.8	23.8	23.9	1/4" NPT	.313-18 UNC	9.7	57.2
FCBB420	417.3	217.6	108.0	36.6	54.1	111.0	27.9	27.9	3/8" NPT	.375-16 UNC	12.7	76.2
FCBB520	418.1	219.2	136.7	36.6	52.6	111.0	27.9	27.9	3/8" NPT	.375-16 UNC	12.7	76.2
FCBB525	488.1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

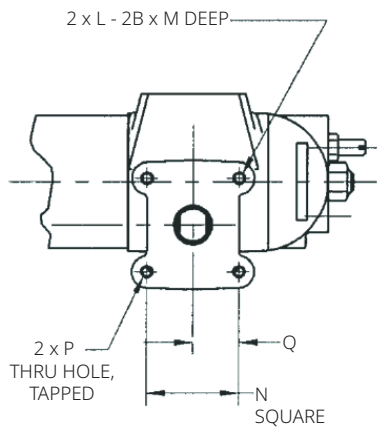
Actuator Model	P	Q	R	S	T	U	V	W	X	Y	Z	AA
FCBB315	.313-18 UNC	28.6	73.8	147.6	19.1	56.4	131.5	15.60 15.75	26.2	95.3	27.8	22.17 22.23
FCBB420	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	28.52 28.58
FCBB520	.375-16 UNC	38.1	85.1	169.9	19.1	71.3	158.9	21.95 22.10	26.2	117.5	35.1	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:**

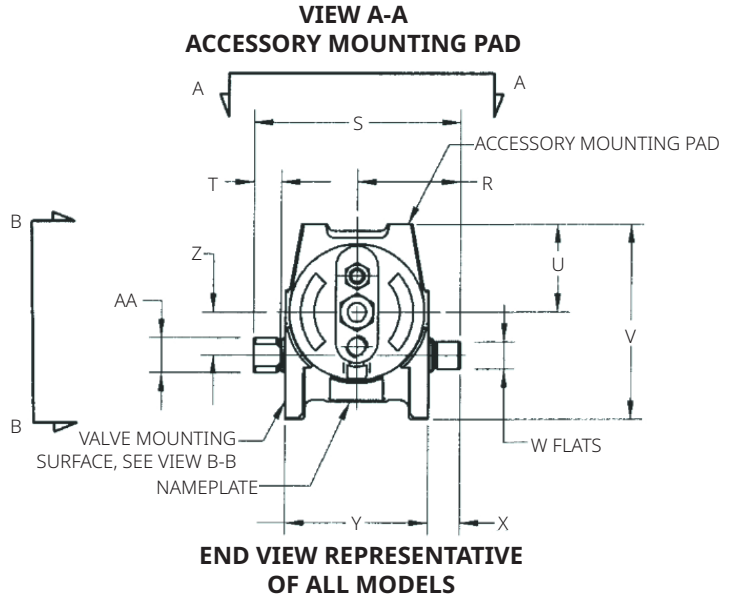
Not Certified dimensional drawings. Such drawings are available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in millimeters.



ACTUATORS SHOWN ROTATED TO FULL CLOCKWISE POSITION



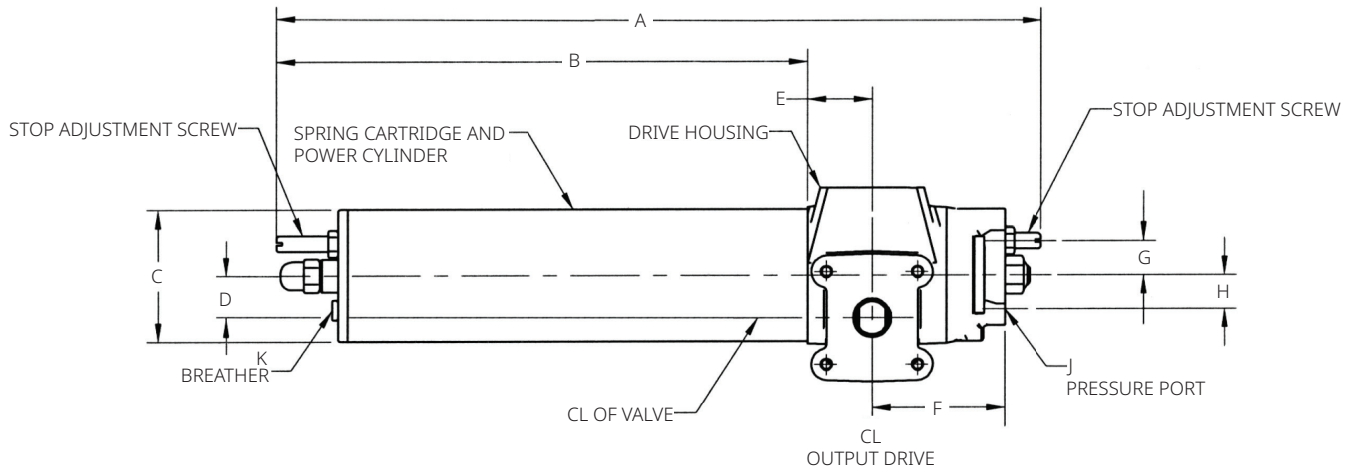
**VIEW B-B**  
**VALVE MOUNTING SURFACE**  
**TYPICAL BOLT PATTERN BOTH SIDES**  
**NOTE OPPOSING OUTPUT**  
**SHAFT ORIENTATION**



