

# L

## SERIES



### LINEAR PNEUMATIC & FLUID POWER ACTUATOR – PRODUCT BULLETIN

Output Thrust to 339,988 lbf (1,512,343 N)  
Temperatures from -76°F to 500°F (-60°C to 260°C)

Stainless Steel and Steel Construction  
Double-Acting and Spring-Return Models

HIGH CYCLE LIFE, HIGH SPEED, HIGH RELIABILITY

**The Leader in Actuator Technology**



## ACTUATOR SPECIFICATIONS

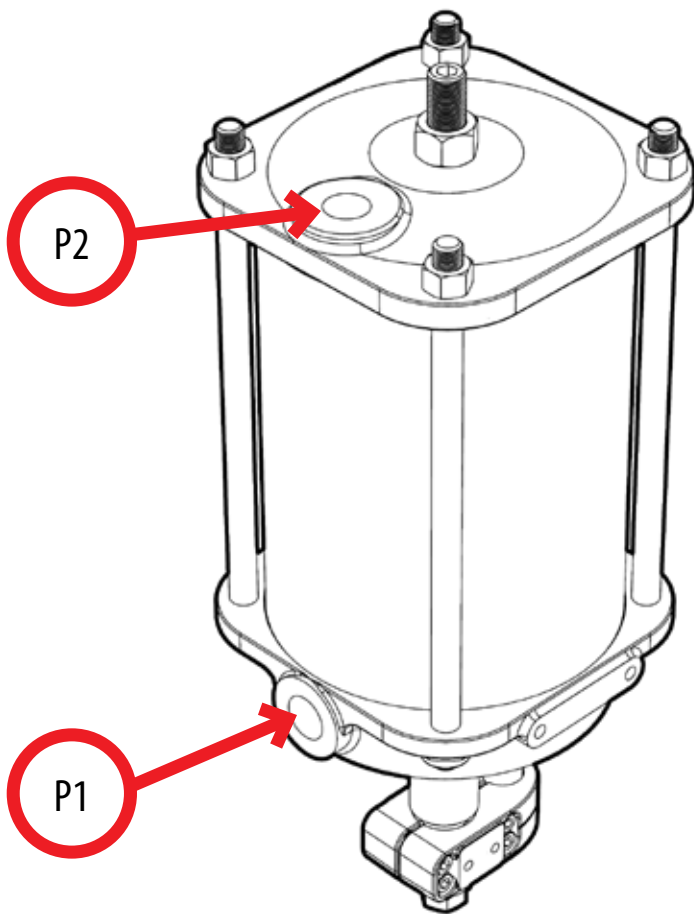
1.	MODEL	LS Stainless Steel LD Ductile Iron/Steel	LX Custom																										
2.	ACTION	U Fail Up (retract) D Fail Down (extend) A Double Acting																											
3.	PISTON SIZE & STROKE LENGTH Tandem piston configurations and/or additional stroke lengths are available, contact factory for more information.	04-0113 04-0200 04-0400 06-0200 06-0400 06-0600 08-0200 08-0400 08-0600 08-0800	10-0300 10-0600 10-0800 10-1000 12-0400 12-0800 12-1200 14-0400 14-0800	16-0400 16-0800 16-1200 16-1600 20-0400 20-0800 20-1200 20-1600 20-2000	24-0400 24-0800 24-1200 24-1600 24-2000 24-2400 30-0400 30-0800 30-1200 30-1600 30-2000 30-2400 30-3000	36-0400 36-0800 36-1200 36-1600 36-2000 36-2400 36-3000 36-3600																							
4.	MOUNTING STYLE	B000 - Custom BC01 - Standard Base Plate	For cast yoke see Type-C Bulletin (DCN00794)																										
5.	SPRING SET	S__	See thrust tables pages 14 - 19 * LX series spring are custom, contact factory for more information.																										
6.	PORT SIZE	P00 Custom P01* 1/4 NPT P02 3/8 NPT P03 1/2 NPT P04 3/4 NPT	P05 1 NPT P06 1 1/4 NPT P07 1 1/2 NPT P08 2 NPT P09 2 1/2 NPT	Port size limited by piston size.																									
				<table border="1"> <thead> <tr> <th>Piston Size (in.)</th> <th>4</th> <th>6</th> <th>8</th> <th>10</th> <th>12</th> <th>14</th> <th>16</th> <th>20</th> <th>24</th> <th>30</th> <th>36</th> </tr> </thead> <tbody> <tr> <td>Pmax</td> <td>P03</td> <td>P04</td> <td>P05</td> <td>P06</td> <td>P07</td> <td>P07</td> <td>P07</td> <td>P08</td> <td>P09</td> <td>P09</td> <td>P09</td> </tr> </tbody> </table>		Piston Size (in.)	4	6	8	10	12	14	16	20	24	30	36	Pmax	P03	P04	P05	P06	P07	P07	P07	P08	P09	P09	P09
Piston Size (in.)	4	6	8	10	12	14	16	20	24	30	36																		
Pmax	P03	P04	P05	P06	P07	P07	P07	P08	P09	P09	P09																		
7.	TEMP LIMITS <sup>3</sup>	T custom range Q -76°F to 310°F G -60°F to 310°F	M* -20°F to 250°F H 0°F to 400°F W 5°F to 500°F	Environmental conditions may limit the use of certain trim materials. Temperature ranges may be extended with proper insulation.																									
8.	SPRING MATERIAL	10 Custom 11* Standard 12 17-7 PH Stainless	Standard springs are various grades of spring steel, most commonly chrome silicon, with powder coat.																										
9.	CYLINDER MATERIAL	U Custom A Amalga L Aluminum	C Carbon Steel S Stainless Steel																										
10.	O-RINGS	40 Custom 41 Buna N 42 Viton 43 Silicone (1000)	44 EPDM 45 FFKM (21028) 46 Silicone (1043)																										
11.	OPTIONS	TJR Top mounted jackscrew override. Hand wheel size and material specified separately. SJR Side mounted override. Hand wheel size and material specified separately. HRxxxx Hydraulic override, cylinder only. Pump and reservoir specified separately. xxxx is defined by QTRCO to specify the cylinder size. ETSxxxx Longer travel stops on the end cap side Example: 1500 (1.5 inches total travel): The actuator travel could be reduced to 1.5 inches. Travel stops do not affect the extend position. Multiple compatible options may be chosen. Separate options with a comma																											
12.	MODIFIER	3-digit number used by QTRCO to identify further customization. This number is assigned by QTRCO for modifications that cannot be defined by the engineering string. Contact QTRCO for details about specific modifiers.																											
13.	PRESSURE EQUIPMENT DIRECTIVE	SEP Actuator will be provided based on SEP with appropriate documentation PED Actuator will be provided as fully PED compliant  Omit if not required.																											

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## Operation and Piping

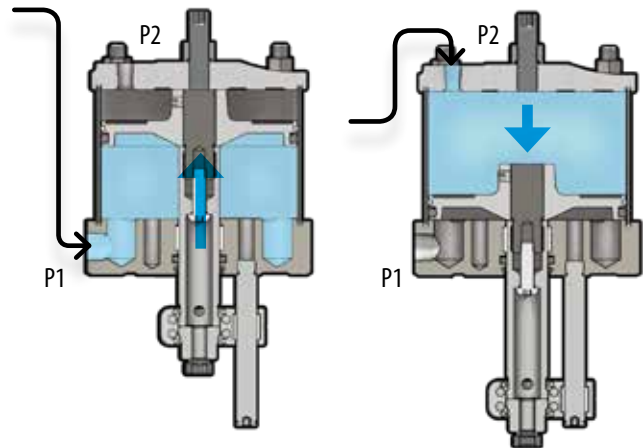
L series actuators may be operated with instrument air, hydraulic fluid, water, or other power gases and fluids. Always ensure that the materials of construction are compatible with the application and that the pressure does not exceed the maximum allowable.



### DOUBLE ACTING MODELS

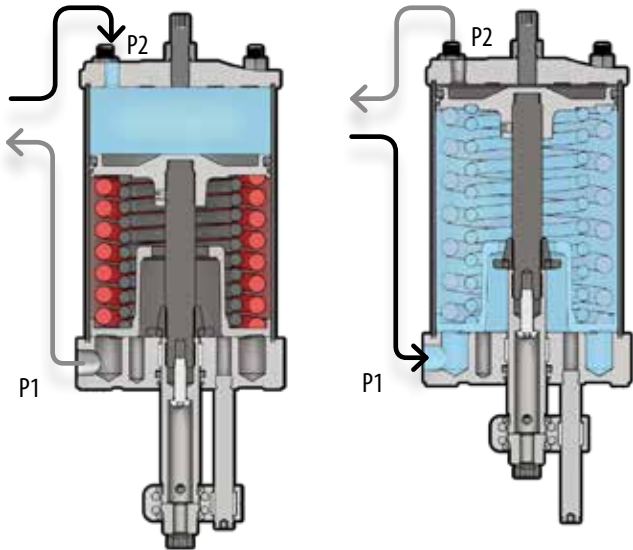
**P1 – Pressure Port**, pressure retracts the output rod

**P2 – Pressure Port**, pressure extends the output rod



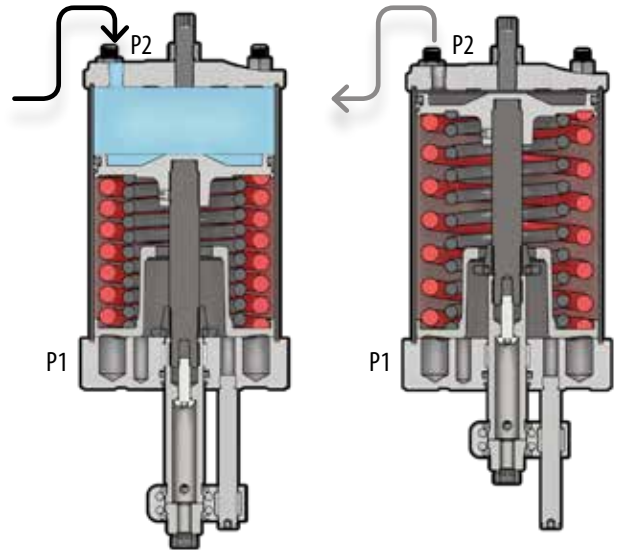
**SPRING BIAS- FAIL UP MODELS**

**P1 – Pressure Port**, pressure and spring retracts the output rod  
**P2 – Pressure Port**, pressure extends the output rod



