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FAC



VALVE SPRINGS

BEEHIVE • DUALS • TRIPLES



RETAINERS

TITANIUM • STEEL



LOCKS

TITANIUM • STEEL



SEATS & CUPS

CHROME MOLY • TOOL STEEL



VALVE-TRAIN COMPONENTS

LASH CAPS
LS ENGINE LIFTERS
LS PUSH RODS



TOOLS & ACCESSORIES



THROTTLE KITS

Racing Valve Springs

Master Product Catalog

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MANUFACTURERS OF VALVE SPRING, SUSPENSION, AND OTHER QUALITY PRODUCTS

2015 RELEASE

PAC RACING SPRINGS

THE WORLD'S PREMIER VALVE SPRING MANUFACTURER

Nascar, Drag Racing, F1, Rally and Sprint Cars to everyday street performance engines use PAC Racing products to provide unsurpassed performance in all forms of Motorsports. Innovative designs produced by skilled springmakers from the highest quality materials ensure the highest performing springs available.



New Products!

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CIRCLE TRACK VALVE SPRINGS

Valve Springs ABOUT

Over the last decade PAC Racing Springs drive has been developing the best design, process, and manufacturing technology for valve springs. We have continued to develop cutting edge valve train products that exceed demands of racing and continuously strive for improvements.

100% USA MADE

NEW SERIES

“R” Series Valve Springs THE LATEST ADVANCEMENT

Launching in 2015 as the premier valve spring, with an approach introducing the latest in material technology combined with state of the art performance, processing, and design.

- “R” Series springs use USA Made spring alloy with inclusion advancements
- Reduction of nearly 40% in inclusion size and quantity-over traditional alloys
- Advanced “blueprinting” of springs ensure a consistent load range in batch
- Available “tip conditioning”
- Tight tolerance range - batch sorting by qualified technicians
- Fully documented and serialized

1300 SERIES

THE BENCH MARK IN SPRINT CAR, LATE MODEL, AND MODIFIED RACING

- Utilizing in house heat treating
- Nano-peening
- Super-finish polish
- Optimized for load loss and aggressive valve trains
- High lift abusive applications
- Now available as "R" Series upgrade

1500 SERIES

-EXTREME ENDURANCE-
PROCESSING FOR ROAD RACING AND SPEEDWAY ENDURANCE

- Fully nitrided
- Optimized for endurance and life
- Nano peened finish
- Super-finish polish
- Ideal for refined dynamics and valve control

1200 SERIES

DESIGNED FOR SPORTSMAN RACERS

- In house heat treating
- Pacaloy- PAC enhanced processing
- Budget minded
- Good performance for medium and abusive environments

PAC RACING INTRODUCES

“R” SERIES SPRINGS

From decades of research and development comes the next level of performance and batch consistency. We have developed a 100% made in USA exclusive spring alloy that improves the inclusion size and content by nearly 40%. These advancements are designed for the pro engine builder who is looking for the next level of performance.

PROFESSIONAL OPTIONS:

STANDARD “R” SERIES ← OPTION 1

- Advanced material USA made
- Load sorted to 4% of spec L1 & L2
- Solid Sort to +/- 0.020 of nominal
- Certified batch signed by PAC Racing quality technician

“R” SERIES BLUE-PRINT OPTION ← OPTION 2

\$100 ADDITIONAL

- Advanced material USA made
- Load sorted to 3% of spec L1 & L2
- Solid sort to +/- 0.010 of nominal (between H1 & H2)
- Spec sheet ID (spreadsheet) with loads for each spring in box (L1, L2, Solid, Rate)
- Certified batch signed by PAC Racing quality technician

“R” SERIES TIP CONDITION ← OPTION 3

\$200 ADDITIONAL

- Tip condition
- Fully radius tips and ends for improved wear and performance
- Done in process to maintain shot peening effectiveness and performance

"R" SERIES EXTREME ENDURANCE VALVE SPRINGS

From decades of research and development comes the next level of performance and batch consistency. We have developed a 100% made in USA exclusive spring alloy that improves the inclusion size and content by nearly 40%. These advancements are designed for the pro engine builder who is looking for the next level of performance.

Part Number	Spring Diameters			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Comments	
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)					Open Load (Valve Open)
1300 Series										
PAC-1326R	1.550	1.100	Yes	0.706	275 @ 2.000	805 @ 1.200	662	1.150	0.800	Sprint Car- Late Model
PAC-1341R	1.575	1.125	Yes	0.720	270 @ 2.050	766 @ 1.250	620	1.170	0.800	Late Model-Off Road Endurance
PAC-1373R	1.430	1.002	No	0.688	250 @ 2.100	855 @ 1.200	670	1.160	0.850	Sprint Car- High RPM- High lift Low Mass
PAC-1387R	1.600	1.150	Yes	0.744	285 @ 1.95	780 @ 1.200	660	1.150	0.750	Late Model- Off Road Endurance
PAC-1374R	1.510	1.086	No	0.762	180 @ 1.980	685 @ 1.180	631	1.110	0.850	Endurance- Paved Circle Track
PAC-1375R	1.409	0.995	No	0.700	150 @ 2.000	645 @ 1.150	582	1.110	0.850	Endurance- Paved Circle Track
PAC-1389R	1.464	1.050	No	0.754	250 @ 2.000	627 @ 1.250	502	1.160	0.750	Endurance- Paved Circle Track
PAC-1390R	1.474	1.050	No	0.754	250 @ 2.050	670 @ 1.200	525	1.195	0.800	Endurance- Paved Circle Track
PAC-1391R	1.536	1.100	Yes	0.694	275 @ 2.000	800 @ 1.200	654	1.16	0.800	Endurance- Paved Circle Track

700 Series Spring Retainers

PREMIUM COMPONENTS FOR "R" Series Valve Springs

700 Series Steel Retainers are made from "Space Plane" alloy. This alloy is used on the most sophisticated defense air craft, which demonstrates its toughness. This alloy was previously unavailable to the public.

PAC Racing Combines this extra premium alloy with vacuum hardening processing, cryogenics, and our nano peening to add strength and maximize weight savings.

"X" Series Spring Seats Are Made from an extremely tough "tool steel" material that is harder and more robust than traditional 4140 or 8620 chrome moly steel. With nearly 20% improvement in hardness and 40% in strength use these as the absolute extreme in spring seats to reduce wear and breakage.

700 Series Retainers	Fits Spring PN	OD Dim "A"	ID of Outer Spring Dim "B"	ID of Inner Spring Dim "C"	Inner Step Thickness	Lock Angle	Weight (Grams)	Pull Thru Load	Matching Seats	Matching Step Seats
PAC-R761	PAC-1326R	1.480	1.090	0.695	0.060	Mini 8	Call	Call	PAC-S105X PAC-S106X	PAC-S139X
PAC-R758	PAC-1341R	1.480	1.115	0.710	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R759	PAC-1373R	1.360	0.990	0.675	0.060	Mini 8	18.9	Call	PAC-S137X PAC-S140X	
PAC-R767	PAC-1387R	1.480	1.140	0.735	0.060	Mini 8	Call	Call	PAC-S117X PAC-S118X	PAC-S124X
PAC-R768	PAC-1374R	1.450	1.075	0.750	0.060	Mini 8	Call	Call	PAC-S117X PAC-S118X	PAC-S124X
PAC-R769	PAC-1375R	1.360	0.985	0.690	0.060	Mini 8	Call	Call	PAC-S114X PAC-S115X	
PAC-R770	PAC-1389R	1.360	1.040	0.745	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R771	PAC-1390R	1.360	1.040	0.745	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R772	PAC-1391R	1.380	1.090	0.685	0.060	Mini 8	Call	Call	PAC-S105X PAC-S106X	

NEW FOR
2015

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part Number	PAC-1326R	PAC-1341R	PAC-1373R	PAC-1387R	PAC-1374R	PAC-1375R	PAC-1389R	PAC-1390R	PAC-1391R
Mass (g)	158	170	136	167	140	125	135	141	154
Outer Freq	29368	26129	30043	29852	28580	29026	26876	28458	28047
Inner Freq	28434	27420	32323	28387	32458	30604	26721	26721	32325
Coil Bind	1.150	1.150	1.160	1.149	1.100	1.100	1.160	1.195	1.160
2.550									
2.500							3	15	
2.450	4	40	20				27	40	16
2.400	15	67	49	2			53	66	35
2.350	46	98	82	24			78	92	54
2.300	76	128	116	54			103	119	78
2.250	109	158	149	87	20	11	128	145	111
2.200	142	189	183	120	41	34	153	171	144
2.150	176	219	216	153	73	63	178	197	177
2.100	209	250	250	186	104	92	203	224	209
2.050	242	280	283	219	136	121	228	250	242
2.000	275	310	317	252	167	150	253	276	275
1.950	308	341	350	285	199	179	279	302	308
1.900	341	371	384	318	230	208	304	329	341
1.850	374	401	417	351	262	237	329	355	373
1.800	407	432	451	384	294	266	354	381	406
1.750	441	462	484	417	325	296	379	407	439
1.700	474	493	518	450	357	325	409	434	472
1.650	507	523	551	483	388	354	429	460	505
1.600	540	553	585	516	420	383	454	486	537
1.550	573	584	618	549	451	412	479	512	570
1.500	606	614	652	582	483	441	504	539	603
1.450	639	644	685	615	515	470	530	565	636
1.400	672	675	719	648	546	499	555	591	669
1.350	706	705	752	681	578	529	580	617	702
1.300	739	736	786	714	609	558	605	644	734
1.250	772	766	819	747	641	587	630	670	767
1.200	805	796	853	780	672	616	655	696	800
1.150	838		887	813	704	645			
1.100									
1.050									
1.000									
0.950									
0.900									

CIRCLE TRACK ENDURANCE VALVE SPRINGS

1300 SERIES

The 1300 Series springs were designed to have the highest endurance and latest advancements in spring processing. PAC Racing continually improves the process to ensure the customer has the latest and highest endurance springs available. The 1300 Series comes with ID Chamfers, Nano-Peening, and are 100% load sorted to ensure they exceed our customers demands.

Part Number	Spring Diameters				Spring Loads			Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)	400 & 500 Series Retainers				300 & 600 Series Retainers	Spring Seats	Spring Cups		
PAC-1325	1.550	1.100	No	0.788	250 @ 2.000	765 @ 1.200	644	1.150	0.800	PAC-R505 PAC-R405 PAC-R556	NA	PAC-S103 PAC-S104	PAC-C204	High rate dual spring for aggressive valvetrains.	
PAC-1326	1.550	1.100	Yes	0.706	275 @ 2.000	805 @ 1.200	662	1.150	0.800	PAC-R506 PAC-R541	PAC-R606 PAC-R641 PAC-R661	PAC-S105 PAC-S106	PAC-C204	High rate dual spring with a damper for aggressive valvetrains.	
PAC-1340	1.500	1.085	No	0.790	250 @ 2.030	614 @ 1.250	467	1.180	0.780	PAC-R540	NA	PAC-S103 PAC-S104	PAC-C202	Dual spring without damper for roller cam application.	
PAC-1341	1.575	1.125	Yes	0.720	270 @ 2.050	766 @ 1.250	620	1.170	0.800	PAC-R515 PAC-R557	PAC-R315 PAC-R615 PAC-R658	PAC-S110 PAC-S127	PAC-C204	Dual Spring with Damper for Sprint Cars and Late Model Endurance applications.	
PAC-1342	1.574	1.150	No	0.826	250 @ 2.050	655 @ 1.250	506	1.200	0.800	PAC-R537 PAC-R538	NA	PAC-S130 PAC-S131	PAC-C204	Dual spring without a damper for high lift roller applications.	
PAC-1343	1.550	1.136	No	0.812	240 @ 1.900	625 @ 1.200	550	1.150	0.700	PAC-R536	NA	PAC-S119 PAC-S120	PAC-C204	Dual spring for short installed high roller cams	
PAC-1344	1.570	1.120	No	0.780	190 @ 1.950	710 @ 1.250	743	1.035	0.800	PAC-R551	PAC-R651	PAC-S103 PAC-S104	PAC-C204	High Frequency High Lift Dual Spring for Roller Cam applications.	
PAC-1371	1.374	1.000	No	0.716	150 @ 1.950	455 @ 1.250	436	1.190	0.700	PAC-R517 PAC-R552	PAC-R317 PAC-R348	PAC-S114 PAC-S115	NA	Small diameter flat tappet spring for high RPM engines. Low mass and high frequency.	
PAC-1373	1.430	1.002	No	0.688	250 @ 2.100	855 @ 1.200	670	1.160	0.850	NA	PAC-R659	PAC-S137X	NA	Small Diameter Endurance Spring. MUST USE SPECIAL RETAINER.	
PAC-1374	1.536	1.100	Yes	0.694	275 @ 2.000	800 @ 1.200	654	1.160	0.800	PAC-R506 PAC-R541	PAC-R606 PAC-R641 PAC-R661	PAC-S105 PAC-S106	NA	Dual Spring with Damper for Sprint Cars and Late Model Endurance Applications	
PAC-1385	1.564	1.150	Yes	0.744	250 @ 2.000	670 @ 1.200	525	1.140	0.800	PAC-R514 PAC-R519	PAC-R614 PAC-R619	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for high lift applications.	
PAC-1386	1.564	1.150	No	0.826	245 @ 2.000	655 @ 1.200	513	1.150	0.800	PAC-R537 PAC-R538	NA	PAC-S130 PAC-S131	PAC-C204	Dual spring without a damper for high lift roller applications.	
PAC-1387	1.600	1.150	Yes	0.744	285 @ 1.950	780 @ 1.200	660	1.149	0.750	PAC-R514 PAC-R519	PAC-R614 PAC-R619	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for high lift roller applications.	
PAC-1395	1.574	1.150	Yes	0.744	265 @ 2.000	705 @ 1.200	550	1.150	0.800	PAC-R514 PAC-R519	PAC-R614 PAC-R619	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for high lift roller applications.	
PAC-1396	1.574	1.150	No	0.826	260 @ 2.000	690 @ 1.200	538	1.150	0.800	PAC-R537	NA	PAC-S130 PAC-S131	PAC-C204	Dual spring without a damper for high lift roller applications.	

