L SERIES

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

Output Thrust to 339,988 lbf (1,512,343 N) Temperatures from -76ºF to 500ºF (-60ºC to 260ºC)	Stainless Steel and Steel Construction Double-Acting and Spring-Return Models

HIGH CYCLE LIFE, HIGH SPEED, HIGH RELIABILITY

QTRCO

The Leader in Actuator Technology

ACTUATOR SPECIFICATIONS

1. MODEL

LS Stainless Steel
LD Ductile Iron/Steel

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	10-0300	16-0400	24-0400	36-0400
04-0200	10-0600	16-0800	24-0800	36-0800
04-0400	10-0800	16-1200	24-1200	36-1200
06-0200	10-1000	16-1600	24-1600	36-1600
06-0400	12-0400	20-0400	24-2000	36-2000
06-0600	12-0800	20-0800	24-2400	36-2400
08-0200	12-1200	20-1200	30-0400	36-3000
08-0400	14-0400	20-1600	30-0800	36-3600
08-0600	14-0800	20-2000	30-1200	
08-0800	14-1200		30-1600	
			30-2000	
			30-2400	
			30-3000	

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

6. PORT SIZE

P00	Custom	P05	1 NPT
P01*	1/4 NPT	P06	1 1/4 NPT
P02	3/8 NPT	P07	1 1/2 NPT
P03	1/2 NPT	P08	2 NPT
P04	3/4 NPT	P09	2 1/2 NPT

Port size limited by piston size.

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[3]

T	custom range	M*	-20°F to 250°F
Q	-76°F to 310°F	H	0°F to 400°F
G	-60°F to 310°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	C	Carbon Steel
A	Amalga	S	Stainless Steel
L	Aluminum		

10. O-RINGS

40	Custom	44	EPDM
41	Buna N	45	FFKM (21028)
42	Viton	46	Silicone (1043)
43	Silicone (1000)		

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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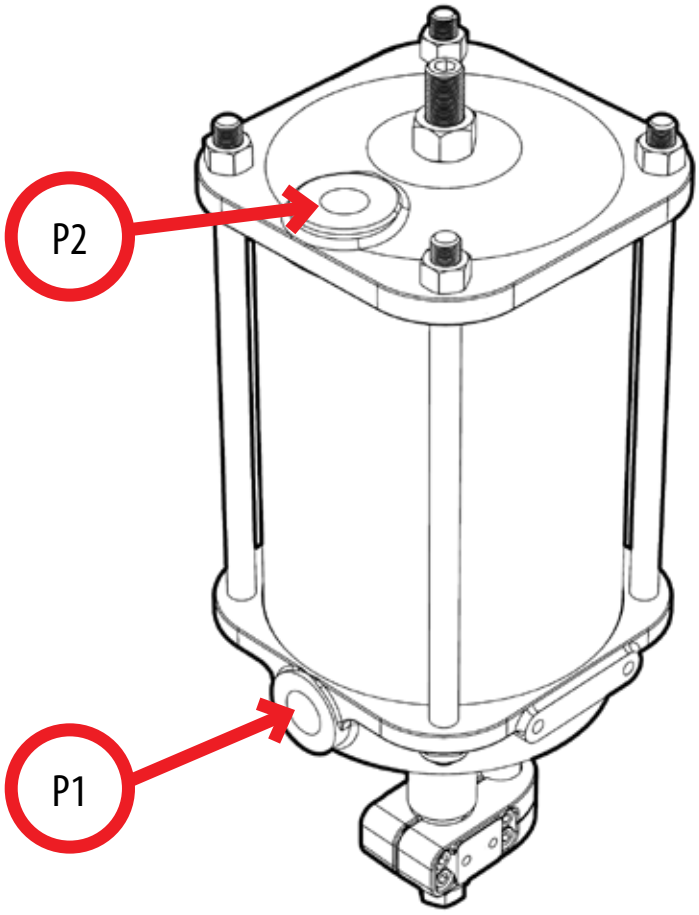
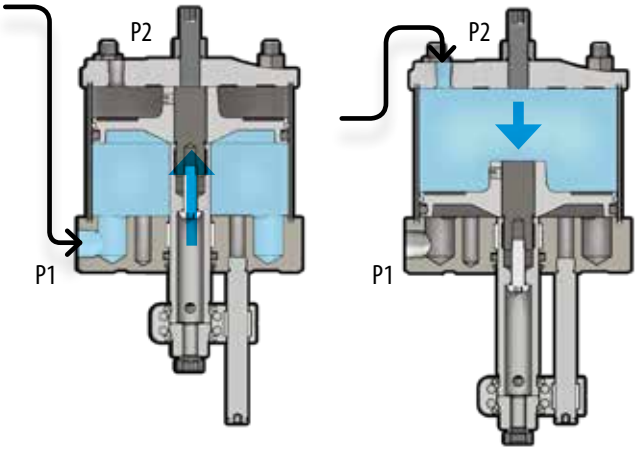
Operation and Piping

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.



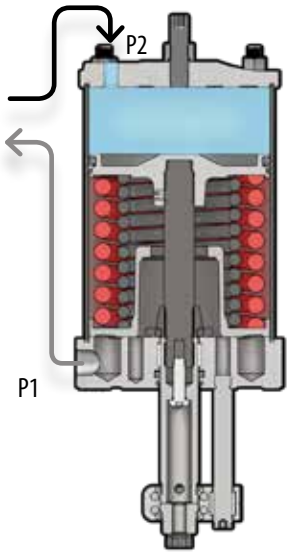
DOUBLE ACTING MODELS
P1 – Pressure Port, pressure retracts the output rod
P2 – Pressure Port, pressure extends the output rod

