



SPN II



SPN II Pneumatic Actuator

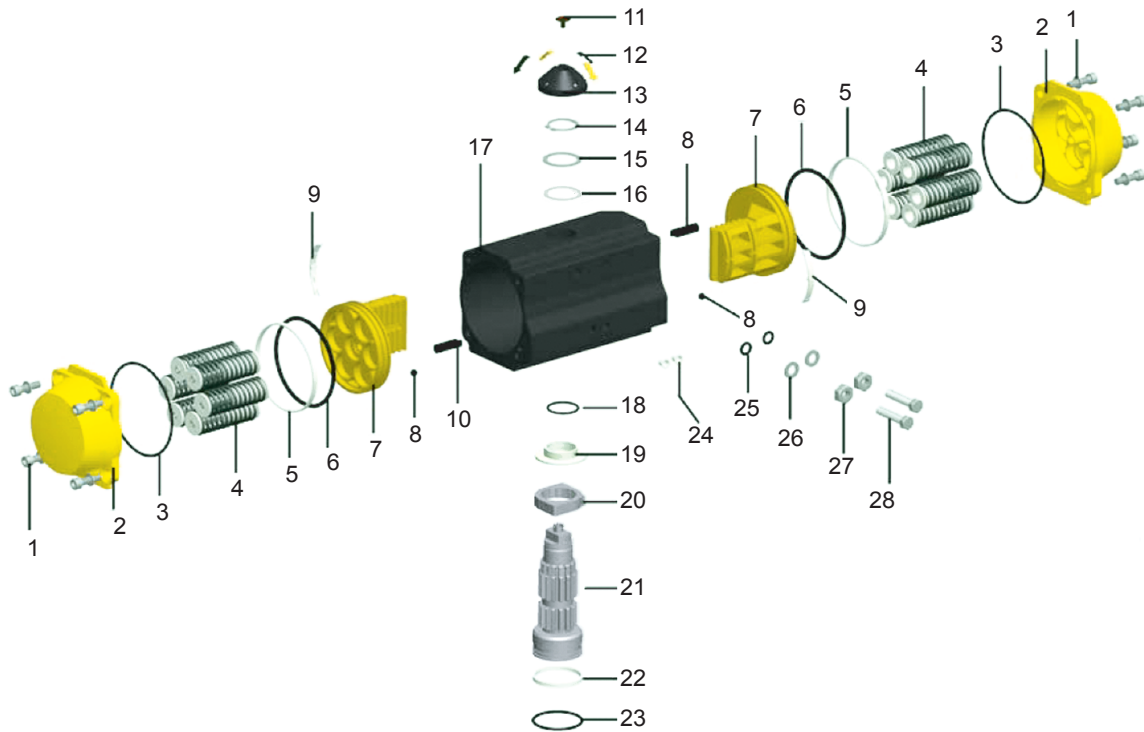


- Rack & pinion design
- The standard actuator configuration has hard anodized aluminum body and epoxy coated end caps
- Inside surface finish (Ra 0.4-0.6µm) to minimize friction and to maximize the life of the actuator.
- Standard applications for temperature ranges from -4°F to +180°F.
- Special options for extreme temperatures (upon request).
Low temperature actuator -40°F to 80°F
High temperature actuator +5°F to 300°F
- Piston bearing made of material with low friction coefficient to avoid metal on metal contact, easily replaceable for maintenance.
- Base drilling, for valve mounting, and centering, according to ISO 5211/DIN 3337 standards.
- The indicator is designed to remain on the actuator for continuous indication when limit switch is not being used (not available on SPN II 032).
- Independent bidirectional travel stop adjustment +/- 5° ensuring precise positioning in all flow control services (not available on SPN II 032).
- Direct mounted solenoid connections according to NAMUR standards.
- Same body and end caps for double acting and spring return.
- Air supply can be dry or lubricated filter compressed air. Pressure: 40 PSI to 120 PSI
- The lubrication carried out by the manufacturer qualifies for a minimum 1,000,000 operations.
- Epoxy coating is a deposit of powders on clean

sandblasted pieces. The chemical process is easily kept under control and after coating, the pieces must be subjected to heat treatment. Epoxy painting of actuators is advised where environment is strongly aggressive. With the exception of certain solvents, epoxy coatings resist acids and alkali, and also has a good resistance to UV rays. In order to retain its properties, the coating must not be scratched.

- Multi-function position indicator with NAMUR slot to allow visual position indicator.
- The SPN II features inserts to allow easy conversion to many square and diamond stems. There are also double D along with round bores with keyway inserts for the same actuators for butterfly applications. The pinion is drilled deeper than standard actuators. The SPN II series has mounting plates for the transition of the bolt circles of the actuator to be used with other industry standards for butterfly valves.
- For conditions or applications that demand the most from equipment, Sharpe offers our SPNII with chemical nickel plating. These actuators are designed to be a cost effective option in comparison to stainless steel actuators. The Nickel plating is done through chemical impregnation to provide uniform coverage and protection. The bath is a mixture of nickel and phosphorous to provide excellent qualities in: hardness, wear resistance, appearance and its inherent ability to withstand many wash down applications that actuators with standard finishes cannot.

