

# **Bettis CBA-300 Series**

## Pneumatic Actuators



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## Introduction

The Bettis™ CBA-300 Series pneumatic actuators incorporate the most advanced features from a long history of developments in the scotch yoke design, assuring operating efficiency and cost-effectiveness. They are lightweight and compact, making them ideally suited for automating virtually any quarter-turn (90°) rotating mechanism, including ball, butterfly, and plug valves. They are economical and require little maintenance. They come with a variety of options to meet your demanding valve automation needs.

- Ductile iron or carbon steel housing and piston provide more strength per pound, increased durability and corrosion resistance. The pressure vessel quality housing is approved for use by ASME and the Pressure Equipment Directive (PED) 2014/68/EU.
- Increased actuator efficiency and corrosion resistance is possible with a Xylan fluoropolymer coating on the interior of the power cylinder. This permanently bonded coating is highly resistant to abrasion, thermal shock and provides excellent lubricity and low friction properties.
- The 300-Series actuators meet both IP66 and IP67M specifications for submergence and severe high pressure water deluge test. This offers superior water ingress and corrosion protection. The actuator has no gaskets and is totally O-ring sealed.
- The scotch yoke design provides optimum torque curves for quarter-turn operation.
- Its light weight assists in easy installation while its compactness allows use in tight piping configurations.
- Jackscrew and hydraulic override options.
- Five-Year Warranty.
- Its NAMUR topworks mounting configuration allows the CBA-300 to be internationally accepted and promotes the ability to utilize standardized accessories that can be close coupled or direct mounted to the valve.
- Suitable for SIL 1, 2 or 3.
- The CBA-300 Series provides models in both spring-return and double-acting configurations. They have guaranteed minimum torque outputs ranging from 879 to 2,303 Nm in double-acting models. Spring-Return models, requiring pressure from only one travel direction, are available for fail clockwise or counterclockwise applications. The spring ending torques range from 259 to 1,133 Nm.





## Spring-Return Actuators

### CBA-300 Series

All Published Torques are Guaranteed Minimum Values (Units are Metric).

Table 3.

Actuator Model	Stroke Direction Start/Min/End	Operating Pressure (bar)													MinOP (bar)	Torque @ MinOP (Nm)	MOP (bar)	Torque @ MOP (Nm)						
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9					10	10.5	11	11.5		
CBA930-SR40	Start	783	666	910	1,133	1,300	1,397	1,641	1,884	2,128	Exceeds MOP	-	-	-	-	-	-	-	-	-	2.4	618	5.9	2,323
	Minimum	318	259	390	519	597	648	777	905	1,033		-	-	-	-	-	-	-	-	-	-	2.4	232	5.9
CBA930-SR60	End	445	338	584	830	977	1,076	1,322	1,568	1,814	Exceeds MOP	-	-	-	-	-	-	-	-	-	3.8	469	6.2	2,011
	Start	1,290	-	-	Please consult factory	1,156	1,254	1,497	1,741	1,985		2,228	-	-	-	-	-	-	-	-	-	3.8	1,156	6.2
CBA930-SR80	Minimum	473	-	-	Please consult factory	405	460	593	724	854	Exceeds MOP	-	-	-	-	-	-	-	-	-	5.0	405	6.2	1,035
	End	588	-	-	-	469	567	814	1,060	1,306		1,552	-	-	-	-	-	-	-	-	-	5.0	469	6.2
CBA930-SR100	Start	1,736	-	-	-	-	-	-	1,523	1,766	2,010	Exceeds MOP	-	-	-	-	-	-	-	-	5.0	1,523	6.6	2,302
	Minimum	640	-	-	-	-	-	Please consult factory	531	666	799		-	-	-	-	-	-	-	-	5.0	531	6.6	956
CBA930-SR100	End	807	-	-	-	-	-	-	613	859	1,105	Exceeds MOP	-	-	-	-	-	-	-	-	6.3	613	7.2	1,400
	Start	2,184	-	-	-	-	-	-	-	-	2,275		-	-	-	-	-	-	-	-	6.3	1,933	7.2	2,372
CBA1030-SR40	Minimum	809	-	-	-	-	-	-	-	-	Please consult factory	870	Exceeds MOP	-	-	-	-	-	-	-	6.3	682	7.2	923
	End	1,030	-	-	-	-	-	-	-	-		1,148		-	-	-	-	-	-	-	-	6.3	803	7.2
CBA1030-SR60	Start	1,053	902	1,224	1,546	1,740	1,868	2,191	-	-	-	-	-	-	-	-	-	-	-	2.4	838	4.8	2,384	
	Minimum	423	346	520	691	794	862	1,032	Exceeds MOP	-	-	-	-	-	-	-	-	-	-	2.4	311	4.8	1,133	
CBA1030-SR80	End	587	449	774	1,099	1,295	1,425	1,750	-	-	-	-	-	-	-	-	-	-	-	-	3.8	383	5.2	1,945
	Start	1,733	-	-	Please consult factory	1,573	1,702	2,024	2,346	-	-	-	-	-	-	-	-	-	-	-	3.8	1,573	5.2	2,475
CBA1030-SR100	Minimum	622	-	-	Please consult factory	541	614	790	964	Exceeds MOP	-	-	-	-	-	-	-	-	-	-	4.9	541	5.2	1,033
	End	755	-	-	-	612	743	1,068	1,393	-	-	-	-	-	-	-	-	-	-	-	4.9	612	5.2	1,524
CBA1030-SR80	Start	2,261	-	-	-	-	-	-	1,968	2,291	Exceeds MOP	-	-	-	-	-	-	-	-	-	4.9	1,904	5.5	2,291
	Minimum	860	-	-	-	-	-	Please consult factory	711	888		-	-	-	-	-	-	-	-	-	4.9	675	5.5	888
CBA1030-SR80	End	1,133	-	-	-	-	-	-	864	1,189	Exceeds MOP	-	-	-	-	-	-	-	-	-	4.9	799	5.5	1,189
	Start	2,261	-	-	-	-	-	-	1,968	2,291		-	-	-	-	-	-	-	-	-	4.9	1,904	5.5	2,291

