

SURE TORQUE™

a division of Sure Seal, Incorporated

SURE SEAL INCORPORATED IS PROUD TO BE

ISO 9001 certified

**Actuators and
Accessories**

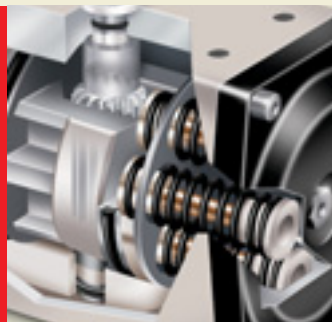


Now with DLS
DUAL LIMIT STOPS

Sure Torque's Series ST is a proven winner in today's market. With over 14 sizes and 90°, 120°, 135°, 180°, 240° and 270° rotation, the Sure Torque actuator can accommodate any situation. Double acting units start at 100 in.lbs. and go up to 37,200 in.lbs. of output torque at 80 PSI. Fail safe, spring return models have output torques of 17 to 15,600 in.lbs. All units will operate from -10° F to 195° F and from 20 PSIG to

The Sure Torque actuator body is extruded, machined, anodized internally and externally, then polyester powder epoxy painted for maximum external and internal protection. Sure Torque pistons are die-cast aluminum and the pinion is carbon steel, electroless nickel plated. Both pistons incorporate a large Delrin 500 wear pad which significantly increases the actuator cycle life. Upper and lower Delrin 500 bushings

Take a look inside and find out the Sure Torque Advantage



150 PSIG input pressure with optional high and low temp. seals and bearings. All Sure Torque actuators can be easily field converted from double acting to spring return by inserting the correct number of spring cartridges to the double acting unit, thus eliminating bulky housing extensions, saving weight and space. Specially designed, preloaded self-contained spring cartridges are completely contained before end cap screws release, ensuring the safest installation and removal. The Sure Torque Series ST is an uncomplicated compact design. Internal porting eliminates the need for costly, external tubing. Accessory mounting is to NAMUR standards. Solenoid mounting to NAMUR specifications is available, and is standard on sizes STU148 and above.

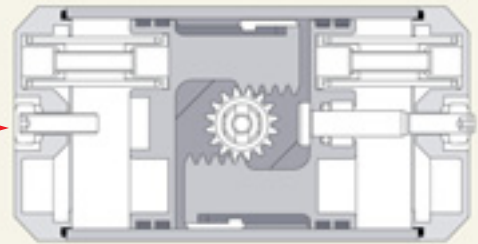
minimize wear and increase actuator duty cycle. The DLS feature allows travel stop adjustment in both directions of travel. The Sure Torque Series ST is available with a variety of accessories. Direct mount solenoids are available in NEMA 4, 7, and 9 in standard and special voltages. Limit switches are available in NEMA 4, 7 and 9. Positioners can be supplied to receive 3-15 PSI or 4-20 mA input control signals. Declutchable manual gear overrides are available for all size actuators. The actuator drive side directly mounts to Sure Seal Butterfly Valves. Available in ISO 5211 Dimensional Standards to meet your needs. Safe, compact, versatile, rugged, long-lasting and economical. The Sure Torque Series ST is the best choice for your actuation needs. Call or write for further information.

DLS (Dual Limit Stop)

Adjustment for open (CCW) stroke at left side of actuator when facing ports. Screw CCW to increase travel



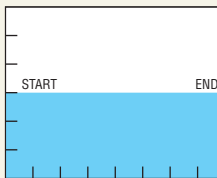
Adjustment for close (CW) stroke at right side of actuator when facing ports. Screw CW to increase travel



The DLS configuration available on Sure Torque actuators allows quicker and safer adjustments of the stroke travel stops. The DLS adds no increase in external dimensions nor requires additional hardware to make adjustments.

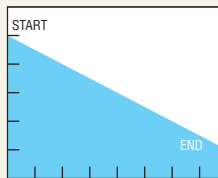
Torque Curves

Double Acting

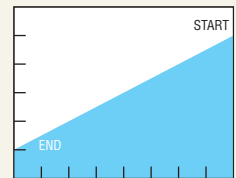


Constant output torque throughout travel.