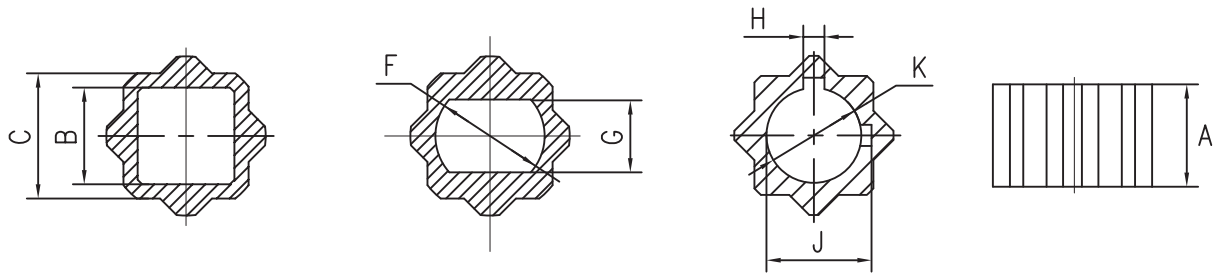
SPN II Material List



Part No.	Qty	Part Description	Materials	Surface Treated	Optional Material
1	8	End Cap Bolts	Stainless Steel 304		
2	2	End Cap	Aluminum 380 Die-Casting Alloy	Hard Anodized & Polyester Coated	CF8/CF8M
3*	2	O-Ring (End Cap)	NBR Rubber		Viton/Silicone
4	5-12	Spring (Cartridge)	High Alloy Spring Steel	Polyester Coated	
5*	2	Bearing	Polyacetal		CF8/CF8M
6*	2	O-Ring (Pinion)**	NBR Rubber		Viton/Silicone
7	2	Piston	380 Die-Casting	Hard Anodized	
8*	2	Plug	NBR Rubber		Viton/Silicone
9*	2	Bearing (Piston Back)	Nylon		
10*	2	Piston Guide	Nylon		
11	2	Indicator Bolt	ABS		
12	4	Indicator Arrowhead	ABS		
13	2	Pinion Indicator	ABS		
14	2	Snap Ring	Stainless Steel 304		
15	1	Thrust Washer (Pinion)	Stainless Steel 304		
16*	1	Thrust Washer (Pinion)	Polyacetal		
17	1	Body	Aluminum 6063-T6	Hard Anodized & Polyester Coated	CF8/CF8M
18*	1	O-Ring (Pinion)**	NBR Rubber		Viton/Silicone
19*	1	Bearing (Pinion Top)	Polyacetal		
20	1	Stroke Adjustment Stop	C45 Steel	Nickel Plated	CF8/CF8M
21	1	Pinion	Alloy Steel	Nickel Plated	SUS304/SUS316
22*	1	Bearing (Pinion Bottom)	Polyacetal		
23*	1	O-Ring (Pinion Bottom)	NBR Rubber		Viton/Silicone
24*	2	Exhaust Plug	PVC		
25*	2	O-Ring (Stop Nut)	NBR Rubber		Viton/Silicone
26	2	Washer	Stainless Steel 304		
27	2	Stop Nut	Stainless Steel 304		
28	2	Stop Bolts	Stainless Steel 304		