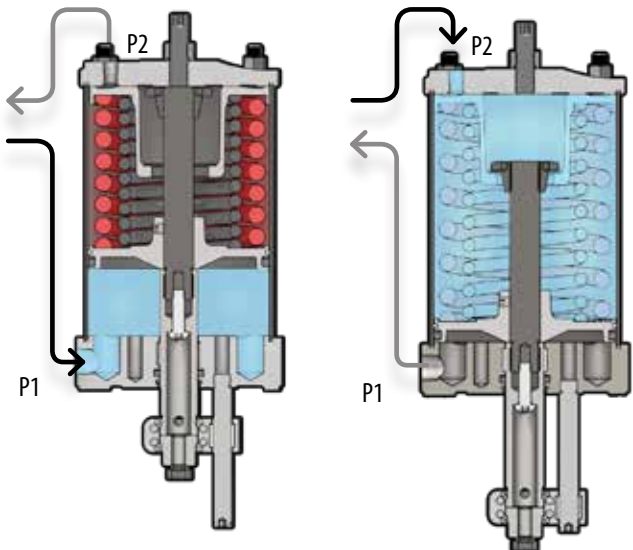
**SPRING RETURN - FAIL UP MODELS**

**P1 – Breather Port**, not used for operation  
**P2 – Pressure Port**, pressure extends the output rod



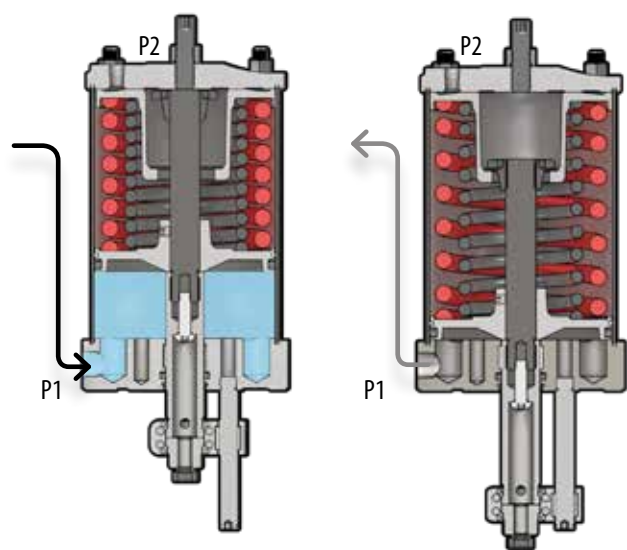
**SPRING BIAS- FAIL DOWN MODELS**

**P1 – Pressure Port**, pressure retracts the output rod  
**P2 – Pressure Port**, pressure and spring extends the output rod

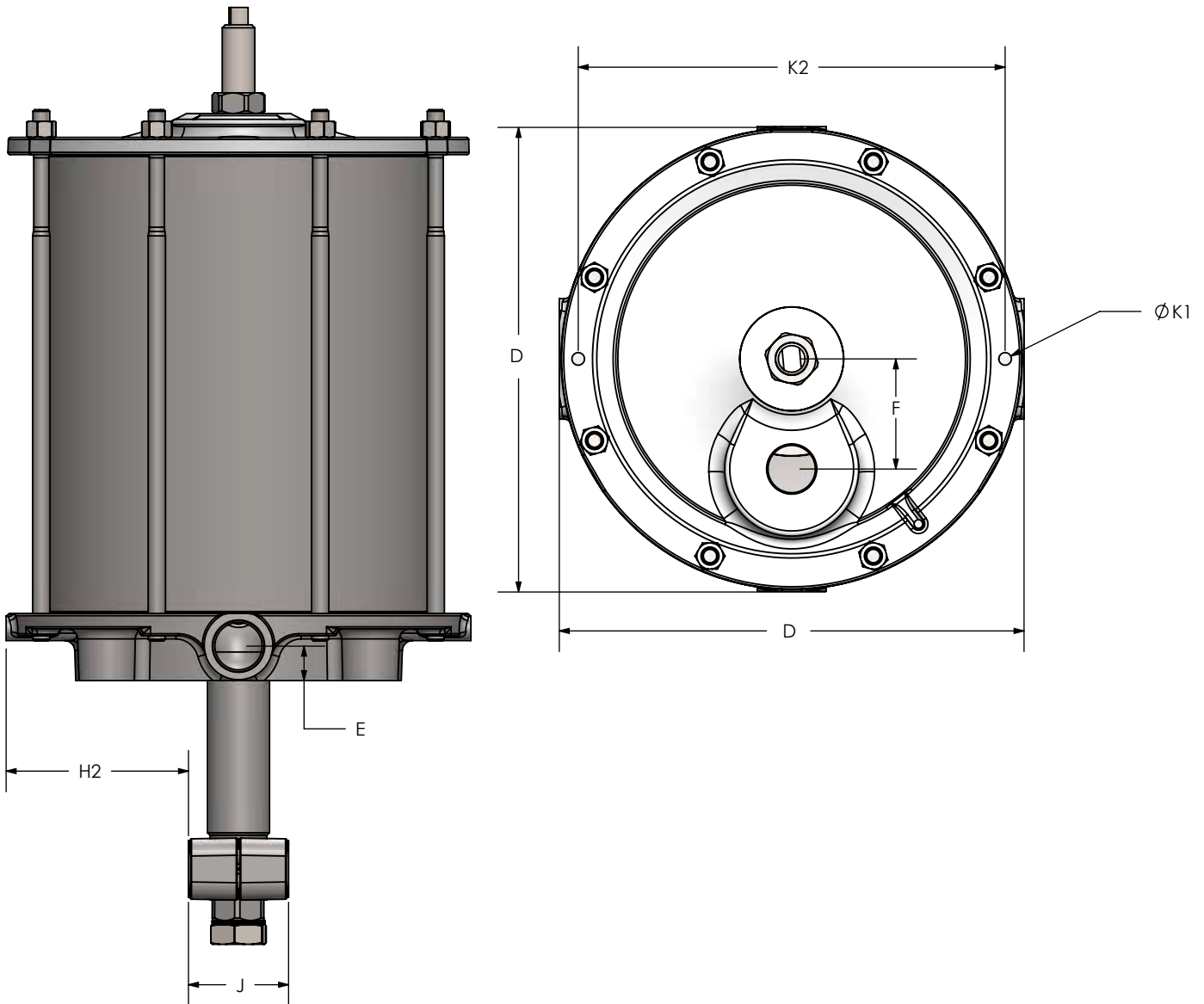


**SPRING RETURN - FAIL DOWN MODELS**

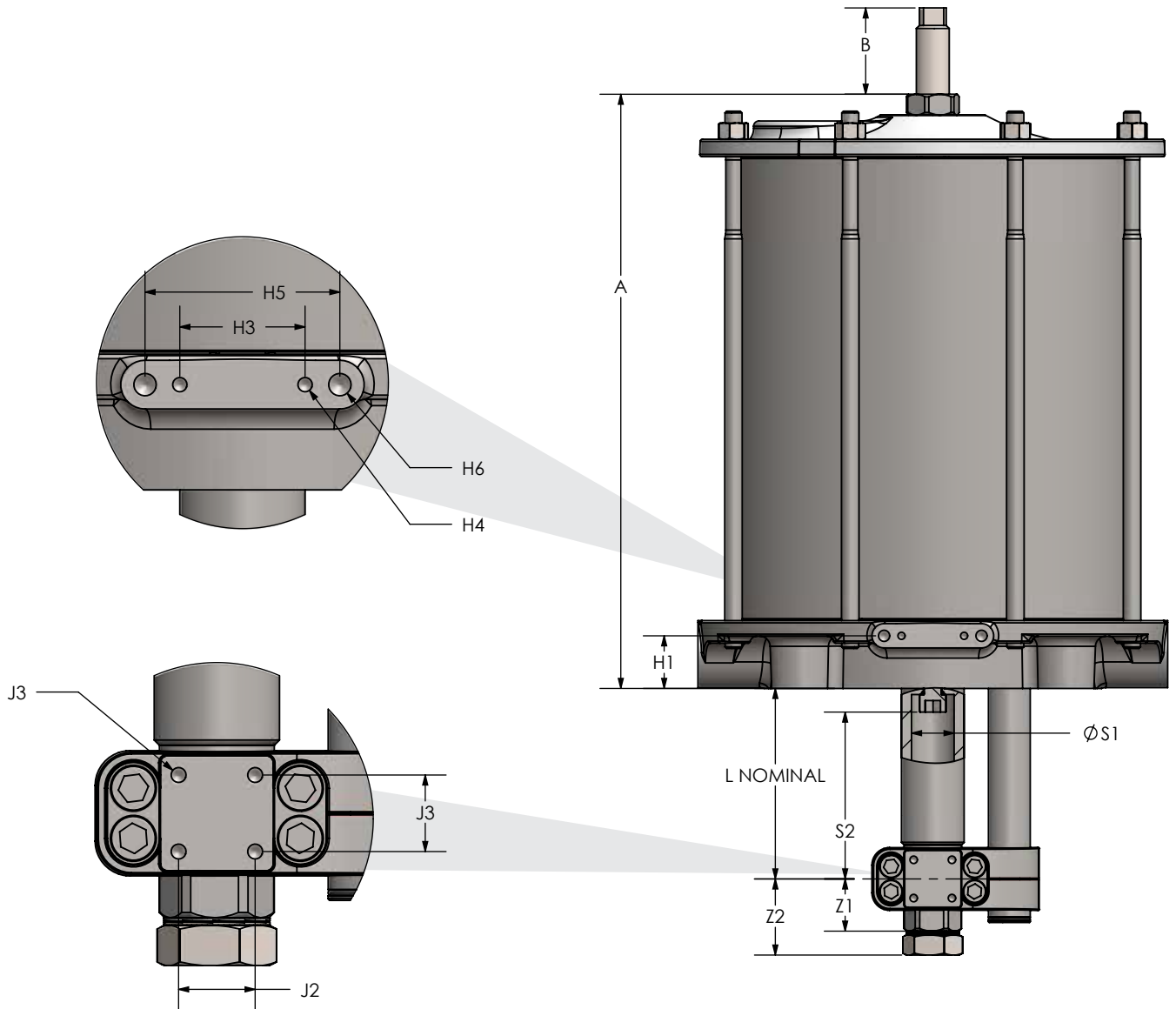
**P1 – Pressure Port**, pressure retracts the output rod  
**P2 – Breather Port**, not used for operation



