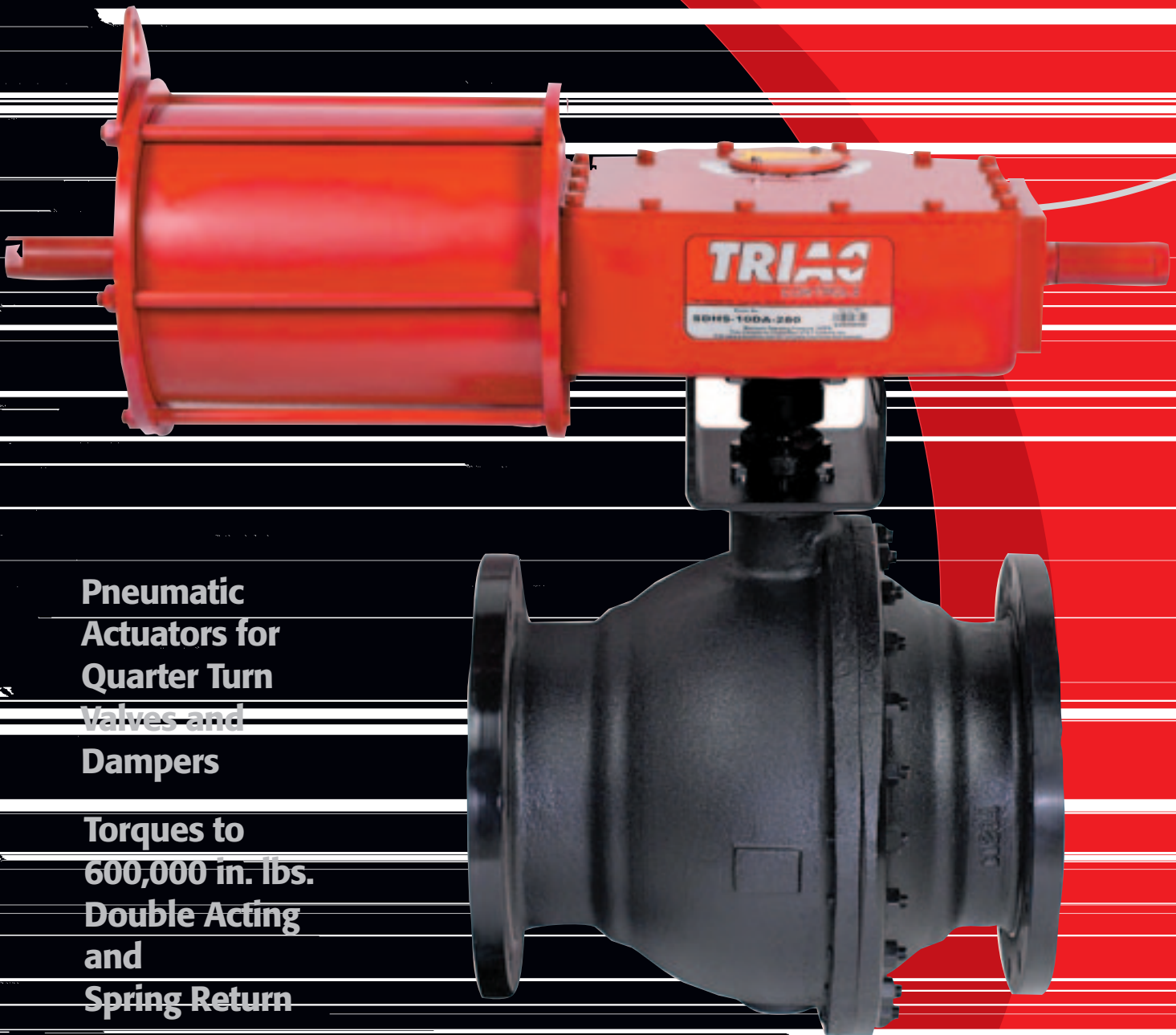




# THD Series

## Heavy Duty Actuators



**Pneumatic  
Actuators for  
Quarter Turn  
Valves and  
Dampers**

**Torques to  
600,000 in. lbs.  
Double Acting  
and  
Spring Return**

Triac Controls line of heavy duty scotch yoke actuators offer a broad range of torques to 600,000 In-Lbs. The THD series is designed to operate ball, butterfly, plug valves or any device that requires a quarter-turn movement for on-off or throttling service.