## Performance Data - (Pneumatic)

### Double-Acting Actuators

#### CBA-300 Series

All Published Torques are Guaranteed Minimum Values (Units are Metric).

Table 4.

Actuator Model	Volume (cu cm.) ▲		Maximum Operating Pressure (MOP)* (bar)	Maximum Allowable Working Pressure (MAWP)** (bar)	Approximate Weight of Actuator (kg)	
	Outboard	Inboard (Housing)			Ductile Iron Housing	Carbon Steel Housing
CBA730	4260.6	9209.5	7.2	13.8	50.9	53.2
CBA830	5588.0	10373.0	5.5	13.8	56.7	58.9
CBA930	7095.6	11683.9	4.5	11.7	62.9	65.1
CBA1030	9373.4	13666.8	3.4	9.0	69.9	72.1

### Spring-Return Actuators

#### CBA-300 Series

All Published Torques are Guaranteed Minimum Values (Units are Metric).

Table 5.

Actuator Model	Volume (cu cm.) ▲	Maximum Operating Pressure (MOP)* (bar)	Maximum Allowable Working Pressure (MAWP)** (bar)	Approximate Weight of Actuator (kg)	
				Ductile Iron Housing	Carbon Steel Housing
CBA730-SR40	9209.5	9.3	13.8	61.6	64.3
CBA730-SR60	9209.5	9.7	13.8	62.6	65.3
CBA730-SR80	9209.5	10.0	13.8	63.6	66.3
CBA730-SR100	9209.5	10.3	13.8	64.0	66.8
CBA830-SR40	10373.0	7.2	13.8	68.2	71.1
CBA830-SR60	10373.0	7.6	13.8	70.1	72.9
CBA830-SR80	10373.0	8.0	13.8	71.6	74.4
CBA830-SR100	10373.0	8.3	13.8	73.5	76.3
CBA930-SR40	11683.9	5.9	11.7	75.3	78.3
CBA930-SR60	11683.9	6.2	11.7	78.2	81.1
CBA930-SR80	11683.9	6.6	11.7	80.1	83.1
CBA930-SR100	11683.9	7.2	11.7	83.6	86.6
CBA1030-SR40	13666.8	4.8	9.0	85.0	88.1
CBA1030-SR60	13666.8	5.2	9.0	87.3	90.4
CBA1030-SR80	13666.8	5.5	9.0	90.8	93.9