* Parts typically supplied in service kits

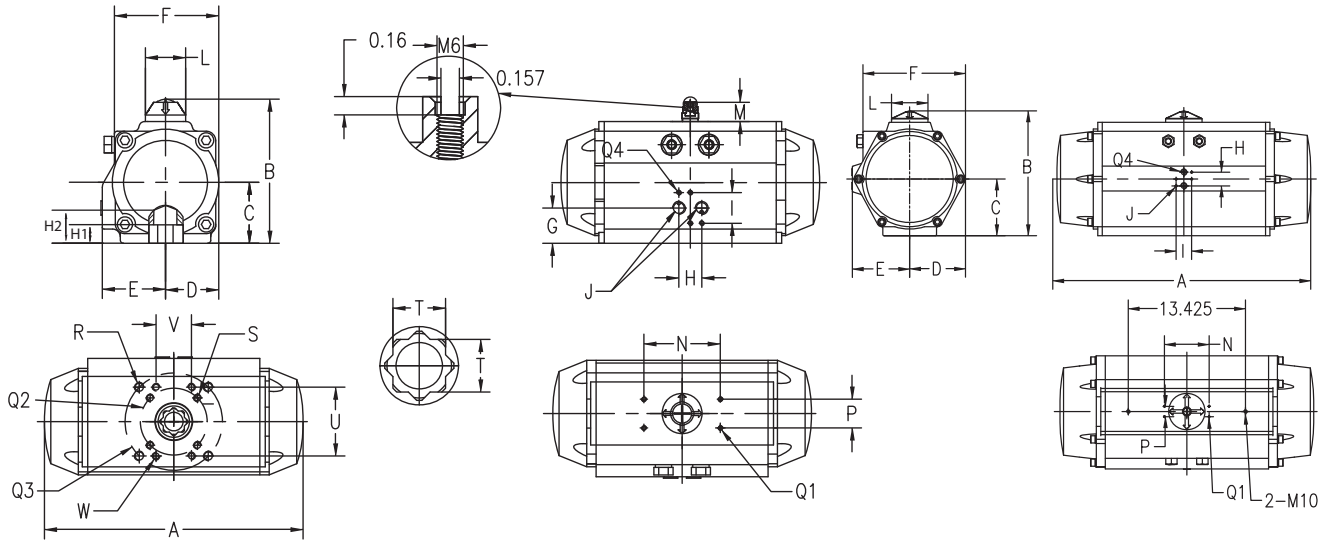
SPN II Inserts Dimensions



Model	Insert Code	Insert Shape	Unit	Insert Size	A	B	C	F	G	H	J	K
050	A	Square	in mm	0.354 9	0.472 12	0.354 9	0.669 17					
	B*	Square	in mm	0.433 11	0.472 12	0.433 11	0.669 17					
	C	Square	in mm	0.551 14	0.472 12	0.551 14	0.669 17					
	G	Flat	in mm	0.378 10	0.472 12	-	0.669 17	0.567 14	0.378 10			
063	A	Square	in mm	0.354 9	0.630 16	0.354 9	0.669 17					
	B*	Square	in mm	0.433 11	0.630 16	0.433 11	0.669 17					
	C	Square	in mm	0.551 14	0.630 16	0.551 14	0.669 17					
	G	Flat	in mm	0.378 10	0.630 16	-	0.669 17	0.567 14	0.378 10			
075 & 085	A	Square	in mm	0.354 9	0.709 18	0.354 9	0.866 22					
	B	Square	in mm	0.433 11	0.709 18	0.433 11	0.866 22					
	C*	Square	in mm	0.551 14	0.709 18	0.551 14	0.866 22					
	D	Square	in mm	0.669 17	0.709 18	0.669 17	0.866 22					
	G	Flat	in mm	0.378 10	0.709 18	-	0.866 22	0.567 14	0.378 10			
	H	Flat	in mm	0.441 11	0.709 18	-	0.866 22	0.63 16	0.441 11			
	I	Flat	in mm	0.503 13	0.709 18	-	0.866 22	0.756 19	0.503 13			
100 & 115	B	Square	in mm	0.433 11	0.906 23	0.433 11	0.866 22					
	C	Square	in mm	0.551 14	0.906 23	0.551 14	0.866 22					
	D*	Square	in mm	0.669 17	0.906 23	0.669 17	0.866 22					
	G	Flat	in mm	0.378 10	0.906 23	-	0.866 22	0.567 14	0.378 10			
	H	Flat	in mm	0.441 11	0.906 23	-	0.866 22	0.63 16	0.441 11			
	I	Flat	in mm	0.503 13	0.906 23	-	0.866 22	0.756 19	0.503 13			
125, 145 & 160	C	Square	in mm	0.551 14	1.142 29	0.551 14	1.417 36					
	D	Square	in mm	0.669 17	1.142 29	0.669 17	1.417 36					
	E	Square	in mm	0.866 22	1.142 29	0.866 22	1.417 36					
	F	Square	in mm	1.063 27	1.142 29	1.063 27	1.417 36					
	G	Flat	in mm	0.378 10	1.142 29	-	1.417 36	0.563 14	0.378 10			
	H	Flat	in mm	0.441 11	1.142 29	-	1.417 36	0.63 16	0.441 11			
	I	Flat	in mm	0.503 13	1.142 29	-	1.417 36	0.756 19	0.503 13			
	J	Flat	in mm	0.628 16	1.142 29	-	1.417 36	0.882 22	0.628 16			
	K	Round	in mm	1.130 29	1.142 29	-	1.417 36			0.252 6	1.252 32	1.13 29
180 & 200	E	Square	in mm	0.866 22	1.654 42	0.866 22	1.417 36					
	F*	Square	in mm	1.063 27	1.654 42	1.063 27	1.417 36					
	J	Flat	in mm	0.628 16	1.654 42	-	1.417 36	0.882 22	0.628 16			
	K	Round	in mm	1.130 29	1.654 42	-	1.417 36			0.252 6	1.252 32	1.13 29

* Standard Insert

SPN II Dimensions



Model	Unit	A	B	C	D	E	F	G	H	H1	H2	I	J	L
032	in	4.61	1.77	.88	.88	.88	1.77	.88	0.94	.39	-	1.25	1/8"	1.4
	mm	117	45	22	22	22	45	22	24	10	-	32	36	36
050	in	5.8	3.62	1.35	1.12	1.61	2.28	1.02	0.94	0.47	1.26	1.26	1/4"	1.65
	mm	147	92	34	28	41	58	26	24	12	32	32	42	42
063	in	6.26	4.25	1.67	1.42	1.14	2.83	1.18	0.94	0.63	1.34	1.26	1/4"	1.65
	mm	159	108	42	36	29	72	30	24	16	34	32	42	42
075	in	8.39	4.92	2.01	1.71	2.07	3.39	1.03	0.94	0.75	1.34	1.26	1/4"	1.65
	mm	213	125	51	43	53	86	26	24	19	34	32	42	42
085	in	9.8	5.43	2.27	1.91	2.22	3.8	1.26	0.94	0.75	1.34	1.26	1/4"	1.65
	mm	249	138	58	49	56	97	32	24	19	34	32	42	42
100	in	10.67	5.94	2.5	2.2	2.6	4.17	1.46	0.94	0.91	1.89	1.26	1/4"	1.65
	mm	271	151	64	56	66	106	37	24	23	48	32	42	42
115	in	12.40	6.89	2.85	2.52	3.03	5.00	1.67	0.94	0.91	1.89	1.26	1/4"	2.6
	mm	315	175	72	64	77	127	42	24	23	48	32	66	66
125	in	13.62	7.48	3.09	2.72	3.23	5.12	1.8	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	346	190	78	69	82	130	46	24	29	65	32	66	66
145	in	16.22	8.25	3.46	3.15	3.54	5.85	2.17	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	412	210	88	80	90	149	55	24	29	65	32	66	66
160	in	17.44	9.06	3.88	3.46	3.87	6.28	2.04	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	443	230	99	88	98	160	52	24	29	65	32	66	66
180	in	19.37	9.96	4.29	3.88	4.15	7.07	2.37	0.94	1.65	3.62	1.26	1/4"	3.15
	mm	492	253	109	99	105	180	60	24	42	92	32	80	80
200	in	21.54	10.91	4.8	4.29	4.41	7.64	2.6	0.94	1.65	3.62	1.26	1/4"	3.15
	mm	547	277	122	109	112	194	66	24	42	92	32	80	80
240	in	24.17	13.7	5.75	5.14	5.16	9.09	2.76	1.57	1.97	3.27	1.77	3/8"	3.15
	mm	614	348	146	131	131	231	70	40	50	92	45	80	80
265	in	28.7	15.31	6.57	5.79	5.78	9.99	3.54	1.57	1.97	3.27	1.77	3/8"	3.15
	mm	729	389	167	147	147	254	90	40	50	92	45	80	80
300	in	33.03	16.14	6.99	6.38	6.81	11.42	3.35	1.57	1.97	3.27	1.77	1/2"	3.15
	mm	839	410	178	162	173	290	85	40	50	92	45	80	80