Our standard offering is the symmetrical design yoke that delivers maximum torque at both ends of the 90° cycle. Our square slide bearing along with the guide bar gives high cycle life and smooth stroke while minimizing wear points.

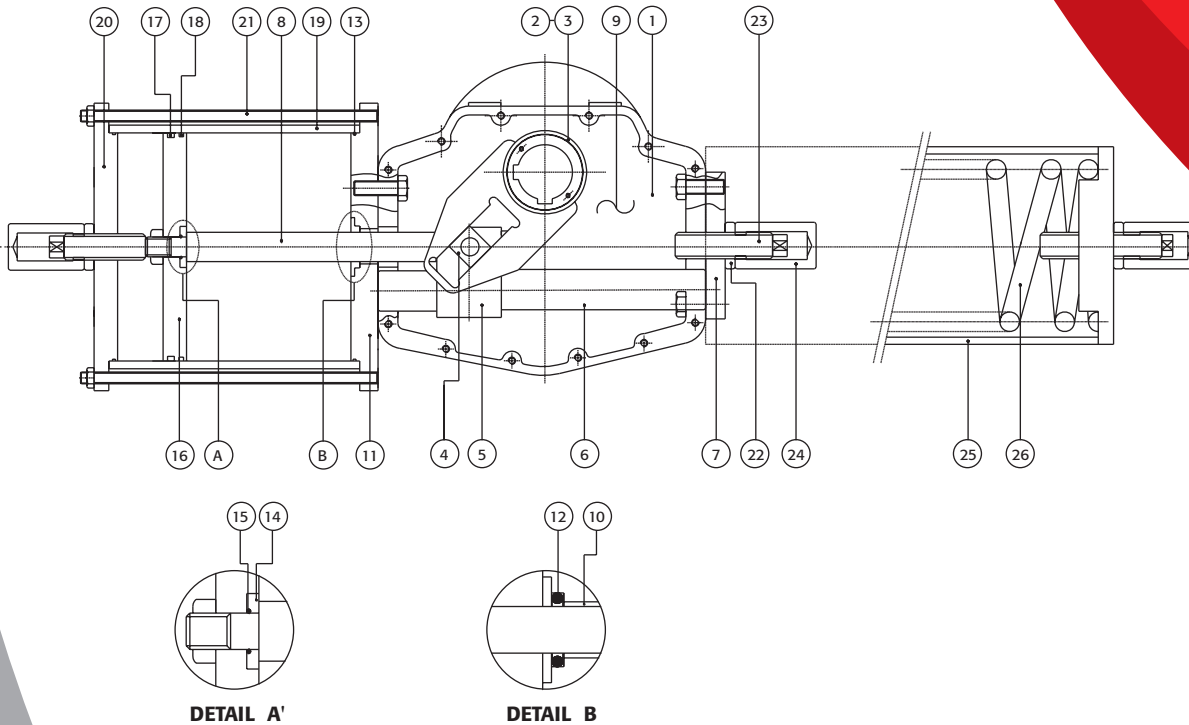
As with all Triac actuators, our THD series comes with a complete line of accessories, including jackscrew, hydraulic overrides, limit switches, solenoids and positioners. A-T Controls also offers complete mounting hardware to integrate our actuator with any quarter-turn valve, damper or louver.



