

pneumatic **OPERATORS**



Reliant RPB
Series

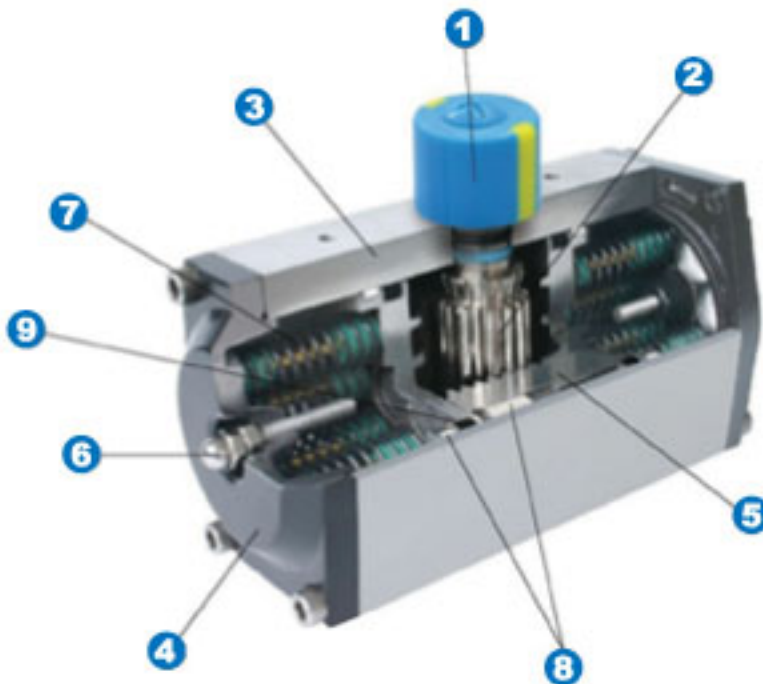


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OPERATORS

Design and Features

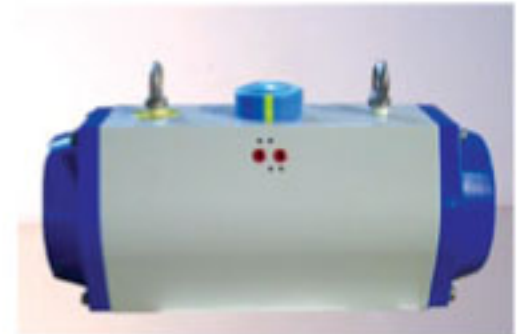
RPB Series pneumatic actuators offer excellent quality and workmanship in a compact, efficient unit. Through state-of-the-art design, the RPB series features high reliability, high cycle life, durability, and ease of maintenance as well as end of CCW stroke adjustment. Excellent coatings make this a very good choice to corrosive environments.



7. Springs are small, individually encapsulated and coated allowing the actuator spring stroke to be tailored to the specific application with ease.

8. Large Delrin wear pads eliminate any metal to metal contact, and allow actuator to operate with minimal friction. Replacement is easy and inexpensive.

9. O-ring seals on the Rack and on the Pinion provide bubble tight seal to 120 psig. Removal is easy and inexpensive. Buna is standard, and high and low temperature O-rings are available.



1. Top stem is Namur mount for ease of mounting Namur accessories such as limit switches and positioners. Come standard with plastic position indicator.

2. Pinion is precision machined of alloy steel and nickel plated for maximum strength. Top and bottom dimensions are ISO 5211 and Namur. Stainless steel pinion is available.

3. Actuator body is precision extruded aluminum alloy ASTM 6005, hard anodized and powder polyester coated for maximum corrosion resistance. Also available is PTFE coated or Nickel plated.