Spring Return

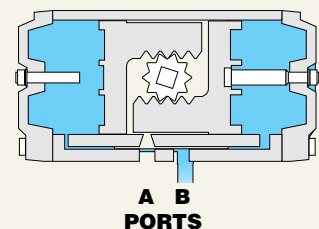
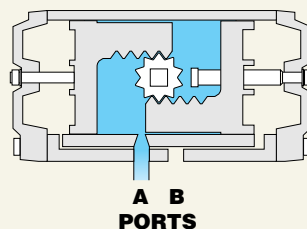


Air Stroke with counterclockwise rotation

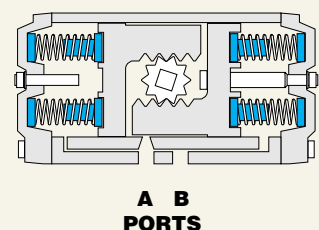
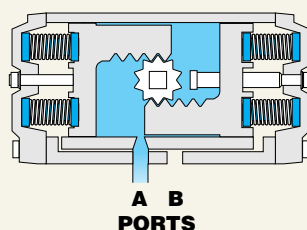


Spring Stroke with clockwise rotation

Double Acting Operation



Spring Return Operation

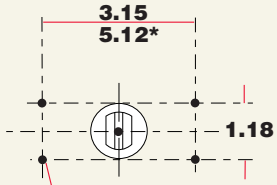


Sure Torque Pneumatic Actuator Torque Chart

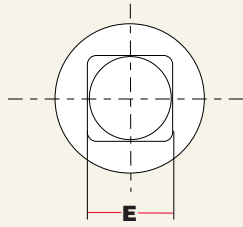
PSI	Double Acting Torque					SR	ALL Spring		40 Air		60 Air		80 Air		100 Air		120 Air					
	40	60	80	100	120		Start	End	End	Start	End	Start	End	Start	End	Start	End	Start	End			
	in. lbs.																					
STM10	50	75	100	125	150	2	56	38		11	18	35	42	60	67	85	92	110				
						3	83	57				16	15	40	40	65	65	90				
						4	111	76				22	36	72	86	122	136	172	186	222		
STM20	102	152	203	254	305	2	56	38	44	62	94	112	144	162	194	212	244	262				
						3	83	57	15	42	65	92	115	142	165	192	215	242				
						4	111	76		22	36	72	86	122	136	172	186	222				
STM30	151	227	302	378	453	2	80	56	69	93	144	168	218	242	293	317	367	391				
						3	119	83	30	66	104	140	179	215	253	289	328	364				
						4	159	111		38	64	112	139	187	213	261	288	336				
STM52	263	395	526	658	789	2	154	104	105	155	235	285	365	415	494	545	624	675				
						3	232	156	28	103	158	233	287	363	417	493	547	623				
						4	309	208		51	80	181	210	311	340	441	469	570				
STU73	367	551	734	918	1101	2	199	127	163	235	344	417	525	598	706	779	887	960				
						3	299	190	63	172	244	353	426	534	607	715	788	896				
						4	398	253		108	145	290	326	471	507	652	688	833				
STU103	516	774	1032	1290	1548	2	267	189	241	318	495	572	749	826	1002	1080	1256	1334				
						3	400	284	107	223	361	477	615	731	869	985	1123	1239				
						4	533	379		128	227	382	481	636	735	890	989	1144				
STU148	740	1109	1479	1849	2219	2	407	260	321	468	685	832	1049	1196	1413	1560	1777	1924				
						3	611	391	117	337	481	701	845	1065	1209	1429	1573	1793				
						4	814	521		207	277	571	641	935	1005	1299	1369	1663				
STU222	1109	1664	2218	2773	3327	2	550	400	489	645	1018	1174	1548	1704	2077	2233	2607	2763				
						3	826	600	188	426	718	956	1247	1485	1777	2015	2306	2544				
						4	1101	800		200	407	729	936	1259	1466	1789	1995	2318				
STU295	1479	2219	2958	3698	4437	2	814	516	641	939	1369	1667	2097	2395	2825	3123	3552	3850				
						3	1222	775	234	681	962	1409	1689	2137	2417	2864	3145	3592				
						4	1629	1033		423	554	1150	1282	1878	2010	2606	2738	3334				
STU470	2071	3106	4142	5177	6213	2	1133	681	938	1390	1974	2425	3009	3461	4045	4496	5080	5532				
						3	1699	1022	371	1049	1407	2084	2443	3120	3478	4155	4514	5191				
						4	2266	1363		708	840	1743	1876	2779	2911	3814	3947	4850				
STU586	2933	4399	5865	7331	8798	2	1542	1052	1344	1834	2787	3277	4230	4720	5673	6163	7117	7606				
						3	2312	1578	573	1308	2016	2751	3459	4194	4902	5637	6345	7080				
						4	3083	2104		781	1245	2224	2688	3667	4131	5111	5574	6554				
STU900	4550	6825	9100	11375	13650	2	2251	1619	2227	2859	4466	5098	6705	7337	8944	9576	11183	11815				
						3	3376	2428	1101	2049	3340	4288	5579	6527	7818	8766	10057	11005				
						4	4501	3238		1239	2214	3478	4453	5717	6692	7956	8931	10195				
STU1213	6066	9099	12132	15165	18198	2	3000	2159	2969	3811	5954	6796	8939	9781	11924	12766	14910	15751				
						3	4501	3238	1468	2731	4453	5716	7438	8701	10424	11686	13409	14672				
						4	6001	4317		1651	2952	4636	5937	7621	8922	10606	11907	13591				
STU2366	11833	17749	23665	29581	35498	2	6832	4573	4812	7072	10635	12895	16457	18718	22280	24540	28103	30363				
						3	10249	6859	1394	4785	7217	10607	13040	16430	18862	22253	24685	28076				
						4	13665	9145		2497	3798	8319	9621	14142	15444	19965	21267	25788				
STU2958	14790	22186	29581	29581	44371	2	8540	5015	6015	9541	13293	16819	20571	24097	27850	31376	35128	38654				
						3	12811	7523	1742	7032	9021	14310	16299	21589	23577	28867	30856	36145				
						4	17081	10030		4523	4748	11801	12026	19079	19304	26358	26583	33636				
STU3720	18625	27938	37250	37250	55875	2	8148	5119	11098	14127	20721	23750	30345	33374	39968	42997	49592	52621				
						3	12222	7679	7022	11566	16645	21189	26269	30813	35892	40436	45516	50060				
						4	16296	10239	2945	9004	12568	18628	22192	28251	31816	37875	41439	47498				