1500 SERIES

The 1500 Series springs were designed from our historical use in Circle Track. These are nitrided springs for use in the highest endurance applications. Nitriding allows for a durable surface and improved compressive stress. Additional Nano-Peening and ID and OD chamfering are performed to improve spring life and retainer fitment.

Part Number	Spring Diameters				Spring Loads			Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)	400 & 500 Series Retainers				300 & 600 Series Retainers	Spring Seats	Spring Cups		
PAC-1509	1.539	1.125	Yes	0.731	200 @ 2.000	550 @ 1.300	500	1.130	0.750	PAC-R515	NA	PAC-S117 PAC-S118	PAC-C204	High endurance nitrided spring for high lift roller applications.	
PAC-1512	1.102	0.806	No	0.580	110 @ 1.470	300 @ 0.920	346	0.850	0.575	PAC-R439	PAC-R539	NA	NA	FMOD Ford Dual Nitrided Spring. For high RPM applications.	
PAC-1529	1.284	0.900	No	0.630	180 @ 1.900	600 @ 1.150	560	1.085	0.750	PAC-R432 PAC-R532	PAC-R632	PAC-S128 PAC-S138	NA	Small diameter lightweight spring for lightweight valvetrains.	
PAC-1530	1.284	0.900	No	0.616	160 @ 2.000	580 @ 1.250	560	1.180	0.750	PAC-R432 PAC-R532	PAC-R632	PAC-S128 PAC-S138	NA	Small diameter lightweight spring for lightweight valvetrains.	
PAC-1541	1.510	1.086	No	0.790	230 @ 2.050	625 @ 1.250	494	1.185	0.800	PAC-R540	NA	PAC-S103 PAC-S104	PAC-C202	High endurance Nitrided Spring for high lift aggressive applications.	
PAC-1561	1.514	1.100	No	0.804	250 @ 2.000	636 @ 1.200	483	1.160	0.800	PAC-R505 PAC-R405	NA	PAC-S119 PAC-S120	PAC-C202	High endurance nitrided spring for high lift aggressive applications.	
PAC-1572	1.510	1.086	No	0.774	180 @ 1.980	650 @ 1.180	588	1.110	0.800	PAC-R540	NA	PAC-S103 PAC-S104	PAC-C202	Dual spring without a damper for high lift roller applications.	
PAC-1574	1.510	1.086	No	0.762	180 @ 1.980	685 @ 1.180	631	1.110	0.850	PAC-R553	NA	PAC-S117 PAC-S118	PAC-C202	High endurance Nitrided Spring for high lift aggressive applications.	
PAC-1575	1.409	0.995	No	0.700	150 @ 2.000	645 @ 1.150	582	1.110	0.850	PAC-R552	NA	PAC-S114 PAC-S115	NA	High endurance Nitrided Spring for high lift aggressive applications.	
PAC-1589	1.464	1.050	No	0.754	250 @ 2.000	627 @ 1.250	502	1.160	0.750	PAC-R508 PAC-R509	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C201	High endurance Nitrided Spring for high lift aggressive applications.	
PAC-1590	1.474	1.050	No	0.754	250 @ 2.050	670 @ 1.200	525	1.195	0.800	PAC-R508 PAC-R509	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High endurance Nitrided Spring for high lift aggressive applications.	

**NEW FOR
2015**

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part No.	PAC-1325	PAC-1326	PAC-1340	PAC-1341	PAC-1342	PAC-1343	PAC-1344	PAC-1371	PAC-1373	PAC-1374	PAC-1385	PAC-1386	PAC-1387	PAC-1395	PAC-1396	PAC-1509	PAC-1512	PAC-1529	PAC-1530	PAC-1541	PAC-1561	PAC-1572	PAC-1574	PAC-1575	PAC-1589	PAC-1590	
Mass (g)	151	158	142	170	157	140	142	119	136	154	156	149	167	159	152	148	53	99	111	143	141	136	140	125	135	141	
Outer Freq	29368	29368	25500	26129	24906	27566	32630	27294	30043	28047	26113	26113	29852	26431	26431	25510	27123	32185	29735	26332	26618	28580	28580	29026	26876	28458	
Inner Freq	28294	28434	26412	27420	26443	29978	32965	29226	32323	32325	28374	28095	28387	28374	28095	27259	39747	34200	32947	25326	27568	30487	32458	30604	26721	26721	
Coil Bind	1.150	1.150	1.180	1.150	1.190	1.150	1.035	1.190	1.160	1.160	1.140	1.150	1.149	1.150	1.150	1.130	0.850	1.085	1.180	1.175	1.160	1.110	1.100	1.100	1.160	1.195	
2.550			7		7																						
2.500			31		22					10	10			12	12						11				3	15	
2.450		4	54	40	47				20	16	25	25		29	29					33	33				27	40	
2.400	5	15	77	67	73				49	35	42	40	2	47	45	11				57	57				53	66	
2.350	25	46	101	98	98	6			82	54	67	66	24	73	72	32				82	81				78	92	
2.300	57	76	124	128	123	22		7	116	78	92	91	54	100	99	55		5	107	105	2				103	119	
2.250	89	109	147	158	149	47		21	149	111	119	117	87	127	126	78			22	131	129	21	20	11	128	145	
2.200	121	142	171	189	174	75	4	41	183	144	145	142	120	155	152	101		15	44	156	153	51	41	34	153	171	
2.150	153	176	194	219	199	103	41	63	216	177	171	168	153	182	179	125		40	72	181	178	80	73	63	178	197	
2.100	186	209	217	250	225	130	79	85	250	209	197	194	186	210	206	150		68	100	205	202	109	104	92	203	224	
2.050	218	242	241	280	250	157	116	106	283	242	224	219	219	237	233	175		96	128	230	226	139	136	121	228	250	
2.000	250	275	264	310	275	185	153	128	317	275	250	245	252	265	260	200		124	156	255	250	168	167	150	253	276	
1.950	282	308	287	341	301	212	190	150	350	308	276	271	285	292	287	225		152	184	279	274	198	199	179	279	302	
1.900	314	341	311	371	326	240	227	172	384	341	302	296	318	320	314	250		180	211	304	298	227	230	208	304	329	
1.850	347	374	334	401	351	267	264	194	417	373	329	322	351	347	341	275	4	208	239	329	322	256	262	237	329	355	
1.800	379	407	357	432	377	295	301	215	451	406	355	347	384	375	367	300	14	236	267	354	346	286	294	266	354	381	
1.750	411	441	381	462	402	322	339	237	484	439	381	373	417	402	394	325	24	264	295	378	371	315	325	296	379	407	
1.700	443	474	404	493	427	350	376	259	518	472	407	399	450	430	421	350	34	292	323	403	395	344	357	325	409	434	
1.650	475	507	427	523	452	377	413	281	551	505	434	424	483	457	448	375	47	320	351	428	419	374	388	354	429	460	
1.600	507	540	451	553	478	405	450	303	585	537	460	450	516	485	475	400	65	348	379	452	443	403	420	383	454	486	
1.550	540	573	474	584	503	432	487	324	618	570	486	476	549	512	502	425	82	376	407	477	467	433	451	412	479	512	
1.500	572	606	497	614	528	460	524	346	652	603	512	501	582	540	525	450	99	404	434	502	491	462	483	441	504	539	
1.450	604	639	521	644	554	488	561	368	685	636	539	527	615	567	556	475	116	432	462	526	515	491	515	470	530	565	
1.400	636	672	544	675	579	515	599	390	719	669	565	552	648	595	582	500	134	460	490	551	539	521	546	499	555	591	
1.350	668	706	567	705	604	543	636	411	752	702	591	578	681	622	609	525	151	488	518	576	564	550	578	529	580	617	
1.300	701	739	591	736	630	570	673	433	786	734	617	604	714	650	636	550	168	516	546	600	588	580	609	558	605	644	
1.250	733	772	614	766	655	598	710	455	819	767	644	629	747	677	663	575	186	544	574	625	612	609	641	587	630	670	
1.200	765	805	637	796	680	625	747	477	853	800	670	655	780	705	690	600	203	572	602	650	636	638	672	616	655	696	
1.150	797	838				653	784		887		696	681	813	732	717	625	220	600			660	668	704	645			
1.100							821										237	628				697					
1.050							859										255										
1.000																	272										
0.950																	289										
0.900																	306										

CIRCLE TRACK ENDURANCE VALVE SPRINGS

1200 SERIES

The 1200 Series Springs were developed for the sportsman racer looking for a quality but budget minded product. 1200 Series springs come with PAC Racing Proprietary heat treat process that will allow for outstanding load loss and durability.

Part Number	Spring Diameters			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments	
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)				Open Load (Valve Open)	400 & 500 Series Retainers	300 & 600 Series Retainers	Spring Seats		Spring Cups
PAC-1200	1.244	0.860	Yes	0.770	125 @ 1.750	350 @ 1.250	450	1.100	0.550	NA	PAC-R349 PAC-R649	NA	NA	Small diameter to fit stock pocket without machining. Single Spring with a Damper.
PAC-1201	1.260	0.860	Yes	0.770	140 @ 1.750	437 @ 1.200	540	1.115	0.550	NA	PAC-R349 PAC-R649	NA	NA	Small diameter to fit stock SBC pocket without machining. Single Spring with a Damper. High rate for aggressive cam.
PAC-1201X	1.260	0.860	Yes	0.770	150 @ 1.750	460 @ 1.200	540	1.115	0.550	NA	PAC-R349 PAC-R649	NA	NA	Additional RPM Processing to allow for Extreme Use and Endurance over Traditional PAC-1201 spring.
PAC-1202	1.244	0.860	No	0.624	160 @ 1.750	484 @ 1.150	540	1.100	0.575	NA	PAC-R334	PAC-S128	NA	Dual Spring for aggressive cams.
PAC-1203	1.260	0.860	No	0.624	145 @ 1.800	511 @ 1.200	610	1.115	0.650	NA	PAC-R334	PAC-S128	NA	Dual Spring for aggressive cams.
PAC-1216	1.260	0.876	Yes	0.906	115 @ 1.800	350 @ 1.300	470	1.048	0.500	NA	NA	NA	NA	Race Saver Spring
PAC-1227	1.539	1.125	Yes	0.731	200 @ 1.950	550 @ 1.250	500	1.130	0.700	PAC-R515	PAC-R315 PAC-R615	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for high lift flat tappet applications. General purpose spring that works well with many endurance applications.
PAC-1239	1.550	1.126	Yes	0.720	220 @ 2.050	625 @ 1.300	540	1.180	0.800	PAC-R515	PAC-R315 PAC-R615	PAC-S110 PAC-S126	PAC-C204	Dual spring with a damper for roller cam applications.
PAC-1240	1.500	1.085	No	0.790	250 @ 2.030	614 @ 1.250	467	1.180	0.780	PAC-R540	NA	PAC-S103 PAC-S104	PAC-C202	Dual spring without damper for roller cam application.
PAC-1243	1.550	1.136	No	0.812	240 @ 1.900	625 @ 1.200	550	1.150	0.700	PAC-R536	NA	PAC-S119 PAC-S120	PAC-C204	Dual spring for short installed high roller cams.
PAC-1244	1.570	1.120	No	0.780	190 @ 1.950	710 @ 1.250	743	1.035	0.800	PAC-R551	NA	PAC-S103 PAC-S104	PAC-C204	High Frequency High Lift Dual Spring for Roller Cam applications.
PAC-1245	1.550	1.136	No	0.812	240 @ 2.000	608 @ 1.300	526	1.200	0.750	PAC-R536	NA	PAC-S119 PAC-S120	PAC-C204	Dual spring for roller cam applications.
PAC-1254	1.554	1.140	Yes	0.746	194 @ 1.950	499 @ 1.300	470	1.170	0.650	PAC-R515	PAC-R315 PAC-R615	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for various applications including marine.
PAC-1289	1.550	1.136	No	0.812	230 @ 2.000	580 @ 1.300	500	1.210	0.750	PAC-R536	NA	PAC-S119 PAC-S120	PAC-C204	Dual spring without damper for roller cam applications.
PAC-1294	1.545	1.131	Yes	0.757	175 @ 1.900	442 @ 1.275	428	1.180	0.700	PAC-R515	PAC-R315 PAC-R615	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for flat tappet applications.
PAC-1297	1.539	1.125	Yes	0.731	200 @ 2.000	550 @ 1.300	500	1.130	0.700	PAC-R515	PAC-R315 PAC-R615	PAC-S117 PAC-S118	PAC-C204	Dual spring with a damper for high lift flat tappet applications. General purpose spring that works well with many endurance applications.
PAC-1298	1.625	1.175	Yes	0.769	250 @ 2.000	648 @ 1.300	564	1.210	0.700	PAC-R507	NA	PAC-S107 PAC-S108	PAC-C205	Dual spring with a damper for high lift roller applications.
PAC-1299	1.625	1.175	Yes	0.769	250 @ 2.050	673 @ 1.300	564	1.210	0.750	PAC-R507	NA	PAC-S107 PAC-S108	PAC-C205	Dual spring with a damper for high lift roller applications.