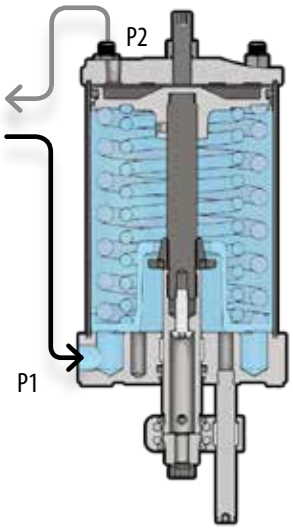


SPRING BIAS- FAIL UP MODELS

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

P2 – Pressure Port, pressure extends the output rod

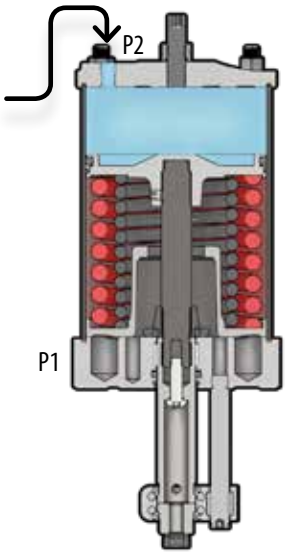


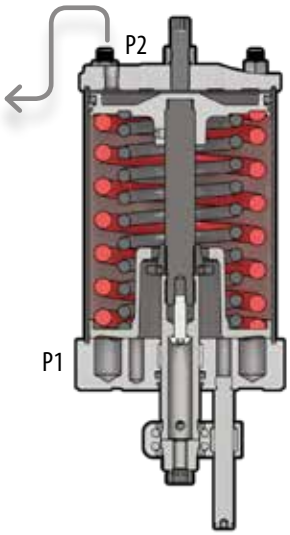


SPRING RETURN - FAIL UP MODELS

P1 – Breather Port, not used for operation

P2 – Pressure Port, pressure extends the output rod

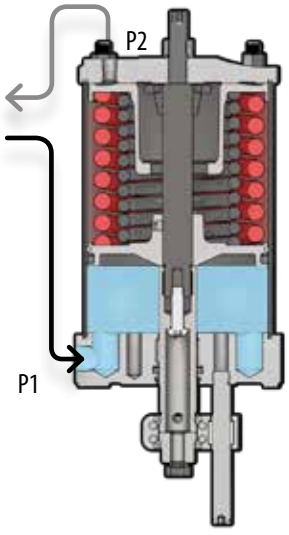


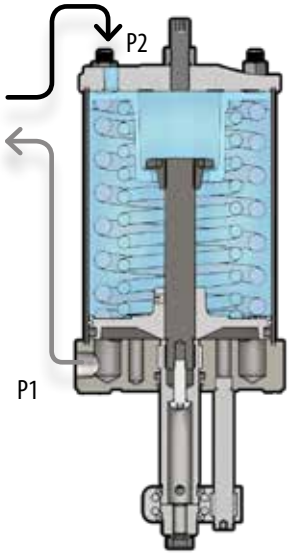


SPRING BIAS- FAIL DOWN MODELS

P1 – Pressure Port, pressure retracts the output rod

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

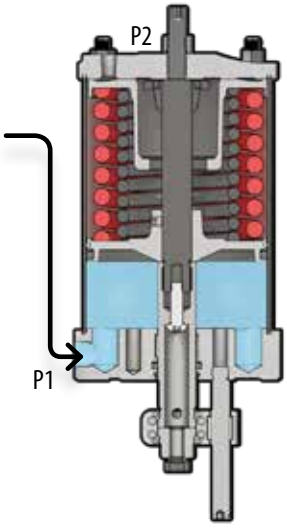


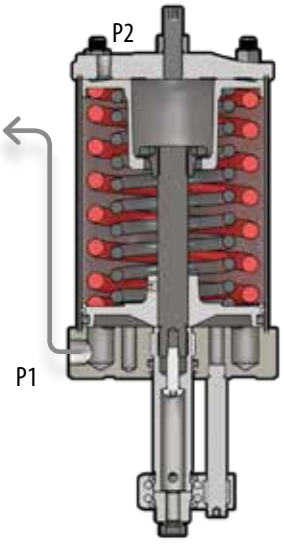


SPRING RETURN - FAIL DOWN MODELS

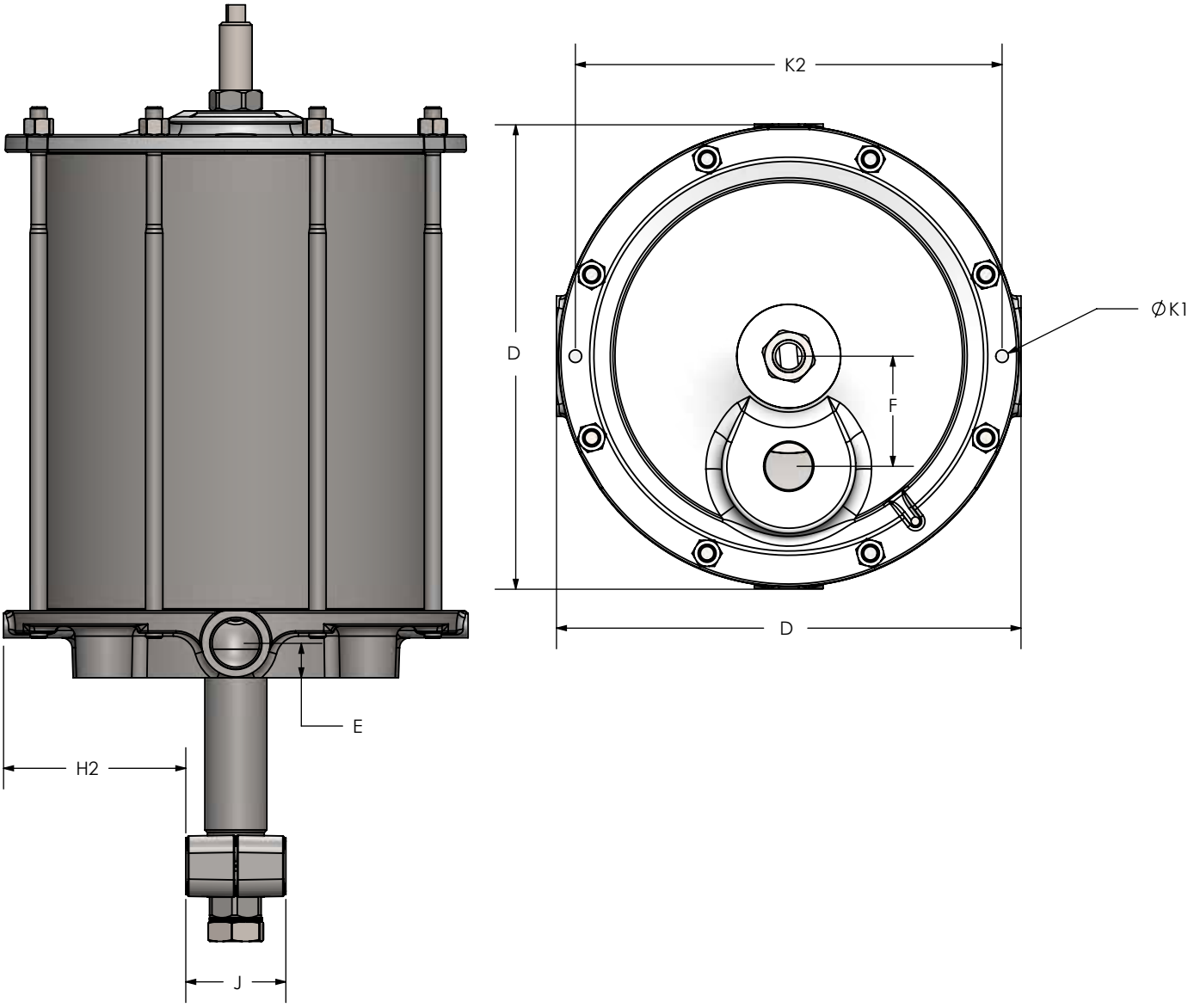
P1 – Pressure Port, pressure retracts the output rod