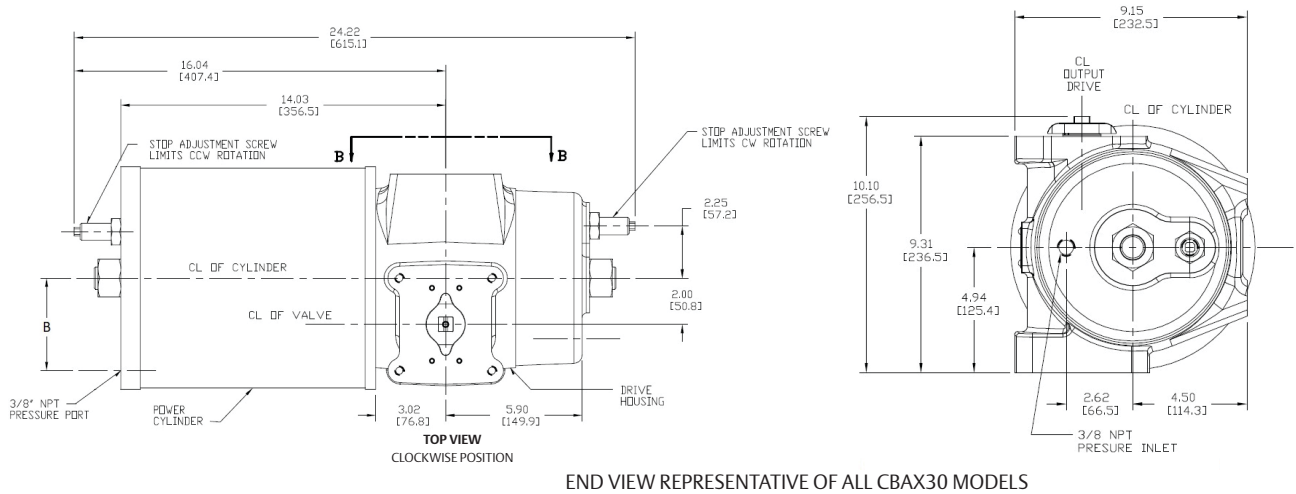
**NOTES:**

- ◆ CB-SRXXM mechanical handwheel overrides are available on these models. The override adds approximately 0.8 kg (2 lb) to the weight of the standard CB 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 above.