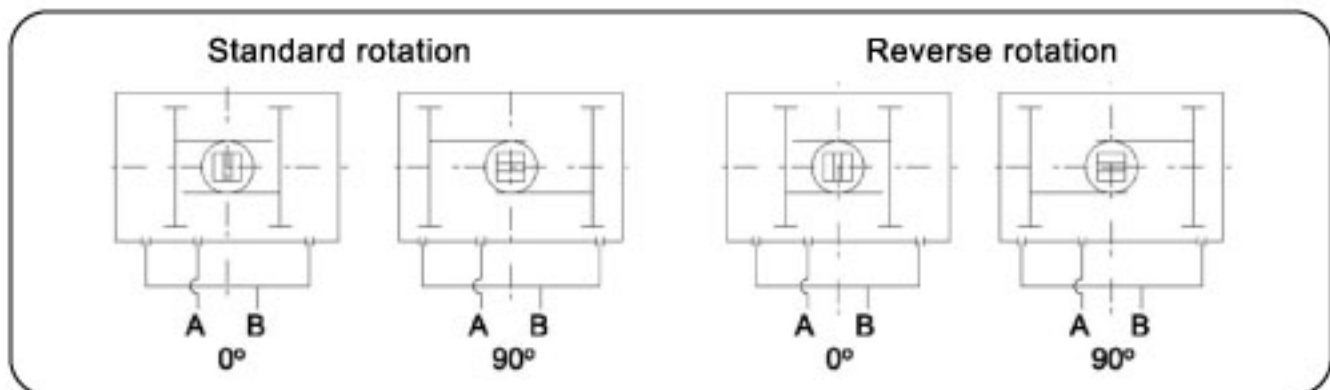
4. End caps are die-cast aluminum powder coated. Also available in PTFE coated and Nickel coated.

5. Dual racks are die-cast aluminum then hard anodized. Balanced racks provide long life in high cycle applications.

6. Travel stops allow ± 5 degrees.

Operating Principle

Double Acting



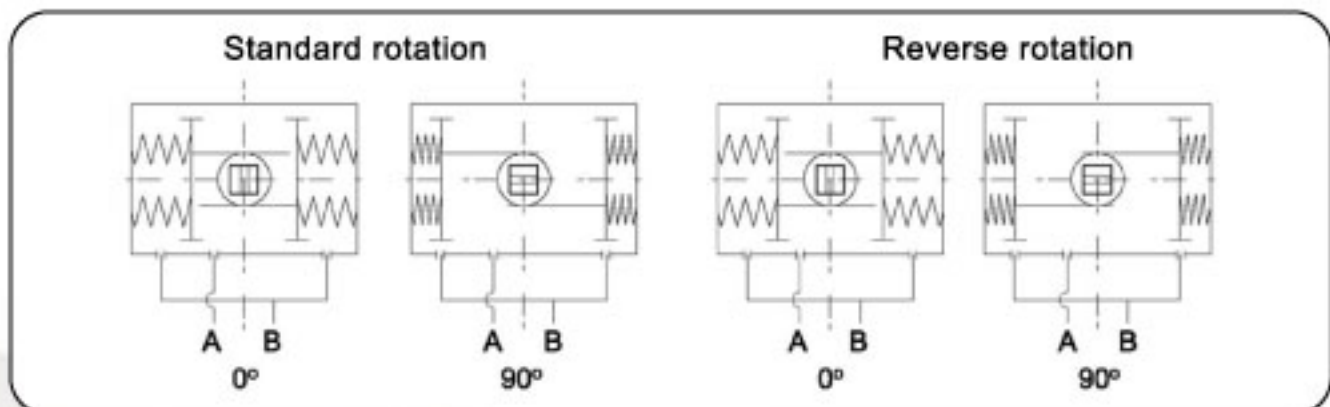
Standard Rotation:

Air to port A forces the piston outward, causing the pinion to turn counterclockwise while air is being exhausted from port B. Air to port B forces the piston inward, causing the pinion to turn clockwise while air is being exhausted from port A.

Reverse Rotation:

Air to port A forces the piston outward, causing the pinion to turn clockwise while the air is being exhausted from port B. Air to port B forces the piston inward, causing the pinion to turn counterclockwise while air is being exhausted from port A.