P2 – Breather Port, not used for operation





Dimensions and Technical Data (Imperial, Inches)



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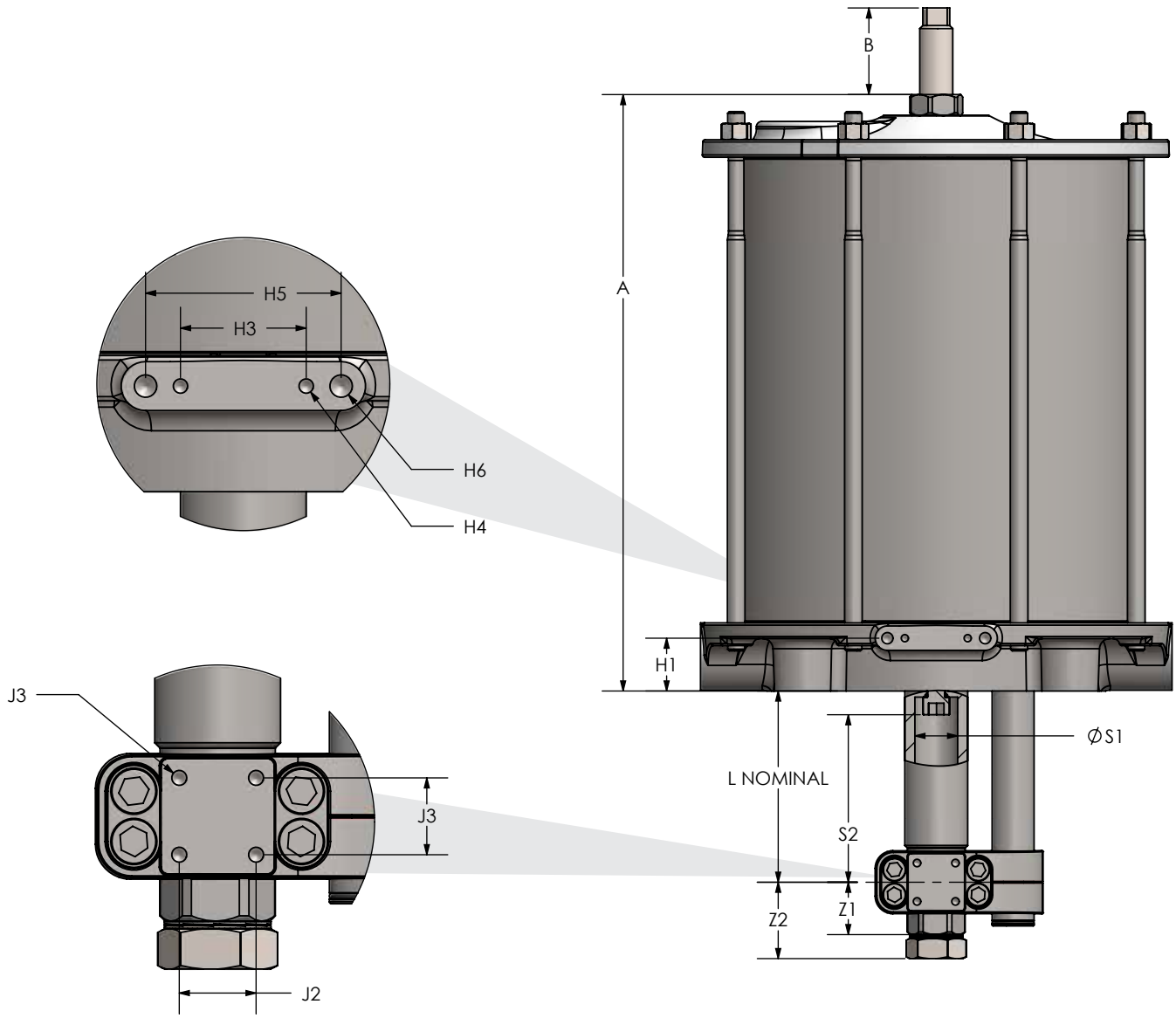
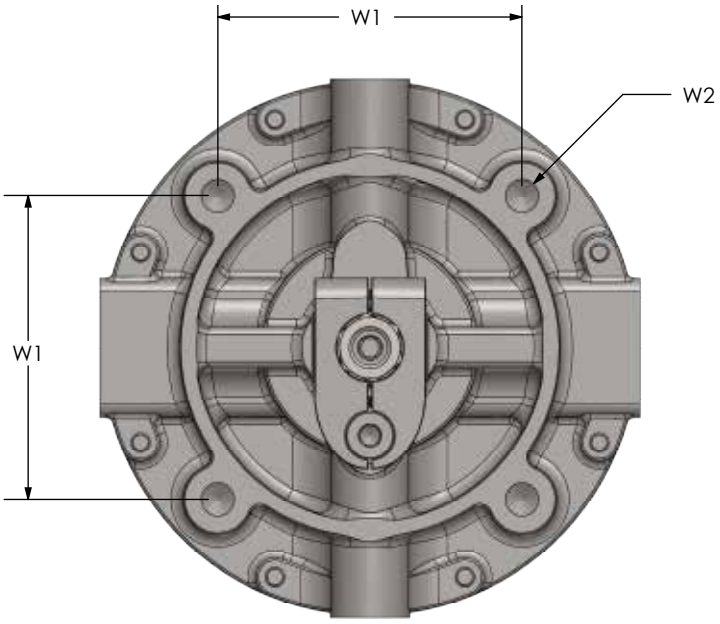
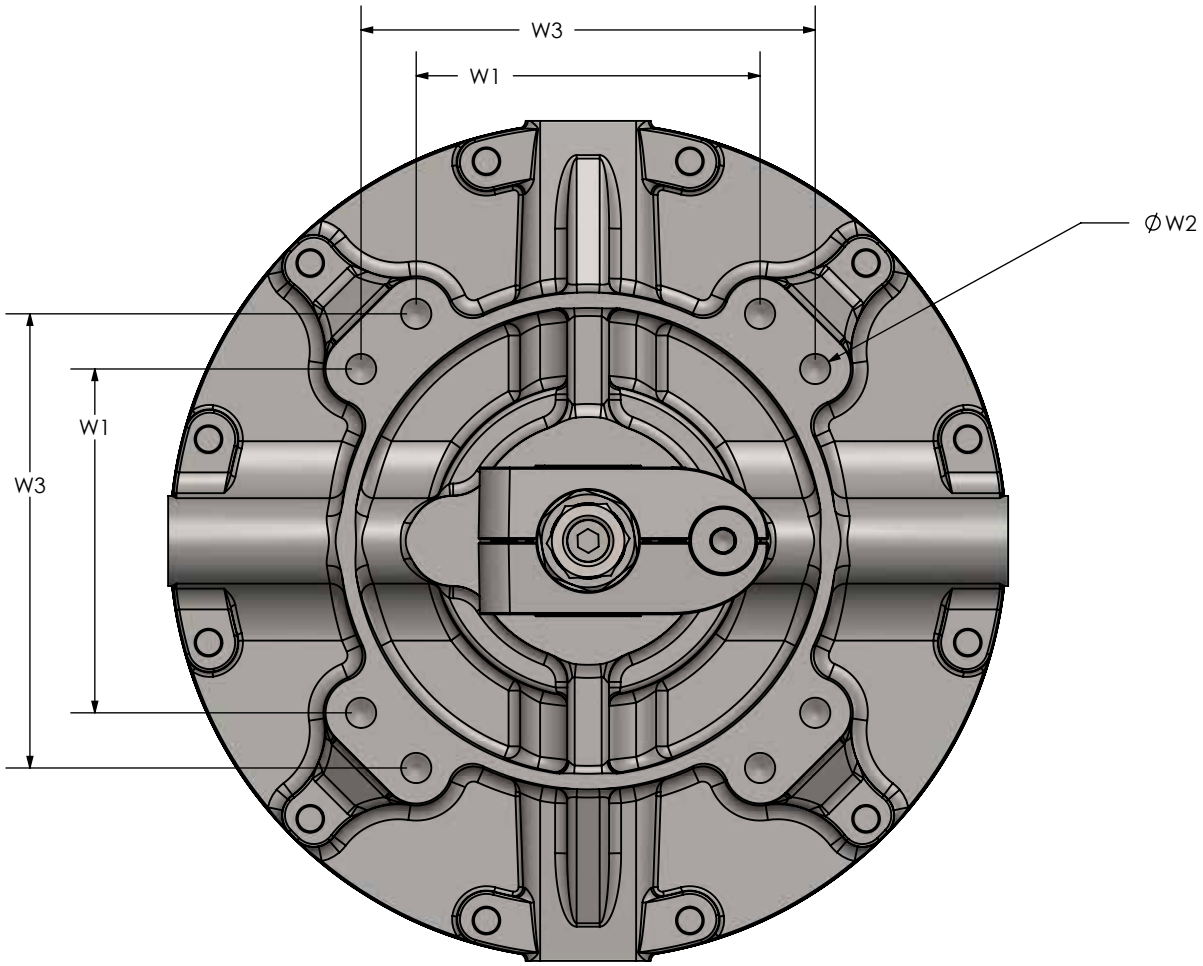