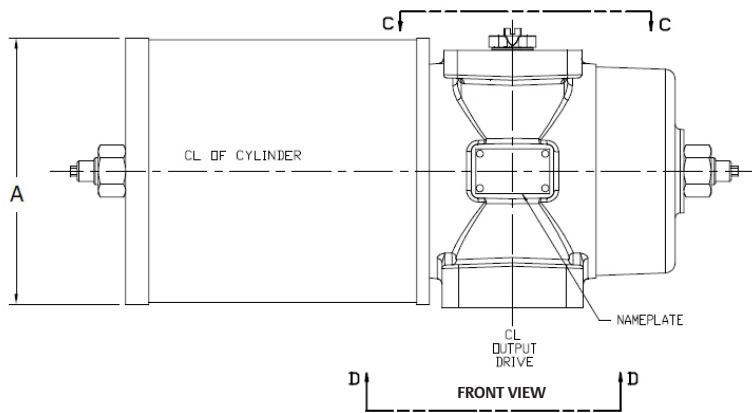


# Dimensions (mm)

## Double-Acting Actuators - CBAX30



ACTUATORS SHOWN ROTATED TO FULL CLOCKWISE POSITION



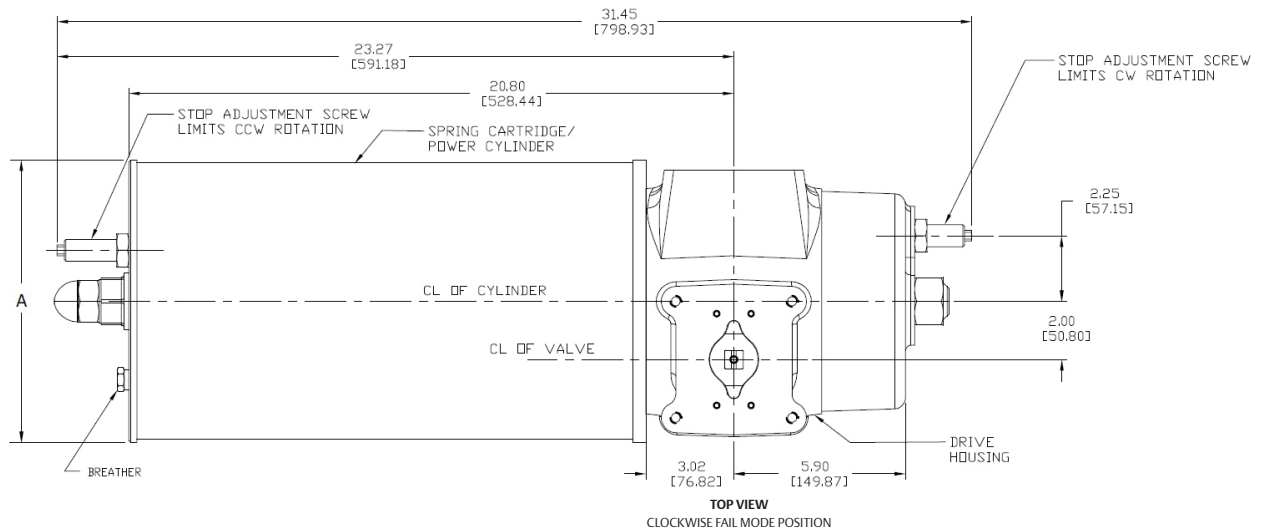
Actuator Model	A	B
CBA730	193.8	76.2
CBA830	219.2	88.9
CBA930	244.6	101.6
CBA1030	276.4	114.3

**NOTES:**  
 Actuators shown rotated to full clockwise position.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.



## Dimensions (mm)

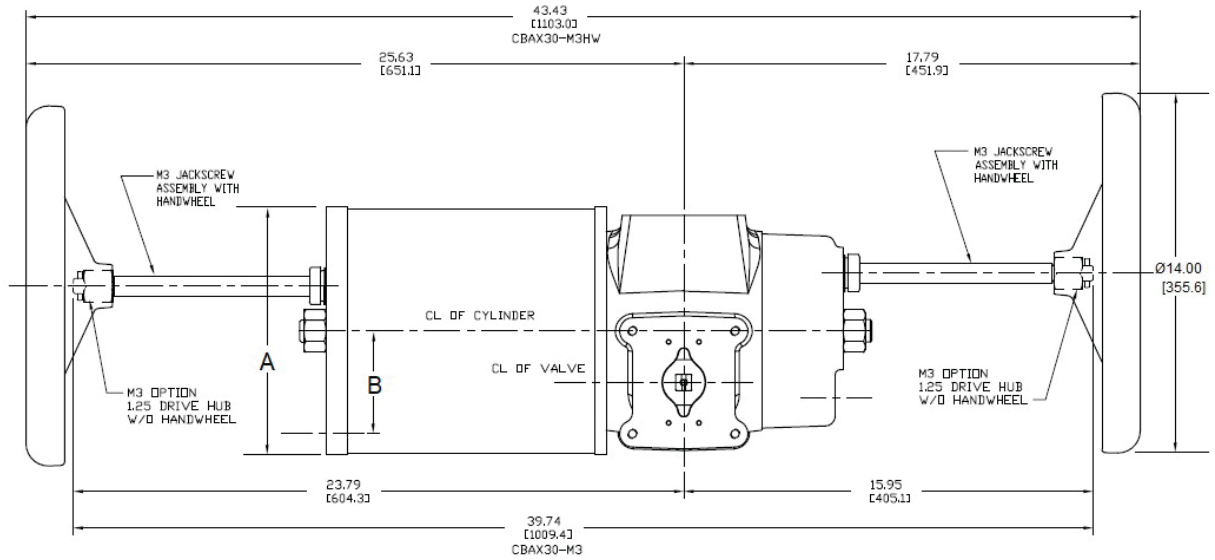
### Spring-Return Actuators - CBAX30-SRX



Actuator Model	A
CBA730-SRX	195.3
CBA830-SRX	220.7
CBA930-SRX	246.1
CBA1030-SRX	279.4