Spring Return



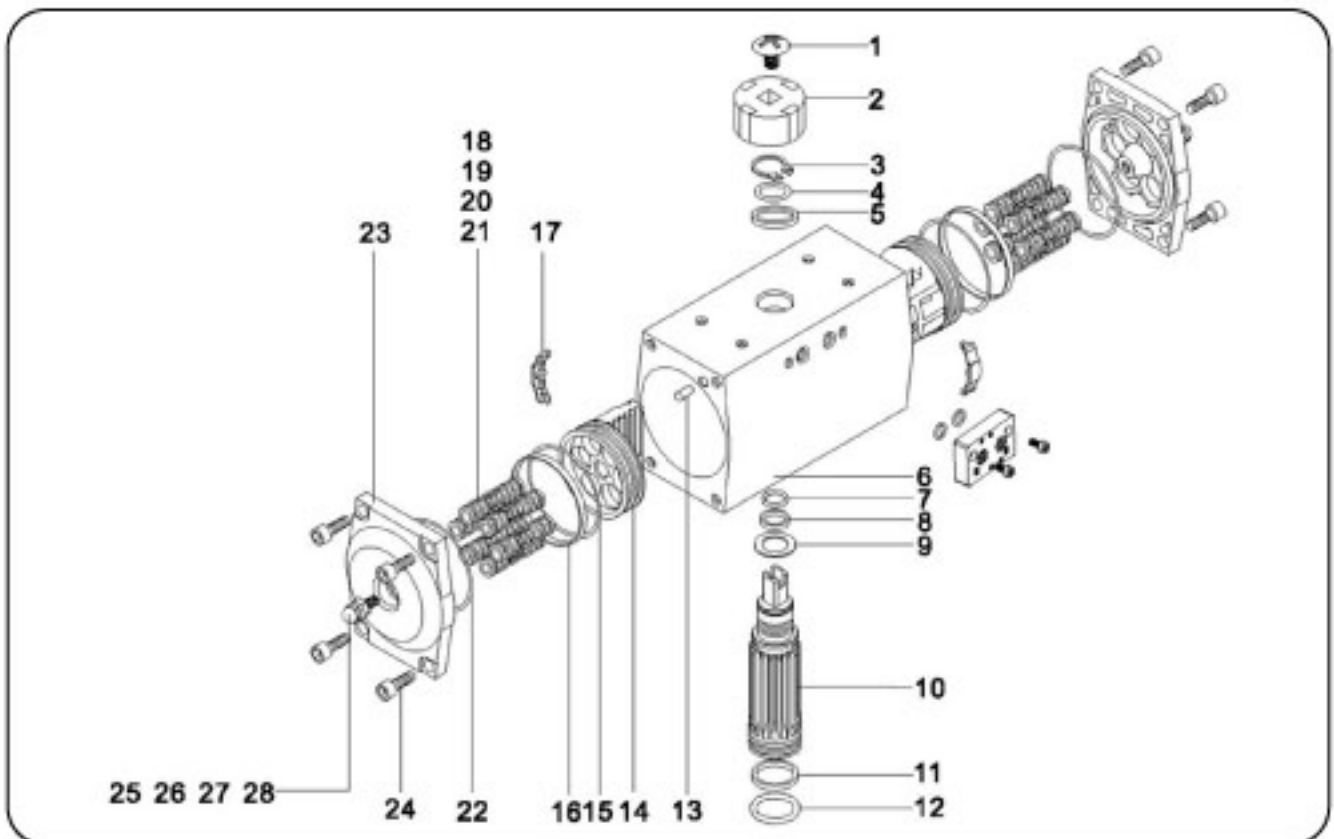
Standard Rotation:

Air to port A forces the piston outward, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B. On loss of air to port A, the springs force the piston inward. The pinion turns clockwise while air is being exhausted from port A.

Reverse Rotation:

Air to port A forces the piston outward, causing the springs to compress. The pinion turns clockwise while air is being exhausted from port B. On loss of air to port A, the springs force the piston inward. The piston turns counterclockwise while air is being exhausted from port A.