W1
W2
W1


W3
W1
ØW2
W1
W3

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	D12/U12	A12
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	

Dimensions (Imperial, Inches)

ENVELOPE DIMENSIONS	Piston Size:	14		16		20		24		30		36	
	Action:	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	

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 cubic inches (cuin)		PORT SIZE NPT (P1, P2, P3, P4)		STROKE TIME seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
04 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
06 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
08 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

Performance Data

			AIR/FLUID VOLUME cubic inches (cuin)		PORT SIZE NPT (P1, P2, P3, P4)		STROKE TIME seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
10 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
12 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
14 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

Performance Data

			AIR/FLUID VOLUME cubic inches (cuin)		PORT SIZE NPT (P1, P2, P3, P4)		STROKE TIME seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
16 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
20 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

Performance Data

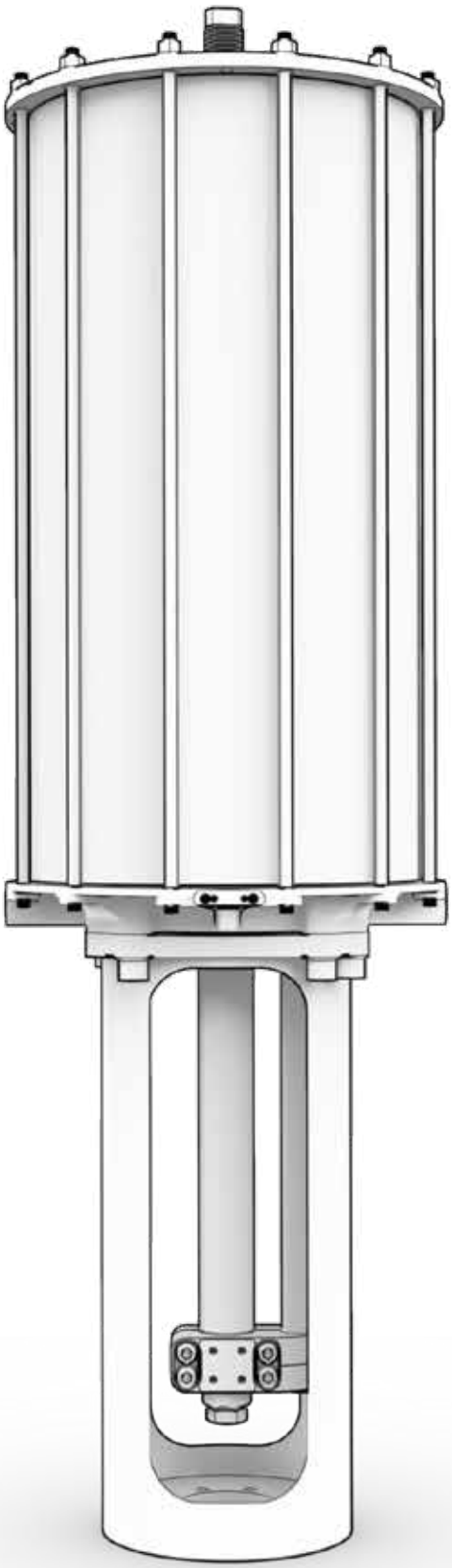
			AIR/FLUID VOLUME cubic inches (cuin)		PORT SIZE NPT (P1, P2, P3, P4)		STROKE TIME seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
24 Max Pressure: 120 psig	D	0400	1902	-	2"	2" x 2	0.25
	U	0400	-	1871	2"	2" x 2	0.25
	A	0400	1902	2934	2"	2" x 2	0.25
	D	0800	3712	-	2"	2" x 2	0.5
	U	0800	-	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
30 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