**NOTES:**  
 Other dimensions refer to Double-Acting page.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.

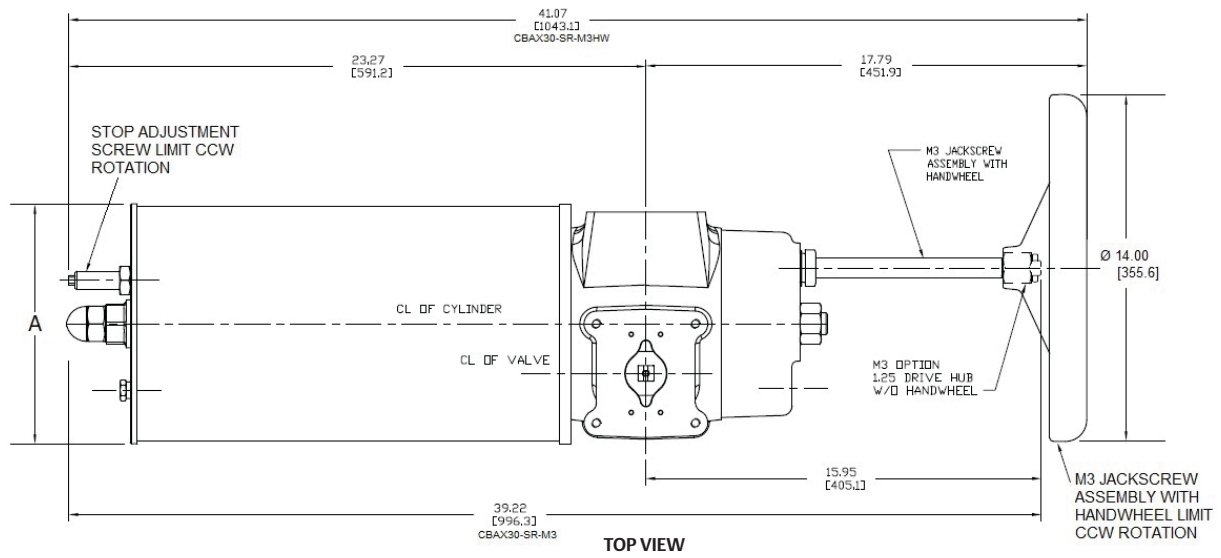
## Dimensions (mm) - M3 (HW) Override Double-Acting Actuators - CBAX30-M3 (HW)



Actuator Model	A	B
CBA730-M3HW	193.8	76.2
CBA830-M3HW	219.2	88.9
CBA930-M3HW	244.6	101.6
CBA1030-M3HW	276.4	114.3

**NOTES:**  
 Other dimensions refer to base actuator pages.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.

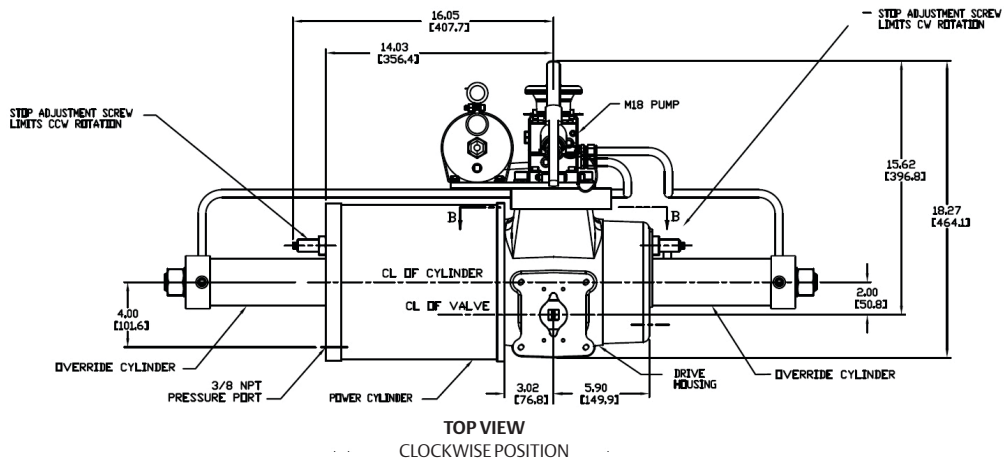
## Dimensions (mm) - M3 (HW) Override Spring-Return Actuators - CBAX30-SRX-M3 (HW)



Actuator Model	A
CBA730-SRX-M3HW	195.3
CBA830-SRX-M3HW	220.7
CBA930-SRX-M3HW	246.1
CBA1030-SRX-M3HW	279.4