## Features

- Air pressure 40 to 125 PSIG
- Temperature range -20°F to 180°F (-20°C to 80°C)
- Optional low temperature range of -50°F to 180°F (-46°C to 80°C) or high temperature range of 0°F to 350°F (-18°C to 170°C)
- Weatherproof enclosure
- Heat treated steel springs
- Travel stop adjustment of  $\pm 8^\circ$  in both directions
- Chromium plated piston rod, guide bar and cylinder tube to ensure smooth stroke and extended life
- Steel slide block with bronze slide bearing to minimize friction and provide long cycle life
- Parkerized coating on internal and external surfaces

# Heavy Duty Design Bill of Material



NO.	DESCRIPTION	MATERIAL	DESCRIPTION	MATERIAL	
1	Housing	Ductile Iron	14	Rod Washer	Carbon Steel
2	Yoke	Carbon Steel	15	O-Ring	Nitrile Buna
3	Yoke Bushing	Bronze	16	Piston	Carbon Steel
4	Sliding Bearing	Bronze	17	Backup Ring	RTFE
5	Sliding Block	Carbon Steel	18	O-Ring	Nitrile Buna
6	Guide Bar	Alloy Steel (Chrome Plated)	19	Cylinder Tube	Carbon Steel
7	Protection Plate	Carbon Steel	20	End Flange	Carbon Steel
8	Piston Rod	Alloy Steel (Chrome Plated)	21	Tie Rod	Carbon Steel
9	Housing Cover	Carbon Steel	22	Stopper Nut	Carbon Steel
10	Bushing	PTFE Lined Steel	23	Stopper Bolt	Carbon Steel
11	Front Flange	Carbon Steel	24	Stopper Cap	Carbon Steel
12	O-Ring	Nitrile Buna	25	Spring Cartridge	Carbon Steel
13	O-Ring	Nitrile Buna	26	Spring	Alloy Steel

## Heavy Duty Spring Return Torque Chart

Model		40 PSI		60 PSI		80 PSI		100 PSI	
		SPRING	AIR	SPRING	AIR	SPRING	AIR	SPRING	AIR
<b>S08SR200</b>	START	5825	5642	8738	8464	11650	11285	14563	14106
	MIN	2197	2124	3296	3187	4623	4249	5494	5311
	END	3314	3131	4971	4696	6628	6262	8285	7828
<b>S08SR280</b>	START	11417	11059	17126	16589	22835	22119	28544	27649
	MIN	4307	4164	6461	6246	8615	8329	10769	10411
	END	6495	6137	9743	9206	12990	12274	16238	15343
<b>S10SR280</b>	START	14272	13824	21408	20737	28544	27649	35680	34561
	MIN	5384	5205	8076	7808	10769	10411	13461	13014
	END	8119	7671	12178	11507	16238	15343	20298	19179
<b>S10SR335</b>	START	20429	19789	30644	29683	40859	39578	51074	49473
	MIN	7707	7451	11561	11177	15415	14903	19269	18629
	END	11622	10981	17433	16472	23244	21963	29055	49473
<b>S10SR385</b>	START	26983	26137	40475	39206	53967	52274	67459	65343
	MIN	10338	9842	15270	14763	20360	19684	25450	24605
	END	15350	14504	23025	21756	30701	29008	38376	36260
<b>S13SR385</b>	START	35078	33978	52618	50967	70157	67957	87696	84946
	MIN	13234	12827	19851	19192	26468	25589	33085	31986
	END	19955	18855	29933	28283	39911	37711	49889	47139
<b>S13SR435</b>	START	44781	43377	67172	65066	89563	86754	111954	108443
	MIN	16894	16333	25342	24500	33789	32667	42237	40834
	END	25475	24071	38213	36106	50951	48142	63688	60178
<b>S13SR485</b>	START	55667	53922	83501	80883	111335	107844	139169	134805
	MIN	22090	20304	31502	30456	44180	40609	52504	51355
	END	31668	29922	47502	44884	63337	59845	79171	74807
<b>S16SR485</b>	START	68514	66365	102771	99548	137028	132731	171286	165914
	MIN	25848	24990	38772	37485	51697	49980	64845	62475
	END	38976	36828	58465	55242	77953	73656	97441	92070
<b>S16SR535</b>	START	83369	80754	125053	121132	166738	161509	208423	201887
	MIN	31452	30408	47179	45612	66166	60816	78632	76020
	END	47427	44813	71141	67219	94854	89626	118568	201887
<b>S20SR585</b>	START	124600	120693	186900	181039	249201	241386	311501	301733
	MIN	47008	45447	70512	68170	94016	90894	117520	113618
	END	70883	66975	106324	100463	141766	133951	177208	167439
<b>S20SR685</b>	START	170840	165482	256260	248223	341680	330965	427100	413706
	MIN	64453	62312	96679	93469	128906	124625	161132	155781
	END	97188	91830	145782	137746	194376	183661	242970	229576