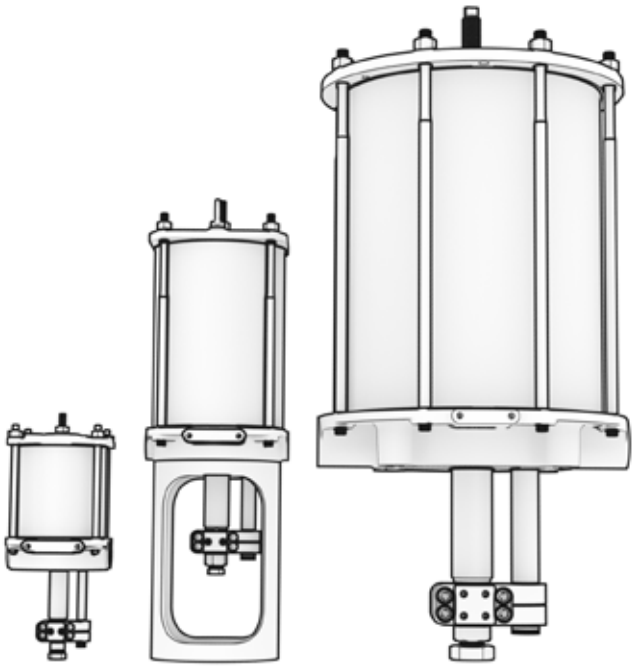
When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set

Performance Data

			AIR/FLUID VOLUME cubic inches (cuin)		PORT SIZE NPT (P1, P2, P3, P4)		STROKE TIME seconds
			BASEPLATE	END CAP SIDE	Normal	Max	RECOMMENDED MINIMUM
36 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

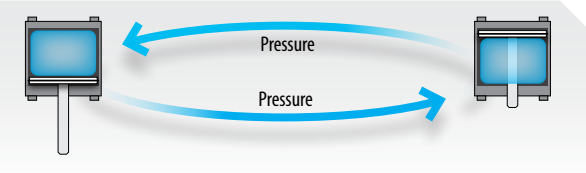
When operating in spring bias mode, MAWP at spring bias port is reduced according to spring set





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
A04	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
A06	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
A08	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
A10	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
A12	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
A14	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
A16	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
A20	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
A24	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
A30	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
A36	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

SPRING RETURN THRUST (LB-F)

MODEL		SPRING			AIR											
	Max Travel inches	SET	Start	End	LxU - 60 psi Start	LxU - 60 psi End	LxD - 60 psi Start	LxD - 60 psi End	LxU - 80 psi Start	LxU - 80 psi End	LxD - 80 psi Start	LxD - 80 psi End	LxU - 100 psi Start	LxU - 100 psi End	LxD - 100 psi Start	LxD - 100 psi 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.

SPRING RETURN THRUST (LB-F)

MODEL		SPRING			AIR											
					LxU - 60 psi		**LxD** - 60 psi		**LxU** - 80 psi		**LxD** - 80 psi		**LxU** - 100 psi		**LxD** - 100 psi	
	Max Travel inches	SET	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
10-0300	3	**42**	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
		52	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
		62	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
		72	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
		82	4,680	3,200			683	3,873	2,141	661	1,977	498	3,476	1,996	3,271	5,789
10-0400	4	**42**	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
		52	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
		62	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
		72	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
		82	4,680	2,707			1,176	3,873	2,634	661	2,470	498	3,969	1,996	3,764	5,296
10-0600	6	**42**	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
		52	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
		62	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
		72	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
		82	4,680	1,721			2,162	3,873	3,620	661	3,456	498	4,955	1,996	4,751	4,309
10-0800	8	**42**	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
		52	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
		62	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
		72	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
		82	4,680	734			3,148	3,873	4,606	661	4,443	498	5,941	1,996	5,737	3,323
12-0400	4	**42**	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
		52	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
		62	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
		72	5,974	4,076			1,532	5,596	3,614	1,717	3,401	1,503	5,537	3,640	5,270	7,815
		82	7,749	4,879			729	5,596	2,812	(59)	2,598	(272)	4,735	1,864	4,468	8,617
12-0800	8	**42**	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
		52	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
		62	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
		72	5,974	2,179			3,429	5,596	5,512	1,717	5,298	1,503	7,434	3,640	7,167	5,917
		82	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.

SPRING RETURN THRUST (LB-F)

MODEL		SPRING			AIR											
					LxU - 60 psi		**LxD** - 60 psi		**LxU** - 80 psi		**LxD** - 80 psi		**LxU** - 100 psi		**LxD** - 100 psi	
	Max Travel inches	SET	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
14-0400	4	**42**	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
		52	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
		62	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
		72	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
		82	10,107	6,405			1,243	7,634	4,062	361	3,792	90	6,679	2,977	6,341	11,504
14-0800	8	**42**	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
		52	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
		62	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
		72	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
		82	10,107	2,703			4,945	7,634	7,764	361	7,494	90	10,381	2,977	10,043	7,802
14-1200	12	**62**	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
		72	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
16-0400	4	**42**	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
		52	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
		62	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
		72	11,771	8,185			1,766	9,935	5,487	1,901	5,083	1,497	8,905	5,319	8,400	14,819
		82	15,396	10,085					3,587	(1,724)	3,183	(2,128)	7,005	1,694	6,501	16,719
16-0800	8	**42**	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
		52	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
		62	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
		72	11,771	4,599			5,352	9,935	9,073	1,901	8,669	1,497	12,491	5,319	11,986	11,233
		82	15,396	4,774			5,177	9,935	8,898	(1,724)	8,495	(2,128)	12,317	1,694	11,812	11,408
16-1200	12	**62**	8,307	1,328			8,623	9,935	12,344	5,366	11,940	4,962	15,762	8,784	15,257	7,962
		72	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.

SPRING RETURN THRUST (LB-F)

MODEL		SPRING			AIR											
	Max Travel inches	SET	Start	End	**LxU** - 60 psi Start	**LxU** - 60 psi End	**LxD** - 60 psi Start	**LxD** - 60 psi End	**LxU** - 80 psi Start	**LxU** - 80 psi End	**LxD** - 80 psi Start	**LxD** - 80 psi End	**LxU** - 100 psi Start	**LxU** - 100 psi End	**LxD** - 100 psi Start	**LxD** - 100 psi 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.