**NOTES:**

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

## Spring-Return Actuators - FCBBXXX-SRX

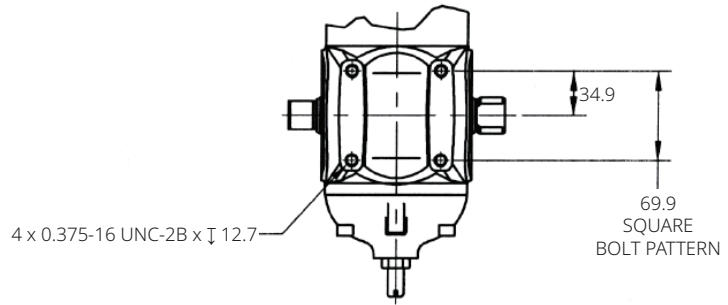


Actuator Model	A	B	C	D	E	F	G	H	J	K	L
FCBB315-SRX	511.2	347.0	82.6	23.9	47.8	87.8	23.8	23.9	1/4" NPT	1/4" NPT	.313-18 UNC
FCBB415-SRX	513.3	348.2	108.0	28.4	47.8	87.8	23.9	23.9	1/4" NPT	1/4" NPT	.313-18 UNC
FCBB420-SRX	623.3	433.5	108.0	28.4	54.1	111.0	27.9	27.9	3/8" NPT	1/4" NPT	.375-16 UNC
FCBB520-SRX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

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

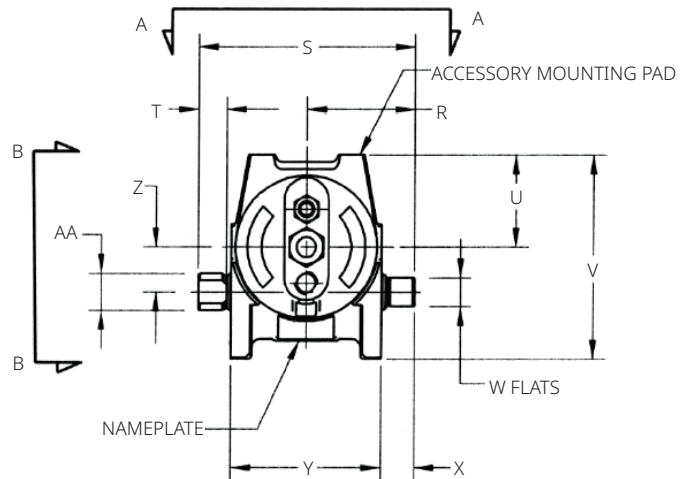
**NOTES:**

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.