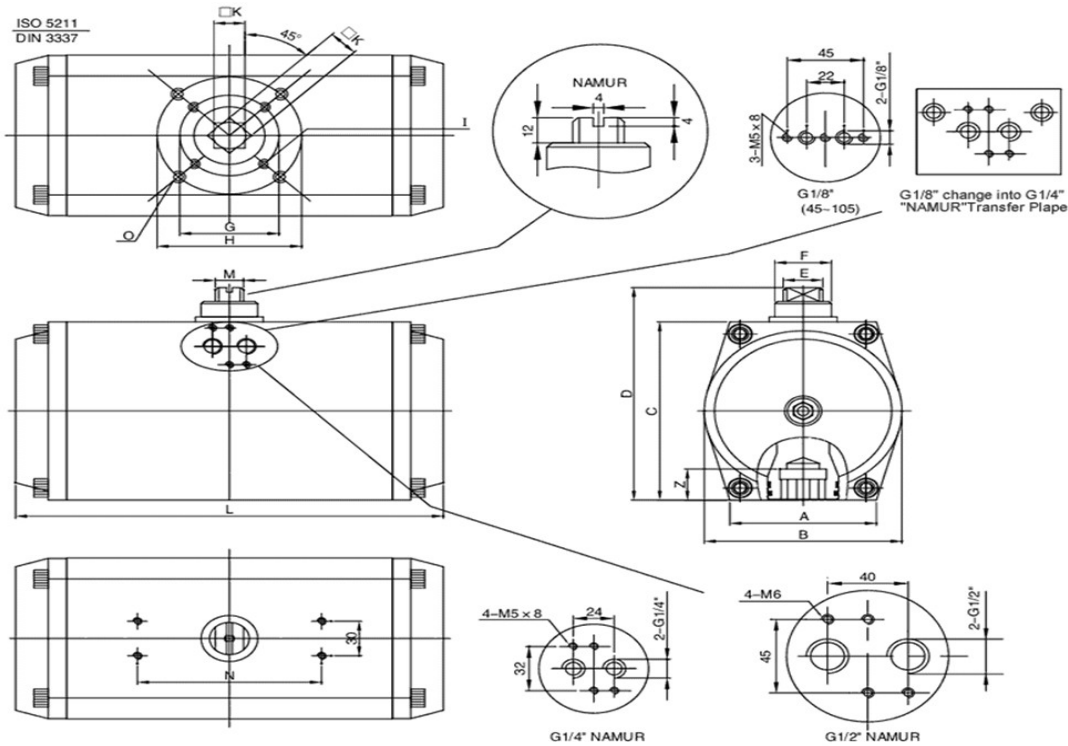
Materials of Construction



No.	Description	Qty	Standard Material
1	Indicator Screw	1	Stainless Steel
2	Indicator	1	Plastic
3	Snap Ring	1	Stainless Steel
4	Washer	1	Stainless Steel
5	Outside Washer	1	Polyoxymethylene
6	Body	1	Aluminum Alloy
7	O-ring (Top)	1	Viton / NBR
8	Bearing (Top)	1	Polyoxymethylene
9	Inside Washer	1	Polyoxymethylene
10	Pinion	1	Allow Steel
11	Bearing (Bottom)	1	Polyoxymethylene
12	O-ring (Bottom)	1	Viton / NBR
13	Plug	2	NBR
14	Piston	2	Die-Casting Aluminum
15	Piston O-ring	2	Viton / NBR
16	Piston Bearing	2	Polyoxymethylene
17	Guide Piston	2	Nylon 66
18	Spring	*	Spring Steel
19	Spring Retainer (L)	*	Nylon 66
20	Spring Retainer (R)	*	Nylon 66
21	Retainer Connector	*	Brass
22	End-Cap O-ring	2	Viton / NBR
23	End-Cap	2	Die-Casting Aluminum
24	End-Cap Stop Screw	8	Stainless Steel
25	Adjust Screw	2	Stainless Steel
26	Adjust Screw Nut	2	Stainless Steel
27	Adjust Screw Washer	2	Stainless Steel
28	Adjust Screw O-ring	2	Viton / NBR

RPB Series Pneumatic Actuators

Dimensional Drawings



Dimensional Table

Model	A	B	C	D	E	F	G	H
RPB14	1.90	2.29	2.57	3.35	0.47	0.55	1.42	1.97
RPB20	1.98	2.33	2.92	3.71	0.47	0.55	1.42	1.97
RPB30	2.37	2.84	3.46	4.25	0.47	0.71	1.97	2.76
RPB50	2.57	3.28	3.94	4.73	0.47	0.71	1.97	2.76
RPB75	2.65	3.56	4.29	5.08	0.55	0.71	1.97	2.76
RPB110	3.00	4.11	4.72	5.51	0.71	0.99	1.97	2.76
RPB160	3.56	4.54	5.24	6.02	0.77	0.99	2.76	4.02
RPB250	4.09	5.53	6.10	7.28	1.11	1.58	2.76	4.02
RPB428	4.23	6.00	6.75	7.93	1.11	1.58	4.02	4.92
RPB653	5.06	6.94	7.76	8.94	1.42	1.58	4.02	4.92
RPB1053	5.33	8.14	9.06	10.24	1.78	2.37		5.52
RPB1286	5.33	8.93	10.04	11.22	1.78	2.37		5.52
RPB1890	6.12	10.11	11.42	12.59	1.78	2.37		6.51
RPB2870	6.72	11.42	12.64	13.82	1.78	2.37		6.51
RPB3938	7.74	12.80	13.75	14.92	1.78	2.37		6.51
RPB5896	8.69	15.01	16.12	17.29	1.78	2.37		6.51