NEW FOR
2015

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part No.	PAC-1200	PAC-1201	PAC-1201 (X)	PAC-1202	PAC-1203	PAC-1216	PAC-1227	PAC-1239	PAC-1240	PAC-1243	PAC-1244	PAC-1245	PAC-1254	PAC-1289	PAC-1294	PAC-1297	PAC-1298	PAC-1299
Mass (g)	76	82	82	90	96	74	148	162	142	140	142	152	153	155	155	148	176	176
Outer Freq	35516	36938	36938	35516	36938	35885	25510	25566	25500	27566	32630	26459	24192	25228	23344	25510	25673	25673
Inner Freq	NA	NA	NA	30832	30832	NA	27259	27420	26142	29978	32965	28489	26331	26999	24294	27259	25290	25290
Coil Bind	1.075	1.130	1.130	1.075	1.115	1.048	1.130	1.180	1.180	1.150	1.035	1.200	1.170	1.210	1.180	1.130	1.210	1.200
2.550									7									2
2.500								6	31			1					1	10
2.450								22	54			17		13			9	31
2.400								40	77			32	2	30		11	30	57
2.350							11	65	101	6		56	17	55		32	56	83
2.300							32	90	124	22		82	39	80	7	55	83	109
2.250							55	115	147	47		109	60	105	27	78	109	137
2.200							78	140	171	75	4	135	82	130	48	101	136	165
2.150							101	166	194	103	41	161	103	155	68	125	165	194
2.100							125	193	217	130	79	187	125	180	90	150	193	222
2.050				9	9	18	150	220	241	157	116	214	147	205	111	175	222	250
2.000	12	7	12	25	22	59	175	247	264	185	153	240	171	230	132	200	250	278
1.950	35	32	38	52	53	143	200	274	287	212	190	266	194	255	154	225	278	306
1.900	57	59	65	73	83	221	225	301	311	240	227	293	217	280	175	250	307	335
1.850	80	86	94	106	114	314	250	328	334	267	264	319	241	305	196	275	335	363
1.800	103	113	122	133	145	400	275	355	357	295	301	345	264	330	218	300	364	391
1.750	125	140	150	160	175	485	300	382	381	322	339	371	288	355	239	325	392	419
1.700	148	167	178	187	206	571	325	409	404	350	376	398	311	380	260	350	421	447
1.650	170	194	206	214	236	656	350	436	427	377	413	424	335	405	282	375	449	476
1.600	193	221	235	241	267	743	375	463	451	405	450	450	358	430	303	400	477	504
1.550	215	248	263	268	297	828	400	490	474	432	487	477	382	455	325	425	506	532
1.500	238	275	291	295	328	914	425	517	497	460	524	503	405	480	340	450	534	560
1.450	260	302	319	322	358	999	450	544	521	488	561	529	429	505	367	475	563	588
1.400	283	329	348	349	389	1086	475	571	544	515	599	555	452	530	389	500	591	617
1.350	305	356	376	376	419	1171	500	598	567	543	636	582	476	555	410	525	620	645
1.300	328	383	404	403	450	1257	525	625	591	570	673	608	499	580	431	550	648	673
1.250	350	410	432	430	480	1342	550	652	614	598	710	634	522	605	453	575	676	701
1.200	373	437	460	457	511	1428	575	679	637	625	747	661	546	630	474	600	705	
1.150	395	464	489	484	541	1514	600			653	784		569			625		
1.100	418	491	517	511	572	1600						821						
1.050											859							
1.000																		
0.950																		
0.900																		

DRAG RACE SPRINGS

1200 SERIES PAC's standard HP processing without sacrificing performance

Part Number	Spring Diameters				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components					Comments
	OD Outer	ID Outer	ID Middle	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				400 Series Retainers	500 Series Retainers	600 Series Retainers	Spring Seats	Spring Cups	
PAC-1224	1.625	1.175	N/A	0.851	275 @ 2.000	810 @ 1.150	629	1.100	0.850	PAC-R404	PAC-R504	N/A	PAC-S101 PAC-S102	PAC-C205	Dual Drag Race Spring - Bracket Race applications
PAC-1228	1.625	1.175	N/A	0.851	280 @ 2.100	847 @ 1.150	629	1.100	0.900	PAC-R404	PAC-R504	N/A	PAC-S101 PAC-S102	PAC-C205	Dual Drag Race Spring - Bracket Race applications with higher lift / more aggressive cam and RPM requirements
PAC-1225	1.550	1.100	N/A	0.788	250 @ 2.000	765 @ 1.200	644	1.150	0.800	PAC-R405	PAC-R505 PAC-R556	N/A	PAC-S103 PAC-S104	PAC-C204	Smaller Diameter Dual Drag Race Spring
PAC-1226	1.550	1.100	N/A	0.706	275 @ 2.000	805 @ 1.200	663	1.150	0.800	N/A	PAC-R506 PAC-R541	PAC-R606 PAC-R641 PAC-R661	PAC-S105 PAC-S106	PAC-C204	Smaller Diameter Dual Drag Race Spring with a Damper
PAC-1298	1.625	1.175	N/A	0.769	250 @ 2.000	648 @ 1.300	564	1.210	0.700	N/A	PAC-R507	N/A	PAC-S107 PAC-S108	PAC-C205	Dual Drag spring with a damper for lower lift applications
PAC-1299	1.625	1.175	N/A	0.769	250 @ 2.050	673 @ 1.300	564	1.210	0.750	N/A	PAC-R507	N/A	PAC-S107 PAC-S108	PAC-C205	Dual Drag spring with a damper for lower lift applications
PAC-1246	1.645	1.195	0.871	0.635	250 @ 2.050	801 @ 1.250	689	1.130	0.800	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1247	1.645	1.195	0.871	0.635	290 @ 2.070	835 @ 1.270	682	1.130	0.800	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1248	1.645	1.195	0.871	0.635	332 @ 2.100	950 @ 1.200	687	1.130	0.900	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1258	1.645	1.195	0.871	0.635	350 @ 2.150	1004 @ 1.200	688	1.130	0.950	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1249	1.645	1.195	0.871	0.635	375 @ 2.200	1064 @ 1.200	689	1.130	1.000	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - High Lift / Top Fuel applications
PAC-1250	1.645	1.195	0.871	0.635	440 @ 2.200	1129 @ 1.200	689	1.130	1.000	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - High Lift / Top Fuel applications



PAC-1224



PAC-1248

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

1200 SERIES	PAC-1224	PAC-1228	PAC-1225	PAC-1226	PAC-1298	PAC-1299	PAC-1246	PAC-1247	PAC-1248	PAC-1258	PAC-1249
Mass (g)	152	152	152	158	179	179	183	183	183	183	183
Outer Freq	28793	28793	29368	29368	25640	25640	27188	27188	27188	27188	27188
Middle Freq	NA	NA	NA	Damper	Damper	Damper	26867	26867	26867	26867	26867
Inner Freq	27275	27275	28294	28434	25106	25106	28392	28392	28392	28392	28392
Coil Bind	1.100	1.100	1.150	1.150	1.210	1.210	1.130	1.130	1.130	1.130	1.130
3.100											
3.050											
3.000											
2.950											
2.900											
2.850											
2.800											
2.750											11
2.700										3	41
2.650										13	75
2.600									8	40	109
2.550		2				2		0	23	75	144
2.500		28				10		11	57	109	178
2.450		60		4	10	31	5	31	92	144	213
2.400	23	91	5	15	31	57	20	65	126	178	247
2.350	55	123	25	46	57	83	43	99	160	212	282
2.300	86	154	57	76	83	109	78	133	195	247	316
2.250	118	186	89	109	109	137	112	167	229	281	351
2.200	149	217	121	142	137	165	147	201	263	316	385
2.150	181	249	153	176	165	194	181	236	298	350	419
2.100	212	280	186	209	194	222	216	270	332	384	454
2.050	244	311	218	242	222	250	250	304	366	419	488
2.000	275	343	250	275	250	278	284	338	401	453	523
1.950	306	374	282	308	278	306	319	372	435	488	557
1.900	338	406	314	341	306	335	353	406	469	522	592
1.850	369	437	347	374	335	363	388	440	504	557	626
1.800	401	469	379	407	363	391	422	474	538	591	661
1.750	432	500	411	441	391	419	457	508	572	625	695
1.700	464	532	443	474	419	447	491	542	607	660	730
1.650	495	563	475	507	447	476	526	576	641	694	764
1.600	527	595	507	540	476	504	560	610	675	729	798
1.550	558	626	540	573	504	532	594	644	710	763	833
1.500	590	658	572	606	532	560	629	678	744	798	867
1.450	621	689	604	639	560	588	663	712	778	832	902
1.400	653	721	636	672	588	617	698	746	813	866	936
1.350	684	752	668	706	617	645	732	781	847	901	971
1.300	716	784	701	739	645	673	767	815	881	935	1005
1.250	747	815	733	772	673	701	801	849	916	970	1040
1.200	779	846	765	805			835	883	950	1004	1074
1.150	810	878	797	838			870	917	984	1038	1108
1.100	841	909									
1.050											

DRAG RACE SPRINGS

1300 SERIES

Premium processed with Nano-Peen™ spring technology for enhanced durability and exotic heat treatment for minimal load loss