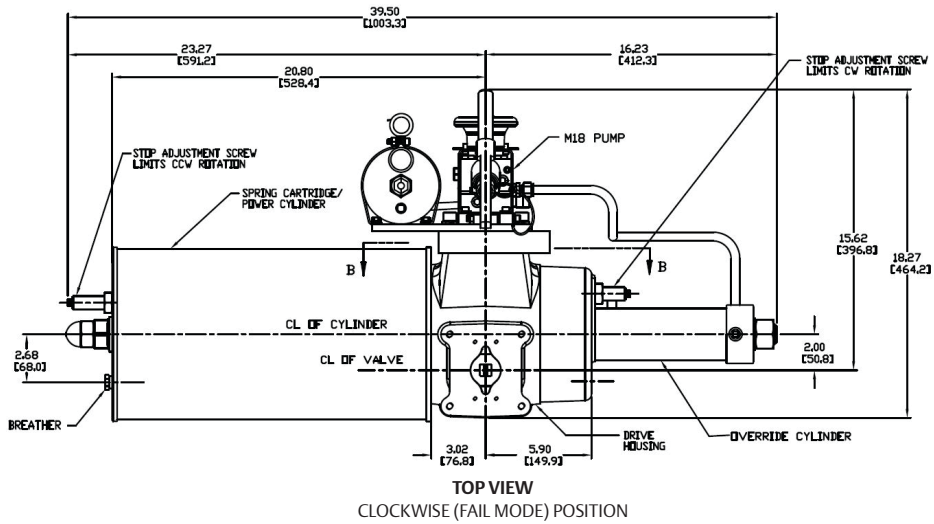
**NOTES:**  
 Other dimensions refer to base actuator pages.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.

## Dimensions (mm) - Hydraulic Override Double-Acting Actuators - CBAX30-M18



TOP VIEW  
 CLOCKWISE POSITION  
 ACTUATORS SHOWN ROTATED TO FULL CLOCKWISE POSITION

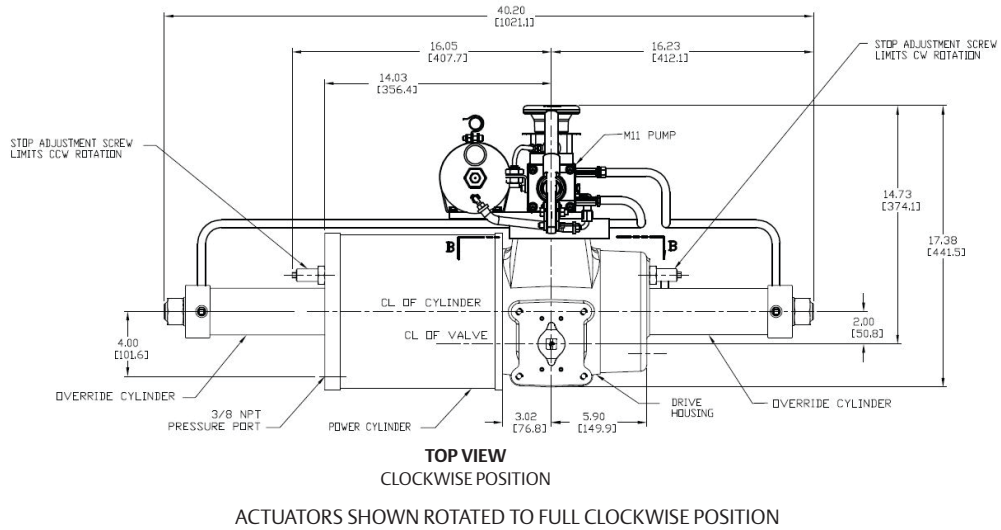
## Spring-Return Actuators - CBAX30-SRX-M18



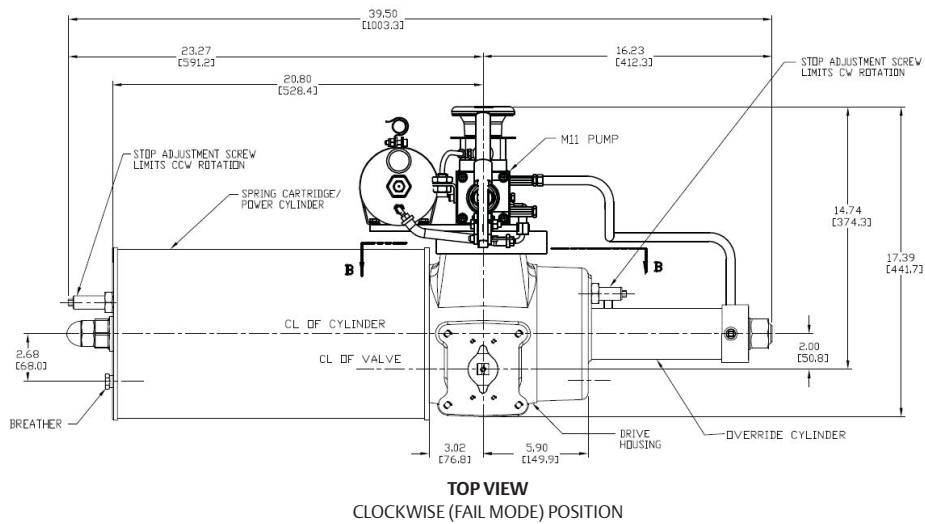
TOP VIEW  
 CLOCKWISE (FAIL MODE) POSITION