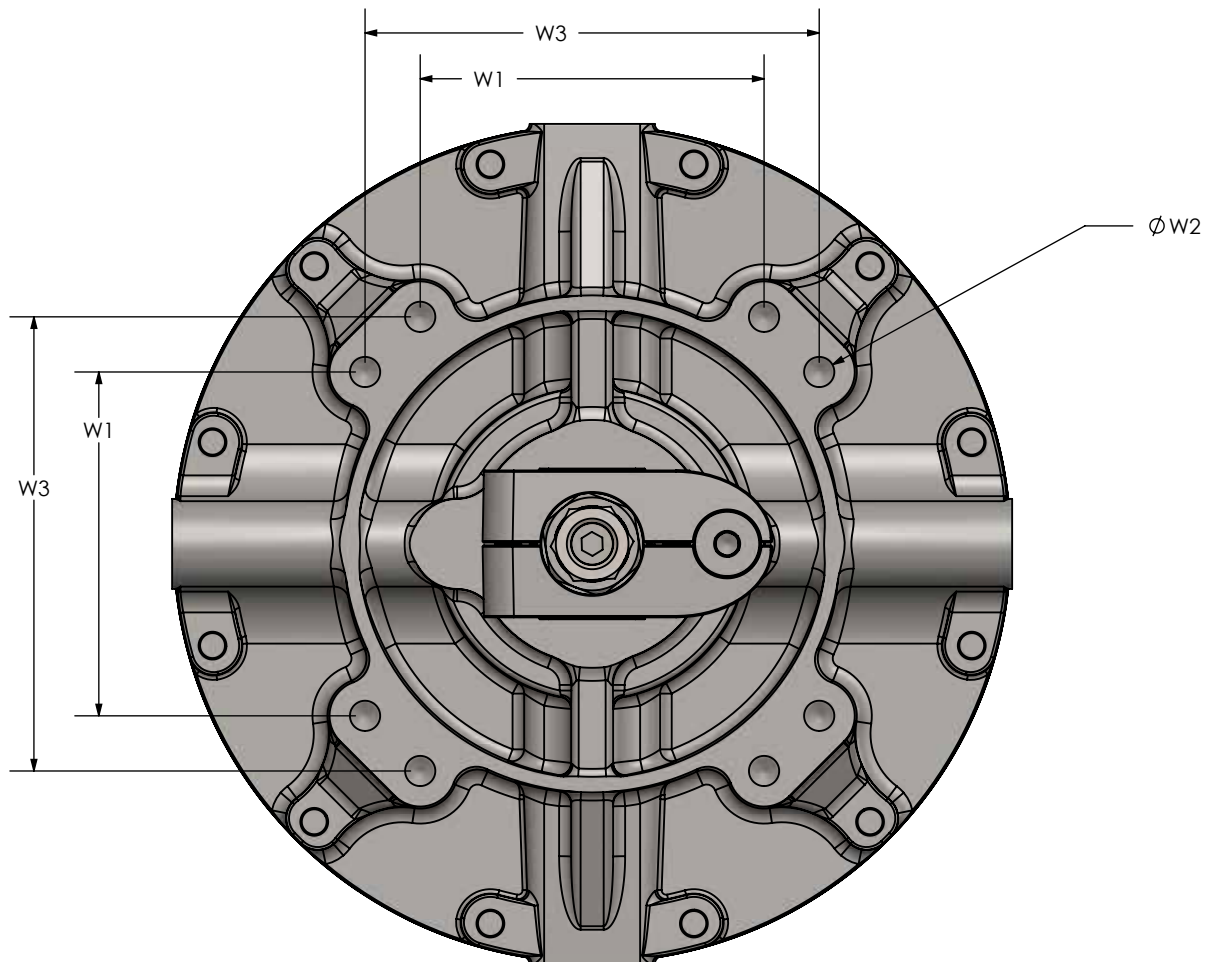
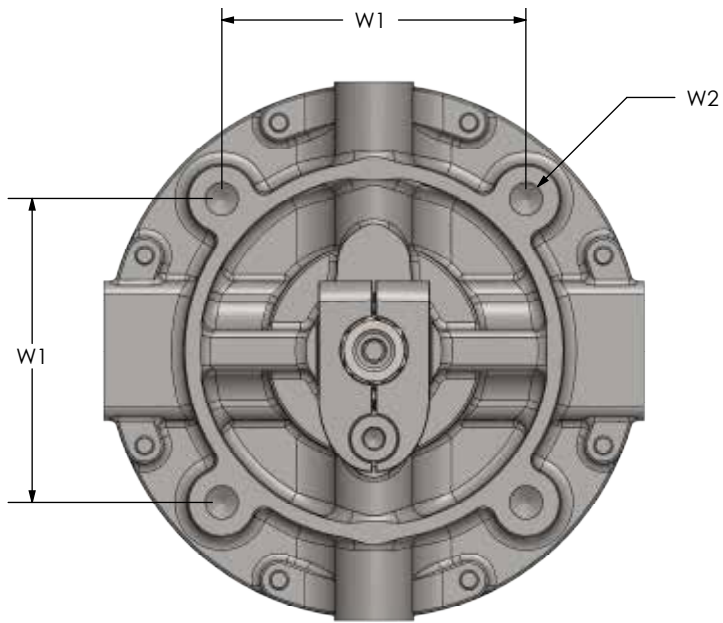
### Dimensions and Technical Data (Imperial, Inches)



## Dimensions and Technical Data (Imperial, Inches)









## Dimensions (Imperial, Inches)

ENVELOPE DIMENSIONS		Piston Size:	4		6		8		10		12	
			Action:		D04/U04	A04	D06/U06	A06	D08/U08	A08	D10/U10	A10
Stroke Length:			1.125"		2"		2"		3"		4"	
Cylinder Height	A		7.007	5.144	11.397	6.9797	13.1697	7.632	15.531	9.437	19.6025	11.4245
Baseline to Output Rod (Extended)	L1		2.75		3.70		3.91		5.00		5.00	
Stroke Length:			2"		4"		4"		6"		8"	
Cylinder Height	A		8.3195	6.019	14.397	8.9797	16.1697	9.632	18.531	12.437	25.6025	15.4245
Baseline to Output Rod (Extended)	L1		3.63		5.70		5.91		7.00		9.00	
Stroke Length:			4"		6"		6"		8"		12"	
Cylinder Height	A		11.3195	8.019	17.397	10.9797	19.1697	11.632	21.531	14.437	31.6025	19.4245
Baseline to Output Rod (Extended)	L1		5.63		7.70		7.91		9.00		13.00	
Stroke Length:			---		---		8"		10"		---	
Cylinder Height	A		---		---		22.1697	13.632	24.531	16.437	---	
Baseline to Output Rod (Extended)	L1		---		---		9.91		11.00		---	
Lifting Hole Diameter	K1		---		---		---		0.45		0.45	
Lifting Hole Distance	K2		---		---		---		11.50		13.50	
Baseline to Output Rod (Retracted)	L2		1.33		1.51		1.71		1.82		1.82	
Travel Stop Height1	B		0.5		1		1		1.5		2.5	
Width	D		4.75		6.75		8.75		12.625		14.625	
P1 Distance to Baseline	E		0.75		0.7815		0.8425		1.0225		1.25	
P2 Distance to Centerline	F		1.45		2.25		3.00		3.00		3.75	
Accessory Holes to Baseline	H1		1.094		1.0815		1.1875		1.625		2.062	
Accessory Pad to Coupler Pad Distance	H2		1.611		2.412		3.287		4.943		5.6925	
Accessory Pad Hole Width 1	H3		2.25		2.25		2.25		2.25		2.25	
Accessory Pad 1 Hole Thread 1	H4		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC	
Accessory Pad Hole Width 2	H5		---		---		---		---		---	
Accessory Pad 1 Hole Thread 2	H6		---		---		---		---		---	
Clamp Coupler Width	J1		1.528		1.93		2.18		2.74		3.24	
Coupler Accessory Hole Width	J2		0.50		0.688		0.688		1		1	
Coupler Accessory Hole Thread	J3		M6-1		M6-1		M6-1		M6-1		M6-1	
Stem Clearance Height	S2		2.50		3.00		3.25		4.25		5.63	
Stem Clearance Diameter	S1		0.645		0.785		1.035		1.280		1.280	
Mounting Pattern	W1		2.063		3.000		4.125		7.500		7.500	
Mounting Threads	W2		M12-1.75 x 20, QTY 4		M14-2 x 20, QTY 4		M16-2 x 30, QTY 4		M24-3.0 x 30, QTY 4		M24-3.0 x 36, QTY 4	
Mounting Pattern	W3		---		---		---		---		---	
Stem Adapter Length2	Z1		0.875		1.13		1.38		1.50		1.75	
Stem Adapter and Hardware Length2	Z2		1.31		1.558		1.95		2.075		2.437	

\* LX series are custom, contact factory for more information.



## Dimensions (Imperial, Inches)

ENVELOPE DIMENSIONS	Action:	14		16		20		24		30		36	
		Piston Size:											
		D14/U14	A14	D16/U16	A16	D20/U20	A20	D24/U24	A24	D30/U30	A30	D36/U36	A36
4" Stroke Length - Cylinder Height	A	21.3475	12.0465	23.4025	12.273	28.1195	14.58	33.105	16.147	37.058	18.282	40.998	20.402
Baseline to Output Rod (Extended)	L1	6.84		7.05		7.44		7.44		7.83		7.83	
8" Stroke Length - Cylinder Height	A	27.3475	16.0465	29.4025	16.273	34.1195	18.58	39.105	20.147	43.058	22.282	46.998	24.402
Baseline to Output Rod (Extended)	L1	10.84		11.05		11.44		11.44		11.83		11.83	
12" Stroke Length - Cylinder Height	A	33.3475	20.0465	35.4025	20.273	40.1195	22.58	45.105	24.147	49.058	26.282	52.998	28.402
Baseline to Output Rod (Extended)	L1	14.84		15.05		15.44		15.44		15.83		15.83	
16" Stroke Length - Cylinder Height	A	---		41.4025	24.273	46.1195	26.58	51.105	28.147	55.058	30.282	58.998	32.402
Baseline to Output Rod (Extended)	L1	---		19.05		19.44		19.44		19.83		19.83	
20" Stroke Length - Cylinder Height	A	---		---		52.1195	30.58	57.105	32.147	61.058	34.282	64.998	36.402
Baseline to Output Rod (Extended)	L1	---		---		23.44		23.44		23.83		23.83	
24" Stroke Length - Cylinder Height	A	---		---		---		63.105	36.147	67.058	38.282	70.998	40.402
Baseline to Output Rod (Extended)	L1	---		---		---		27.44		27.83		27.83	
30" Stroke Length - Cylinder Height	A	---		---		---		---		76.058	44.282	79.998	46.402
Baseline to Output Rod (Extended)	L1	---		---		---		---		33.83		33.83	
36" Stroke Length - Cylinder Height	A	---		---		---		---		---		88.998	52.402
Baseline to Output Rod (Extended)	L1	---		---		---		---		---		39.83	
Lifting Hole Diameter	K1	0.45		0.45		0.65		0.65		0.88		0.88	
Lifting Hole Distance	K2	15.50		17.5		21.88		26.00		32.88		37.00	
Baseline to Output Rod (Retracted)	L2	2.59		2.80		3.19		3.69		3.94		4.19	
Travel Stop Height1	B	3		3		3		3		4		4	
Width	D	16.875		18.875		23.625		27.625		34.625		40.625	
P1 Distance to Baseline	E	1.25		1.25		1.5375		1.7825		1.9375		2.125	
P2 Distance to Centerline	F	4.00		4.75		6.00		7.50		9.00		10.00	
Accessory Holes to Baseline	H1	1.89		1.88		2.2725		2.6875		2.9183		3.1058	
Accessory Pad to Coupler Pad Distance	H2	6.62		7.4225		9.4225		11.173		14.36		17.547	
Accessory Pad Hole Width 1	H3	2.25		2.25		2.25		2.25		2.25		2.25	
Accessory Pad 1 Hole Thread 1	H4	5/16-18 UNC		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC		5/16-18 UNC	
Accessory Pad Hole Width 2	H5	3.5		3.5		3.5		3.5		3.5		3.5	
Accessory Pad 1 Hole Thread 2	H6	M12-1.75		M12-1.75		M14-2		M14-2		M14-2		M14-2	
Clamp Coupler Width	J1	3.635		3.635		4.78		5.28		6.28		6.78	
Coupler Accessory Hole Width	J2	1.375		1.5		1.75		1.75		2.25		2.25	
Coupler Accessory Hole Thread	J3	M8-1.25		M8-1.25		M10-1.5		M10-1.5		M10-1.5		M10-1.5	
Stem Clearance Height	S2	6.00		5.65		6.31		6.32		6.32		6.32	
Stem Clearance Diameter	S1	1.530		1.780		2.093		2.093		3.093		3.593	
Mounting Pattern	W1	9.500		9.500		13.000		12.482		14.327		16.327	
Mounting Threads	W2	M30-3.5 x 40, QTY 4		M30-3.5 x 40, QTY 4		M36-4.0 x 46, QTY 4		M30-3.5 x 46, QTY 8		M36-4.0 x 60, QTY 8		M42-4.5 x 60, QTY 8	
Mounting Pattern	W3	---		---		---		16.018		18.923		20.923	
Stem Adapter Length2	Z1	1.88		2.13		2.63		2.63		3.63		4.13	
Stem Adapter and Hardware Length2	Z2	2.7338		2.9838		3.765		3.894		5.023		5.523	

\*LX series are custom, contact factory for more information.