Part Number	Spring Diameters				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components					Comments
	OD Outer	ID Outer	ID Middle	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				400 Series Retainers	500 Series Retainers	600 Series Retainers	Spring Seats	Spring Cups	
PAC-1324	1.625	1.175	N/A	0.851	275 @ 2.000	810 @ 1.150	629	1.100	0.850	PAC-R404	PAC-R504	N/A	PAC-S101 PAC-S102	PAC-C205	Dual Drag Race Spring - Bracket / high lift applications
PAC-1328	1.625	1.175	N/A	0.851	280 @ 2.100	847 @ 1.150	629	1.100	0.900	PAC-R404	PAC-R504	N/A	PAC-S101 PAC-S102	PAC-C205	Dual Drag Race Spring - Bracket / high lift applications
PAC-1325	1.550	1.100	N/A	0.788	250 @ 2.000	765 @ 1.200	644	1.150	0.800	PAC-R405	PAC-R505 PAC-R556	N/A	PAC-S103 PAC-S104	PAC-C204	Smaller Diameter Dual Drag Race Spring
PAC-1326	1.550	1.100	N/A	0.706	275 @ 2.000	805 @ 1.200	663	1.150	0.800	N/A	PAC-R506 PAC-R541	PAC-R606 PAC-R641 PAC-R661	PAC-S105 PAC-S106	PAC-C204	Smaller Diameter Dual Drag Race Spring with a Damper
PAC-1346	1.645	1.195	0.871	0.635	250 @ 2.050	801 @ 1.250	689	1.130	0.800	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1347	1.645	1.195	0.871	0.635	290 @ 2.070	835 @ 1.270	682	1.130	0.800	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1348	1.645	1.195	0.871	0.635	332 @ 2.100	950 @ 1.200	687	1.130	0.900	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1358	1.645	1.195	0.871	0.635	350 @ 2.150	1004 @ 1.200	688	1.130	0.950	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications
PAC-1349	1.645	1.195	0.871	0.635	375 @ 2.200	1064 @ 1.200	689	1.130	1.000	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - High Lift / Bracket Race Applications
PAC-1350	1.645	1.195	0.871	0.635	440 @ 2.200	1129 @ 1.200	689	1.130	1.000	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Pro Stock / Top Fuel applications
PAC-1351	1.667	1.195	0.871	0.635	450 @ 2.300	1240 @ 1.250	752	1.160	1.050	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Pro Stock / Top Fuel applications
PAC-1351H	1.667	1.195	0.871	0.635	525 @ 2.300	1315 @ 1.250	752	1.160	1.050	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Pro Stock / Top Fuel applications
PAC-1352	1.681	1.195	0.871	0.635	480 @ 2.300	1315 @ 1.250	795	1.190	1.050	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C207	Triple Drag Race Spring - Pro Stock / Top Fuel applications
PAC-1353	1.695	1.195	0.871	0.635	500 @ 2.300	1500 @ 1.200	900	1.140	1.100	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C207	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1362	1.725	1.225	0.871	0.635	475 @ 2.300	1515 @ 1.100	945	1.134	1.100	N/A	PAC-R503 PAC-R565	N/A	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1363	1.725	1.225	0.871	0.635	525 @ 2.350	1565 @ 1.250	945	1.134	1.100	N/A	PAC-R503 PAC-R565	N/A	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1364	1.681	1.195	0.871	0.635	525 @ 2.300	1365 @ 1.300	840	1.100	1.100	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C207	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1364L	1.681	1.195	0.871	0.635	500 @ 2.200	1256 @ 1.300	840	1.100	0.900	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C207	Triple Drag Race Spring- Top Alcohol
PAC-1365	1.715	1.195	0.871	0.635	500 @ 2.300	1605 @ 1.300	1005	1.165	1.100	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock
PAC-1366	1.710	1.210	0.871	0.635	380 @ 2.550	1545 @ 1.250	896	1.140	1.350	N/A	PAC-R503 PAC-R565	N/A	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1367	1.659	1.195	0.871	0.635	480 @ 2.550	1356 @ 1.250	674	1.190	1.400	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring for Mountain Motor Engines with High Lift and relatively low RPM under 8400
PAC-1368	1.720	1.210	0.871	0.635	380 @ 2.550	1624 @ 1.250	957	1.145	1.350	N/A	PAC-R503 PAC-R565	N/A	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1377	1.667	1.195	0.871	0.635	400 @ 2.550	1356 @ 1.250	735	1.190	1.300	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C208	Triple Drag Race Spring - Pro Stock / Mountain Motor
PAC-1378	1.645	1.195	0.871	0.635	400 @ 2.200	1280 @ 1.100	800	1.000	1.100	PAC-R401 PAC-R402	PAC-R501 PAC-R502	PAC-R601 PAC-R602	PAC-S109	PAC-C206	Triple Drag Race Spring - Bracket Race Applications High Lift use when you have too short of valves and looking for more lift

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

1300-SERIES	PAC-1324	PAC-1328	PAC-1325	PAC-1326	PAC-1346	PAC-1347	PAC-1348	PAC-1358	PAC-1349	PAC-1350	PAC-1351	PAC-1355H	PAC-1352	PAC-1353	PAC-1362	PAC-1363	PAC-1364	PAC-1364L	PAC-1365	PAC-1366	PAC-1367	PAC-1368	PAC-1377	PAC-1378
Mass (g)	152	152	152	158	183	183	183	183	183	183	196	196	205	205	214	214	189	189	214	207	202	209	199	164
Outer Freq	28793	28793	29368	29368	27188	27188	27188	27188	27188	27188	28610	28610	28780	32070	30516	30516	29649	29649	33611	29198	28256	30663	27873	30949
Middle Freq	NA	NA	NA	Damper	26867	26867	26867	26867	26867	26867	26867	26867	26867	26867	29317	29317	28327	28327	26867	27783	24989	27793	24989	31920
Inner Freq	27275	27275	28294	28434	28392	28392	28392	28392	28392	28392	28392	28392	28392	28392	28392	28392	29985	29985	30246	30246	28392	30246	27278	34608
Coil Bind	1.100	1.100	1.150	1.150	1.130	1.130	1.130	1.130	1.130	1.130	1.160	1.160	1.190	1.140	1.134	1.134	1.100	1.100	1.150	1.150	1.190	1.150	1.190	1.000
3.100											16										127		16	
3.050											26									5	155	5	45	
3.000											5	35	5	5			2		5	16	184	16	76	
2.950											14	44	14	14			12		14	28	212	28	108	
2.900											26	74	26	26	17		23		25	66	244	45	143	
2.850										3	40	111	43	40	52		63	2	40	111	278	93	179	
2.800										27	74	149	82	55	99		105	12	55	156	312	141	216	
2.750										61	111	186	122	95	147		147	37	69	201	345	189	253	5
2.700										96	149	224	162	140	194		189	79	98	246	379	236	290	27
2.650										130	187	262	202	185	241		231	122	148	290	413	284	326	60
2.600										164	224	299	241	230	288		273	164	199	335	446	332	363	93
2.550										199	262	337	281	275	336		315	206	249	380	480	380	400	126
2.500										233	300	375	321	320	383		357	248	299	425	514	428	437	160
2.450										268	337	412	361	333	430		399	290	349	470	547	476	474	200
2.400										302	375	450	401	410	478		441	332	400	514	581	524	510	240
2.350										337	412	487	440	455	525		483	374	450	559	615	571	547	280
2.300										371	450	525	480	500	572		525	416	500	604	648	619	584	320
2.250										406	488	563	520	545	619		567	458	550	649	682	667	621	360
2.200										440	525	600	560	590	667		609	500	600	694	716	715	657	400
2.150										475	563	638	599	635	714		651	542	651	738	750	763	694	440
2.100										509	601	676	639	680	761		693	584	701	783	783	811	731	480
2.050										543	638	713	679	725	711		735	626	751	828	817	858	768	520
2.000										578	676	751	719	770	759		777	668	801	873	851	906	804	560
1.950										612	713	788	758	815	806		819	710	852	918	884	954	841	600
1.900										647	751	826	798	860	853		861	752	902	962	918	1002	878	640
1.850										681	789	864	838	905	900		903	794	952	1007	952	1050	915	680
1.800										716	826	901	878	950	948		945	836	1002	1052	985	1098	952	720
1.750										750	864	939	917	995	995		987	878	1053	1097	1019	1146	988	760
1.700										785	901	976	957	1040	1042		1029	920	1103	1142	1053	1193	1025	800
1.650										819	939	1014	997	1085	1090		1071	963	1153	1187	1086	1241	1062	840
1.600										853	977	1052	1037	1130	1137		1113	1005	1203	1231	1120	1289	1089	880
1.550										888	1014	1089	1076	1175	1184		1155	1047	1253	1276	1154	1337	1135	920
1.500										922	1052	1127	1116	1220	1231		1197	1089	1304	1321	1188	1385	1172	960
1.450										957	1090	1165	1156	1265	1279		1239	1131	1354	1366	1221	1433	1209	1000
1.400										991	1127	1202	1196	1310	1326		1281	1173	1404	1411	1255	1480	1246	1040
1.350										1026	1165	1240	1236	1355	1373		1323	1215	1454	1455	1289	1528	1282	1080
1.300										1060	1202	1277	1275	1400	1420		1365	1257	1505	1500	1322	1576	1319	1120
1.250										1095	1240	1315	1315	1445	1468		1407	1299	1555	1545	1356	1624	1356	1160
1.200										1129	1278	1353	1355	1490	1515		1449	1341	1605	1590	1390	1672	1393	1200
1.150										1164	1278	1390	1390	1535	1562		1491	1383	1655	1635	1450	1720	1450	1240
1.100										1108	1108	1108	1108	1533	1533		1533	1450	1635	1635	1450	1720	1450	1280
1.050																								1320

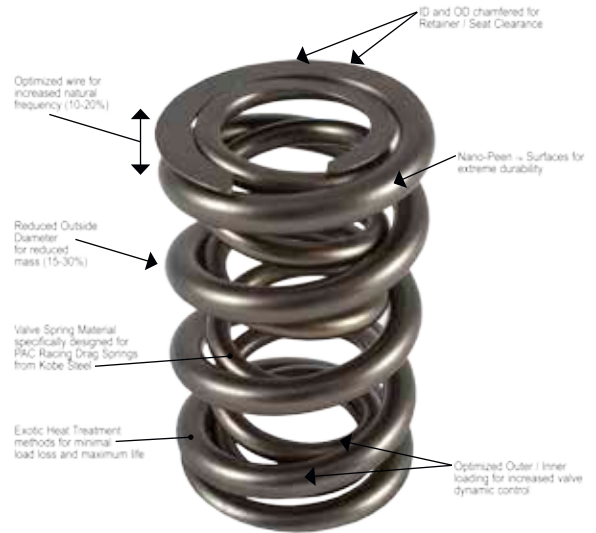
DUAL DRAG RACE SPRINGS

Next generation springs feature all of the material and processing features of the 1300 series with smaller diameters for minimal weight for increased valvetrain stability and high RPM's

PAC Racing Springs has brought the latest technology to the Drag Racing Market. Traditional springs were made with higher load and rates without concern of spring mass and frequency. PAC Racing Springs has taken years of research and coupled that with exotic new heat treatment methods to produce the next generation drag race springs.

These springs feature a 15-30% reduction in physical mass! This coupled with a natural frequency increase of 20% means that your engine will rev higher, faster and last longer with more aggressive valve motion. Get the performance of Titanium with improved life and cost of steel directly from the spring manufacturer.

A complete line of retainers is available for these springs (see pages 36-39). Retainers are available in 8 and 10 degree angles and with and without solid stops in the bottom. PAC also has Pacaloy® billet steel retainers available for all of these dual springs.



Part Number	Spring Diameters				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components						Comments
	OD Outer	ID Outer	ID Middle	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				400 Series Retainers	500 Series Retainers	Mini 8 Degree Retainers	600 Series Retainers	Spring Seats	Spring Cups	
PAC-1312	1.106	0.810	NA	0.574	150 @ 1.700	430 @ 1.000	400	0.700	0.800	PAC-R439	NA	NA	NA	PAC-S132	NA	Ford 4V Drag Spring
PAC-1335	1.300	0.900	N/A	0.616	250 @ 1.800	860 @ 1.050	813	0.985	0.800	PAC-R432	PAC-R532	PAC-R532 PAC-R632	PAC-R632	PAC-S128 PAC-138	NA	Very Small diameter drag race valve spring for high lift LS style engines. Very lightweight spring for very aggressive valvetrains - Very high RPM
PAC-1354	1.550	1.050	N/A	0.726	425 @ 2.300	1440 @ 1.300	1015	1.230	1.000	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C204	High Lift Dual Drag Race Spring - Very high rate springs for very aggressive valve trains - very high RPM potential
PAC-1355	1.500	1.050	N/A	0.726	420 @ 2.175	1200 @ 1.175	780	1.130	1.000	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - Works well in TAFD and Pro-Mod alcohol Engines
PAC-1355H	1.500	1.050	N/A	0.726	440 @ 2.200	1220 @ 1.200	780	1.130	1.000	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - Works well in TAFD and Pro-Mod alcohol Engines
PAC-1330	1.500	1.050	N/A	0.726	275 @ 2.050	938 @ 1.200	780	1.130	0.850	PAC-R408	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - great spring for Comp, superstock engines
PAC-1331	1.514	1.050	N/A	0.726	425 @ 2.200	1288 @ 1.200	863	1.160	1.000	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C203	High Lift Dual Drag Race Spring - Very high rate springs for very aggressive valvetrains - very high RPM potential
PAC-1332	1.514	1.050	N/A	0.726	350 @ 2.100	1127 @ 1.200	863	1.160	0.900	PAC-R408	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C203	High Lift Dual Drag Race Spring - great spring for Comp,superstock engines
PAC-1356	1.500	1.050	N/A	0.726	300 @ 2.100	1002 @ 1.200	780	1.130	0.900	PAC-R408	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - great spring for Comp, superstock engines
PAC-1329	1.500	1.050	N/A	0.726	350 @ 2.100	1052 @ 1.200	780	1.130	0.900	PAC-R408	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - great spring for Comp, superstock engines
PAC-1357	1.500	1.050	N/A	0.726	375 @ 2.150	1116 @ 1.200	780	1.130	0.950	PAC-R408	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C202	High Lift Dual Drag Race Spring - great spring for Comp, superstock engines
PAC-1359	1.522	1.050	N/A	0.726	375 @ 2.200	1200 @ 1.300	895	1.190	0.900	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C203	High Lift Dual Drag Race Spring - Works well in TAFD and Pro-Mod alcohol Engines
PAC-1360	1.522	1.050	N/A	0.726	400 @ 2.250	1252 @ 1.300	895	1.190	0.950	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C203	High Lift Dual Drag Race Spring - Works well in TAFD and Pro-Mod alcohol Engines
PAC-1361	1.536	1.050	N/A	0.726	425 @ 2.300	1389 @ 1.300	964	1.215	1.000	NA	PAC-R508 PAC-R509	PAC-R544 PAC-R644	PAC-R608 PAC-R609	PAC-S110 PAC-S126	PAC-C203	High Lift Dual Drag Race Spring
PAC-1369	1.635	1.125	N/A	0.785	550 @ 2.350	1535 @ 1.300	938	1.230	1.050	NA	PAC-R566	NA	NA	PAC-S103 PAC-S104	NA	High Lift High Rate Dual Drag Race Spring
PAC-1370	1.550	1.065	N/A	0.740	555 @ 2.350	1433 @ 1.300	836	1.230	1.050	N/A	PAC-R547	NA	NA	PAC-S110 PAC-S126	NA	High Lift Dual Drag Race Spring
PAC-1376	1.465	0.990	Damper	0.590	410 @ 2.400	1500 @ 1.300	990	1.240	1.075	NA	NA	PAC-R660	PAC-R660	NA	PAC-C213X	Dual High RPM Drag Race Spring Dampened Spring Requires Steel Retainers and Mini 8 Locks