SPRING RETURN THRUST (LB-F)

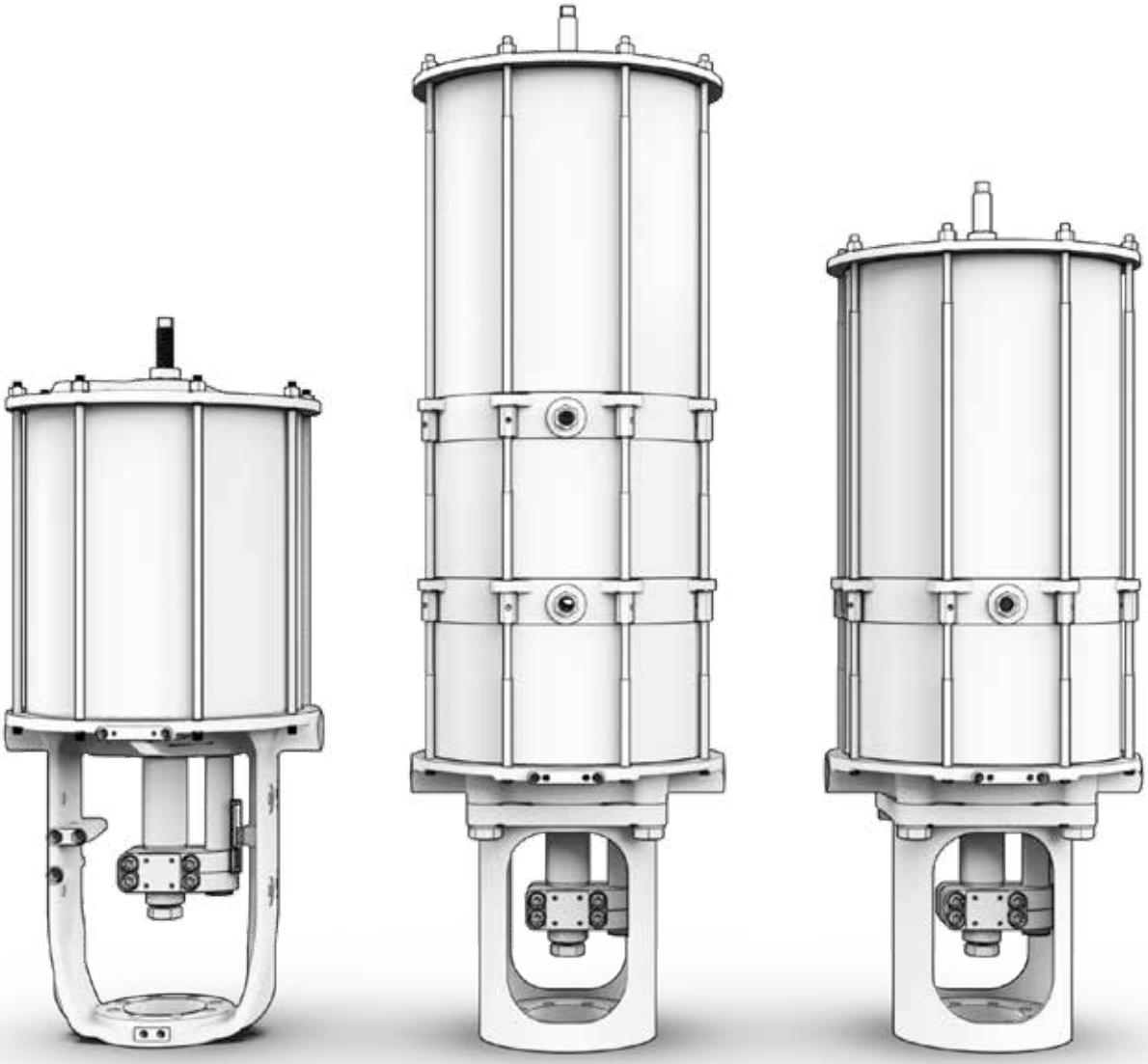
MODEL		SPRING			AIR											
	Max Travel inches	SET	Start	End	LxU - 60 psi Start	LxU - 60 psi End	LxD - 60 psi Start	LxD - 60 psi End	LxU - 80 psi Start	LxU - 80 psi End	LxD - 80 psi Start	LxD - 80 psi End	LxU - 100 psi Start	LxU - 100 psi End	LxD - 100 psi Start	LxD - 100 psi End
30-0400	4	**42**	15,329	13,215	22,835	20,721	21,978	35,163	34,851	32,737	33,709	31,595	46,868	44,754	45,440	36,677
		52	21,363	17,388	18,661	14,687	17,805	35,163	30,678	26,703	29,535	25,561	42,694	38,720	41,266	40,850
		62	29,072	25,062	10,988	6,978	10,131	35,163	23,004	18,994	21,862	17,852	35,021	31,011	33,593	48,524
		72	44,401	38,277					9,789	3,665	8,647	2,523	21,806	15,682	20,378	61,739
		82	50,435	42,451									17,632	9,648	16,204	65,912
30-0800	8	**42**	15,329	11,100	24,949	20,721	24,092	35,163	36,966	32,737	35,823	31,595	48,982	44,754	47,554	34,562
		52	21,363	13,414	22,636	14,687	21,779	35,163	34,652	26,703	33,510	25,561	46,669	38,720	45,241	36,876
		62	29,072	21,052	14,998	6,978	14,141	35,163	27,014	18,994	25,872	17,852	39,031	31,011	37,603	44,514
		72	44,401	32,153			3,040	35,163	15,914	3,665	14,771	2,523	27,930	15,682	26,502	55,615
		82	50,435	34,466			727	35,163					25,617	9,648	24,189	57,928
30-1200	12	**42**	15,329	8,986	27,064	20,721	26,207	35,163	39,080	32,737	37,938	31,595	51,097	44,754	49,669	32,448
		52	21,363	9,439	26,610	14,687	25,754	35,163	38,627	26,703	37,485	25,561	50,644	38,720	49,215	32,901
		62	29,072	17,042	19,008	6,978	18,151	35,163	31,024	18,994	29,882	17,852	43,041	31,011	41,613	40,504
		72	44,401	26,028			9,165	35,163	22,038	3,665	20,896	2,523	34,055	15,682	32,627	49,490
		82	50,435	26,482			8,711	35,163					33,601	9,648	32,173	49,944
30-1600	16	**42**	15,329	6,872	29,178	20,721	28,321	35,163	41,195	32,737	40,052	31,595	53,211	44,754	51,783	30,334
		52	21,363	5,465	30,585	14,687	29,728	35,163	42,601	26,703	41,459	25,561	54,618	38,720	53,190	28,927
		62	29,072	13,032	23,018	6,978	22,161	35,163	35,034	18,994	33,892	17,852	47,051	31,011	45,623	36,494
		72	44,401	19,904			15,289	35,163	28,162	3,665	27,020	2,523	40,179	15,682	38,751	43,366
		82	50,435	18,497			16,696	35,163					41,586	9,648	40,158	41,959
30-2000	20	**42**	15,329	4,757	31,292	20,721	30,436	35,163	43,309	32,737	42,167	31,595	55,326	44,754	53,898	28,219
		52	21,363	1,490	34,559	14,687	33,703	35,163	46,576	26,703	45,434	25,561	58,593	38,720	57,165	24,952
		62	29,072	9,022	27,027	6,978	26,171	35,163	39,044	18,994	37,902	17,852	51,061	31,011	49,633	32,484
		72	44,401	13,780			21,413	35,163	34,287	3,665	33,144	2,523	46,303	15,682	44,875	37,242
		82	50,435	10,513			24,680	35,163					49,570	9,648	48,142	33,975
30-2600	26	**62**	29,072	3,007	33,042	6,978	32,186	35,163	45,059	18,994	43,917	17,852	57,076	31,011	55,648	26,469
		72	44,401	4,593			30,600	35,163	43,473	3,665	42,331	2,523	55,490	15,682	54,062	28,055

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.