## Performance Data

### TEMPERATURE LIMITS

ULTRA-LOW	LOW	STANDARD	HIGH	ULTRA-HIGH
-76°F to 310°F	-60°F to 310°F	-20°F to 250°F	0°F to 400°F	5°F to 500°F

Max temperature limited to 250°F with Amalga cylinders. Ultra-high and Ultra-low temp trim requires the use of 17-7PH springs.

			AIR/FLUID VOLUME		PORT SIZE		STROKE TIME
			cubic inches (cuin)		NPT (P1, P2, P3, P4)		seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
<b>04</b> Max Pressure: 120 psig	D	0113	16	-	1/2"	1/2" x 2	0.15
	U	0113	-	15	1/2"	1/2" x 2	0.15
	A	0113	16	20	1/2"	1/2" x 2	0.15
	D	0200	27	-	1/2"	1/2" x 2	0.27
	U	0200	-	26	1/2"	1/2" x 2	0.27
	A	0200	27	31	1/2"	1/2" x 2	0.27
	D	0400	52	-	1/2"	1/2" x 2	0.53
	U	0400	-	51	1/2"	1/2" x 2	0.53
	A	0400	52	57	1/2"	1/2" x 2	0.53
<b>06</b> Max Pressure: 120 psig	D	0200	63	-	3/4"	3/4" x 2	0.2
	U	0200	-	61	3/4"	3/4" x 2	0.2
	A	0200	63	81	3/4"	3/4" x 2	0.2
	D	0400	119	-	3/4"	3/4" x 2	0.4
	U	0400	-	117	3/4"	3/4" x 2	0.4
	A	0400	119	138	3/4"	3/4" x 2	0.4
	D	0600	176	-	3/4"	3/4" x 2	0.6
	U	0600	-	174	3/4"	3/4" x 2	0.6
	A	0600	176	194	3/4"	3/4" x 2	0.6
<b>08</b> Max Pressure: 120 psig	D	0200	109	-	1"	1" x 2	0.2
	U	0200	-	106	1"	1" x 2	0.2
	A	0200	109	154	1"	1" x 2	0.2
	D	0400	209	-	1"	1" x 2	0.4
	U	0400	-	207	1"	1" x 2	0.4
	A	0400	209	255	1"	1" x 2	0.4
	D	0600	310	-	1"	1" x 2	0.6
	U	0600	-	307	1"	1" x 2	0.6
	A	0600	310	356	1"	1" x 2	0.6
	D	0800	410	-	1"	1" x 2	0.8
	U	0800	-	408	1"	1" x 2	0.8
	A	0800	410	456	1"	1" x 2	0.8

When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

\*LX series are custom, contact factory for more information.

## Performance Data

			AIR/FLUID VOLUME		PORT SIZE		STROKE TIME
			cubic inches (cuin)		NPT (P1, P2, P3, P4)		seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
<b>10</b> Max Pressure: 120 psig	D	0300	251	-	1 1/4"	1 1/4" x 2	0.2
	U	0300	-	246	1 1/4"	1 1/4" x 2	0.2
	A	0300	251	336	1 1/4"	1 1/4" x 2	0.2
	D	0600	487	-	1 1/4"	1 1/4" x 2	0.4
	U	0600	-	481	1 1/4"	1 1/4" x 2	0.4
	A	0600	487	572	1 1/4"	1 1/4" x 2	0.4
	D	0800	644	-	1 1/4"	1 1/4" x 2	0.53
	U	0800	-	639	1 1/4"	1 1/4" x 2	0.53
	A	0800	644	729	1 1/4"	1 1/4" x 2	0.53
	D	1000	801	-	1 1/4"	1 1/4" x 2	0.67
	U	1000	-	796	1 1/4"	1 1/4" x 2	0.67
	A	1000	801	886	1 1/4"	1 1/4" x 2	0.67
<b>12</b> Max Pressure: 120 psig	D	0400	480	-	1 1/2"	1 1/2" x 2	0.25
	U	0400	-	471	1 1/2"	1 1/2" x 2	0.25
	A	0400	480	602	1 1/2"	1 1/2" x 2	0.25
	D	0800	933	-	1 1/2"	1 1/2" x 2	0.5
	U	0800	-	923	1 1/2"	1 1/2" x 2	0.5
	A	0800	933	1054	1 1/2"	1 1/2" x 2	0.5
	D	1200	1385	-	1 1/2"	1 1/2" x 2	0.75
	U	1200	-	1376	1 1/2"	1 1/2" x 2	0.75
	A	1200	1385	1507	1 1/2"	1 1/2" x 2	0.75
<b>14</b> Max Pressure: 120 psig	D	0400	652	-	1 1/2"	1 1/2" x 2	0.25
	U	0400	-	640	1 1/2"	1 1/2" x 2	0.25
	A	0400	652	791	1 1/2"	1 1/2" x 2	0.25
	D	0800	1268	-	1 1/2"	1 1/2" x 2	0.5
	U	0800	-	1256	1 1/2"	1 1/2" x 2	0.5
	A	0800	1268	1407	1 1/2"	1 1/2" x 2	0.5
	D	1200	1884	-	1 1/2"	1 1/2" x 2	0.75
	U	1200	-	1872	1 1/2"	1 1/2" x 2	0.75
	A	1200	1884	2022	1 1/2"	1 1/2" x 2	0.75

When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

\* LX series are custom, contact factory for more information.

## Performance Data

		AIR/FLUID VOLUME		PORT SIZE		STROKE TIME	
		cubic inches (cuin)		NPT (P1, P2, P3, P4)		seconds	
		BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM	
<b>16</b> Max Pressure: 120 psig	D	0400	850	-	1 1/2"	1 1/2" x 2	0.25
	U	0400	-	835	1 1/2"	1 1/2" x 2	0.25
	A	0400	850	1070	1 1/2"	1 1/2" x 2	0.25
	D	0800	1655	-	1 1/2"	1 1/2" x 2	0.5
	U	0800	-	1639	1 1/2"	1 1/2" x 2	0.5
	A	0800	1655	1875	1 1/2"	1 1/2" x 2	0.5
	D	1200	2459	-	1 1/2"	1 1/2" x 2	0.75
	U	1200	-	2444	1 1/2"	1 1/2" x 2	0.75
	A	1200	2459	2679	1 1/2"	1 1/2" x 2	0.75
	D	1600	3263	-	1 1/2"	1 1/2" x 2	1
	U	1600	-	3248	1 1/2"	1 1/2" x 2	1
	A	1600	3263	3483	1 1/2"	1 1/2" x 2	1
<b>20</b> Max Pressure: 120 psig	D	0400	1321	-	2"	2" x 2	0.25
	U	0400	-	1300	2"	2" x 2	0.25
	A	0400	1321	2001	2"	2" x 2	0.25
	D	0800	2578	-	2"	2" x 2	0.5
	U	0800	-	2556	2"	2" x 2	0.5
	A	0800	2578	3258	2"	2" x 2	0.5
	D	1200	3834	-	2"	2" x 2	0.75
	U	1200	-	3813	2"	2" x 2	0.75
	A	1200	3834	4514	2"	2" x 2	0.75
	D	1600	5091	-	2"	2" x 2	1
	U	1600	-	5069	2"	2" x 2	1
	A	1600	5091	5771	2"	2" x 2	1
	D	2000	6348	-	2"	2" x 2	1.25
	U	2000	-	6326	2"	2" x 2	1.25
	A	2000	6348	7028	2"	2" x 2	1.25

When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

\* LX series are custom, contact factory for more information.

## Performance Data

			AIR/FLUID VOLUME		PORT SIZE		STROKE TIME
			cubic inches (cuin)		NPT (P1, P2, P3, P4)		seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
<b>24</b> Max Pressure: 120 psig	D	0400	1902	-	2"	2" x 2	0.25
	U	0400	-	1871	2"	2" x 2	0.25
	A	0400	1902	2934	2"	2" x 2	0.25
	D	0800	3712	-	2"	2" x 2	0.5
	U	0800	-	3681	2"	2" x 2	0.5
	A	0800	3712	4743	2"	2" x 2	0.5
	D	1200	5521	-	2"	2" x 2	0.75
	U	1200	-	5490	2"	2" x 2	0.75
	A	1200	5521	6553	2"	2" x 2	0.75
	D	1600	7331	-	2"	2" x 2	1
	U	1600	-	7300	2"	2" x 2	1
	A	1600	7331	8362	2"	2" x 2	1
	D	2000	9141	-	2"	2" x 2	1.25
	U	2000	-	9110	2"	2" x 2	1.25
	A	2000	9141	10172	2"	2" x 2	1.25
	D	2400	10950	-	2"	2" x 2	1.5
	U	2400	-	10919	2"	2" x 2	1.5
	A	2400	10950	11982	2"	2" x 2	1.5
<b>30</b> Max Pressure: 120 psig	D	0400	3062	-	2 1/2"	2 1/2" x 2	0.25
	U	0400	-	2984	2 1/2"	2 1/2" x 2	0.25
	A	0400	3062	5508	2 1/2"	2 1/2" x 2	0.25
	D	0800	5889	-	2 1/2"	2 1/2" x 2	0.5
	U	0800	-	5811	2 1/2"	2 1/2" x 2	0.5
	A	0800	5889	8336	2 1/2"	2 1/2" x 2	0.5
	D	1200	8716	-	2 1/2"	2 1/2" x 2	0.75
	U	1200	-	8638	2 1/2"	2 1/2" x 2	0.75
	A	1200	8716	11163	2 1/2"	2 1/2" x 2	0.75
	D	1600	11544	-	2 1/2"	2 1/2" x 2	1
	U	1600	-	11466	2 1/2"	2 1/2" x 2	1
	A	1600	11544	13990	2 1/2"	2 1/2" x 2	1
	D	2000	14371	-	2 1/2"	2 1/2" x 2	1.25
	U	2000	-	14293	2 1/2"	2 1/2" x 2	1.25
	A	2000	14371	16818	2 1/2"	2 1/2" x 2	1.25
	D	2400	17199	-	2 1/2"	2 1/2" x 2	1.5
	U	2400	-	17121	2 1/2"	2 1/2" x 2	1.5
	A	2400	17199	19645	2 1/2"	2 1/2" x 2	1.5
D	3000	21440	-	2 1/2"	2 1/2" x 2	1.875	
U	3000	-	21362	2 1/2"	2 1/2" x 2	1.875	
A	3000	21440	23887	2 1/2"	2 1/2" x 2	1.875	

When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

\* LX series are custom, contact factory for more information.

