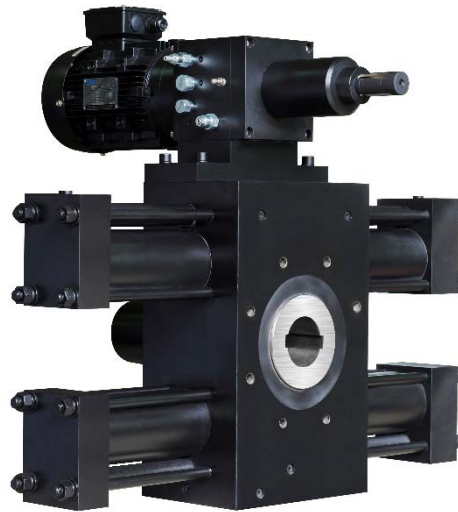




MSR Series Actuator Torque/Speed Charts

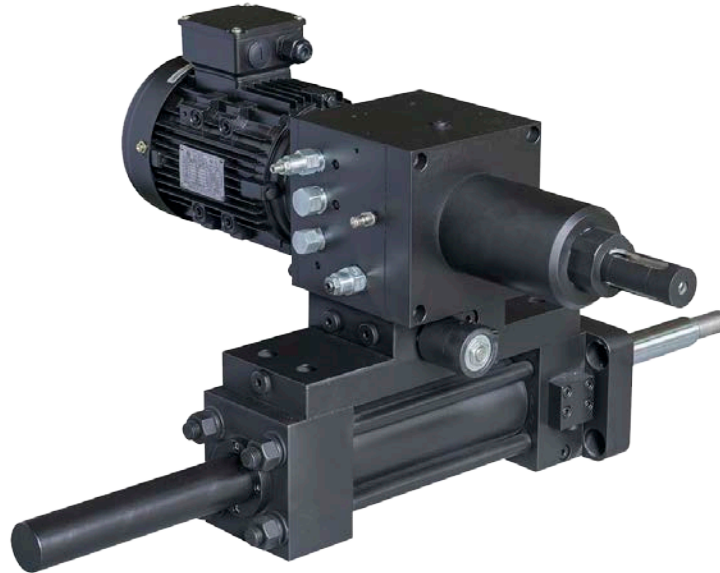


MSR Rack and Pinion Series Actuator

Nominal Torque	Output Torque (in-lbf)	Power Module Stroke Speed (sec/90° @ 50HZ)			
		D	E	F	G
5K	5,000	3	NA	NA	NA
10K	10,000	6	4	NA	NA
20K	20,000	11	7	4	NA
50K	50,000	27	17	8	6
100K	100,000	57	36	17	13
200K	200,000	NA	75	35	26
400K	400,000	NA	NA	68	51
500K	500,000	NA	NA	NA	65
600K	600,000	NA	NA	NA	78
800K	800,000	NA	NA	NA	104



MSL Series Actuator Thrust/Speed Charts



MSL Linear Cylinder Series Actuator without optional Spring Fail function

Nominal Thrust	Output Thrust (lbf)	Power Module Stroke Speed (inch/sec @ 50HZ)			
		D	E	F	G
2.5K	2,500	0.9	NA	NA	NA
5K	5,000	0.45	0.73	NA	NA
10K	10,000	0.27	0.43	0.92	NA
20K	20,000	0.11	0.18	0.39	0.53
40K	40,000	0.07	0.11	0.24	0.32
60K	60,000	NA	0.07	0.15	0.21
80K	80,000	NA	NA	0.12	0.16
100K	100,000	NA	NA	0.10	0.13
150K	150,000	NA	NA	NA	0.08
200K	200,000	NA	NA	NA	0.06

MSS Series Actuator Torque/Speed Charts



MSS Scotch Yoke Cylinder Series Actuator

Nominal Torque	Output Torque (in-lbf)			Power Module Stroke Speed (sec/90°@ 50HZ)			
	Start	Mid	End	D	E	F	G
5K	5,232	3,078	5,232	5	NA	NA	NA
10K	10,465	6,156	10,465	5	NA	NA	NA
20K	21,923	12,896	21,923	12	8	NA	NA
50K	52,791	31,053	52,791	26	17	8	6
100K	107,062	62,977	107,062	45	28	13	10
200K	212,106	124,768	212,106	NA	60	28	21
400K	462,823	272,149	462,823	NA	NA	57	42
800K	850,777	500,457	850,777	NA	NA	NA	77

MSS Series Actuator Torque/Speed Charts



MSS Scotch Yoke Cylinder Series Actuator with Optional Spring Fail Safe (F.S.) Function

Nominal Torque	Hydraulic Closing Torque (in-lbf)			Hydraulic Opening Torque (in-lbf)			Spring Emergency Shutdown Torque (in-lbf)			Power Module Stroke Speed (sec/90° @ 50HZ)				
	Start (90°)	Run (45°)	End (0°)	Start (0°)	Run (45°)	End (90°)	Start (90°)	Run (45°)	End (0°)	D	E	F	G	F.S.
5K	8,349	4,171	5,833	5,078	2,198	2,395	5,781	2,513	2,762	6	NA	NA	NA	<1
10K	13,813	6,869	9,541	8,657	3,752	4,099	9,514	4,088	4,387	6	NA	NA	NA	<1
20K	31,818	15,943	22,388	19,961	8,783	9,902	21,741	9,460	10,425	13	8	NA	NA	<1
50K	68,628	34,890	49,999	41,678	18,672	21,807	46,725	20,910	24,370	27	17	8	6	<1
100K	125,536	62,520	87,032	78,441	34,062	37,370	86,415	37,243	40,210	45	28	14	10	<1
200K	277,945	132,469	172,541	186,127	76,419	73,696	194,720	77,340	68,235	NA	61	29	21	<1