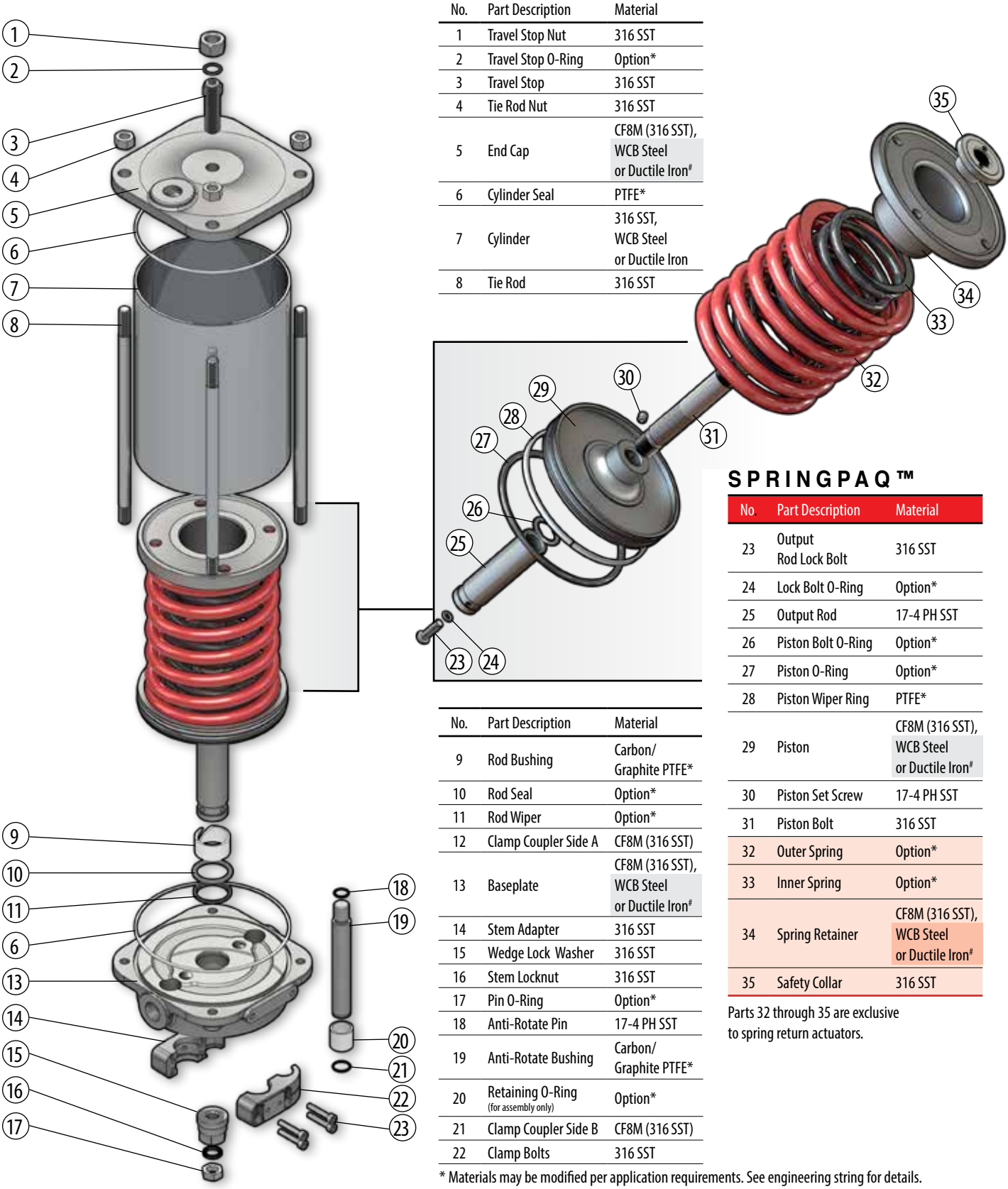
SPRING RETURN THRUST (LB-F)

MODEL		SPRING			AIR											
	Max Travel inches	SET	Start	End	LxU - 60 psi Start	LxU - 60 psi End	LxD - 60 psi Start	LxD - 60 psi End	LxU - 80 psi Start	LxU - 80 psi End	LxD - 80 psi Start	LxD - 80 psi End	LxU - 100 psi Start	LxU - 100 psi End	LxD - 100 psi Start	LxD - 100 psi End
36-0400	4	**42**	23,952	20,648	31,263	27,960	30,407	51,019	48,567	45,264	47,425	44,121	65,871	62,568	64,443	54,685
		52	33,380	27,169	24,742	18,532	23,885	51,019	42,046	35,836	40,904	34,694	59,350	53,140	57,922	61,206
		62	45,425	39,159	12,752	6,487	11,895	51,019	30,056	23,791	28,914	22,648	47,360	41,095	45,932	73,196
		72	69,377	59,808									26,712	17,143	25,284	93,844
		82	78,805	66,329									20,191	7,715	18,763	100,366
36-0800	8	**42**	23,952	17,345	34,567	27,960	33,710	51,019	51,871	45,264	50,729	44,121	69,175	62,568	67,747	51,381
		52	33,380	20,959	30,952	18,532	30,096	51,019	48,256	35,836	47,114	34,694	65,560	53,140	64,132	54,996
		62	45,425	32,894	19,018	6,487	18,161	51,019	36,322	23,791	35,179	22,648	53,626	41,095	52,198	66,931
		72	69,377	50,238			816	51,019					36,281	17,143	34,853	84,275
		82	78,805	53,853									32,666	7,715	31,238	87,890
36-1200	12	**42**	23,952	14,041	37,871	27,960	37,014	51,019	55,175	45,264	54,032	44,121	72,479	62,568	71,051	48,077
		52	33,380	14,749	37,163	18,532	36,306	51,019	54,466	35,836	53,324	34,694	71,770	53,140	70,342	48,786
		62	45,425	26,628	25,283	6,487	24,426	51,019	42,587	23,791	41,445	22,648	59,891	41,095	58,463	60,665
		72	69,377	40,669			10,386	51,019					45,850	17,143	44,422	74,706
		82	78,805	41,378			9,677	51,019					45,142	7,715	43,714	75,414
36-1600	16	**42**	23,952	10,737	41,175	27,960	40,318	51,019	58,478	45,264	57,336	44,121	75,782	62,568	74,354	44,774
		52	33,380	8,539	43,373	18,532	42,516	51,019	60,677	35,836	59,534	34,694	77,980	53,140	76,552	42,576
		62	45,425	20,363	31,549	6,487	30,692	51,019	48,853	23,791	47,710	22,648	66,157	41,095	64,729	54,399
		72	69,377	31,100			19,955	51,019					55,419	17,143	53,991	65,137
		82	78,805	28,902			22,153	51,019					57,618	7,715	56,190	62,938
36-2000	20	**42**	23,952	7,433	44,478	27,960	43,622	51,019	61,782	45,264	60,640	44,121	79,086	62,568	77,658	41,470
		52	33,380	2,329	49,583	18,532	48,726	51,019	66,887	35,836	65,744	34,694	84,191	53,140	82,763	36,365
		62	45,425	14,097	37,814	6,487	36,957	51,019	55,118	23,791	53,976	22,648	72,422	41,095	70,994	48,134
		72	69,377	21,531			29,524	51,019					64,989	17,143	63,561	55,567
		82	78,805	16,426			34,629	51,019					70,093	7,715	68,665	50,463
36-2600	26	**42**	23,952	2,478	49,434	27,960	48,577	51,019	66,738	45,264	65,595	44,121	84,042	62,568	82,614	36,514
		62	45,425	4,699	47,213	6,487	46,356	51,019	64,516	23,791	63,374	22,648	81,820	41,095	80,392	38,736
		72	69,377	7,177			43,878	51,019					79,343	17,143	77,915	41,214