## Performance Data

		AIR/FLUID VOLUME		PORT SIZE		STROKE TIME	
		cubic inches (cuin)		NPT (P1, P2, P3, P4)		seconds	
		BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM	
<b>36</b> Max Pressure: 120 psig	D	0400	4453	-	2 1/2"	2 1/2" x 2	0.25
	U	0400	-	4326	2 1/2"	2 1/2" x 2	0.25
	A	0400	4453	8270	2 1/2"	2 1/2" x 2	0.25
	D	0800	8525	-	2 1/2"	2 1/2" x 2	0.5
	U	0800	-	8397	2 1/2"	2 1/2" x 2	0.5
	A	0800	8525	12342	2 1/2"	2 1/2" x 2	0.5
	D	1200	12596	-	2 1/2"	2 1/2" x 2	0.75
	U	1200	-	12469	2 1/2"	2 1/2" x 2	0.75
	A	1200	12596	16413	2 1/2"	2 1/2" x 2	0.75
	D	1600	16668	-	2 1/2"	2 1/2" x 2	1
	U	1600	-	16540	2 1/2"	2 1/2" x 2	1
	A	1600	16668	20485	2 1/2"	2 1/2" x 2	1
	D	2000	20739	-	2 1/2"	2 1/2" x 2	1.25
	U	2000	-	20612	2 1/2"	2 1/2" x 2	1.25
	A	2000	20739	24556	2 1/2"	2 1/2" x 2	1.25
	D	2400	24811	-	2 1/2"	2 1/2" x 2	1.5
	U	2400	-	24683	2 1/2"	2 1/2" x 2	1.5
	A	2400	24811	28628	2 1/2"	2 1/2" x 2	1.5
	D	3000	30918	-	2 1/2"	2 1/2" x 2	1.875
	U	3000	-	30791	2 1/2"	2 1/2" x 2	1.875
	A	3000	30918	34735	2 1/2"	2 1/2" x 2	1.875
	D	3600	37025	-	2 1/2"	2 1/2" x 2	2.25
	U	3600	-	36898	2 1/2"	2 1/2" x 2	2.25
	A	3600	37025	40842	2 1/2"	2 1/2" x 2	2.25

When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

\* LX series are custom, contact factory for more information.

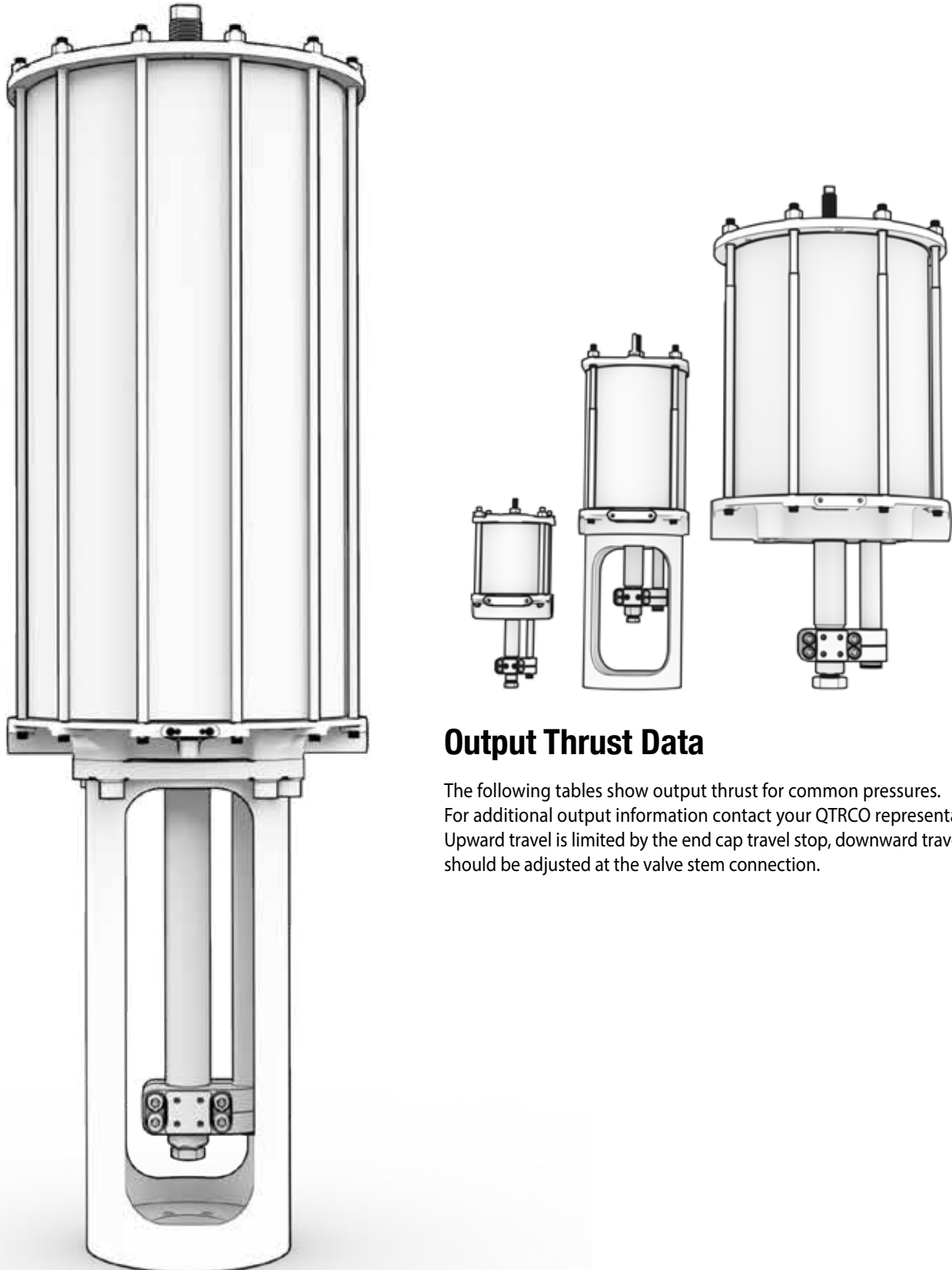


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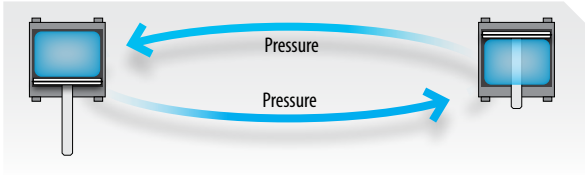
**QTRCO, INC. PRODUCT BULLETIN**

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## Output Thrust Data

The following tables show output thrust for common pressures. For additional output information contact your QTRCO representative. Upward travel is limited by the end cap travel stop, downward travel should be adjusted at the valve stem connection.



**DOUBLE ACTING - THRUST AT PRESSURE (LB-F, PSIG)**

		10	20	30	40	50	60	70	80	90	100	110	120
<b>A04</b>	Extend	119	239	358	478	597	716	836	955	1,074	1,194	1,313	1,433
	Retract	113	226	338	451	564	677	790	903	1,015	1,128	1,241	1,354
<b>A06</b>	Extend	269	537	806	1,074	1,343	1,612	1,880	2,149	2,417	2,686	2,955	3,223
	Retract	257	514	771	1,028	1,285	1,542	1,799	2,056	2,313	2,569	2,826	3,083
<b>A08</b>	Extend	478	955	1,433	1,910	2,388	2,865	3,343	3,820	4,298	4,775	5,253	5,730
	Retract	461	921	1,382	1,843	2,304	2,764	3,225	3,686	4,147	4,607	5,068	5,529
<b>A10</b>	Extend	746	1,492	2,238	2,985	3,731	4,477	5,223	5,969	6,715	7,461	8,207	8,954
	Retract	723	1,447	2,170	2,893	3,616	4,340	5,063	5,786	6,510	7,233	7,956	8,679
<b>A12</b>	Extend	1,074	2,149	3,223	4,298	5,372	6,447	7,521	8,595	9,670	10,744	11,819	12,893
	Retract	1,045	2,089	3,134	4,178	5,223	6,267	7,312	8,357	9,401	10,446	11,490	12,535
<b>A14</b>	Extend	1,462	2,925	4,387	5,850	7,312	8,774	10,237	11,699	13,162	14,624	16,087	17,549
	Retract	1,462	2,925	4,387	5,850	7,312	8,774	10,237	11,699	13,162	14,624	16,087	17,549
<b>A16</b>	Extend	1,910	3,820	5,730	7,640	9,550	11,461	13,371	15,281	17,191	19,101	21,011	22,921
	Retract	1,910	3,820	5,730	7,640	9,550	11,461	13,371	15,281	17,191	19,101	21,011	22,921
<b>A20</b>	Extend	2,985	5,969	8,954	11,938	14,923	17,907	20,892	23,876	26,861	29,845	32,830	35,814
	Retract	2,906	5,811	8,717	11,623	14,529	17,434	20,340	23,246	26,151	29,057	31,963	34,868
<b>A24</b>	Extend	4,298	8,595	12,893	17,191	21,488	25,786	30,084	34,382	38,679	42,977	47,275	51,572
	Retract	4,200	8,399	12,599	16,799	20,998	25,198	29,398	33,597	37,797	41,997	46,196	50,396
<b>A30</b>	Extend	6,715	13,430	20,145	26,861	33,576	40,291	47,006	53,721	60,436	67,152	73,867	80,582
	Retract	6,556	13,111	19,667	26,222	32,778	39,333	45,889	52,444	59,000	65,556	72,111	78,667
<b>A36</b>	Extend	9,670	19,340	29,009	38,679	48,349	58,019	67,689	77,359	87,028	96,698	106,368	116,038
	Retract	9,444	18,888	28,332	37,776	47,221	56,665	66,109	75,553	84,997	94,441	103,885	113,329

\* LX series are custom, contact factory for more information.