NOTE: Torques listed in the above table are exact. When sizing an actuator for a valve, first increase the valve torque required by 20%, as a safety factor. Also available in STM and STI Series refer to dimensional data page.

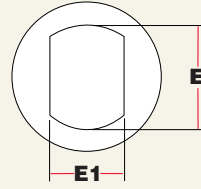
Dimensional Data



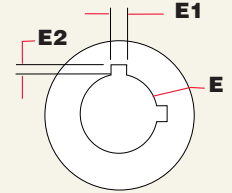
M5 X .31 DEEP. 4 PL
"STU586 AND LARGER
TOP MOUNTING DETAIL



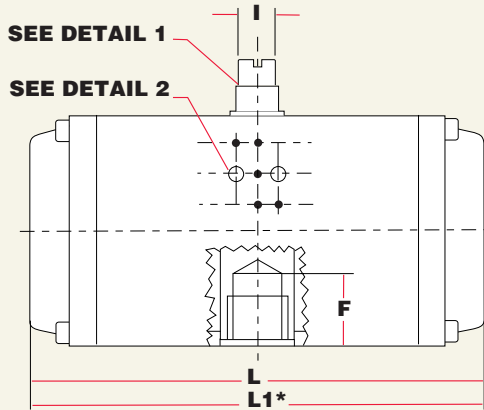
MODEL STM10-STM52
OUTPUT SHAFT



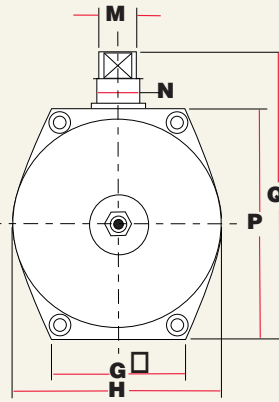
MODEL STU73-STU148
OUTPUT SHAFT



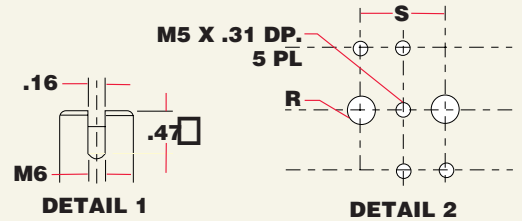
MODEL STU222-STU3720
OUTPUT SHAFT



SIDE VIEW

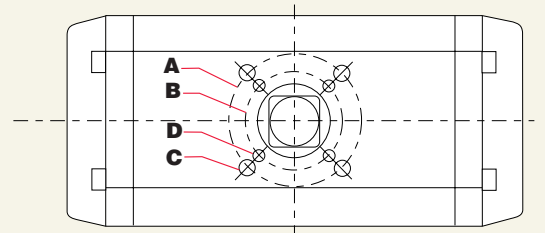


END VIEW



DETAIL 1

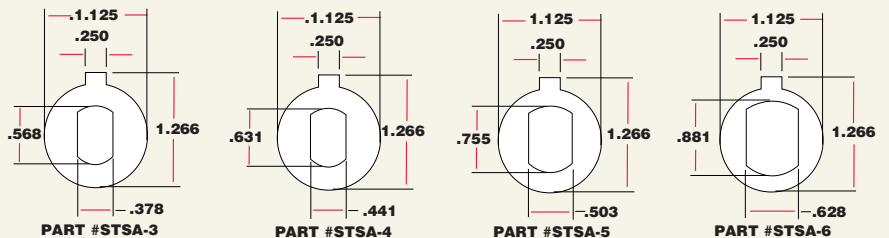
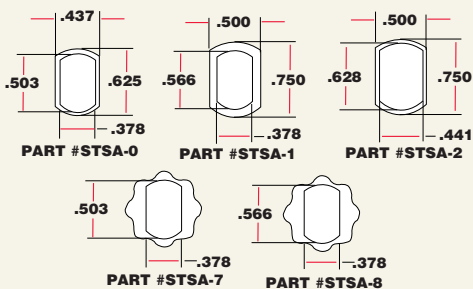
DETAIL 2



BOTTOM VIEW

MODEL	A	FO	B	FO	C*	D*	E	E1	E2	F	G	H	I	L	L1*	M	N	P	Q	R	S
STM10	1.65	F04	1.42	F03	#10-32	#10-32	.433	-	-	.55	1.77	2.05	.35	4.25	-	.472	.472	2.60	3.39	1/8	.87
STM20	1.97	F05	1.42	F03	1/4-20	#10-32	.551	-	-	.55	1.97	2.32	.39	5.00	7.52	.472	.472	2.91	3.70	1/8	.87
STM30	2.76	F07	1.97	F05	5/16-18	1/4-20	.551	-	-	.71	2.36	2.76	.39	5.24	7.72	.472	.472	3.46	4.25	1/8	.87
STM52	2.76	F07	1.97	F05	5/16-18	1/4-20	.669	-	-	.75	2.56	3.27	.39	6.10	9.09	.551	.707	3.94	4.73	1/8	.87