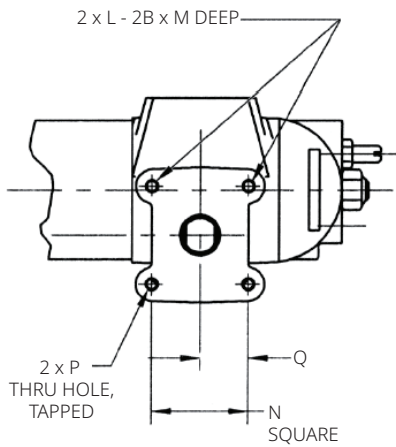
**VIEW A-A**

**ACCESSORY MOUNTING PAD**



**END VIEW REPRESENTATIVE OF ALL MODELS**

ACTUATORS SHOWN ROTATED TO FULL CLOCKWISE POSITION



**VIEW B-B**

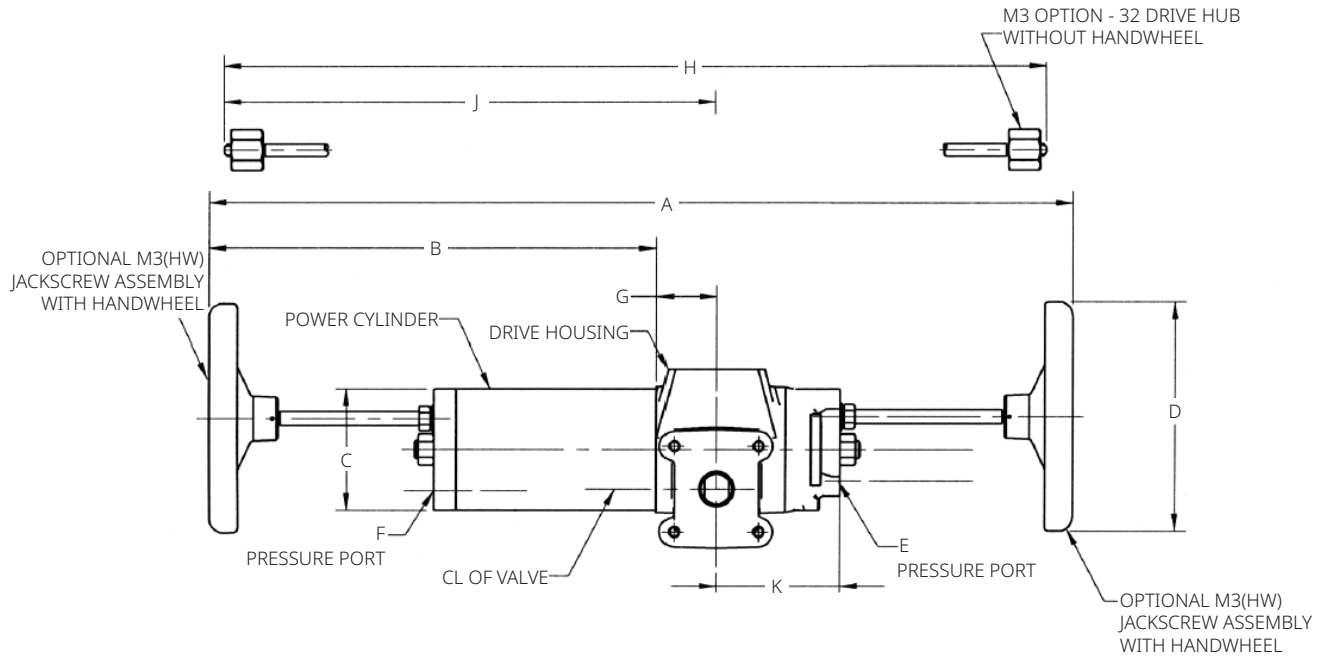
**VALVE MOUNTING SURFACE  
TYPICAL BOLT PATTERN BOTH SIDES  
NOTE OPPOSING OUTPUT  
SHAFT ORIENTATION**

**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.

# Dimensions (mm) - M3(HW) Override

## Double-Acting Actuators - FCBBXXX-M3(HW)

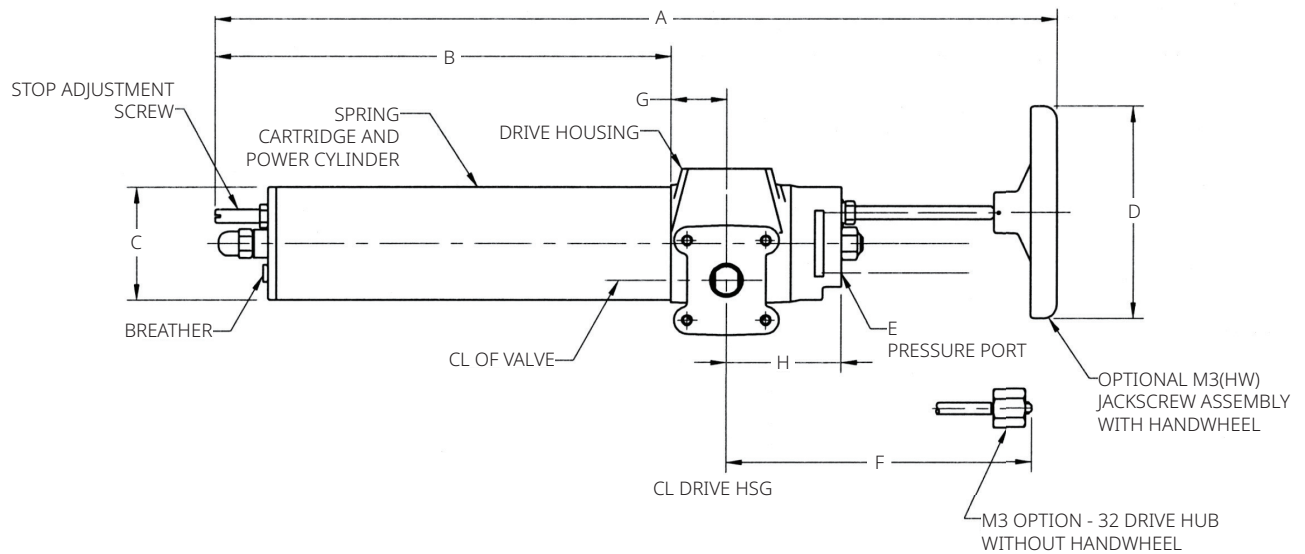


Actuator Model	A	B	C	D	E	F	G	H	J	K
FCBB315-M3HW	666.8	350.3	82.6	152.4	1/4" NPT	1/4" NPT	47.6	639.6	384.3	87.9
FCBB420-M3HW	792.5	410.2	108.0	203.2	3/8" NPT	3/8" NPT	54.0	741.9	438.9	111.1
FCBB520-M3HW	792.5	411.7	136.7	203.2	3/8" NPT	3/8" NPT	52.6	741.9	438.9	111.1
FCBB525-M3HW	945.6	493.8	136.7	254.0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

**NOTES:**

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**Spring-Return Actuators - FCBBXXX-SRX-M3(HW)**



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

**NOTES:**

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