Model	Unit	M	N	P	Q1	Q2	Q3	Q4	R	S	T	U	V	W
032	in	0.79	1.97	1.18	M5	F03	-	M5	-	-	0.35	-	-	-
	mm	20	50	30	M5	F03	-	M5	-	-	9	-	-	-
050	in	0.79	3.15	1.18	M5	F04	-	M5	-	M5	0.67	-	-	-
	mm	20	80	30	M5	F04	-	M5	-	M5	17	-	-	-
063	in	0.79	3.15	1.18	M5	F05	-	M5	-	M6	0.67	-	-	-
	mm	20	80	30	M5	F05	-	M5	-	M6	17	-	-	-
075	in	0.79	3.15	1.18	M5	F05	F07	M5	M8	M6	0.87	-	-	-
	mm	20	80	30	M5	F05	F07	M5	M8	M6	22	-	-	-
085	in	0.79	3.15	1.18	M5	F05	F07	M5	M8	M6	0.87	-	-	-
	mm	20	80	30	M5	F05	F07	M5	M8	M6	22	-	-	-
100	in	0.79	3.15	1.18	M5	F07	F10	M5	M10	M8	0.87	2.83	1.46	M8
	mm	20	80	30	M5	F07	F10	M5	M10	M8	22	72	37	M8
115	in	1.18	3.15	1.18	M5	F07	F10	M5	-	M10	0.87	-	-	M8
	mm	30	80	30	M5	F07	F10	M5	-	M10	22	-	-	M8
125	in	1.18	3.15	1.18	M5	F10	-	M5	-	M10	1.42	2.83	1.46	M8
	mm	30	80	30	M5	F10	-	M5	-	M10	36	72	37	M8
145	in	1.18	3.15	1.18	M5	F10	F12	M5	M12	M10	1.42	2.83	1.46	M8
	mm	30	80	30	M5	F10	F12	M5	M12	M10	36	72	37	M8
160	in	1.18	3.15	1.18	M5	F10	F12	M5	M12	M10	1.42	2.83	1.46	M8
	mm	30	80	30	M5	F10	F12	M5	M12	M10	36	72	37	M8
180	in	1.18	5.12	1.18	M5	F10	F14	M5	M16	M10	1.42	3.9	2.09	M10
	mm	30	130	30	M5	F10	F14	M5	M16	M10	36	99	53	M10
200	in	1.18	5.12	1.18	M5	F10	F14	M5	M16	M10	1.42	3.9	2.09	M10
	mm	30	130	30	M5	F10	F14	M5	M16	M10	36	99	53	M10
240	in	1.97	5.12	1.18	M5	F12	F16	M6	M20	M12	1.81	-	-	-
	mm	50	130	30	M5	F12	F16	M6	M20	M12	46	-	-	-
265	in	1.97	5.12	1.18	M5	-	F16	M6	M20	-	1.81	-	-	-
	mm	50	130	30	M5	-	F16	M6	M20	-	46	-	-	-
300	in	1.97	5.12	1.18	M5	-	F16	M6	M20	-	1.81	-	-	-
	mm	50	130	30	M5	-	F16	M6	M20	-	46	-	-	-