STU73	2.76	F07	1.97	F05	5/16-18	1/4-20	.753	.503	-	1.65	2.56	3.58	.39	6.97	10.43	.551	.707	4.25	5.04	1/8	.87
STU103	2.76	F07	1.97	F05	5/16-18	1/4-20	.753	.503	-	1.65	2.76	3.94	.55	7.99	11.97	.788	.984	4.61	5.40	1/8	.87
STU148	4.02	F10	2.76	F07	3/8-16	5/16-18	.753	.503	-	1.65	3.54	4.72	.55	8.50	12.48	.788	.984	5.51	6.30	1/4	.94
STU222	4.02	F10	2.76	F07	3/8-16	5/16-18	1.125	.250	.125	2.30	3.54	4.72	.79	11.18	16.46	1.102	1.575	5.51	6.30	1/4	.94
STU295	4.02	F10	2.76	F07	3/8-16	5/16-18	1.125	.250	.125	2.32	4.06	5.39	.79	11.42	17.36	1.102	1.575	6.30	7.10	1/4	.94
STU470	4.92	F12	4.02	F10	1/2-13	3/8-16	1.128	.250	.125	2.32	4.33	6.77	.79	13.27	-	1.102	1.575	7.80	8.98	1/4	.94
STU586	4.92	F12	4.02	F10	1/2-13	3/8-16	1.128	.250	.125	2.32	4.33	6.77	1.10	14.49	21.89	1.417	1.575	7.80	8.98	1/4	.94
STU900	5.51	F14	-	-	5/8-11	-	1.128	.250	.125	2.32	5.31	8.82	1.26	17.72	-	1.417	2.362	10.00	11.18	1/4	.94
STU1213	5.51	F14	-	-	5/8-11	-	1.628	.375	.188	3.37	5.31	8.82	1.26	17.72	26.61	1.850	2.362	10.00	11.18	1/4	.94
STU2366	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.57	6.26	10.71	1.26	23.07	34.84	1.850	2.362	11.89	13.07	1/4	.94
STU2958	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.53	6.26	10.71	1.26	26.22	-	1.850	2.362	11.89	13.07	1/4	.94
STU3720	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.53	6.30	14.17	1.26	26.89	-	1.850	2.362	14.17	15.35	1/2	1.97