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

1300 SERIES	PAC-1312	PAC-1335	PAC-1354	PAC-1355	PAC-1355H	PAC-1330	PAC-1331	PAC-1332	PAC-1356	PAC-1329	PAC-1357	PAC-1359	PAC-1360	PAC-1361	PAC-1369	PAC-1370	PAC-1376
Mass (g)	54.0	94	172	144	144	144	151	151	144	144	144	155	155	162	190	169	168
Outer Freq	37229.0	40679	35502	30568	30568	30568	32885	32885	30568	30568	30568	33120	33120	34042	31567	31094	34095
Middle Freq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Damper
Inner Freq	42789.0	44180	31490	35649	35649	35649	35649	35649	35649	35649	35649	35649	35649	35649	30018	28509	35619

2.950															22	73	
2.900															36	95	
2.850			4		8										81	137	
2.800			17		32									9	128	179	17
2.750			31	24	56		2						7	42	175	221	65
2.700			44	48	80		30				11		37	75	222	262	113
2.650			70	72	104		59				35	53	66	109	269	304	161
2.600			120	96	128		87				59	78	96	142	315	346	211
2.550			171	127	167		123	13	14	19	83	107	133	184	362	388	260
2.500			222	166	206		166	42	38	43	107	142	178	232	409	430	310
2.450			273	205	245		209	70	62	77	141	180	223	280	456	471	360
2.400			323	244	284	22	252	98	86	116	180	219	268	329	503	513	409
2.350			374	283	323	46	296	134	110	155	219	258	312	377	550	555	459
2.300			425	322	362	80	339	177	144	194	258	298	357	425	597	597	508
2.250			476	361	401	119	382	220	183	233	297	338	402	473	644	639	558
2.200			526	400	440	158	425	264	222	272	336	378	447	521	691	680	607
2.150	5		577	439	479	197	468	307	261	311	375	418	491	570	738	722	657
2.100	16	19	628	478	518	236	511	350	300	350	414	459	536	618	785	764	706
2.050	27	47	679	517	557	275	554	393	339	389	453	499	581	666	831	806	756
2.000	39	87	729	556	596	314	598	436	378	428	492	541	626	714	878	848	805
1.950	50	128	780	595	635	353	641	479	417	467	531	582	670	762	925	889	855
1.900	70	169	831	634	674	392	684	523	456	506	570	624	715	811	972	931	905
1.850	90	209	882	673	713	431	727	566	495	545	609	666	760	859	1019	973	954
1.800	110	250	932	712	752	470	770	609	534	584	648	708	805	907	1066	1015	1004
1.750	130	291	983	751	791	509	813	652	573	623	687	751	849	955	1113	1057	1053
1.700	150	331	1034	790	830	548	856	695	612	662	726	795	894	1003	1160	1099	1103
1.650	170	372	1085	829	869	587	900	738	651	701	765	838	939	1052	1207	1140	1152
1.600	190	413	1136	868	908	626	943	782	690	740	804	884	984	1100	1254	1182	1202
1.550	210	453	1186	907	947	665	986	825	729	779	843	932	1028	1148	1300	1224	1251
1.500	230	494	1237	946	986	704	1029	868	768	818	882	982	1073	1196	1347	1266	1301
1.450	250	535	1288	985	1025	743	1072	911	807	857	921	1034	1118	1244	1394	1308	1350
1.400	270	575	1339	1025	1064	782	1115	954	846	896	960	1088	1163	1293	1441	1349	1400
1.350	290	616	1389	1064	1103	821	1159	997	885	935	999	1145	1207	1341	1488	1391	1450
1.300	310	657	1440	1103	1142	860	1202	1041	924	974	1038	1204	1252	1389		1433	1500
1.250	330	697	1491	1142	1181	899	1245	1084	963	1013	1077	1264	1297	1437		1475	
1.200	350	738		1181	1220	938	1288	1127	1002	1052	1116	1329	1342				
1.150	370	779		1220	1259	977	1331	1170	1041	1091	1155						
1.100	390	819															
1.050	410	860															
1.000	430																

RPM Series

PAC Racing Springs developed this new process using all the latest advancements from our circle track and drag racing success. We have applied this new method to great designs that will allow for a performance increase that exceeds all demands. If you don't see your application with the RPM process, please contact us for available options.



Dual Springs

Part Number	Spring Diameters				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				Titanium Retainers	Steel Retainers	Spring Seats	Spring Cups	
PAC-1204X	1.290	0.950	No	0.694	145 @ 1.800	385 @ 1.150	369	1.000	0.700	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1205X	1.304	0.950	No	0.694	155 @ 1.800	410 @ 1.150	392	1.000	0.700	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1206X	1.290	0.950	No	0.680	145 @ 1.800	411 @ 1.150	409	1.000	0.700	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1207X	1.304	0.950	No	0.680	155 @ 1.800	436 @ 1.150	433	1.000	0.700	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1208X	1.324	0.950	No	0.694	160 @ 1.800	482 @ 1.100	460	1.000	0.750	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1209X	1.324	0.950	No	0.680	160 @ 1.800	510 @ 1.100	500	1.000	0.750	PAC-R435 PAC-R450 PAC-R550	PAC-R335 PAC-R635 PAC-R650	PAC-S129 PAC-S135 PAC-S136	NA	RPM Series Dual LS Engine Spring
PAC-1221X	1.300	0.895	No	0.655	160 @ 1.800	424 @ 1.150	408	1.080	0.650	PAC-R416 PAC-R516	PAC-R616	PAC-S121	NA	RPM Series Dual Ovate Wire
PAC-1222X	1.280	0.925	No	0.655	180 @ 1.800	480 @ 1.100	425	1.055	0.700	PAC-R455	PAC-R355 PAC-R655	PAC-S121	NA	RPM Series Dual LS Engine Spring Aftermarket Cylinder Heads Upgrade Spring
PAC-1237X	1.274	0.900	No	0.630	200 @ 1.800	585 @ 1.100	550	1.045	0.700	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High Rate High Frequency Dual LS spring Used for Drag Racing, Street Strip Application
PAC-1238X	1.274	0.900	No	0.630	250 @ 1.800	700 @ 1.050	600	0.985	0.750	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High Rate High Frequency Dual LS spring Used for Drag Racing

Beehive Single Springs

Part Number	Spring Diameters				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	Large End		Small End		Installed Height (Valve Closed)	Open Load (Valve Open)				Titanium Retainers	Steel Retainers	Spring Seats	Spring Cups	
	OD	ID	OD	ID										
PAC-1211X	1.290	0.906	1.034	0.650	130 @ 1.800	370 @ 1.175	385	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	Round Wire Beehive RPM Series Processing
PAC-1218X	1.290	0.885	1.055	0.650	140 @ 1.800	328 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	N/A	Same as the PAC-1218 but with premium RPM processing and higher loads to withstand the vigors of street and strip use.
PAC-1219X	1.207	0.885	1.072	0.650	145 @ 1.800	358 @ 1.175	340	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	N/A	Same as the PAC-1219 but with premium RPM processing and higher loads to withstand the vigors of street and strip use.
PAC-1409X	1.250	0.845	1.055	0.650	175 @ 1.800	425 @ 1.250	436	1.190	0.550	PAC-R510 PAC-R511	PAC-R310 PAC-R311 PAC-R333 PAC-R633	NA	NA	Stock Eliminator Drag Racing - Recent rule changes allow the use of the latest technology which allows for a very sophisticated spring with reduced end size for a small lightweight retainer. DRAG RACING ONLY APPLICATIONS
PAC-1220X	1.445	1.000	1.095	0.650	160 @ 1.900	400 @ 1.250	370	1.210	0.650	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S112 PAC-S113	PAC-C201	Same as the PAC-1220 but with premium RPM processing and higher loads to withstand the vigors of street and strip use.
PAC-1232X	1.345	0.900	1.095	0.650	175 @ 2.050	450 @ 1.400	423	1.346	0.650	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	6.4L Hemi Drop in spring
PAC-1234X	1.021	0.698	0.848	0.525	110 @ 1.500	230 @ 1.000	240	0.941	0.500	PAC-R464	NA	NA	NA	Coyote 5.0 Drop in spring
PAC-1255X	1.445	0.990	1.186	0.731	175 @ 1.950	440 @ 1.300	408	1.220	0.700	PAC-R513	PAC-R313	PAC-S111 PAC-S112	PAC-C201	Same as the PAC-1255 but with premium RPM processing and higher loads to withstand the vigors of street and strip use.
PAC-1295X	1.589	1.135	1.185	0.731	175 @ 2.000	410 @ 1.250	313	1.180	0.750	PAC-R513	PAC-R313	PAC-S116	PAC-C202	Same as the PAC-1295 but with premium RPM processing and higher loads to withstand the vigors of street and strip use.

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PART NO.	DUAL										BEEHIVE								
	PAC-1204X	PAC-1205X	PAC-1206X	PAC-1207X	PAC-1208X	PAC-1209X	PAC-1221X	PAC-1222X	PAC-1237X	PAC-1238X	PAC-1211X	PAC-1218X	PAC-1219X	PAC-1232X	PAC-1234X	PAC-1408X	PAC-1220X	PAC-1255X	PAC-1295X
Mass (g)	85	89	86	90	93	94	102	93	93	87	75	75	67	87	36	60	80	87	90
Outer Freq	2930.0	2932	2930	2932	3179	3179	29745	27620	33101	35938	32952	29277	31258	32716	37515	40564	30755	30344	25686
Inner Freq	30877.0	30877	33662	33662	30870	33662	28480	33143	35380	38918	NA	NA	NA	1.346	NA	NA	NA	NA	NA
Coil Bind	1.000	1.000	1.000	1.000	1.000	1.000	1.080	1.055	1.050	0.985	1.100	1.140	1.100	1.346	0.941	1.115	1.210	1.220	1.170
2.500	3	3	3	3				18		18				6					18
2.450																			34
2.400																			50
2.350																			65
2.300																			81
2.250																			97
2.200	3	3	3	3						18		15	9	112		49	73	112	112
2.150	16	14	14	16	2		17	42	13	40	30	30	26	133		68	93	128	128
2.100	34	26	22	29	22	14	38	55	35	70	15	46	43	154		86	114	144	144
2.050	53	43	47	45	45	35	58	74	62	100	34	62	60	175		105	134	159	159
2.000	71	77	63	69	68	60	79	95	90	130	53	77	77	196		123	155	175	175
1.950	90	96	84	90	91	85	99	116	118	160	72	93	94	217		142	175	191	191
1.900	108	116	104	112	114	110	119	137	145	190	92	109	111	238		160	195	206	206
1.850	127	135	125	133	137	135	140	159	173	220	111	124	128	260		178	216	222	222
1.800	145	155	145	155	160	160	160	180	200	250	130	140	145	281		175	236	238	238
1.750	163	175	165	177	183	185	180	201	228	280	149	156	162	302		190	215	257	253
1.700	182	194	186	198	206	210	201	223	255	310	168	171	179	323		220	277	269	269
1.650	200	214	206	220	229	235	221	244	283	340	188	187	196	344		243	297	285	285
1.600	219	233	227	241	252	260	241	265	310	370	207	203	213	365		266	318	300	300
1.550	237	253	247	263	275	285	262	286	338	400	226	218	230	387		289	338	316	316
1.500	256	273	268	285	298	310	282	308	365	430	245	234	247	408		311	358	332	332
1.450	274	292	288	306	321	335	303	329	393	460	264	250	264	429		334	379	347	347
1.400	293	312	309	328	344	360	323	350	420	490	284	265	281	450		357	399	363	363
1.350	311	332	329	350	367	385	343	372	448	520	303	281	298	471		380	420	379	379
1.300	330	351	350	371	390	410	364	393	475	550	322	297	315			402	440	394	394
1.250	348	371	370	393	413	435	384	414	503	580	341	312	332			425	460	410	410
1.200	367	390	391	414	436	460	404	435	530	610	360	328	349			447	481	426	426
1.150	385	410	411	436	459	485	425	457	558	640	380	344	366			470	437	441	441
1.100	403	430	432	458	482	510	445	478	585	670	399	359	383						
1.050	422	449	452	479	505	535	465		613	700									
1.000	440	469	473	501	528	560	486			730									
0.950																			