SPN II Spring Return Torques

Model	Spring Quantity	Air Supply														Spring Return	
		40 PSI		60 PSI		70 PSI		80 PSI		90 PSI		100 PSI		120 PSI		Start	End
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
050	05	51	36	93	78	111	96	133	118	159	144	179	164	221	206	45	27
	06	44	28	86	70	104	88	126	110	152	135	172	156	214	198	50	34
	07	38	19	80	61	98	79	120	101	146	127	166	147	208	189	59	40
	08			73	51	91	69	113	91	139	117	159	137	201	179	69	47
	09			67	43	85	61	107	83	133	109	153	129	195	171	77	53
	10					79	53	101	75	127	101	147	121	189	163	85	59
	11					72	43	94	65	120	91	140	111	182	153	95	66
	12					65	34	87	56	113	82	133	102	175	144	104	73
063	05	96	70	166	140	200	174	236	210	272	246	308	282	376	350	76	50
	06	86	54	156	124	190	158	226	194	262	230	298	266	366	334	92	60
	07	76	38	146	108	180	142	216	178	252	214	288	250	356	318	108	70
	08			135	94	169	128	205	164	241	200	277	236	345	304	122	81
	09			125	78	159	112	195	148	231	184	267	220	335	288	138	91
	10			114	62	148	96	184	132	220	168	256	204	324	272	154	102
	11					138	80	174	116	210	152	246	188	314	256	170	112
	12					129	65	165	101	201	137	237	173	305	241	185	121
075	05	174	117	316	259	386	329	456	399	546	489	612	555	742	685	159	102
	06	157	86	299	228	369	298	439	368	529	458	595	524	725	654	190	119
	07	137	55	279	197	349	267	419	337	509	427	575	493	705	623	221	139
	08			259	166	329	236	399	306	489	396	555	462	685	592	252	159
	09			240	135	310	205	380	275	470	365	536	431	666	561	283	178
	10			221	104	291	174	361	244	451	334	517	400	647	530	314	197
	11			201	73	143	341	341	213	431	303	497	369	627	499	345	217
	12					112	322	322	182	412	272	478	338	608	468	376	236
085	05	271	171	478	378	534	434	702	602	810	710	932	832	1154	1054	266	166
	06	238	120	445	327	501	383	669	551	777	659	899	781	1121	1003	317	199
	07	205	69	412	276	468	332	636	500	744	608	866	730	1088	952	368	232
	08			380	224	436	280	604	448	712	556	834	678	1056	900	420	264
	09			348	173	404	229	572	397	680	505	802	627	1024	849	471	296
	10			316	122	372	178	540	346	648	454	770	576	992	798	522	328
	11					339	126	507	294	615	402	737	524	959	746	574	361
	12					306	75	474	243	582	351	704	473	926	695	625	394
100	05	413	290	753	630	903	780	1050	927	1217	1094	1385	1262	1683	1560	345	222
	06	368	220	708	560	858	710	1005	857	1172	1024	1340	1192	1638	1490	415	267
	07	323	150	663	490	813	640	960	787	1127	954	1295	1122	1593	1420	485	312
	08			617	420	767	570	914	717	1081	884	1249	1052	1547	1350	555	358
	09			572	350	722	500	869	647	1036	814	1204	982	1502	1280	625	403
	10			528	281	678	431	825	578	992	745	1160	913	1458	1211	694	447
	11			483	211	633	361	780	508	947	675	1115	843	1413	1141	764	492
	12			437	141	587	291	734	438	901	605	1069	773	1367	1071	834	538
115	05	687	470	1211	994	1474	1257	1736	1519	1998	1781	2260	2044	2670	2410	580	363
	06	614	354	1139	878	1401	1141	1663	1403	1926	1665	2188	1928	2592	2291	969	435
	07	541	238	1066	762	1328	1025	1591	1287	1853	1549	2115	1812	2525	2153	812	508
	08			993	646	1256	909	1518	1171	1780	1433	2043	1696	2451	2038	928	581
	09			921	530	1183	793	1446	1055	1708	1317	1970	1580	2387	1942	1044	653
	10			848	414	1111	677	1373	939	1635	1201	1898	1464	2235	1724	1160	726
	11					1038	560	1300	823	1563	1085	1825	1348	2318	1840	1276	798
	12					965	444	1228	707	1490	969	1753	1232	2245	1724	1392	871
125	05	850	584	1539	1273	1919	1653	2277	2011	2557	2291	2967	2701	3650	3384	717	451
	06	757	434	1446	1123	1826	1503	2184	1861	2464	2141	2874	2551	3557	3234	867	544
	07	664	292	1353	981	1733	1361	2091	1719	2371	1999	2781	2409	3464	3092	1009	637
	08			1255	831	1635	1211	1993	1569	2273	1849	2683	2259	3366	2942	1159	735
	09			1162	680	1542	1060	1900	1418	2180	1698	2590	2108	3273	2791	1310	828
	10			1070	530	1450	910	1808	1268	2088	1548	2498	1954	3181	2641	1460	920
	11			977	388	1357	768	1715	1126	1995	1406	2405	1816	3088	2499	1602	1013
	12			879	238	1259	618	1617	976	1897	1256	2307	1666	2990	2349	1752	1111

SPN II Spring Return Torques Cont.