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.



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

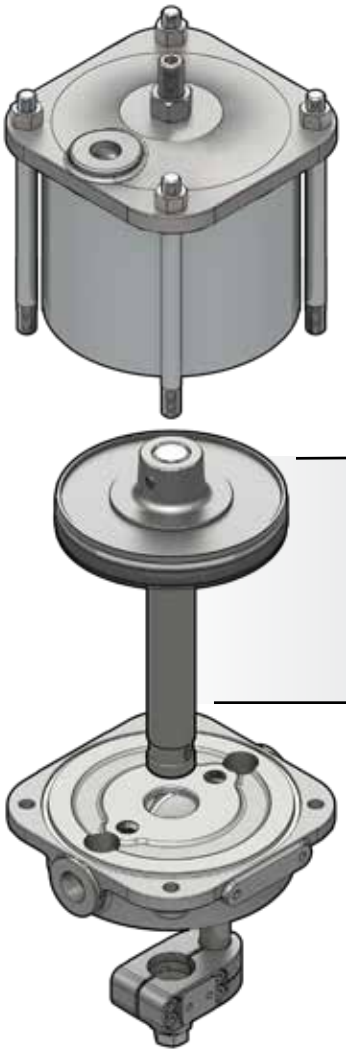
No.	Part Description	Material
9	Rod Bushing	Carbon/ Graphite PTFE*
10	Rod Seal	Option*
11	Rod Wiper	Option*
12	Clamp Coupler Side A	CF8M (316 SST)
13	Baseplate	CF8M (316 SST), WCB Steel or Ductile Iron#
14	Stem Adapter	316 SST
15	Wedge Lock Washer	316 SST
16	Stem Locknut	316 SST
17	Pin O-Ring	Option*
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

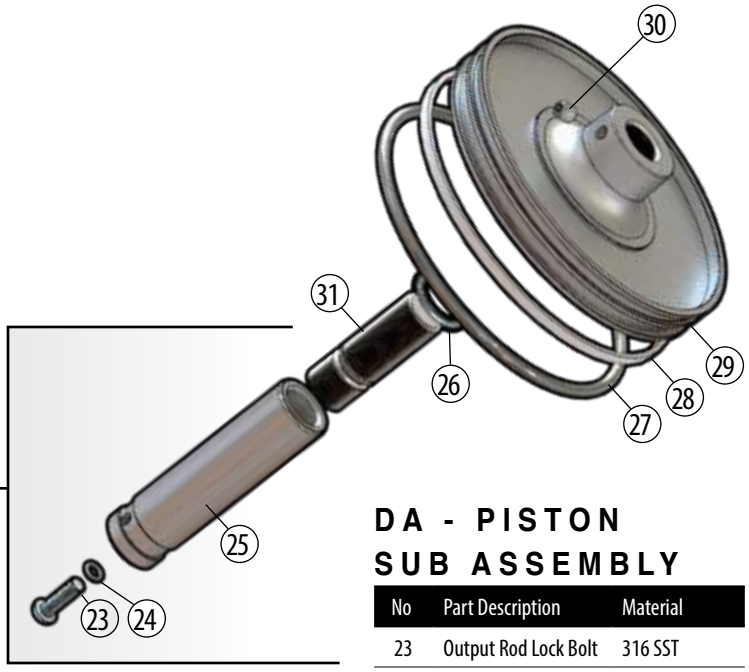
SPRINGPAQ™

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

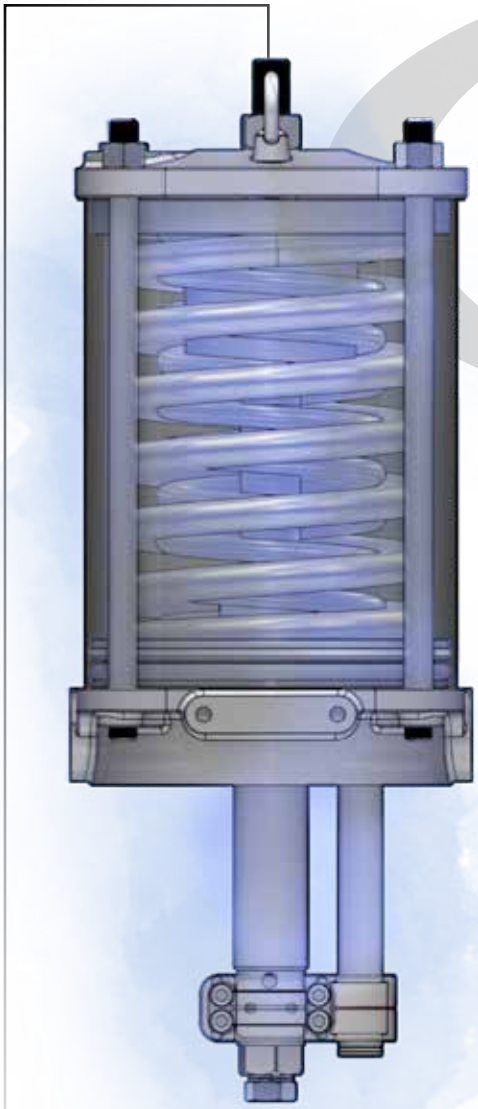
see Type-C Bulletin (DCN00794)

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



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