NEW FOR 2015

OVATE BEEHIVE SPRINGS

NEW FOR
2015

1200 Series

Part Number	Spring Diameters				Spring Loads				Recommended Matching Components				Comments	
	Large End		Small End		Installed Height (Valve Closed)	Open Load (Valve Open)	Spring Rate	Max Coil Bind	Max Lift	Titanium Retainers	Steel Retainers	Spring Seats		Spring Cups
	OD	ID	OD	ID										
PAC-1213	1.061	0.738	0.959	0.636	80 @ 1.640	185 @ 1.090	191	1.020	0.550	NA	NA	NA	NA	Ford 4.6L 2 valve spring for up to 550 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1214	1.061	0.698	0.999	0.636	100 @ 1.640	265 @ 1.080	275	1.040	0.600	NA	NA	NA	NA	Ford 4.6L 2 valve spring for up to 600 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1215	1.290	0.885	1.055	0.650	105 @ 1.800	293 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	OEM type LS1 ovate beehive valve spring for applications up to 0.600 lift. This is a drop-in spring that fits stock seats and retainers. This spring has higher loading for more demanding applications.
PAC-1218	1.290	0.885	1.055	0.650	130 @ 1.800	318 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	Performance LS1 ovate beehive valve spring for applications up to 0.600 lift. This is a drop-in spring that fits stock seats & retainers. This spring has higher loading for more demanding applications.
PAC-1219	1.307	0.885	1.072	0.650	135 @ 1.800	348 @ 1.175	340	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	LS Ovate beehive spring that has increased loads, rates and frequencies for more aggressive cams. This remains a drop-in spring for stock parts but will handle increased lifts.
PAC-1220	1.445	1.000	1.095	0.650	155 @ 1.880	377 @ 1.280	370	1.210	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S112 PAC-S113	PAC-C201	Primarily designed as Big Block Chevy spring. This larger ovate beehive can replace numerous springs for flat tappet and hydraulic roller applications.
PAC-1223	1.105	0.742	0.943	0.580	90 @ 1.470	252 @ 0.970	324	0.900	0.500	PAC-R512 PAC-R442 PAC-R445	PAC-R312	NA	NA	Ford 4.6L 4 valve spring for up 500 lift. This ovate beehive spring is a drop-in spring that requires no machining and fits stock retainers and seats. Fits V-Rod Motorcycles
PAC-1233	1.025	0.662	0.930	0.567	105 @ 1.670	270 @ 1.120	300	1.060	0.550	PAC-R512	PAC-R312	NA	NA	Ford 4.6L 3 valve spring for up 550 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1235	1.210	0.805	1.035	0.630	135 @ 1.800	350 @ 1.200	358	1.160	0.600	NA	NA	NA	NA	Chrysler Hemi 5.7L, 6.1L Valve spring for up to 0.600 Lift. This ovate beehive spring is a drop-in design that requires no machining.
PAC-1283	1.250	0.845	1.085	0.680	110 @ 1.750	328 @ 1.150	363	1.080	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	NA	NA	SRT Viper V-10 performance ovate beehive spring for applications up to 0.600 lift. This is a drop-in spring that fits the stock retainers and seats.
PAC-1286	1.405	1.000	1.055	0.650	125 @ 1.750	295 @ 1.150	283	1.060	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S112 PAC-S113	NA	HP Beehive spring designed for a variety of hydraulic or flat tappet applications that can make use of 1.405 OD spring. Works well on many small block engines.
PAC-1295	1.589	1.135	1.185	0.731	150 @ 2.000	385 @ 1.250	313	1.180	0.750	PAC-R513	PAC-R313	PAC-S116	PAC-C202	Large Ovate beehive spring for high lift applications. Higher load and lift capability spring for applications up to 0.750 lift. This spring is PAC-Enhanced processed to handle the additional increased durability.

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PART NO.	PAC-1213	PAC-1214	PAC-1215	PAC-1218	PAC-1219	PAC-1220	PAC-1223	PAC-1233	PAC-1235	PAC-1283	PAC-1286	PAC-1295	PART NO.
Mass (g)	45	52	75	75	67	97	45	51	73	73	78	106	Mass (g)
Freq (cpm)*	26302	31946	29277	29277	31258	27047	38138	33317	31793	33960	29337	25074	Freq (cpm)*
Coil Bind	0.964	1.030	1.093	1.096	1.100	1.210	0.850	1.060	1.100	1.080	1.080	1.130	Coil Bind
2.500												22	2.500
2.450												35	2.450
2.400						15						48	2.400
2.350						28						61	2.350
2.300					4	41						73	2.300
2.250					15	54						86	2.250
2.200					22	67						94	2.200
2.150	2		14	40	16	80			10		12	112	2.150
2.100	8		27	53	33	92			28		26	124	2.100
2.050	16		40	66	50	105			45	1	40	137	2.050
2.000	23	12	53	79	67	118		6	63	19	54	150	2.000
1.950	30	26	66	92	84	132		21	81	37	68	163	1.950
1.900	38	40	79	105	101	147		36	99	56	83	175	1.900
1.850	46	53	92	118	118	161		51	117	74	97	188	1.850
1.800	54	67	106	131	135	176		66	135	92	111	201	1.800
1.750	63	81	119	145	152	191	8	81	153	110	125	214	1.750
1.700	72	95	132	158	169	208	22	96	171	128	139	228	1.700
1.650	81	108	145	172	186	224	36	111	189	146	153	242	1.650
1.600	90	122	159	187	203	241	51	126	207	165	168	256	1.600
1.550	99	136	174	202	220	259	66	141	225	183	182	270	1.550
1.500	108	150	189	218	237	278	80	156	243	201	196	287	1.500
1.450	117	163	206	234	254	298	95	171	260	219	210	304	1.450
1.400	126	177	222	251	271	318	110	186	278	237	224	321	1.400
1.350	135	191	239	267	288	339	125	201	296	255	238	339	1.350
1.300	144	205	257	283	305	361	140	216	314	274	253	356	1.300
1.250	153	218	275	300	322	384	155	231	332	292	267	373	1.250
1.200	163	232	294	318	339	415	172	246	350	310	281	397	1.200
1.150	173	246	313	337	356		188	261	368	328	295	526	1.150
1.100	184	260	456	354	373		206	276	386	346	309		1.100
1.050	195	273					223						1.050
1.000	208						241						1.000
0.950	607						261						0.950
0.900							281						0.900

* The frequency of beehive springs are extremely variable depending on installation height. The base frequency is listed but can be greatly influenced by installation height.

SPECIALTY & CLASS SPECIFIC SPRINGS

CIRCLE TRACK

Part Number	Spring Diameters				Spring Loads		Recommended Matching Components							Comments
	Large End		Small End		Installed Height (Valve Closed)	Open Load (Valve Open)	Spring Rate	Max Coil Bind	Max Lift	Titanium Retainers	Steel Retainers	Spring Seats	Spring Cups	
	OD	ID	OD	ID										
1200 Series														
PAC-1210X	1.245	0.891	NA	NA	87 @ 1.700	212 @ 1.270	290	1.150	0.430	NA	NA	NA	NA	GM 602 Crate motor "Cheater" Spring. Includes features that allow more RPM capability and better endurance
PAC-1212X	1.355	0.910	NA	NA	125 @ 1.750	315 @ 1.250	380	1.180	0.550	NA	NA	NA	NA	GM 604 Crate motor "Cheater" Spring. This spring meets the nominal specs but has variable rate features that allow more RPM capability.
PAC-1216	1.260	0.906	Yes	0.876	115 @ 1.800	350 @ 1.300	470	1.048	0.500	NA	NA	NA	NA	Race Saver Spec'd Spring
PAC-1280X	1.282	0.860	1.077	0.655	92 @ 1.80	285 @ 1.300	386	1.181	0.5	NA	NA	NA	NA	GM 604 Crate motor "Blue Beehive" Spring. This spring meets the nominal class specs but has variable rate features that allow more RPM capability.

DRAG RACE

Part Number	Spring Diameters				Spring Loads		Recommended Matching Components							Comments
	Large End		Small End		Installed Height (Valve Closed)	Open Load (Valve Open)	Spring Rate	Max Coil Bind	Max Lift	Titanium Retainers	Steel Retainers	Spring Seats	Spring Cups	
	OD	ID	OD	ID										
PAC-1409X	1.250	0.845	1.055	0.650	175 @ 1.800	425 @ 1.250	436	1.190	0.550	PAC-R510 PAC-R511	PAC-R310 PAC-R311 PAC-R333 PAC-R633	NA	NA	Stock Eliminator - Recent rule changes allow the use of the latest technology which allows for a very sophisticated spring with reduced end size for a small lightweight retainer. This spring is recommended for drag race applications only
PAC-1427	1.454	1.000	1.104	0.650	200 @ 1.850	500 @ 1.250	500	1.190	0.625	PAC-R510	PAC-R310 PAC-R333 PAC-R643	PAC-S112 PAC-S113	PAC-C201	This is actually a true conical spring for the BBC stock eliminator applications. This spring has very advanced processing technology and highly variable rates for aggressive camshafts. This spring is recommended for drag race applications only

PAC-1210X

PAC-1280X

PAC-1212X

PAC-1427



CONICAL

Part Number	Spring Diameters			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments	
	OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)				Open Load (Valve Open)	Note *** is 0.030 thick				
										Titanium Retainers	Steel Retainers	Spring Seats		Spring Cups
RPM Series Dual Springs														
PAC-1204X	1.290	0.950	No	0.694	145 @ 1.800	385 @ 1.150	369	1.000	0.700	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1205X	1.304	0.950	No	0.694	155 @ 1.800	410 @ 1.150	392	1.000	0.700	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1206X	1.290	0.950	No	0.680	145 @ 1.800	411 @ 1.150	409	1.000	0.700	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1207X	1.304	0.950	No	0.680	155 @ 1.800	436 @ 1.150	433	1.000	0.700	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1208X	1.324	0.950	No	0.694	160 @ 1.800	482 @ 1.100	460	1.000	0.750	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1209X	1.324	0.950	No	0.680	160 @ 1.800	510 @ 1.100	500	1.000	0.750	PAC-R435	PAC-R335	PAC-S129 PAC-S136***	NA	RPM Series Dual LS Engine Spring
PAC-1221X	1.300	0.895	No	0.655	160 @ 1.800	424 @ 1.150	408	1.080	0.650	PAC-R416 PAC-R516	PAC-R616	PAC-S121	NA	Ovate Wire Dual LS Spring
PAC-1222X	1.280	0.925	No	0.655	180 @ 1.800	480 @ 1.100	425	1.055	0.700	PAC-R455	PAC-R355 PAC-R655	PAC-S121	NA	RPM Series Dual LS Engine Spring Aftermarket Cylinder Heads Upgrade Spring
PAC-1236X	1.310	0.925	No	0.665	156 @ 1.800	495 @ 1.150	520	1.080	0.650	PAC-R455	PAC-R355 PAC-R655	PAC-S121	NA	RPM Series Dual LS Engine Spring Aftermarket Cylinder Heads Upgrade Spring
Dual Springs														
PAC-1221	1.300	0.895	No	0.655	135 @ 1.800	400 @ 1.150	408	1.080	0.650	PAC-R416 PAC-R516	PAC-R616	PAC-S121	NA	Dual LS Spring made from Ovate Wire for Street Applications.
Extreme Duty Duals														
PAC-1529	1.284	0.900	No	0.630	180 @ 1.900	600 @ 1.150	560	1.085	0.750	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High Performance Endurance LS Circle Track Spring This spring is a High Frequency High RPM capable Spring
PAC-1530	1.284	0.900	No	0.616	160 @ 2.000	580 @ 1.250	560	1.180	0.750	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High Performance High Endurance LS Circle Track Spring This spring is a High Frequency High RPM capable Spring
PAC-1335	1.300	0.900	No	0.616	250 @ 1.800	860 @ 1.050	813	0.985	0.800	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	This is a High Rate Dual LS Spring used For Drag Racing Solid Roller Cam Applications
PAC-1237X	1.274	0.900	No	0.630	200 @ 1.800	585 @ 1.100	550	1.045	0.700	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High rate High Frequency Dual LS spring Used for Drag Racing, Street Strip Application
PAC-1238X	1.274	0.900	No	0.630	250 @ 1.800	700 @ 1.050	600	0.985	0.750	PAC-R532 PAC-R432	PAC-R632	PAC-S128 PAC-S138	NA	High rate High Frequency Dual LS spring Used for Drag Racing