Model	Spring Quantity	Air Supply														Spring Return	
		40 PSI		60 PSI		70 PSI		80 PSI		90 PSI		100 PSI		120 PSI		Start	End
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
145	05	1253	846	2433	2026	2973	2566	3485	3078	3983	3576	4626	4219	5588	5181	1124	717
	06	1103	616	2283	1796	2823	2336	3335	2848	3833	3346	4476	3989	5438	4951	1354	867
	07	952	386	2132	1566	2672	2106	3184	2618	2682	3116	4325	3759	5287	4721	1584	1018
	08			1991	1336	2531	1876	3043	2388	3541	2886	4184	3529	5146	4491	1814	1159
	09			1840	1114	2380	1654	2892	2166	3390	2664	4033	3307	4995	4269	2036	1310
	10			1690	884	2230	1424	2742	1936	3240	2434	3883	3077	4845	4039	2266	1460
	11			1548	654	2088	1194	2600	1706	3098	2204	3741	2847	4703	3809	2496	1602
	12					1946	964	2458	1476	2956	1974	3599	2617	4561	3579	2726	1744
160	05	1858	1372	3185	2699	3893	3407	4601	4115	5221	4735	5929	5443	7171	6685	1460	974
	06	1655	1080	2982	2407	3690	3115	4398	3823	5018	4443	5726	5151	6968	6393	1752	1177
	07	1451	779	2778	2106	3486	2814	4194	3522	4814	4142	5522	4850	6764	6092	2053	1381
	08			2575	1814	3283	2522	3991	3230	4611	3850	5319	4558	6561	5800	2345	1584
	09			2380	1513	3088	2221	3796	2929	4416	3549	5124	4257	6366	5499	2646	1779
	10			2176	1221	2884	1929	3592	2637	4212	3257	4920	3965	6162	5207	2938	1983
	11			1973	920	2681	1628	3389	2336	4009	2956	4717	3664	5959	4906	3239	2186
	12			1778	628	2486	1336	3194	2044	3814	2664	4522	3372	5764	4614	3531	2381
180	05	2284	1550	4172	3438	5269	4535	6079	5345	7099	6365	7794	7060	9329	8595	2115	1381
	06	2001	1134	3889	3022	4986	4119	5796	4929	6816	5949	7511	6644	9046	8179	2531	1664
	07	1718	718	3606	2606	4703	3703	5513	4513	6533	5533	7228	6228	8763	7763	2947	1947
	08			3323	2181	4420	3278	5230	4088	6250	5108	6945	5803	8480	7338	3372	2230
	09			3048	1764	4145	2862	4955	3672	5975	4692	6670	5387	8205	6922	3788	2505
	10			2765	1349	3862	2446	4672	3256	5692	4276	6387	4971	7922	6506	4204	2788
	11			2491	933	3588	2030	4398	2840	5418	3860	6113	4555	7648	6090	4620	3062
	12			2207	517	3304	1614	4114	2424	5134	3444	5829	4139	7364	5674	5036	3346
200	05	3179	2276	5800	4897	7098	6195	8568	7665	9658	8755	10972	10069	13291	12388	2815	1912
	06	2808	1719	5429	4340	6727	5638	8167	7108	9287	8198	10601	9512	12920	11831	3372	2283
	07	2436	1161	5057	3782	6355	5080	7825	6550	8915	7640	10229	8954	12548	11273	3930	2655
	08			4685	3234	5983	4532	7453	6002	8543	7092	9857	8406	12176	10726	4478	3027
	09			4304	2685	5602	3983	7072	5453	8162	6543	9476	7857	11795	10176	5027	3408
	10			3924	2127	5222	3425	6692	4895	7782	5985	9096	7299	11415	9618	5585	3788
	11			3552	1578	4850	2876	6320	4346	7410	5436	8724	6750	11043	9069	6134	4160
	12			3172	1021	4470	2319	5940	3789	7030	4879	8344	6193	10663	8512	6691	4540
240	05	5495	4061	9857	8423	12039	10605	14250	12816	16390	14956	18570	17136	22370	20936	4664	3230
	06	4849	3131	9211	7493	11393	9675	13604	11886	15744	14026	17924	16206	21724	20006	5593	3885
	07	4203	2201	8565	6563	10747	8745	12958	10956	15096	13096	17276	15276	21078	19076	6540	4531
	08			7919	5633	10101	7815	12312	10026	14452	12160	16632	14346	20432	19146	7479	5186
	09			7273	4703	9455	6885	11666	9096	13806	11236	15986	13416	19786	17216	8400	5815
	10					8805	5955	11020	8166	13160	10306	15340	12486	19140	16286	9310	6470
	11							10374	7236	12514	9376	14694	11556	18494	15356	10249	7125
	12								11868	8446	14046	10626	17848	14426	11214	7780	
265	05	9275	6992	16267	13984	19781	17496	23525	21242	26623	23340	31137	28854	37686	35403	7080	4797
	06	8310	5576	15302	12568	11816	16080	22560	19826	25658	22924	30172	27438	36721	33987	8452	5780
	07	7345	4160	14337	11152	17851	14664	21595	18410	24693	21508	29207	26022	35756	32571	9877	6726
	08			13372	9736	16886	13248	20630	16994	23728	20092	28242	24606	34791	31155	11285	7656
	09			12407	8320	15921	11832	19665	15578	22763	18676	27277	23190	33826	29739	12745	8674
	10					14956	10416	18700	14162	21798	17260	26312	21774	32861	28323	14125	9612
	11							17735	12746	20833	15844	25347	20358	31896	26907	15524	10558
	12								19868	14428	24382	18942	30931	25491	16905	11505	
300	05	11340	8074	20253	16987	24937	21671	29196	25930	33650	30384	38118	34852	47037	43771	9798	6532
	06	10039	6127	18952	15040	23636	19724	27895	23983	32349	28437	36817	32905	45736	41824	11745	7833
	07	8738	4171	17651	13084	22335	17768	26594	22027	31048	26481	35516	30949	44435	39868	13701	9134
	08			16350	11128	21034	15812	25293	20071	29747	24525	34215	28993	43134	37912	15657	10435
	09			15040	9172	19724	13856	23983	18115	28437	22569	32905	27037	41824	35956	17613	11745
	10			13739	7216	18423	11900	22682	16159	27136	20613	31604	25081	40523	34000	19569	13046
	11					17122	9944	21381	14203	25835	18657	30303	23125	39222	32044	21525	14347
	12							20071	12247	24525	16701	28993	21169	37912	30088	23481	15657

SPN II Double Acting Torques and Technical Information

SPN II Double Acting Torque Ratings							
Model	40 PSI	60 PSI	70 PSI	80 PSI	90 PSI	100 PSI	120 PSI
032	38	45	53	61	69	76	84
050	78	120	138	160	186	206	248
063	146	216	250	286	322	358	426
075	276	418	488	558	648	714	844
085	437	644	700	868	946	1098	1320
100	635	975	1125	1272	1439	1607	1905
115	1049	1574	1836	2099	2361	2623	3116
125	1301	1990	2370	2728	3008	3418	4101
145	1970	3150	3690	4202	4700	5343	6305
160	2832	4159	4867	5575	6195	6903	8145
180	3665	5553	6650	7460	8480	9175	10710
200	5091	7712	9010	10480	11570	12881	15203
240	8720	13081	15268	17445	19639	21816	25478
265	12667	18987	22165	25321	28497	31655	36907
300	17872	26785	31469	35728	40182	44650	53569