**NOTES:**  
 Other dimensions refer to base actuator pages.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.

## Dimensions (mm) - Hydraulic Override Double-Acting Actuators - CBAX30-M11



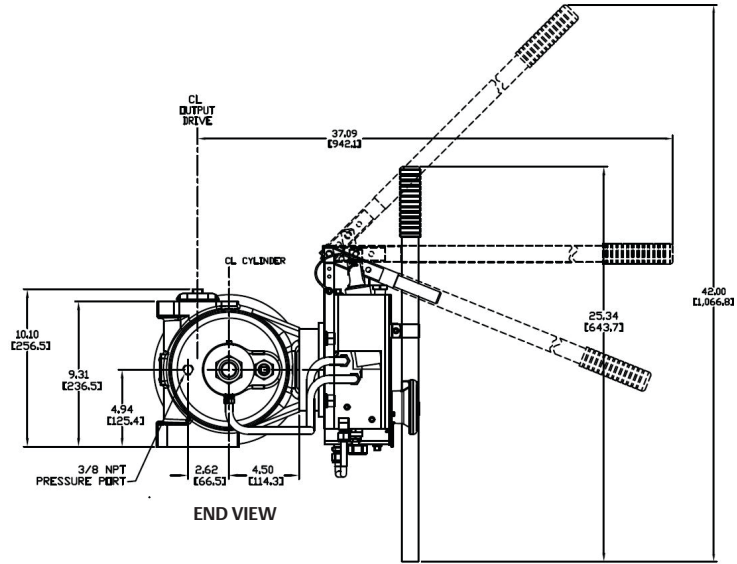
## Spring-Return Actuators - CBAX30-SRX-M11



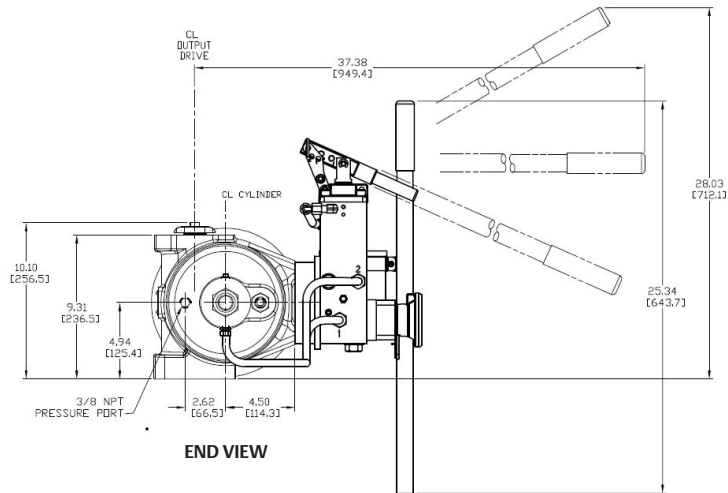
**NOTES:**  
 Other dimensions refer to base actuator pages.  
 Not Certified dimensional drawings. Such drawings available on request.  
 Contact factory with correct model designation and serial number.  
 All dimensions are expressed in mm.

## Dimensions (mm) - Hydraulic Override

END VIEW REPRESENTATIVE OF ALL CBAX30-M18 MODELS



END VIEW REPRESENTATIVE OF ALL CBAX30-M11 MODELS



**NOTES:**

Other dimensions refer to base actuator pages.  
Not Certified dimensional drawings. Such drawings available on request.  
Contact factory with correct model designation and serial number.  
All dimensions are expressed in mm.

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