Model	I	K	L	M	N	O	Z	Air Connection
RPB14	10-32 UNC	0.43	5.77	0.395	3.16	M 6X10	0.55	1/4"
RPB20	10-32 UNC	0.43	5.77	0.395	3.16	M 6X10	0.55	1/4"
RPB30	1/4-20 UNC	0.55	6.64	0.395	3.16	5/16-18 UNC	0.71	1/4"
RPB50	1/4-20 UNC	0.55	7.27	0.395	3.16	5/16-18 UNC	0.71	1/4"
RPB75	1/4-20 UNC	0.67	8.06	0.395	3.16	5/16-18 UNC	0.83	1/4"
RPB110	1/4-20 UNC	0.67	10.27	0.553	3.16	5/16-18 UNC	0.83	1/4"
RPB160	5/16-18 UNC	0.87	10.59	0.553	3.16	3/8-16 UNC	1.03	1/4"
RPB250	5/16-18 UNC	0.87	11.77	0.79	5.14	3/8-16 UNC	1.03	1/4"
RPB428	3/8-16 UNC	1.06	15.41	0.79	5.14	1/2-13 UNC	1.22	1/4"
RPB653	3/8-16 UNC	1.06	18.09	1.11	5.14	1/2-13 UNC	1.22	1/4"
RPB1053		1.42	20.74	1.26	5.14	5/8-11 UNC	1.98	1/4"
RPB1286		1.42	21.01	1.26	5.14	5/8-11 UNC	1.98	1/4"
RPB1890		1.81	23.78	1.26	5.14	3/4-10 UNC	2.37	1/4"
RPB2870		1.81	28.52	1.26	5.14	3/4-10 UNC	2.37	1/2"
RPB3938		1.81	29.31	1.26	5.14	3/4-10 UNC	2.37	1/2"

RPB Series Pneumatic Actuators



RPB Torques - Double Acting

Model	40	60	80	100	120
RPB14	67	107	147	187	214
RPB20	89	142	196	250	286
RPB30	158	251	346	440	503
RPB50	223	357	490	624	712
RPB75	341	545	751	955	1091
RPB110	503	805	1106	1408	1609
RPB160	728	1165	1601	2037	2329
RPB250	1133	1814	2496	3177	3629
RPB428	1938	3107	4266	5434	6213
RPB653	2956	4735	6505	8275	9461
RPB1053	4762	7620	10488	13347	15250
RPB1286	5824	9311	12807	16303	18631
RPB1890	8550	13683	18817	23950	27375
RPB2870	12993	20790	28579	36377	41572
RPB3938	16887	27012	37147	47272	54025
RPB5896	25278	40448	55609	70779	80887