SPN II Air Consumption and Weights															
	Unit	050	063	075	085	100	115	125	145	160	180	200	240	265	300
Body Diameter	in	1.97	2.48	2.95	3.46	3.94	4.53	4.92	5.71	6.3	7.09	7.87	9.45	10.43	11.81
	mm	50	63	75	88	100	115	125	145	160	180	200	240	265	300
Air Consumption Per Stroke Actual in ³	CCW	4.9	9.2	18.3	30.5	45.8	72.6	94.6	146.5	195.3	262.4	358.2	610.2	884.8	1287.6
	CW	7.9	15.3	29.3	44.6	65.9	109.8	133.0	216.6	288.0	415.0	581.6	927.6	1305.9	1861.2
Opening Time DA	Sec.	0.2	0.2	0.2	0.3	0.4	0.7	0.8	1.3	1.6	2.0	2.7	3.5	4.0	8.8
Closing Time DA	Sec.	0.2	0.2	0.3	0.4	0.5	0.9	1.1	1.4	2.0	2.4	3.5	4.1	4.5	12.7
Approximate Weight - DA	Lb	2.40	3.40	6.10	8.30	11.70	18.50	21.90	31.10	40.50	55.10	77.20	119.05	178.57	299.39
	kg	1.09	1.54	2.77	3.76	5.31	8.39	9.93	14.10	18.37	24.99	35.01	53.99	80.98	135.80

SPN II Ordering Information

SPN II Ordering Specification

Actuator shall be Sharpe Automation SPN II series with rack and pinion design. The body to be hard anodized, extruded aluminum. Powder coated body and epoxy coated end caps for corrosion protection. Internal parts to be dual aluminum pistons, with alloy steel blow-out proof pinion. Bearings, bushings and o-rings designed to maximize service life and prevent premature failure. Actuators will have dual travel stops, with adjustments for travel on both ends. All markings screened on body to easily identify threading on ports, ISO and NAMUR interfaces. Accessory bolt patterns and mounting areas to NAMUR VDI / VDE industry standards. Fasteners are to be stainless steel. Bottom drilling patterns are to ISO 5211 to provide strong mounting to valves, and mounting kits when necessary.

Insert system for the pinion allows for flexible mounting combinations, with strong fits to actuator as well as valve stem or coupler. Pinion to have double bore to provide fitting to the valve stem or coupler as well as having extra depth to insert taller stems seen in butterfly valves.

Actuator to use cartridge style springs for easy identification of sizing. The same end caps and fasteners to be used whether for double acting or spring return applications. Inside surface finish minimizing friction and maximizing service life. Lubrication of actuator suitable for 1,000,000 operations. The visual indicator designed to be used with other top mounted devices for added benefits.

Fig: SPNII050-SR-5-A-P1

Description: SPNII 050 - Spring Return - 5 Springs - Size A Insert - High Temp Viton Seals

SPN II Part Number Chart						
Actuator Model	Action		No. of Springs	Insert	Options	
SPNII032	DA	Double Acting	5	A	P1	High Temp Viton Seals -4°F to 300°F
SPNII050	SR	Spring Return	6	B	P2	Low Temp EPDM Actuator -40°F to 176°F
SPNII063			7	C	P3	Electroless Nickel Treatment
SPNII075			8	D	P4	Epoxy Coating
SPNII085			9	E	P5	Actuator Locking Device
SPNII100			10	F	P6	Reverse Rotation
SPNII115			11	G		
SPNII125			12	H		
SPNII145				I		
SPNII160				J		
SPNII180				K		
SPNII200						
SPNII240						
SPNII265						
SPNII300						

SPN II Actuation Sizing Guide

Double Acting Actuator (DA)

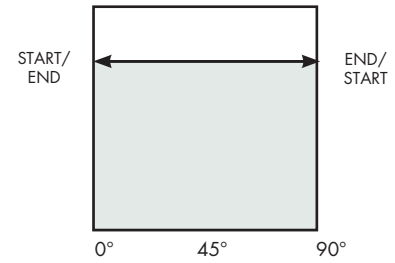
In the double acting actuators, the control pinion rotation and its reversal are obtained by reversing the supply to the two input ports. The output torques obtainable mainly depend on the cylinder diameter and the supply pressure; by increasing one or both factors, the available torque also increases. As shown in diagram A, the torque of a DA actuator is constant throughout the entire rotation and relevant reversal. The normal advised safety factor, in addition to the stated valve manufacturer torque, is 20%.

*Select the actuator size whose torque output at given pressure exceeds the valve torque and application factor.

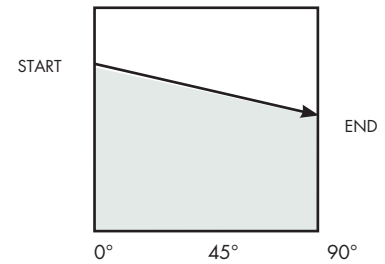
Spring Return Actuator (SR)

In these type of actuators, which utilize springs for reversing the rotation of the control pinion, the output torque depends not only on the cylinder diameter and the supply pressure, but also on the presence of the springs, which should be compressed to guarantee the return. As shown in diagram B, the available torque at 0° progressively reduces during the rotation due to the springs' compression. On the contrary, as shown in diagram C, the torque starting from the 90° position constantly decreases until 0° because of spring extension. Owing to the higher friction present, the safety coefficient in this case is advised 25%.

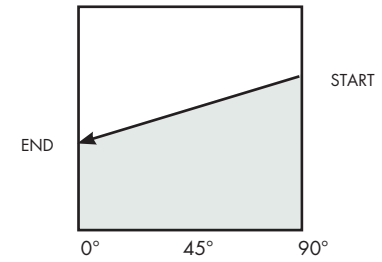
*Select the actuator whose torque output at 0° and 90° at a given air pressure exceeds the valve torque.