**SPRING RETURN THRUST (LB-F)**

MODEL	Max Travel inches	SPRING			AIR											
		SET	Start	End	LxU - 60 psi		LxD - 60 psi		LxU - 80 psi		LxD - 80 psi		LxU - 100 psi		LxD - 100 psi	
					Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
04-0113	1	42	234	117	524	407	489	602	738	621	691	574	951	835	893	521
		52	340	223	418	301	383	602	631	515	584	468	845	728	786	627
		62	475	334	307	166	272	602	521	379	474	332	734	593	676	737
		72	709	450			155	602	404	146	357	99	618	359	559	854
		82	815	557			49	602	298	39	251	(8)	511	253	453	961
04-0200	2	42	234	27	614	407	579	602	828	621	781	574	1,041	835	983	431
		52	340	133	508	301	472	602	721	515	674	468	935	728	876	537
		62	475	225	416	166	381	602	630	379	583	332	844	593	785	628
		72	709	251			354	602	603	146	556	99	817	359	758	655
		82	815	358			248	602	497	39			710	253	652	762
06-0200	2	42	555	387	1,055	887	993	1,373	1,536	1,368	1,452	1,284	2,017	1,848	1,912	1,306
		52	893	536	906	549	843	1,373	1,387	1,029	1,303	946	1,867	1,510	1,763	1,456
		62	1,170	813	629	272	566	1,373	1,110	752	1,026	669	1,590	1,233	1,486	1,733
		72	1,448	923			457	1,373	1,000	474	916	391	1,481	955	1,376	1,842
		82	1,725	1,200			180	1,373	723	197	639	114	1,204	678	1,099	2,119
06-0400	4	42	555	219	1,223	887	1,161	1,373	1,704	1,368	1,621	1,284	2,185	1,848	2,080	1,138
		52	893	179	1,263	549	1,201	1,373	1,744	1,029	1,661	946	2,225	1,510	2,120	1,098
		62	1,170	456	986	272	924	1,373	1,467	752	1,384	669	1,948	1,233	1,843	1,375
		72	1,448	397			982	1,373	1,525	474	1,442	391	2,006	955	1,902	1,317
		82	1,725	674			705	1,373	1,248	197	1,165	114	1,729	678	1,625	1,594
08-0200	2	42	880	560	2,004	1,684	1,914	2,465	2,858	2,539	2,738	2,418	3,713	3,393	3,563	2,209
		52	1,241	899	1,665	1,323	1,575	2,465	2,519	2,177	2,399	2,057	3,374	3,032	3,224	2,548
		62	1,599	1,279	1,284	964	1,194	2,465	2,139	1,819	2,019	1,699	2,993	2,673	2,843	2,928
		72	2,121	1,458	1,105	443	1,015	2,465	1,960	1,298	1,840	1,177	2,814	2,152	2,664	3,107
		82	2,840	2,178			295	2,465	1,240	578	1,120	458	2,095	1,432	1,944	3,827
08-0400	4	42	880	240	2,324	1,684	2,234	2,465	3,178	2,539	3,058	2,418	4,033	3,393	3,882	1,889
		52	1,241	556	2,007	1,323	1,917	2,465	2,862	2,177	2,742	2,057	3,716	3,032	3,566	2,205
		62	1,599	959	1,604	964	1,514	2,465	2,459	1,819	2,338	1,699	3,313	2,673	3,163	2,608
		72	2,121	796	1,767	443	1,677	2,465	2,622	1,298	2,502	1,177	3,476	2,152	3,326	2,445
		82	2,840	1,516			958	2,465	1,902	578	1,782	458	2,757	1,432	2,607	3,165
08-0600	6	52	1,241	214	2,350	1,323	2,259	2,465	3,204	2,177	3,084	2,057	4,059	3,032	3,908	1,863
		62	1,599	640	1,924	964	1,834	2,465	2,778	1,819	2,658	1,699	3,633	2,673	3,483	2,289
		72	2,121	134	2,430	443	2,339	2,465	3,284	1,298	3,164	1,177	4,139	2,152	3,988	1,783
		82	2,840	854			1,620	2,465	2,564	578	2,444	458	3,419	1,432	3,269	2,503

Retracted travel limits may be adjusted by the actuator travel stop. Extended travel limits are adjusted with the valve stem adapter. When sizing, always ensure that that actuator has enough thrust output in the planned travel range

\*LX series are custom, contact factory for more information.

**SPRING RETURN THRUST (LB-F)**

MODEL	Max Travel inches	SPRING			AIR											
		SET	Start	End	LxU - 60 psi		LxD - 60 psi		LxU - 80 psi		LxD - 80 psi		LxU - 100 psi		LxD - 100 psi	
					Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
<b>10-0300</b>	3	<b>42</b>	965	646	3,360	3,040	3,237	3,873	4,695	4,375	4,531	4,212	6,030	5,710	5,826	3,234
		<b>52</b>	1,903	1,236	2,770	2,103	2,647	3,873	4,105	3,438	3,941	3,275	5,440	4,773	5,235	3,825
		<b>62</b>	2,777	1,964	2,041	1,229	1,919	3,873	3,377	2,564	3,213	2,400	4,712	3,899	4,507	4,553
		<b>72</b>	3,742	2,610	1,396	263	1,273	3,873	2,731	1,598	2,567	1,435	4,066	2,933	3,861	5,199
		<b>82</b>	4,680	3,200			683	3,873	2,141	661	1,977	498	3,476	1,996	3,271	5,789
<b>10-0400</b>	4	<b>42</b>	965	539	3,466	3,040	3,344	3,873	4,801	4,375	4,638	4,212	6,137	5,710	5,932	3,128
		<b>52</b>	1,903	1,014	2,992	2,103	2,869	3,873	4,327	3,438	4,163	3,275	5,662	4,773	5,458	3,602
		<b>62</b>	2,777	1,693	2,312	1,229	2,190	3,873	3,647	2,564	3,484	2,400	4,983	3,899	4,778	4,282
		<b>72</b>	3,742	2,233	1,773	263	1,650	3,873	3,108	1,598	2,945	1,435	4,443	2,933	4,239	4,821
		<b>82</b>	4,680	2,707			1,176	3,873	2,634	661	2,470	498	3,969	1,996	3,764	5,296
<b>10-0600</b>	6	<b>42</b>	965	326	3,679	3,040	3,557	3,873	5,014	4,375	4,851	4,212	6,350	5,710	6,145	2,915
		<b>52</b>	1,903	569	3,436	2,103	3,313	3,873	4,771	3,438	4,608	3,275	6,107	4,773	5,902	3,158
		<b>62</b>	2,777	1,151	2,854	1,229	2,732	3,873	4,189	2,564	4,026	2,400	5,525	3,899	5,320	3,740
		<b>72</b>	3,742	1,478	2,528	263	2,405	3,873	3,863	1,598	3,700	1,435	5,198	2,933	4,994	4,066
		<b>82</b>	4,680	1,721			2,162	3,873	3,620	661	3,456	498	4,955	1,996	4,751	4,309
<b>10-0800</b>	8	<b>42</b>	965	113	3,892	3,040	3,770	3,873	5,228	4,375	5,064	4,212	6,563	5,710	6,358	2,702
		<b>52</b>	1,903	125	3,881	2,103	3,758	3,873	5,216	3,438	5,052	3,275	6,551	4,773	6,346	2,714
		<b>62</b>	2,777	609	3,396	1,229	3,273	3,873	4,731	2,564	4,568	2,400	6,066	3,899	5,862	3,198
		<b>72</b>	3,742	723	3,283	263	3,160	3,873	4,618	1,598	4,454	1,435	5,953	2,933	5,749	3,311
		<b>82</b>	4,680	734			3,148	3,873	4,606	661	4,443	498	5,941	1,996	5,737	3,323
<b>12-0400</b>	4	<b>42</b>	1,989	1,377	4,391	3,779	4,230	5,596	6,313	5,701	6,100	5,488	8,236	7,624	7,969	5,116
		<b>52</b>	3,765	2,180	3,588	2,003	3,428	5,596	5,511	3,926	5,297	3,712	7,434	5,848	7,166	5,918
		<b>62</b>	3,984	2,699	3,069	1,784	2,909	5,596	4,992	3,707	4,778	3,493	6,914	5,629	6,647	6,437
		<b>72</b>	5,974	4,076			1,532	5,596	3,614	1,717	3,401	1,503	5,537	3,640	5,270	7,815
		<b>82</b>	7,749	4,879			729	5,596	2,812	(59)	2,598	(272)	4,735	1,864	4,468	8,617
<b>12-0800</b>	8	<b>42</b>	1,989	765	5,003	3,779	4,843	5,596	6,925	5,701	6,712	5,488	8,848	7,624	8,581	4,504
		<b>52</b>	3,765	594	5,173	2,003	5,013	5,596	7,096	3,926	6,883	3,712	9,019	5,848	8,752	4,333
		<b>62</b>	3,984	1,414	4,354	1,784	4,194	5,596	6,277	3,707	6,063	3,493	8,200	5,629	7,933	5,152
		<b>72</b>	5,974	2,179			3,429	5,596	5,512	1,717	5,298	1,503	7,434	3,640	7,167	5,917
		<b>82</b>	7,749	2,008			3,600	5,596	5,682	(59)	5,469	(272)	7,605	1,864	7,338	5,747

Retracted travel limits may be adjusted by the actuator travel stop. Extended travel limits are adjusted with the valve stem adapter. When sizing, always ensure that that actuator has enough thrust output in the planned travel range.

\*LX series are custom, contact factory for more information.