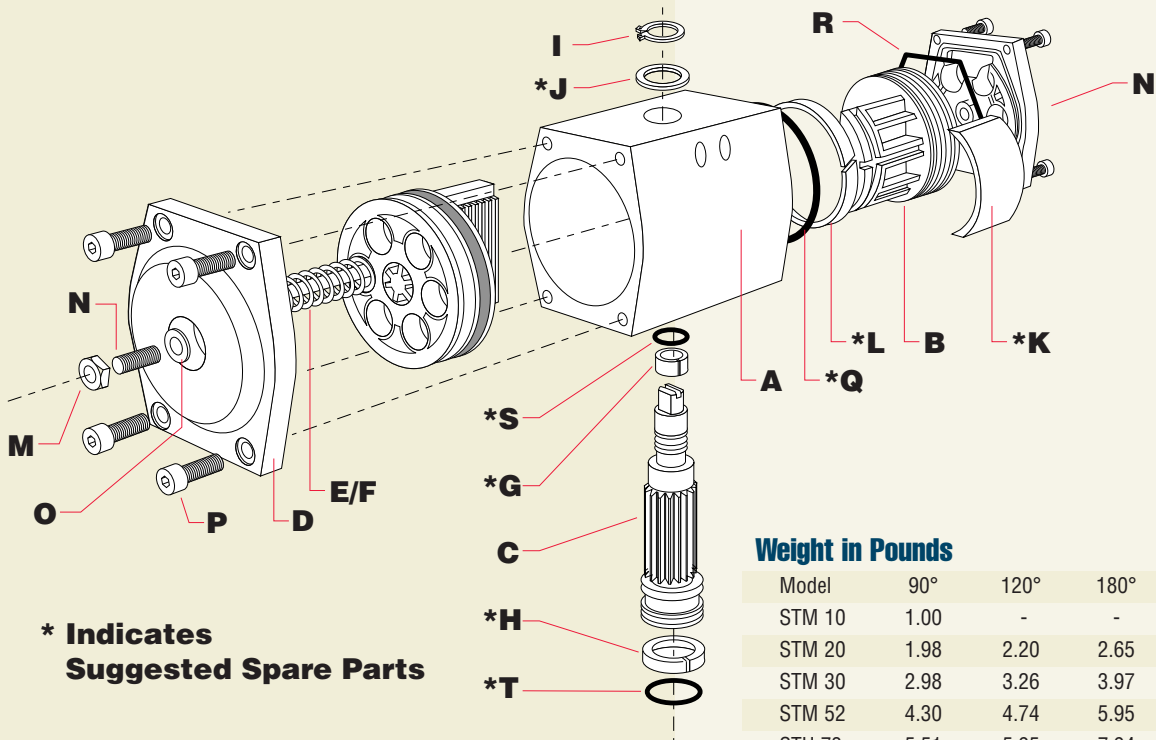
ADAPTER DIMENSIONS



Top mounting dimensions for accessories to Namur standard. Bottom mounting is to DIN-ISO standards. Solenoid mounting to Namur specifications is available on all units and is standard on units STM52 and higher.