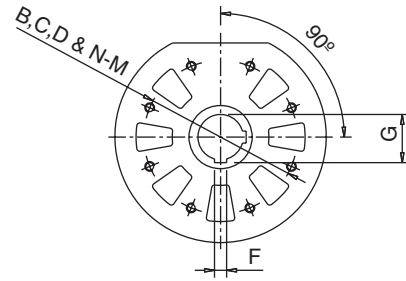
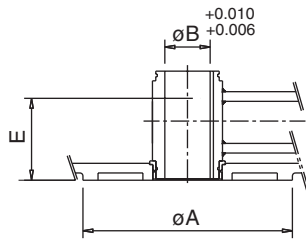
# Heavy Duty Double Acting Torque Chart

Model		40 PSI	60 PSI	80 PSI	100 PSI
S08DA200	START	8588	12883	17177	21471
	MIN	4417	6625	8834	11042
S08DA280	START	16833	25250	33667	42084
	MIN	8657	12986	17314	21643
S10DA280	START	21042	31563	42084	52605
	MIN	10821	16232	21643	27054
S10DA335	START	30120	45181	60241	73501
	MIN	15490	23236	30981	38726
S10DA385	START	39782	59674	79565	99457
	MIN	20459	30689	40919	51149
S13DA385	START	51717	77576	103435	129294
	MIN	26597	39896	53195	66494
S13DA435	START	66023	99035	132046	165058
	MIN	33954	50932	67909	84887
S13DA485	START	82073	123110	164146	205183
	MIN	42209	63313	84418	105523
S16DA485	START	101013	151520	202026	252533
	MIN	51949	77924	103899	129874
S16DA535	START	122914	184371	245829	307286
	MIN	63213	94819	126426	158033
S20DA585	START	183703	275555	367407	459258
	MIN	94476	141714	188952	236190
S20DA685	START	251876	377814	503752	629690
	MIN	129536	194304	259072	323841

Model	Volume (Cubic Feet)	Est Wt (Lbs).		
		DA	60# spring	80# spring
S08DASR200	0.2			
S08DASR280	0.4			
S10DASR280	0.7	429	726	795
S10DASR335	1.0	476	804	840
S10DASR385	1.3	565	980	1026
S13DASR385	1.8	715	1195	1235
S13DASR435	2.3	804	1545	1585
S13DASR485	2.8	990	1715	1760
S16DASR485	3.1	1230	2018	2046
S16DASR535	3.8	1514	2326	2363
S20DASR585	5.6	2154	3036	3205
S20DASR685	7.7	2650	3657	3768

