

The Rock Mechanical Spring Return (RS) Solutions



WEDGEROCK BENEFITS

Engineered Configurations

- Quarter Turn or Linear
- Per Required Fail Conditions
- Open or Close Fail Positions
- Local/Remote Indication off the Valve Stem
- Reduced Actuator Size by High Eff. Gear
- Pipe Line, Vault & Buried Options
- High, Low & Standard Temp. Options

Design

- No Pneumatics or Hydraulics
- Supports an All Electric Solutions
- Supports Manual Remote Fail Safe
- Positive Lock Mechanism – No Valve Creep
- Spring release force – 1.5 lbs
- Solenoid Power Consumption - <6 watts
- High Efficiency Gear Reduction
- Non-Backdriving Technology

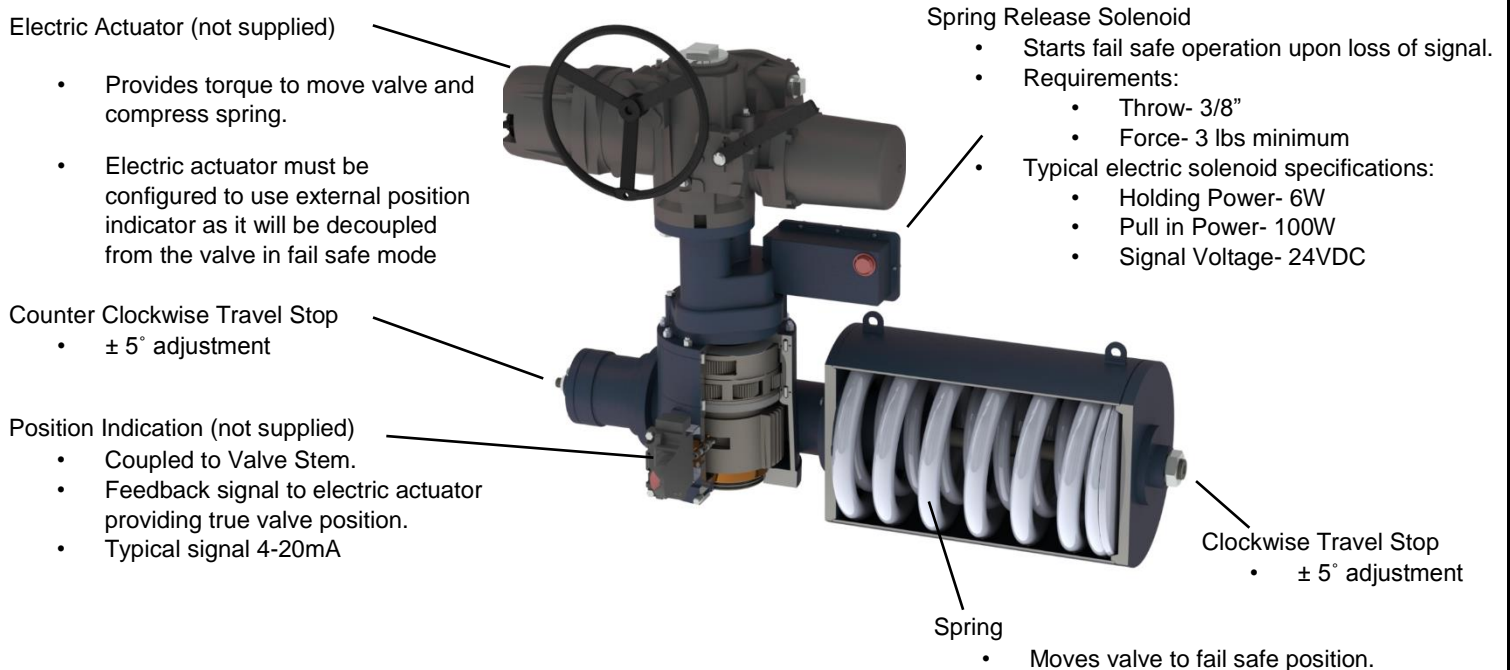
Scalable from 2,500 in-lbs. to 3,000,000 in-lbs.

Purpose Engineered - Quality Manufactured - Performance Tested

WedgeRock Mechanical Spring Return (RS) Operation

All Electric Spring Return Solution

Patent Pending



Example Modes of Operation

(Methods of operation may depend on electronics used or criteria for system failure.)

Example 1

Standard Operation

- Valve is operated in one direction only by the electric actuator.
(Operation compresses the spring.)
- Valve is operated in the opposing direction by the spring when solenoid signal is cut off.

Fail Safe Operation

- Upon loss of signal to solenoid, the spring is released to a fail-safe position.
- When signal returns, normal operation can resume.