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PN	PAC-1204X	PAC-1205X	PAC-1206X	PAC-1207X	PAC-1208X	PAC-1209X	PAC-1221	PAC-1222X	PAC-1236X	PAC-1529 PAC-1221X	PAC-1530	PAC-1335	PAC-1237X	PAC-1238X
Mass (g)	85	89	86	90	93	94	102	93	100	100	111	94	93	87
Outer Freq	29930.0	29352	29930	29352	31797	31797	29745	27620	33349	32185	29735	40679	33101	35938
Inner Freq	30877.0	30877	33662	33662	30870	33662	28480	33143	32433	34200	32847	44180	35380	38918
Coil Bind	1.000	1.000	1.000	1.000	1.000	1.000	1.080	1.055	1.080	1.085	1.180	0.990	1.050	0.985
2.300											5			
2.250								18			22			
2.200	3	3	3	3				30		15	45			18
2.150	16	18	14	16	2			42		40	73		13	40
2.100	34	37	26	29	22	14	13	55		68	100	19	35	70
2.050	53	57	43	47	45	35	33	74	26	96	128	47	62	100
2.000	71	77	63	69	68	60	53	95	52	124	156	87	90	130
1.950	90	96	84	90	91	85	74	116	78	152	184	128	118	160
1.900	108	116	104	112	114	110	94	137	104	180	212	169	145	190
1.850	127	135	125	133	137	135	115	159	130	208	240	209	173	220
1.800	145	155	145	155	160	160	135	180	156	236	268	250	200	250
1.750	163	175	165	177	183	185	155	201	182	264	296	291	228	280
1.700	182	194	186	198	206	210	176	223	208	292	323	331	255	310
1.650	200	214	206	220	229	235	196	244	234	320	351	372	283	340
1.600	219	233	227	241	252	260	217	265	260	348	379	413	310	370
1.550	237	253	247	263	275	285	237	286	286	376	407	453	338	400
1.500	256	273	268	285	298	310	257	308	313	404	435	494	365	430
1.450	274	292	288	306	321	335	278	329	339	432	463	535	393	460
1.400	293	312	309	328	344	360	298	350	365	460	491	575	420	490
1.350	311	332	329	350	367	385	318	372	391	488	519	616	448	520
1.300	330	351	350	371	390	410	339	393	417	516	546	657	475	550
1.250	348	371	370	393	413	435	359	414	443	544	574	697	503	580
1.200	367	390	391	414	436	460	380	435	469	572	602	738	530	610
1.150	385	410	411	436	459	485	400	457	495	600		779	558	640
1.100	403	430	432	458	482	510	420	478	521	628		819	585	670
1.050	422	449	452	479	505	535	441					860	613	700
1.000	440	469	473	501	528	560						901		730
0.950														

Part Number	Spring Diameters				Spring Loads			Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	Large End		Small End		Installed Height (Valve Closed)	Open Load (Valve Open)	Titanium Retainers				Steel Retainers	Spring Seats	Spring Cups		
	OD	ID	OD	ID											
PAC-1215	1.290	0.885	1.055	0.650	105 @ 1.800	293 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	OEM type LS1 ovate beehive valve spring for applications up to 0.600 lift. This is a drop-in spring that fits stock seats and retainers.	
PAC-1218	1.290	0.885	1.055	0.650	130 @ 1.800	318 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	Performance LS1 ovate beehive valve spring for applications up to 0.600 lift. This is a drop-in spring that fits stock seats and retainers.	
PAC-1219	1.307	0.885	1.072	0.650	135 @ 1.800	348 @ 1.175	340	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	LS Ovate beehive spring that has increased loads, rates and frequencies for more aggressive cams. This remains a drop-in spring for stock parts but will handle increased lifts.	
RPM Series Beehives															
PAC-1211X	1.290	0.906	1.034	0.650	130 @ 1.800	370 @ 1.175	385	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	NA	Round Wire Beehive	
PAC-1218X	1.290	0.885	1.055	0.650	140 @ 1.800	328 @ 1.200	313	1.140	0.600	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	N/A	Same as the PAC-1218 but with premium processing and higher loads to withstand the vigors of street and strip use.	
PAC-1219X	1.307	0.885	1.072	0.650	145 @ 1.800	358 @ 1.175	340	1.100	0.625	PAC-R510 PAC-R511	PAC-R310 PAC-R311	PAC-S111	N/A	Same as the PAC-1219 but with premium processing and higher loads to withstand the vigors of street and strip use.	

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PN	PAC-1215	PAC-1218	PAC-1219	PAC-1211X	PAC-1218X	PAC-1219X
Mass (g)	75	75	67	75	75	67
Outer Freq	29277	29277	31258	32952	29277	31258
Inner Freq	NA	NA	NA	NA	NA	NA
Coil Bind	1.140	1.140	1.100	1.100	1.140	1.100
2.300		4				
2.250		15				
2.200		22			15	9
2.150	14	40	16		30	26
2.100	27	53	33	15	46	43
2.050	40	66	50	34	62	60
2.000	53	79	67	53	77	77
1.950	66	92	84	72	93	94
1.900	79	105	101	92	109	111
1.850	92	118	118	111	124	128
1.800	106	131	135	130	140	145
1.750	119	145	152	149	156	162
1.700	132	158	169	168	171	179
1.650	145	172	186	188	187	196
1.600	159	187	203	207	203	213
1.550	174	202	220	226	218	230
1.500	189	218	237	245	234	247
1.450	206	234	254	264	250	264
1.400	222	251	271	284	265	281
1.350	239	267	288	303	281	298
1.300	257	283	305	322	297	315
1.250	275	300	322	341	312	332
1.200	294	318	339	360	328	349
1.150	313	337	356	380	344	366
1.100	456	354	373	399	359	383
1.050						
1.000						
0.950						

LS ENGINE RPM SERIES

PAC Racing Springs developed this new process using all the latest advancements from our circle track and drag racing successes. We have applied this new method to great designs that will allow for a performance increase that exceeds all demands. If you don't see your application with the RPM process, please contact us for available options.



RPM Series Dual Spring Kits

Kit Number	Application	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Kit Contents
		Installed Height (Valve Closed)	Installed Height (Valve Open)				
PAC-KS023	LS Engine Kit	145 @ 1.800	385 @ 1.500	369	1.000	0.700	PAC-1204X, PAC-R335, PAC-S129, PAC-L8113 and economy seals
PAC-KS024	LS Engine Kit	155 @ 1.800	410 @ 1.500	392	1.000	0.700	PAC-1205X, PAC-R335, PAC-S129, PAC-L8113 and economy seals
PAC-KS025	LS Engine Kit	145 @ 1.800	385 @ 1.500	369	1.000	0.700	PAC-1204X, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS026	LS Engine Kit	155 @ 1.800	410 @ 1.500	392	1.000	0.700	PAC-1205X, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS027	LS Engine Kit	145 @ 1.800	385 @ 1.500	369	1.000	0.700	PAC-1204X, PAC-R435, PAC-S129, PAC-L8113 and premium seals
PAC-KS028	LS Engine Kit	155 @ 1.800	410 @ 1.500	392	1.000	0.700	PAC-1205X, PAC-R435, PAC-S129, PAC-L8113 and premium seals
PAC-KS029	LS9 Engine Kit	155 @ 1.815	528 @ 1.065	500	1.000	0.750	PAC-1209X, PAC-R450, PAC-S136, PAC-L8142 and premium seals
PAC-KS031	LS Engine Kit	145 @ 1.800	411 @ 1.500	409	1.000	0.700	PAC-1206X, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS032	LS Engine Kit	155 @ 1.800	436 @ 1.500	433	1.000	0.700	PAC-1207X, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS033	LS Engine Kit	160 @ 1.800	482 @ 1.100	460	1.000	0.750	PAC-1208X, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS034	LS Engine Kit	160 @ 1.800	510 @ 1.100	500	1.000	0.750	PAC-1209X, PAC-R435, PAC-S129, PAC-L8113 and economy seals

RPM Series Beehive LS Engine Spring Kits

Kit Number	Application	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Kit Contents
		Installed Height (Valve Closed)	Installed Height (Valve Open)				
PAC-KS021	LS Engine Kit	140 @ 1.800	328 @ 1.175	318	1.140	0.600	PAC-1218X, PAC-R311, PAC-S111, PAC-L8113 and economy seals
PAC-KS022	LS Engine Kit	145 @ 1.800	358 @ 1.200	340	1.100	0.625	PAC-1219X, PAC-R311, PAC-S111, PAC-L8113 and economy seals

Aftermarket Cylinder Heads (with larger valve guides)

PAC-KS035	LS Engine Kit	145 @ 1.800	411 @ 1.500	409	1.000	0.700	PAC-1206X, PAC-R435, PAC-S135, PAC-L8113 and economy seals
PAC-KS036	LS Engine Kit	155 @ 1.800	436 @ 1.500	433	1.000	0.700	PAC-1207X, PAC-R435, PAC-S135, PAC-L8113 and economy seals
PAC-KS037	LS Engine Kit	160 @ 1.800	482 @ 1.100	460	1.000	0.750	PAC-1208X, PAC-R435, PAC-S135, PAC-L8113 and economy seals
PAC-KS038	LS Engine Kit	160 @ 1.800	510 @ 1.100	500	1.000	0.750	PAC-1209X, PAC-R435, PAC-S135, PAC-L8113 and economy seals

HOT ROD SERIES KITS

Hotrod Series Dual LS Spring Kits

Kit Number	Application	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Kit Contents
		Installed Height (Valve Closed)	Installed Height (Valve Open)				
PAC-KS011	LS Engine Kit	150 @ 1.800	400 @ 1.125	370	1.010	0.625	PAC-1904, PAC-R335, PAC-S129, OE locks and economy seals
PAC-KS012	LS Engine Kit	160 @ 1.800	425 @ 1.125	392	1.020	0.650	PAC-1905, PAC-R335, PAC-S129, OE locks and economy seals
PAC-KS015	LS Engine Kit	150 @ 1.800	400 @ 1.125	370	1.010	0.625	PAC-1904, PAC-R335, PAC-S129, PAC-L8113 and economy seals
PAC-KS016	LS Engine Kit	160 @ 1.800	425 @ 1.125	392	1.020	0.650	PAC-1905, PAC-R335, PAC-S129, PAC-L8113 and economy seals
PAC-KS017	LS Engine Kit	150 @ 1.800	400 @ 1.125	370	1.010	0.625	PAC-1904, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS018	LS Engine Kit	160 @ 1.800	425 @ 1.125	392	1.020	0.650	PAC-1905, PAC-R435, PAC-S129, PAC-L8113 and economy seals
PAC-KS019	LS Engine Kit	150 @ 1.800	400 @ 1.125	370	1.010	0.625	PAC-1904, PAC-R435, PAC-S129, PAC-L8113 and premium seals
PAC-KS020	LS Engine Kit	160 @ 1.800	425 @ 1.125	392	1.020	0.650	PAC-1905, PAC-R435, PAC-S129, PAC-L8113 and premium seals
Aftermarket Cylinder Heads- with larger valve guides							
PAC-KS006	LS Engine Kit	150 @ 1.800	400 @ 1.125	370	1.010	0.625	PAC-1904, PAC-R435, PAC-S135, PAC-L8113 and economy seals
PAC-KS007	LS Engine Kit	160 @ 1.800	425 @ 1.125	392	1.020	0.650	PAC-1905, PAC-R435, PAC-S135, PAC-L8113 and economy seals

Our most economical kit

Hotrod Series Beehive LS Spring Kits

Kit Number	Application	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Kit Contents
		Installed Height (Valve Closed)	Installed Height (Valve Open)				
PAC-KS013	LS Engine Kit	135 @ 1.800	348 @ 1.175	340	1.100	0.625	PAC-1219, PAC-R311, PAC-S111, PAC-L8113 and economy seals
PAC-KS014	LS Engine Kit	130 @ 1.800	318 @ 1.200	313	1.140	0.600	PAC-1218, PAC-R311, PAC-S111, PAC-L8113 and economy seals

LS Engine - SPRING KITS

LS ENGINE VALVE-TRAIN COMPONENTS

Valve-Train Components for LS Engines!