RPB Series Pneumatic Actuators

RPB Series Pneumatic Actuators

RPB Torques - Spring Return											
Model	Spring Start	Spring End	60		80		100		120		
			Start	End	Start	End	Start	End	Start	End	
RPB14											
5	41	26									
6	49	31									
7	58	36	69	47							
8	65	41	64	38	106	81					
9	73	46	58	30	101	73					
10	81	51	53	21	96	65	133	101	160	128	
11	89	57			90	58	127	92	155	119	
12	98	62			85	49	122	84	150	112	
RPB20											
5	55	37									
6	65	45									
7	76	52	88	62							
8	88	60	80	50	136	109					
9	98	67	72	39	129	98					
10	110	75	64	27	121	87	171	135	207	171	
11	120	82			114	76	163	123	199	159	
12	131	89			107	65	155	112	191	148	
RPB30											
5	92	60									
6	111	73									
7	129	85	162	115							
8	148	96	150	96	250	198					
9	166	109	136	76	237	180					
10	185	121	124	57	225	161	312	245	375	308	
11	203	133			213	143	300	226	363	289	
12	221	145			201	125	287	206	350	269	
RPB50											
5	128	93									
6	154	112									
7	180	131		168							
8	205	150	341	141	341	285					
9	231	168	322	114	322	259					
10	257	187	303	87	304	234	427	354	516	443	
11	282	205	285		285	208	408	327	496	416	
12	307	224	266		266	183	389	300	477	389	
RPB75											
5	204	140									
6	244	168									
7	285	196	339	245							
8	326	224	310	202	527	425					
9	366	252	280	159	498	384					
10	407	280	250	117	471	343	660	527	797	663	
11	448	308			443	303	631	483	767	620	
12	489	336			414	262	601	441	737	577	
RPB110											
5	304	206									
6	365	248									
7	426	289	500	356							
8	487	330	457	292	776	620					
9	548	372	413	228	735	558					
10	608	413	370	164	693	498	974	767	1174	968	
11	669	455			651	437	929	704	1130	904	
12	730	496			611	376	886	640	1087	841	
RPB160											
5	435	280									
6	523	336									
7	610	392	752	523							
8	696	448	693	431	1153	904					
9	784	504	635	340	1097	817					
10	871	560	575	248	1041	730	1448	1120	1739	1412	
11	958	616			985	643	1389	1028	1680	1320	
12	1045	664			929	556	1330	937	1621	1228	
RPB250											
5	694	464									
6	833	556									
7	971	649	1131	792							
8	1110	742	1034	646	1754	1386					
9	1249	834	936	500	1662	1247					
10	1388	927	839	354	1569	1108	2202	1717	2653	2168	
11	1526	1020			1476	970	2105	1571	2556	2022	
12	1665	1112			1383	831	2006	1425	2458	1876	
RPB428											
5	1142	759									
6	1370	911									
7	1597	1063	1988	1425							
8	1826	1215	1828	1184	3051	2440					
9	2054	1366	1668	944	2899	2212					
10	2282	1519	1508	704	2747	1983	3836	3031	4614	3810	
11	2511	1670			2596	1755	3675	2791	4454	3570	
12	2739	1822			2443	1527	3516	2551	4295	3329	

RPB Series Pneumatic Actuators

RPB Torques - Spring Return											
Model	Spring Start	Spring End	60		80		100		120		
			Start	End	Start	End	Start	End	Start	End	
5	1843	1236									
6	2213	1487									
7	2584	1735	2913	2018							
8	2947	1974	2653	1630	4531	3558					
9	3319	2221	2393	1242	4283	3186					
10	3690	2469	2133	853	4036	2814	5673	4394	6859	5580	
11	4053	2717			3788	2451	5413	4006	6599	5191	
12	4425	2965			3540	2080	5152	3617	6338	4803	
RPB1053											
5	2593	1682									
6	3115	2009									
7	3629	2345	5009	3584							
8	4151	2682	4637	3009	7806	6337					
9	4664	3018	4266	2434	7469	5823					
10	5186	3354	3894	1859	7133	5301	9620	7584	11523	9487	
11	5708	3690			6797	4779	9248	7009	11151	8912	
12	6222	4027			6461	4266	8877	6434	10779	8337	
RPB1286											
5	3186	2301									
6	3823	2770									
7	4452	3230	5726	4363							
8	5089	3690	5213	3655	9116	7717					
9	4841	4151	4699	2947	8655	7080					
10	6363	4611	4186	2239	8195	6443	11178	9231	13505	11558	
11	7000	5071			7735	5806	10664	8523	12992	10850	
12	7638	5531			7275	5168	10151	7815	12479	10142	
RPB1890											
5	4646	3443									
6	5576	4133									
7	6505	4814	8328	6461							
8	7434	5505	7567	5425	13310	11381					
9	8363	6195	6797	4390	12620	10452					
10	9293	6885	6036	3363	11930	9523	16302	13629	19727	17054	
11	10222	7567			11248	8593	15541	12594	18966	16019	
12	11151	8257			10558	7664	14771	11558	18196	14983	
RPB2870											
5	6593	4691									
6	7912	5629									
7	9231	6567	13496	10532							
8	10549	7505	12452	9071	21072	18027					
9	11868	8443	11408	7602	20134	16709					
10	13187	9381	10363	6142	19196	15390	25948	21727	31143	26922	
11	14505	10319			18258	14072	24904	20258	30099	25453	
12	15824	11257			17319	12753	23868	18797	29063	23992	
RPB3938											
5	9390	6461									
6	11266	7753									
7	13142	9045	16957	12408							
8	15018	10337	15523	10319	26807	22125					
9	16895	11629	14089	8231	25515	20249					
10	18780	12921	12656	6151	24222	18364	32913	26408	39666	33161	
11	20656	14213			22930	16488	31471	24320	38223	31072	
12	22532	15505			21638	14611	30037	22231	36789	28984	
RPB5896											
5	15063	10381									
6	18081	12461									
7	21090	14532	24293	17010							
8	24107	16611	21983	13664	38993	31497					
9	27116	18691	19682	10310	36913	28488					
10	30134	20762	17373	6965	34842	25470	47702	37294	57808	47401	
11	33143	22842			32763	22461	45392	33949	55498	44055	
12	36161	24922			30683	19443	43091	30594	53197	40701	