C* & D* UNC bolt sizes. L1* 180 end-to-end dimensions.

Sure Torque's Series ST



*** Indicates Suggested Spare Parts**

Weight in Pounds

Model	90°	120°	180°	K6
STM 10	1.00	-	-	1.20
STM 20	1.98	2.20	2.65	2.20
STM 30	2.98	3.26	3.97	3.42
STM 52	4.30	4.74	5.95	5.07
STU 73	5.51	5.95	7.94	6.39
STU 103	7.39	8.16	11.25	8.38
STU148	10.58	11.47	13.56	12.79
STU 222	14.99	16.90	20.68	17.86
STU 295	18.74	20.73	26.02	22.49
STU 470				
STU 586	34.40	39.69	55.79	42.78
STU 900				
STU 1213	68.80	81.14	106.94	86.66
STU 2366	132.32	146.63	173.60	180.81
STU 2958	160.97	177.60	-	209.48
STU 3720	205.00	-	-	267.00

Series ST Materials

	Qty.	Description	Material
A	1	body	anodized aluminum polyester epoxy coating
B	2	piston**	die cast aluminum
C	1	pinion	E.N.P. ASTM B656 Steel
D	2	end cap**	epoxy coated aluminum
E	Max 12	spring	epoxy coated steel
F	Max 12	spring cartridge	Delrin/brass
G	1	upper pinion bearing	Delrin 500
H	1	lower pinion bearing	Delrin 500
I	1	circlip	E.N.P. ASTM B656 Steel
J	1	pinion washer	Delrin 500
K	2	piston skate	Delrin 500
L	2	piston guide ring	Delrin 500
M	2	sealing nut	304 Stainless Steel
N	2	travel stop	304 Stainless Steel
O	2	travel stop o-ring	BUNA N
P	8	end cap screw	304 Stainless Steel
Q	2	piston o-ring	BUNA N
R	2	end cap o-ring	BUNA N
S	1	upper pinion o-ring	BUNA N
T	1	lower pinion o-ring	BUNA N

Air Consumption

Cubic Inches per Cycle (Open/Close)

Model	90°	120°	180°	K6
STM 10	12.8	-	-	6.7
STM 20	15.3	17.1	28.1	7.3
STM 30	22.0	24.4	41.5	9.2
STM 52	36.6	42.7	68.3	15.3
STU 73	52.5	61.0	99.5	22.0
STU 103	67.1	82.4	131.2	27.5
STU148	112.9	137.3	189.2	41.5
STU 222	152.6	176.9	341.7	67.1
STU 295	218.5	241.0	415.0	86.7
STU 470				
STU 586	416.2	476.0	790.2	174.5
STU 900				
STU 1213	872.6	1013.0	1293.7	360.0
STU 2366	1586.6	1861.2	2471.5	701.8
STU 2958	1922.2	2288.4	-	1037.4
STU 3720	2955.0	-	-	1594.0

**ST10-ST20 utilize polyilamide materials

Accessories

LIMIT SWITCHES

Sure Seal's Watchman VPT Series are ruggedly designed to meet industrial process requirements for reliable cost effective feedback systems. Sure Seal's Sentinel VPT Series are ruggedly designed to keep up with today's advanced process control technology. The Sentinel VPT is an accurate, versatile valve position transmitter.



SOLENOIDS

Sure Seal Solenoids are constructed with quality Anodized Aluminum for the body, phosphate treated black steel springs copper shading coil and stainless steel core and core tube. We are committed to providing the strength and performance you demand.



POSITIONERS

The Series SP/SE from Sure Torque is designed and manufactured to offer years of trouble free and economical operation. Every component has been field tested and field proven to exceed your expectations of performance and reliability. The Series SP/SE simply outperforms every other positioner in its class.



Purchasers are expected to make their own tests to determine the suitability of these products for their particular purposes. The data represented in this flyer is for general information only. Manufacturer is not responsible for acceptability of these products in regard to individual system requirements. For specific performance data and correct materials selection, please contact your Sure Seal Dealer.
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Rt. 2, Box 2242 • Mineral Point, Missouri 63660 • (573) 438-5000 • Fx (573) 438-4853
www.suresealinc.com • ssi@suresealinc.com



1-800-382-1604