**SPRING RETURN THRUST (LB-F)**

MODEL	Max Travel inches	SPRING			AIR											
		SET	Start	End	LxU - 60 psi		LxD - 60 psi		LxU - 80 psi		LxD - 80 psi		LxU - 100 psi		LxD - 100 psi	
					Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
<b>14-0400</b>	4	<b>42</b>	1,836	1,224	6,627	6,014	6,424	7,634	9,244	8,631	8,973	8,361	11,860	11,248	11,522	6,323
		<b>52</b>	4,453	2,452	5,399	3,397	5,196	7,634	8,016	6,014	7,745	5,744	10,633	8,631	10,295	7,551
		<b>62</b>	5,654	3,953	3,897	2,197	3,695	7,634	6,514	4,814	6,244	4,544	9,131	7,431	8,793	9,052
		<b>72</b>	7,490	5,178	2,673	361	2,470	7,634	5,290	2,978	5,020	2,707	7,907	5,595	7,569	10,276
		<b>82</b>	10,107	6,405				1,243	7,634	4,062	361	3,792	90	6,679	2,977	6,341
<b>14-0800</b>	8	<b>42</b>	1,836	612	7,239	6,014	7,036	7,634	9,856	8,631	9,585	8,361	12,473	11,248	12,135	5,711
		<b>52</b>	4,453	450	7,400	3,397	7,198	7,634	10,017	6,014	9,747	5,744	12,634	8,631	12,296	5,549
		<b>62</b>	5,654	2,253	5,598	2,197	5,395	7,634	8,215	4,814	7,944	4,544	10,832	7,431	10,494	7,352
		<b>72</b>	7,490	2,865	4,986	361	4,783	7,634	7,603	2,978	7,332	2,707	10,220	5,595	9,882	7,964
		<b>82</b>	10,107	2,703				4,945	7,634	7,764	361	7,494	90	10,381	2,977	10,043
<b>14-1200</b>	12	<b>62</b>	5,654	553	7,298	2,197	7,095	7,634	9,915	4,814	9,645	4,544	12,532	7,431	12,194	5,651
		<b>72</b>	7,490	553	7,298	361	7,095	7,634	9,915	2,978	9,645	2,707	12,532	5,595	12,194	5,651
<b>16-0400</b>	4	<b>42</b>	3,464	2,205	8,050	6,790	7,747	9,935	11,468	10,208	11,064	9,804	14,886	13,626	14,381	8,839
		<b>52</b>	7,089	4,104	6,150	3,165	5,847	9,935	9,568	6,583	9,164	6,179	12,986	10,001	12,481	10,739
		<b>62</b>	8,307	5,981	4,274	1,948	3,971	9,935	7,692	5,366	7,288	4,962	11,110	8,784	10,605	12,615
		<b>72</b>	11,771	8,185			1,766	9,935	5,487	1,901	5,083	1,497	8,905	5,319	8,400	14,819
		<b>82</b>	15,396	10,085					3,587	(1,724)	3,183	(2,128)	7,005	1,694	6,501	16,719
<b>16-0800</b>	8	<b>42</b>	3,464	945	9,309	6,790	9,006	9,935	12,727	10,208	12,323	9,804	16,145	13,626	15,641	7,579
		<b>52</b>	7,089	1,119	9,135	3,165	8,832	9,935	12,553	6,583	12,149	6,179	15,971	10,001	15,466	7,754
		<b>62</b>	8,307	3,654	6,600	1,948	6,297	9,935	10,018	5,366	9,614	4,962	13,436	8,784	12,931	10,289
		<b>72</b>	11,771	4,599			5,352	9,935	9,073	1,901	8,669	1,497	12,491	5,319	11,986	11,233
		<b>82</b>	15,396	4,774			5,177	9,935	8,898	(1,724)	8,495	(2,128)	12,317	1,694	11,812	11,408
<b>16-1200</b>	12	<b>62</b>	8,307	1,328			8,623	9,935	12,344	5,366	11,940	4,962	15,762	8,784	15,257	7,962
		<b>72</b>	11,771	1,013			8,938	9,935	12,659	1,901	12,255	1,497	16,077	5,319	15,572	7,647

Retracted travel limits may be adjusted by the actuator travel stop. Extended travel limits are adjusted with the valve stem adapter. When sizing, always ensure that that actuator has enough thrust output in the planned travel range.

\*LX series are custom, contact factory for more information.



SERIES

# QTRCO, INC. PRODUCT BULLETIN

## SPRING RETURN THRUST (LB-F)

MODEL	Max Travel inches	SPRING			AIR											
		SET	Start	End	LxU - 60 psi		LxD - 60 psi		LxU - 80 psi		LxD - 80 psi		LxU - 100 psi		LxD - 100 psi	
					Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
20-0400	4	42	4,981	3,248	12,774	11,042	12,351	15,579	18,115	16,382	17,551	15,818	23,455	21,723	22,750	13,648
		52	9,892	6,961	9,061	6,130	8,638	15,579	14,402	11,471	13,838	10,907	19,743	16,812	19,037	17,360
		62	13,257	10,261	5,761	2,765	5,338	15,579	11,102	8,106	10,538	7,542	16,443	13,447	15,737	20,660
		72	18,238	13,509			2,090	15,579	7,854	3,125	7,289	2,561	13,194	8,466	12,489	23,909
		82	23,149	17,222									9,482	3,555	8,776	27,621
20-0800	8	42	4,981	1,516	14,506	11,042	14,083	15,579	19,847	16,382	19,283	15,818	25,188	21,723	24,483	11,915
		52	9,892	4,030	11,992	6,130	11,569	15,579	17,333	11,471	16,769	10,907	22,673	16,812	21,968	14,429
		62	13,257	7,265	8,757	2,765	8,334	15,579	14,098	8,106	13,534	7,542	19,438	13,447	18,733	17,664
		72	18,238	8,781			6,818	15,579	12,582	3,125	12,018	2,561	17,923	8,466	17,217	19,180
		82	23,149	11,295			4,304	15,579					15,408	3,555	14,703	21,695
20-1200	12	52	9,892	1,099	14,923	6,130	14,500	15,579	20,264	11,471	19,700	10,907	25,604	16,812	24,899	11,498
		62	13,257	4,269	11,753	2,765	11,330	15,579	17,094	8,106	16,530	7,542	22,434	13,447	21,729	14,669
		72	18,238	4,053			11,546	15,579	17,310	3,125	16,746	2,561	22,651	8,466	21,946	14,452
		82	23,149	5,368			10,231	15,579					21,335	3,555	20,630	15,768
		42	8,664	6,483	16,589	14,408	16,063	22,522	24,279	22,098	23,578	21,397	31,970	29,789	31,093	21,513
24-0400	4	52	13,784	10,181	12,891	9,288	12,365	22,522	20,581	16,978	19,880	16,277	28,272	24,669	27,395	25,211
		55	14,794	12,987	10,085	8,278	9,559	22,522	17,775	15,968	17,074	15,267	25,466	23,659	24,589	28,017
		62	19,115	15,163	7,909	3,957	7,383	22,522	15,599	11,647	14,898	10,946	23,290	19,338	22,413	30,193
		72	27,779	21,646			900	22,522	9,116	2,983	8,415	2,282	16,807	10,674	15,930	36,676
		82	32,889	25,344									13,109	5,564	12,232	40,374
24-0800	8	42	8,664	4,302	18,770	14,408	18,244	22,522	26,460	22,098	25,759	21,397	34,151	29,789	33,274	19,332
		52	13,784	6,578	16,494	9,288	15,968	22,522	24,184	16,978	23,483	16,277	31,875	24,669	30,998	21,608
		55	14,794	11,180	11,892	8,278	11,366	22,522	19,582	15,968	18,881	15,267	27,273	23,659	26,396	26,210
		62	19,115	11,211	11,861	3,957	11,335	22,522	19,551	11,647	18,850	10,946	27,242	19,338	26,365	26,241
		72	27,779	15,513			7,033	22,522	15,249	2,983	14,548	2,282	22,940	10,674	22,063	30,543
		82	32,889	17,799			4,747	22,522					20,654	5,564	19,777	32,829
24-1200	12	42	8,664	2,121	20,951	14,408	20,425	22,522	28,641	22,098	27,940	21,397	36,332	29,789	35,455	17,151
		52	13,784	2,975	20,097	9,288	19,571	22,522	27,787	16,978	27,086	16,277	35,478	24,669	34,601	18,005
		55	14,794	9,373	13,699	8,278	13,173	22,522	21,389	15,968	20,688	15,267	29,080	23,659	28,203	24,403
		62	19,115	7,259	15,813	3,957	15,287	22,522	23,503	11,647	22,802	10,946	31,194	19,338	30,317	22,289
		72	27,779	9,380			13,166	22,522	21,382	2,983	20,681	2,282	29,073	10,674	28,196	24,410
		82	32,889	10,254			12,292	22,522					28,199	5,564	27,322	25,284
24-1600	16	55	14,794	7,566	15,506	8,278	14,980	22,522	23,196	15,968	22,495	15,267	30,887	23,659	30,010	22,596
		62	19,115	3,307	19,765	3,957	19,239	22,522	27,455	11,647	26,754	10,946	35,146	19,338	34,269	18,337
		72	27,779	3,247			19,299	22,522	27,515	2,983	26,814	2,282	35,206	10,674	34,329	18,277
		82	32,889	2,709			19,837	22,522					35,744	5,564	34,867	17,739

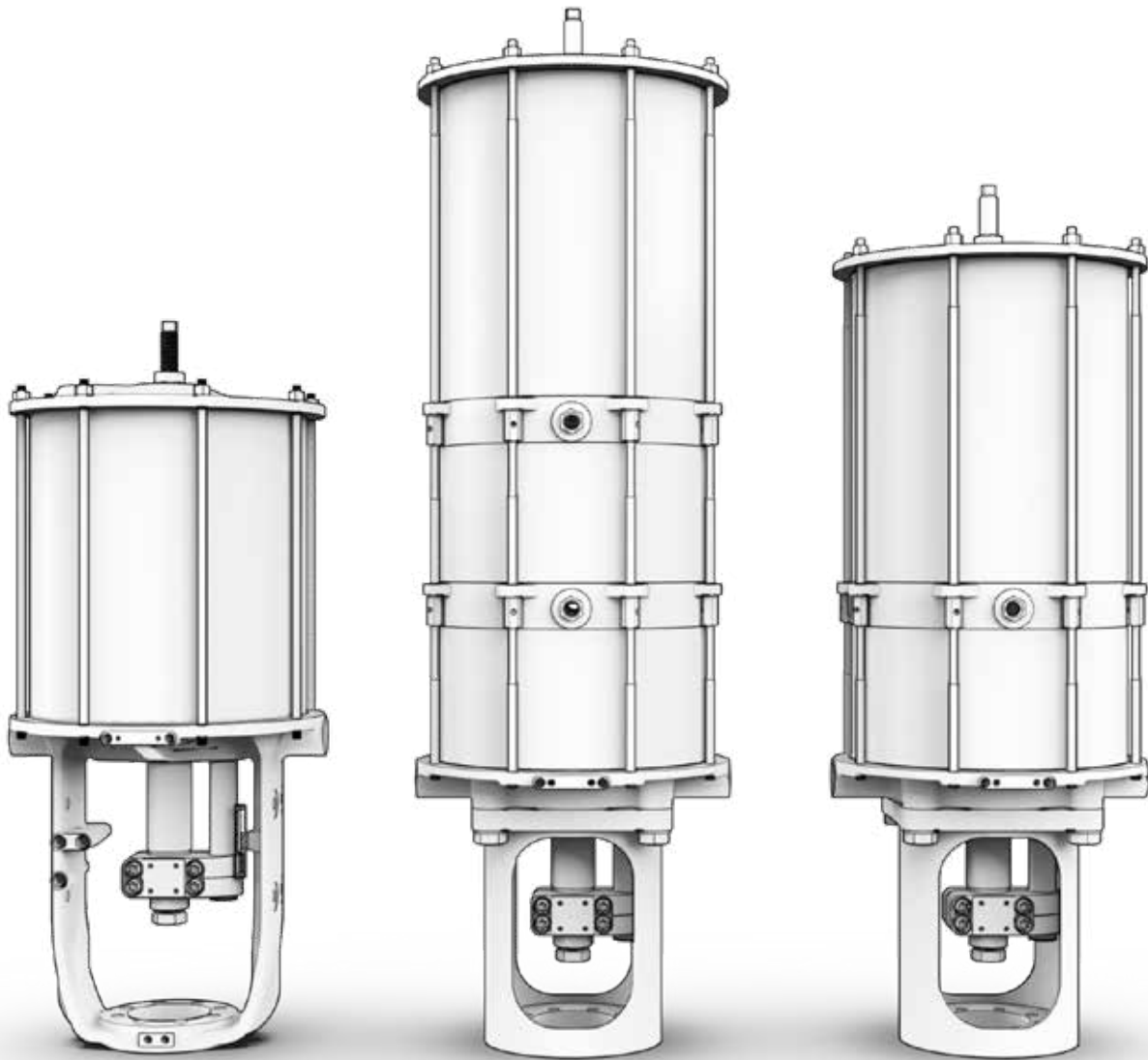
Retracted travel limits may be adjusted by the actuator travel stop. Extended travel limits are adjusted with the valve stem adapter. When sizing, always ensure that that actuator has enough thrust output in the planned travel range.