Maximum Working Pressure: 125 PSIG  
Maximum Allowable Pressure: 150 PSIG

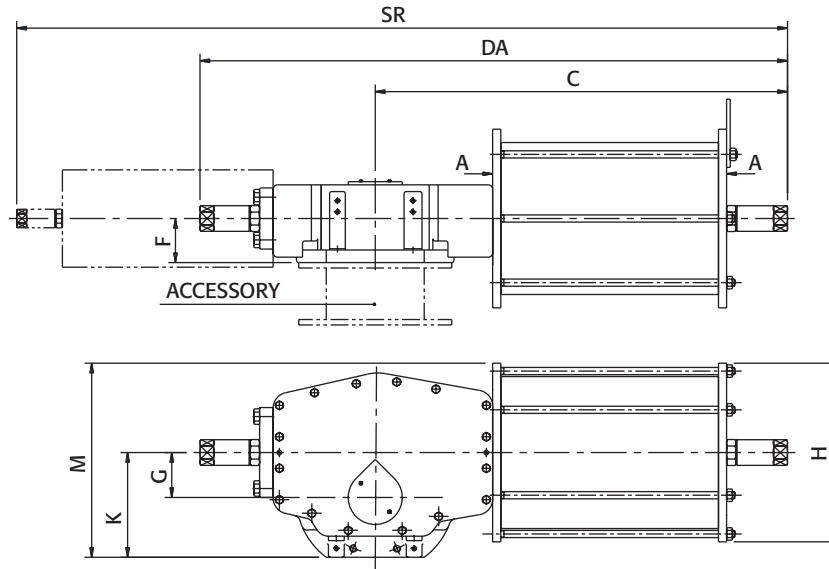
# Dimensional Data



## TRIAC Heavy Duty S Series Standard Coupling Dimensions

ACTUATOR MODEL	A DIA.	B DIA.	E	F	G	MOUNTING DIMENSION			
						B.C.D	N	T	ISO 5211
S08D/S200	8.66	1.97	3.74	0.55	2.12	6.50	4	M20	F16
S08D/S280	8.66	1.97	3.74	0.55	2.12	6.50	4	M20	F16
S10D/S280	11.81	2.95	5.51	0.79	3.15	10.00	8	M16	F25
S10D/S335	11.81	2.95	5.51	0.79	3.15	10.00	8	M16	F25
S10D/S385	11.81	2.95	5.51	0.79	3.15	10.00	8	M16	F25
S13D/S385	14.17	3.54	6.30	0.87	3.76	11.73	8	M20	F30
S13D/S435	14.17	3.54	6.30	0.87	3.76	11.73	8	M20	F30
S13D/S485	14.17	3.54	6.30	0.87	3.76	11.73	8	M20	F30
S16D/S485	16.54	4.33	7.87	1.26	4.62	14.02	8	M30	F35
S16D/S535	16.54	4.33	7.87	1.26	4.62	14.02	8	M30	F35
S20D/S585	18.90	5.12	9.06	1.26	5.41	15.98	8	M36	F40
S20D/S685	18.90	5.12	9.06	1.26	5.41	15.98	8	M36	F40

Unit: inches



## TRIAC Heavy Duty S Series Dimensions

ACTUATOR MODEL	A	C	F	G	H	K	SR	DA	M
S08D/S200	3/8" NPT	24.72	2.76	3.15	10.24	7.87	63.65	35.94	13.19
S08D/S280	1/2" NPT	24.84	2.76	3.15	14.06	7.87	63.77	36.06	15.12
S10D/S280	1/2" NPT	30.63	3.86	3.94	14.06	9.84	85.01	45.75	16.89
S10D/S335	1/2" NPT	30.83	3.86	3.94	16.14	9.84	85.21	45.94	17.95
S10D/S385	1/2" NPT	30.83	3.86	3.94	18.31	9.84	85.21	45.94	19.02
S13D/S385	1/2" NPT	38.98	4.49	5.12	18.31	12.20	106.04	58.98	21.38
S13D/S435	3/4" NPT	39.06	4.49	5.12	20.31	12.20	106.13	59.06	22.40
S13D/S485	3/4" NPT	39.06	4.49	5.12	22.76	12.20	106.13	59.06	23.58
S16D/S485	3/4" NPT	45.20	5.51	6.30	22.76	14.57	114.17	68.11	25.94
S16D/S535	3/4" NPT	45.75	5.51	6.30	25.35	14.57	114.72	68.66	27.24
S20D/S585	1" NPT	52.80	6.22	7.87	27.56	17.32	128.23	78.50	31.10
S20D/S685	1" NPT	53.27	6.22	7.87	32.28	17.32	128.70	78.98	33.46