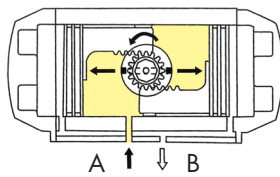
Diag. A



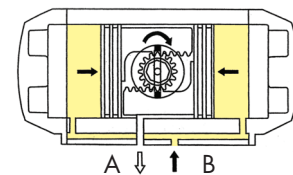
Diag. B



Diag. C

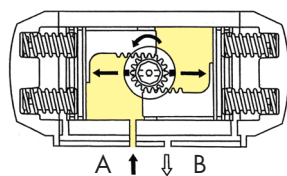


DOUBLE ACTING
(TOP VIEW)

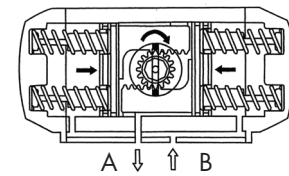


Air supplied to Port A moves pistons apart and toward end positions with exhaust air exiting at Port B (a counterclockwise rotation is obtained).

Air supplied to Port B forces pistons toward center with exhaust air exiting at Port A (a clockwise rotation is obtained).



SPRING RETURN
(TOP VIEW)



Air supplied to Port A forces pistons apart and toward end position, compressing springs. Exhaust air exits at Port B (a counterclockwise rotation is obtained).

Air or electric failure allows springs to force pistons toward center position with exhaust air exiting at Port A (a clockwise rotation is obtained).

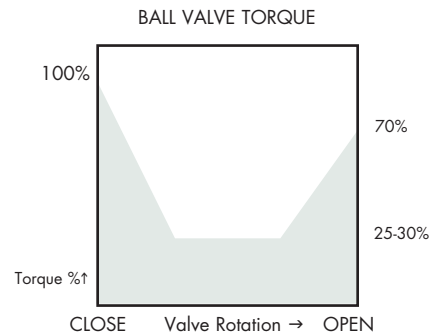
Reverse Rotation

Upon request, the pistons can be inverted in order to obtain a clockwise rotation when the air pressure is applied to Port A. Other types of assembly are possible: for any information, please contact factory.

Quick Operation Actuators Upon request, SPN-Series actuators can be specially prepared for fast response operations.

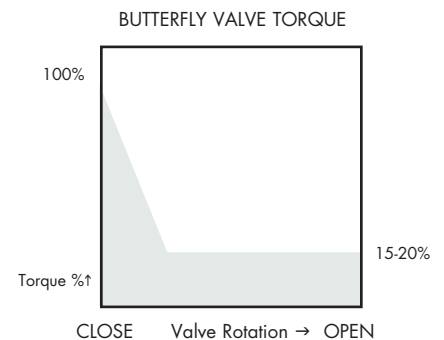
Ball Valve

Ball valve construction concept is based essentially on a polished ball (including a through port) contained in two seats (upstream and downstream). The ball rotation allows the flow, or stops the flow through the valve. Differential pressure between upstream and downstream pressure forces the ball against the downstream seat (floating ball). In this case, the valve torque is generated by the friction between ball and seat and also between stem and packing. As shown in the diagram to the right, the highest torque point is when, in presence of pressure, the valve is in the closed position, and passes to the open position (breakaway torque).



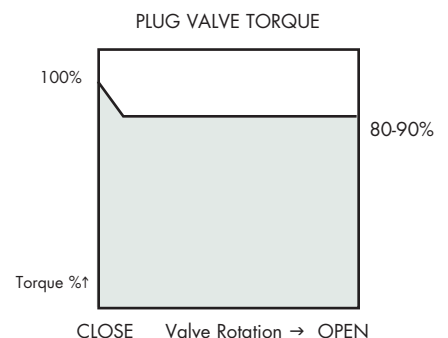
Butterfly Valve

Butterfly valve construction concept is based essentially on a disc fixed on an axis, which in the closed position, is completely contained by the seat. The open position is obtained when, with a rotation, the disc (through its stem) becomes parallel to the flow. On the contrary, the closed position is obtained when the disc is perpendicular to the flow. In the case of the butterfly valve, the torque is generated by the friction between the disc and the seat, by the stem packing and also by the differential pressure that forces on the disc. The highest torque point, as shown in the diagram, is in the closed position, and only after a small rotation it is considerably reduced.



Plug Valve

Plug valve construction concept is based essentially on a male (plug) contained in a female cone (seat). The plug provides a through port in one direction and with its rotation into the seat the opening and closure of the valve is obtained. The torque is usually not influenced by the flow pressure, but is generated essentially by the friction between the seat and the plug, during the opening closing cycle. As shown in the diagram to the right, the highest torque point is in the closed position and remains high for the rest of the operation, because the torque is not influenced by pressure.





Series 50M76 Ball Valves

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316 Stainless Steel
1/4" - 3"



**Series N66
3-Piece Ball Valve**

Tube Full Port
316 Stainless Steel
1/2" - 2"



**150#, 300#, 600#
Flanged Ball Valves**

Full & Reduced Port
Carbon Steel, 316 Stainless & Alloy 20
1/2" - 12"



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600 wog 1/4" - 4"
Oval Handle Optional



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Ball Valve Packages**



Seal Weld Valves

Standard & Full Port
Carbon Steel & 316 Stainless Steel
2000, 3000, & 6000 psi



200# Gate, Globe, Check

Threaded & Socket Weld
316 Stainless Steel
Gate, Globe 1/2" - 2"
Check 1/4" - 3"



150#, 300#, 600#

Cast Steel & Stainless Steel
Up to 36"



800#/1500# Gate, Globe, Check

Threaded & Socket Weld
Forged Carbon & Stainless Steel
1/4" - 2"



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