\* LX series are custom, contact factory for more information.



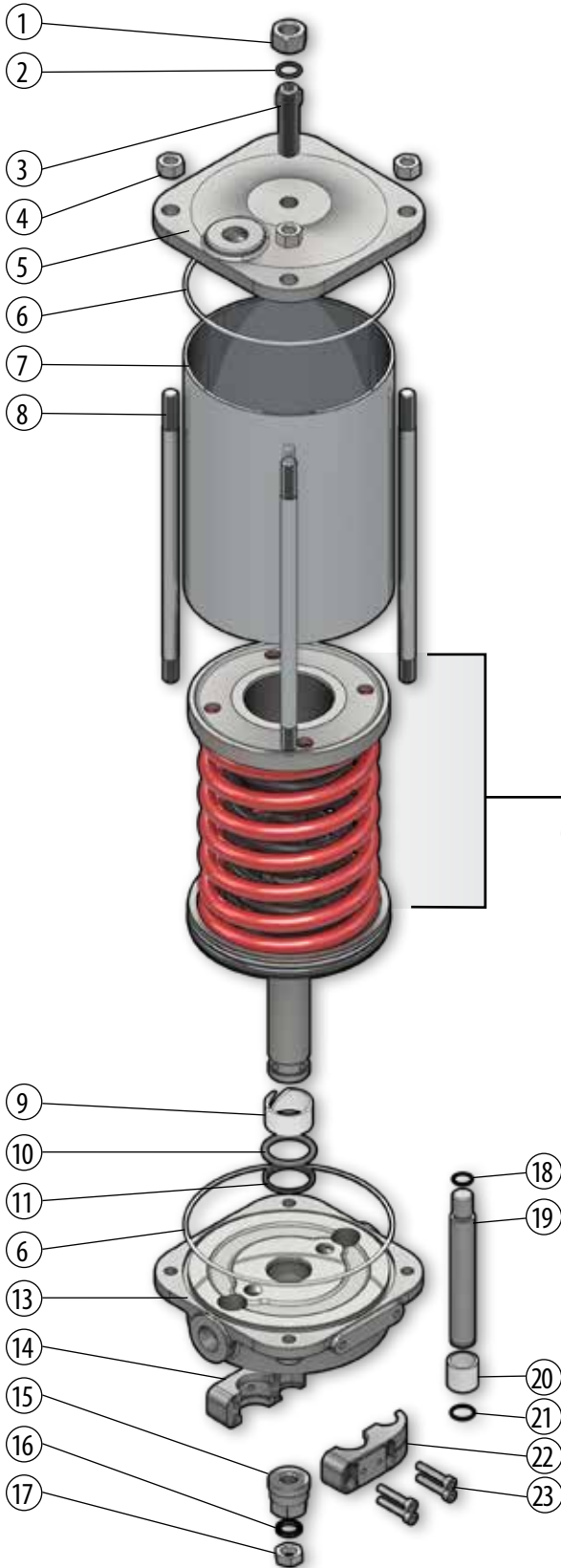




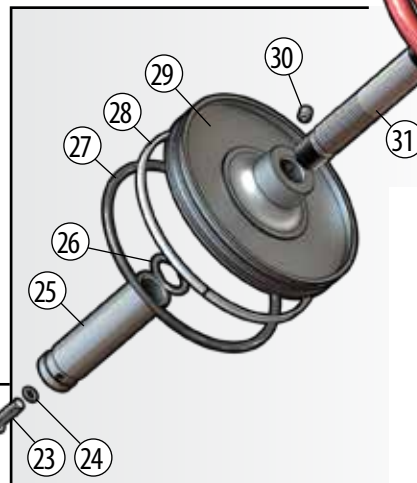


Tandem piston models with expanded thrust range available in double acting and spring return configurations.

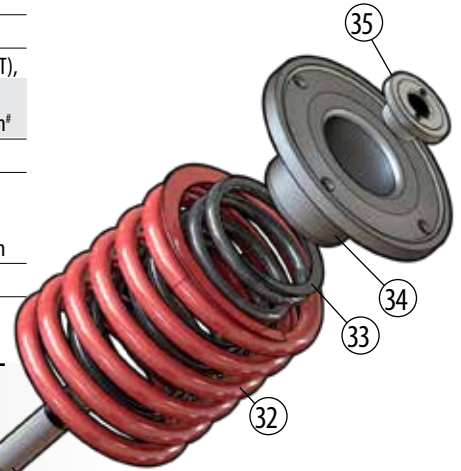
**Consult factory for sizing.**



No.	Part Description	Material
1	Travel Stop Nut	316 SST
2	Travel Stop O-Ring	Option*
3	Travel Stop	316 SST
4	Tie Rod Nut	316 SST
5	End Cap	CF8M (316 SST), WCB Steel or Ductile Iron#
6	Cylinder Seal	PTFE*
7	Cylinder	316 SST, WCB Steel or Ductile Iron
8	Tie Rod	316 SST



No.	Part Description	Material
9	Rod Bushing	Carbon/ Graphite PTFE*
10	Rod Seal	Option*
11	Rod Wiper	Option*
12	Clamp Coupler Side A	CF8M (316 SST)
13	Baseplate	CF8M (316 SST), WCB Steel or Ductile Iron#
14	Stem Adapter	316 SST
15	Wedge Lock Washer	316 SST
16	Stem Locknut	316 SST
17	Pin O-Ring	Option*
18	Anti-Rotate Pin	17-4 PH SST
19	Anti-Rotate Bushing	Carbon/ Graphite PTFE*
20	Retaining O-Ring (for assembly only)	Option*
21	Clamp Coupler Side B	CF8M (316 SST)
22	Clamp Bolts	316 SST



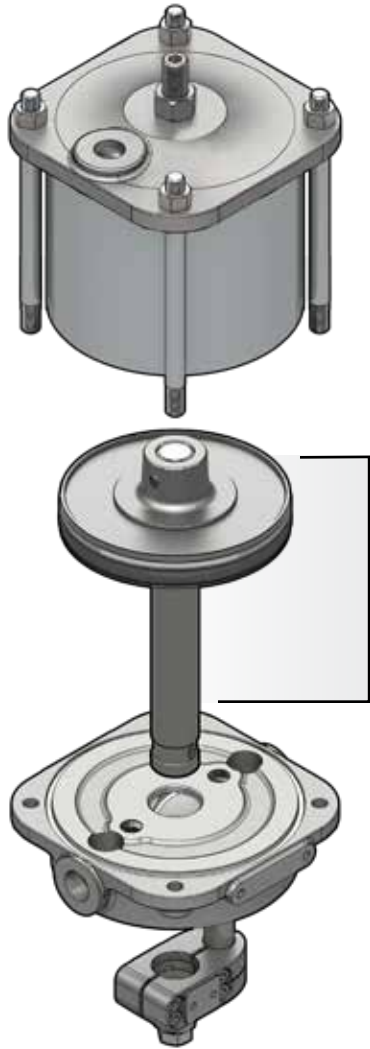
**SPRINGPAQ™**

No.	Part Description	Material
23	Output Rod Lock Bolt	316 SST
24	Lock Bolt O-Ring	Option*
25	Output Rod	17-4 PH SST
26	Piston Bolt O-Ring	Option*
27	Piston O-Ring	Option*
28	Piston Wiper Ring	PTFE*
29	Piston	CF8M (316 SST), WCB Steel or Ductile Iron#
30	Piston Set Screw	17-4 PH SST
31	Piston Bolt	316 SST
32	Outer Spring	Option*
33	Inner Spring	Option*
34	Spring Retainer	CF8M (316 SST), WCB Steel or Ductile Iron#
35	Safety Collar	316 SST

Parts 32 through 35 are exclusive to spring return actuators.

\* Materials may be modified per application requirements. See engineering string for details.

# LD Models



**DA - PISTON  
SUB ASSEMBLY**

No	Part Description	Material
23	Output Rod Lock Bolt	316 SST
24	Lock Bolt O-Ring	Option*
25	Output Rod	17-4 PH SST
26	Piston Bolt O-Ring	Option*
27	Piston O-Ring	Option*
28	Piston Wiper Ring	PTFE*
29	Piston	CF8M (316 SST), WCB Steel or Ductile Iron*
30	Piston Set Screw	17-4 PH SST
31	Piston Bolt	316 SST

Parts 1 through 31 apply to spring return and double acting actuators.



*type-C*  
**OPTIONAL  
CAST BRACKET**

see Type-C Bulletin (DCN00794)

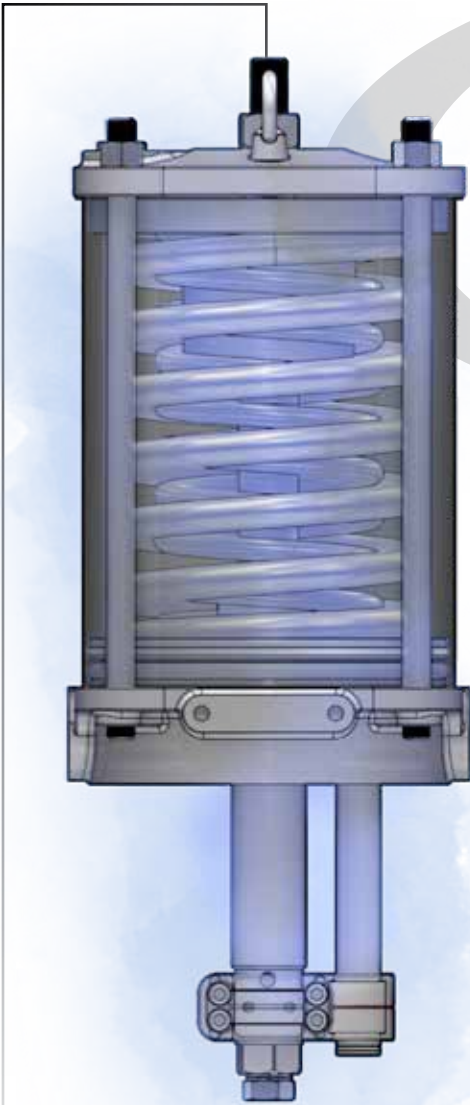
No.	Part Description	Material
32*	Bracket	CF8M (316 SST) or WCB Steel*
33	Travel Tag Bolt	316 SST
34	Travel Tag	316 SST

part 32 substitutes for baseplate on spring return or double acting models

\* Materials may be modified per application requirements. See engineering string for details.  
# LD Models

# L

## SERIES



# QTRCO

**The Leader in Actuator Technology**

\* are custom, contact factory for more information.

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