Unit: inches

# Options



**APL-310**

## **Limit Switch Options**

- Mechanical
- Proximity
- Inductive
- Transmitter
- Others

## **All NEMA Ratings**

- IS
- AS-I
- Device Net
- Other



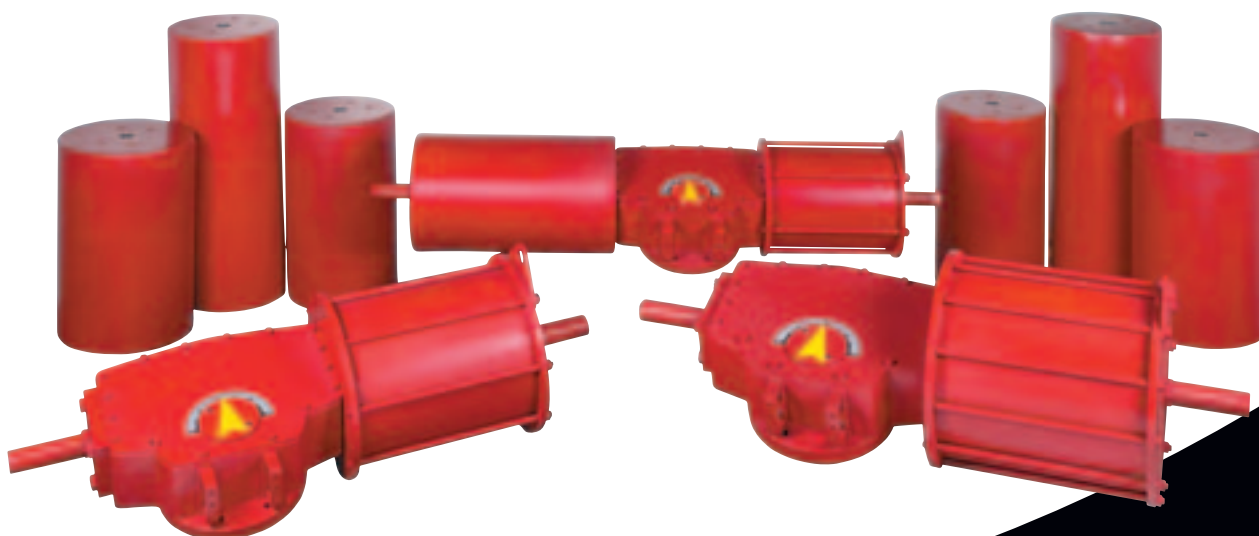
**EPR Series Positioner**

## **Positioner Options**

- Pneumatic
- Analog
- Digital
- Smart



- ▶ Lock-up valves
- ▶ Filter regulators
- ▶ Special tubing/fittings
- ▶ Lockout/tagout hardware
- ▶ Flow controls
- ▶ Speed controls
- ▶ Custom assemblies
- ▶ Dribble control
- ▶ Specials
- ▶ Complete mounting and assembly service
- ▶ Manual Override
- ▶ Over Sized Ports



# How to Order

## TRIAC THD Model Number Matrix

S	Symmetrical Scotch Yoke	
	Actuator Size	
	08	
	10	
	13	
	16	
	20	
	DA - Double Acting	
	SC - Spring Return Fail Clockwise	
	SO - Spring Return Fail Counter-Clockwise	
	Piston Size	
	200 485	
	280 535	
	335 585	
	385 685	
	435	
	Blank - Double Acting	
	40 - 40# Spring	
	60 - 60# Spring	
	80 - 80# Spring	
	100 - 100# Spring	
	Blank	
	V - High Temperature Seals	
	L - Low Temperature Seals	
	Blank - No Override	
	J - Jackscrew	
	H - Hydraulic	

Example: **S13SC43580L**

(Triac Heavy Duty Actuator, Spring Return, fails clockwise with low temperature seals and no override)

## Other A-T Controls products include



**TRIAC**

**Rack & Pinion  
Pneumatic Actuators**



**TRIAC**

**Electric Actuators**



**TRIAC**

**Automated Ball Valve  
Packages**



**A-T Controls**

**Gear Operators**



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