RPB's SPECIFICATIONS

ITEM NUMBER	Weight in lbs.	Air Consumption/ Open Close Cycle	
		Cubic Inches	
RPB20DA	2.43	15	
RPB30DA	3.97	26	
RPB30SR8	4.30		
RPB50DA	4.76	41	
RPB50SR8	5.36		
RPB75DA	6.28	59	
RPB75SR8	6.94		
RPB110DA	9.48	94	
RPB110SR8	11.13		
RPB160DA	13.56	130	
RPB160SR8	15.32		
RPB250DA	19.40	202	
RPB250SR8	20.39		
RPB428DA	26.79	344	
RPB428SR8	33.73		
RPB653DA	44.31	529	
RPB653SR8	52.47		
RPB1053DA	84.00	842	
RPB1053SR8	97.22		
RPB1286DA	99.43	1042	
RPB1890DA	138.89	1525	
RPB2870DA	206.79	2404	
RPB2870SR8	253.53		
RPB3938DA	242.51	3264	
RPB3938SR12	286.60		

Operation and Maintenance

Operation

Media:

- Clean dry Air, lubricated or non-lubricated
- Clean Gas or Oil

Air Supply Pressure:

- 40 to 120 psig
- Max input 150 psig

Operating Temperature:

- Standard Buna N O-Ring 0 to 200 F
- Optional Low Temp Silicone O-Ring -30 to 200 F
- Optional High Temp Viton O-Ring 0 to 300 F

Travel Adjustment:

- + 4 Degrees at 0 and 90

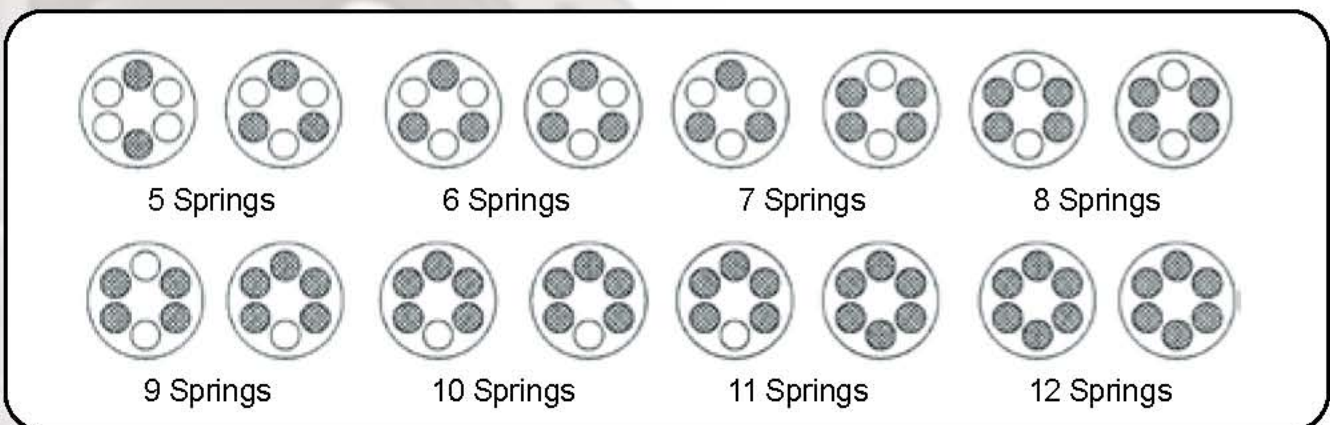
Lubrication:

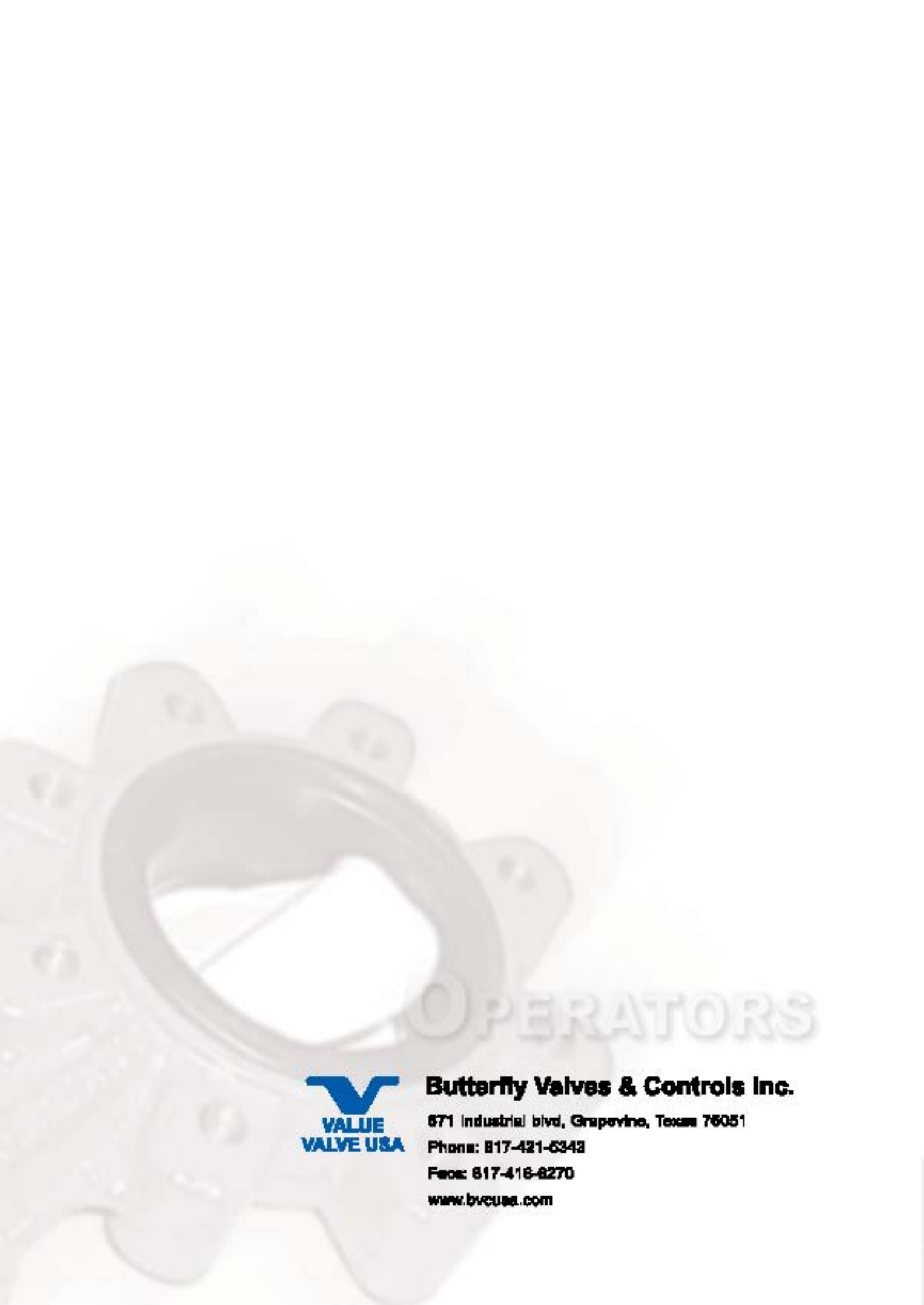
- Not required

Maintenance

RPB actuators are inherently maintenance free and require no additional lubrication to offer years of trouble free service. We recommend periodic checking for air leaks and loose bolts. Spring return actuators with 3 way solenoid valves that pull in outside air are subject to atmospheric corrosion. We recommend checking and replacing spring sets in this application. Utilizing 4 way solenoids will increase spring life and assist the spring closing, if acceptable.

Spring Positioning for Spring Return Actuators





OPERATORS



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