Example 2

Standard Operation

- Valve is operated both open and shut by the electric actuator.
(Operation compresses and decompresses the spring.)

Fail Safe Operation

- Upon loss of signal to solenoid, the spring releases to a fail-safe position.
- When power returns, the electric actuator can either recognize position from a position transmitter or reset by operating to the fail position, then the signal is restored to the solenoid re-engaging the spring. (Operation of the actuator while the solenoid has lost signal will not change the valve position from the fail state.)

WedgeRock RSq (Imperial & Metric)

Manual or motorizable operator for quarter turn for spring return applications.

Frame Size	Torque [In-Lbs]			
	Spring		Electric	
	Start	End	Start	End
RS4-40	1,481	741	4,259	3,519
RS4-60	2,222	1,111	3,889	2,778
RS4-80	2,963	1,481	3,519	2,037
RS4-100	3,704	1,852	3,148	1,296
RS5-60	4,444	2,222	7,778	5,556
RS5-80	5,926	2,963	7,037	4,074
RS5-100	7,407	3,704	6,296	2,593
RS6-60	8,889	4,444	15,556	11,111
RS6-80	11,852	5,926	14,074	8,148
RS6-100	14,815	7,407	12,593	5,185
RS7-60	16,889	8,444	29,556	21,111
RS7-80	22,519	11,259	26,741	15,481
RS7-100	28,148	14,074	23,926	9,852
RS8-60	33,333	16,667	58,333	41,667
RS8-80	44,444	22,222	52,778	30,556
RS8-100	55,556	27,778	47,222	19,444
RS9-60	60,000	30,000	105,000	75,000
RS9-80	80,000	40,000	95,000	55,000
RS9-100	100,000	50,000	85,000	35,000
RS10-60	100,000	50,000	175,000	125,000
RS10-80	133,333	66,667	158,333	91,667
RS10-100	166,667	83,333	141,667	58,333
RS12-60	177,778	88,889	311,111	222,222
RS12-80	237,037	118,519	281,481	162,963
RS12-100	296,296	148,148	251,852	103,704
RS14-60	333,333	166,667	583,333	416,667
RS14-80	444,444	222,222	527,778	305,556
RS14-100	555,556	277,778	472,222	194,444
RS18-60	600,000	300,000	1,050,000	750,000
RS18-80	800,000	400,000	950,000	550,000
RS18-100	1,000,000	500,000	850,000	350,000
RS24-60	1,000,000	500,000	1,750,000	1,250,000
RS24-80	1,333,333	666,667	1,583,333	916,667
RS24-100	1,666,667	833,333	1,416,667	583,333
RS36-60	1,777,778	888,889	3,111,111	2,222,222
RS36-80	2,370,370	1,185,185	2,814,815	1,629,630
RS36-100	2,962,963	1,481,481	2,518,519	1,037,037

Frame Size	Torque [Nm]			
	Spring		Electric	
	Start	End	Start	End
RS4-40	167	84	481	398
RS4-60	251	126	439	314
RS4-80	335	167	398	230
RS4-100	418	209	356	146
RS5-60	502	251	879	628
RS5-80	670	335	795	460
RS5-100	837	418	711	293
RS6-60	1,004	502	1,758	1,255
RS6-80	1,339	670	1,590	921
RS6-100	1,674	837	1,423	586
RS7-60	1,908	954	3,340	2,385
RS7-80	2,544	1,272	3,022	1,749
RS7-100	3,181	1,590	2,703	1,113
RS8-60	3,766	1,883	6,591	4,708
RS8-80	5,022	2,511	5,964	3,453
RS8-100	6,277	3,139	5,336	2,197
RS9-60	6,780	3,390	11,864	8,475
RS9-80	9,040	4,520	10,734	6,215
RS9-100	11,299	5,650	9,605	3,955
RS10-60	11,299	5,650	19,774	14,124
RS10-80	15,066	7,533	17,891	10,358
RS10-100	18,832	9,416	16,008	6,591
RS12-60	20,088	10,044	35,154	25,110
RS12-80	26,784	13,392	31,806	18,414
RS12-100	33,480	16,740	28,458	11,718
RS14-60	37,665	18,832	65,913	47,081
RS14-80	50,220	25,110	59,636	34,526
RS14-100	62,775	31,387	53,358	21,971
RS18-60	67,797	33,898	118,644	84,746
RS18-80	90,395	45,198	107,345	62,147
RS18-100	112,994	56,497	96,045	39,548
RS24-60	112,994	56,497	197,740	141,243
RS24-80	150,659	75,330	178,908	103,578
RS24-100	188,324	94,162	160,075	65,913
RS36-60	200,879	100,439	351,538	251,099
RS36-80	267,838	133,919	318,058	184,139
RS36-100	334,798	167,399	284,578	117,179



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