LS Lifters

Part Number	T-Bar Style	Style	Type	Mass (Grams)	OD	Application	Plunger travel STD or Limited	Restrictions	Comments
PAC-LFT101-LS	NA	Stock Lifter Tray	Hydraulic	138.7	0.842	LS Engine	STD Travel	NA	STD and High Lift Applications
PAC-LFT102-LS	NA	Stock Lifter Tray	Hydraulic	138.7	0.842	LS Engine	Limited Travel	NA	STD and High Lift Applications
PAC-LFT103-LS	Straight	T-Bar Style	Hydraulic	313.0	0.842	LS Engine	STD Travel	NA	Street Performance Lifter
PAC-LFT104-LS	Straight	T-Bar Style	Hydraulic	313.0	0.842	LS Engine	STD Travel	NA	Street Performance Lifter + Motown Block
PAC-LFT105-LS	Straight	T-Bar Style	Hydraulic	317.9	0.842	LS Engine	STD Travel	NA	Race + Motown Block - Most Popular
PAC-LFT106-LS	Straight	T-Bar Style	Hydraulic	320.0	0.842	LS Engine	Limited Travel	NA	Will Fit Motown Block
PAC-LFT107-LS	Angled	T-Bar Style	Hydraulic	320.3	0.842	LS Engine	STD Travel	NA	Will Fit Warhawk Block
PAC-LFT108-LS	Angled	T-Bar Style	Hydraulic	320.0	0.842	LS Engine	Limited Travel	NA	Will Fit Warhawk Block
PAC-LFT109-LS	Straight	T-Bar Style	Hydraulic	318.7	0.842	LS Engine	STD Travel		High RPM on Center
PAC-LFT110-LS	Angled	T-Bar Style	Hydraulic	320.0	0.842	LS Engine	STD Travel	Do not use oil heavier than 5W30	High RPM on Center will fit Warhawk Block
PAC-LFT111-LS	Straight	T-Bar Style	Hydraulic	354.9	0.903	LS Engine	STD Travel		Hi RPM on Center roller Pin oiling
PAC-LFT112-LS	Angled	T-Bar Style	Hydraulic	303.1	0.903	LS Engine	STD Travel		High RPM on Center roller Pin oiling fit Warhawk Block
PAC-LFT113-LS	NA	Stock Lifter Tray	Mechanical	142.0	0.842	LS Engine	NA	NA	STD and High Lift Applications
PAC-LFT114-LS	Straight	T-Bar Style	Mechanical	309.1	0.842	LS Engine	NA	NA	Street Performance
PAC-LFT115-LS	Straight	T-Bar Style	Mechanical	243.6	0.842	LS Engine	NA	NA	Performance
PAC-LFT116-LS	Angled	T-Bar Style	Mechanical	245.0	0.842	LS Engine	NA	NA	Performance, will fit Warhawk Block

LS Pushrods

Part Number	Mass (grams)	Length 5/16 Inch OD	Type	OD	Wall Thickness
5/16 Inch OD					
PAC-PR200-LS	53.60	7.375	Straight- Stock	5/16	0.080
PAC-PR201-LS	54.00	7.400	Straight- Stock	5/16	0.080
PAC-PR202-LS	54.50	7.425	Straight- Stock	5/16	0.080
PAC-PR203-LS	53.80	7.450	Straight- Stock	5/16	0.080
PAC-PR204-LS	54.90	7.475	Straight- Stock	5/16	0.080
PAC-PR205-LS	54.30	7.500	Straight- Stock	5/16	0.080
PAC-PR206-LS	63.60	7.300	0.210 Radius Heavy Wall	5/16	0.105
PAC-PR207-LS	63.80	7.350	0.210 Radius Heavy Wall	5/16	0.105
PAC-PR208-LS	65.00	7.400	0.210 Radius Heavy Wall	5/16	0.105
PAC-PR209-LS	64.70	7.450	0.210 Radius Heavy Wall	5/16	0.105
PAC-PR210-LS	65.70	7.500	0.210 Radius Heavy Wall	5/16	0.105
3/8 Inch OD					
PAC-PR211-LS	68.40	7.375	Straight- Stock	3/8	0.080
PAC-PR212-LS	69.60	7.400	Straight- Stock	3/8	0.080
PAC-PR213-LS	69.20	7.425	Straight- Stock	3/8	0.080
PAC-PR214-LS	69.10	7.450	Straight- Stock	3/8	0.080
PAC-PR215-LS	71.00	7.475	Straight- Stock	3/8	0.080
PAC-PR216-LS	70.20	7.500	Straight- Stock	3/8	0.080
PAC-PR217-LS	93.00	7.300	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR218-LS	93.25	7.350	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR219-LS	93.60	7.400	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR220-LS	94.00	7.425	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR221-LS	94.25	7.450	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR222-LS	94.40	7.475	0.210 Radius Heavy Wall	3/8	0.135
PAC-PR223-LS	94.20	7.500	0.210 Radius Heavy Wall	3/8	0.135



LS Rocker Trunnion Upgrade Kit



P/N: PAC-KS030
Rocker Arm Trunnion Upgrade Kit



P/N: PAC-T915
Rocker Arm Trunnion Bearing Press Tool

LS On-Head Valve Spring Changers



P/N: PAC-T925
On-Head Spring Changer for LS Cathedral Port



P/N: PAC-T926
On-Head Spring Changer for LS Square Port



MOTORCYCLE AND ATV SPRINGS

Part Number	Brand	Year	Model	Additional Notes	OD Outer (in)	ID Outer (in)	ID Inner (in)	Installed Loads (lbs/in)	Open Loads (lbs/in)	Coil Bind (in)	Rate (lbs/in)	Outer Frequency (cpm)	Inner Frequency (cpm)	Lift (in)	MASS (g)	
Single Springs																
PAC-MX100	Yamaha	2001-2012	YZF250-I	WR250F AND 04-09 CRF250 Clutch Spring	0.634	0.450	NA	27 @ 1.100	74 @ 0.720	0.660	123.7	48979	NA	0.380	10	
PAC-MX101	Yamaha	2001-2012	YZF250E		0.708	0.512	NA	33 @ 1.100	88 @ 0.720	0.660	144.7	53370	NA	0.380	12	
PAC-MX102	Honda	2007-2012	CRF150		0.731	0.491	NA	38 @ 1.260	135 @ 0.890	0.835	262.2	52739	NA	0.370	19	
PAC-MX103	Honda	2007-2012	CRF150		0.731	0.491	NA	48 @ 1.496	138 @ 1.146	1.090	257.1	51729	NA	0.350	25	
PAC-MX104	Honda	2007-2012	CRF150		0.717	0.491	NA	39 @ 1.260	118 @ 0.890	0.835	213.5	50850	NA	0.370	18	
PAC-MX105	Honda	2008-2009	CRF250		0.740	0.514	NA	32 @ 1.309	110 @ 0.929	0.870	205.3	50747	NA	0.380	19	
PAC-MX106	Honda	2008-2009	CRF250		0.754	0.514	NA	40 @ 1.525	135 @ 1.150	1.090	253.3	52881	NA	0.375	26	
PAC-MX107	Honda	2008-2009	CRF250		0.780	0.510	NA	40 @ 1.525	168 @ 1.124	1.045	319.2	47609	NA	0.401	28	
PAC-MX108	Yamaha	2003-2012	YZF450I, E		0.756	0.560	NA	32 @ 1.060	75 @ 0.680	0.625	113.2	45009	NA	0.380	12	
PAC-MX109	Honda	2007-2012	CRF150		0.761	0.491	NA	49 @ 1.496	163 @ 1.146	1.095	325.7	47149	NA	0.350	29	
PAC-MX110	Kawasaki	2004-2012	KXF250		0.800	0.560	NA	35 @ 1.317	120 @ 0.957	0.870	236.1	52862	NA	0.360	22	
PAC-MX111	Kawasaki	2004-2012	KXF250	RMZ 250 AND 07-08 GSXR 750	0.800	0.560	NA	35 @ 1.317	128 @ 0.920	0.835	234.3	52447	NA	0.397	21	
PAC-MX112	Kawasaki	2004-2012	KXF450-I, E		0.825	0.575	NA	36 @ 1.240	131 @ 0.852	0.800	244.8	49926	NA	0.388	22	
PAC-MX113	Kawasaki	2004-2012	KXF250	08-09 KXFR and 06-11 KXF	0.800	0.560	NA	37 @ 1.315	135 @ 0.935	0.885	257.9	57739	NA	0.380	22	
PAC-MX114	Kawasaki	2004-2012	KXF450-I, E		0.845	0.575	NA	37 @ 1.319	162 @ 0.915	0.865	309.4	50798	NA	0.404	26	
PAC-MX115	Honda	2002-2012	CRF450E		0.934	0.650	NA	52 @ 1.416	179 @ 1.031	0.960	329.9	51912	NA	0.385	33	
PAC-MX116	Honda	2002-2012	CRF450I		0.934	0.650	NA	42 @ 1.337	170 @ 0.902	0.850	294.3	46307	NA	0.435	30	
PAC-MX117	Suzuki	2008-2012	RMZ450E		0.910	0.670	NA	28 @ 1.160	105 @ 0.760	0.705	192.5	50070	NA	0.400	20	
PAC-MX118	Suzuki	2008-2012	RMZ450I		1.000	0.730	NA	37 @ 1.160	134 @ 0.760	0.710	242.5	48505	NA	0.400	25	
PAC-MX119	Yamaha	2008-2012	Rhino 700	09-12 Grizzly 550 and 08-12 Grizzly 700	1.055	0.515	NA	85 @ 1.250	195 @ 0.850	0.780	275.0	43565	NA	0.400	28	
PAC-MX123	Suzuki	1999-2007	Hyabusa E		0.930	0.608	NA	47 @ 1.400	170 @ 1.000	0.920	308.0	44511	NA	0.400	38	
PAC-MX126	Yamaha	2010-2012	YZF 450		0.856	0.600	NA	46 @ 1.370	143 @ 0.992	0.935	257.0	50681	NA	0.378	27	
PAC-MX127	Yamaha	2010-2012	YZF 450		0.738	0.528	NA	37 @ 1.210	101 @ 0.847	0.822	176	54850	NA	0.363	16	
PAC-MX130	KTM	2008-2013	250 SXF-I,E	2008-2013 SX-F and XC-F	0.78	0.554	NA	40 @ 1.350	106 @ 1.000	0.86	189	49594	NA	0.35	20	
PAC-MX131	KTM	2011-2012	350 SXF-I,E	2011-2012 SX-F and XC-F	0.875	0.625	NA	52 @ 1.300	120 @ 1.000	0.83	227	49520	NA	0.3	23	
PAC-MX132	KTM	2009-2013	450 EXC-E	2009-2011 530 EXC AND 400 XC, 2012-2013 XC 500	1.081	0.785	0.580	66 @ 1.500	163 @ 1.200	1.05	323	50827	NA	0.3	46	
PAC-MX133	KTM	2009-2013	450 EXC-I	2009-2011 530 EXC AND 400 XC, 2012-2013 XC 500	1.096	0.8	0.650	62 @ 1.600	190 @ 1.150	1.065	284	45933	NA	0.45	48	
PAC-MX134	KTM	2009-2010	450 SXF	2010 SX ATV 450 and 505	0.944	0.66	NA	62 @ 1.400	163 @ 1.050	0.9	289	45986	NA	0.35	31	

*Beehive Spring

**NEW FOR
2015**

Part Number	Brand	Year	Model	Additional Notes	OD Outer (in)	ID Outer (in)	ID Inner (in)	Installed Loads (lbs/in)	Open Loads (lbs/in)	Coil Bind (in)	Rate (lbs/in)	Outer Frequency (cpm)	Inner Frequency (cpm)	Lift (in)	MASS (g)
Single Springs (Cont'd)															
PAC-MX135	Polaris	2012-2013	RZR-XP900	2013 Ranger 900	0.975	0.725	NA	45 @ 1.350	120 @ 0.950	0.815	188	46425	NA	0.4	26
PAC-MX137	Honda	2004-2007	CR250F	2012 Polaris Sportsman 500HO	0.834	0.578	NA	42 @ 1.315	136 @ 1.015	0.934	313	60013	NA	0.300	26
PAC-MX138	Yamaha	2008-2014	R6-I,E		0.84	0.57	NA	42 @ 1.300	160 @ 0.950	0.858	337	54962	NA	0.350	25
PAC-MX140	Honda	2008-2014	CBR-1000-E	All Models	0.922	0.638	NA	55 @ 1.350	160 @ 1.050	0.92	350	54245	NA	0.300	31

Part Number	Brand	Year	Model	Additional Notes	OD Outer (in)	ID Outer (in)	ID Inner (in)	Installed Loads (lbs/in)	Open Loads (lbs/in)	Coil Bind (in)	Rate (lbs/in)	Outer Frequency (cpm)	Inner Frequency (cpm)	Lift (in)	MASS (g)
Dual Springs															
PAC-MX219	Kawasaki	2004-2012	Teryx 750	Brute Force 650&700, Prairie750 and KXF 700	1.010	0.740	0.580	80 @ 1.250	181 @ 0.850	0.760	252.5	39455	42170	0.400	35
PAC-MX222	Suzuki	1999-2007	Hyabusa I		0.963	0.707	0.523	70 @ 1.400	200 @ 1.000	0.900	325.0	48137	50551	0.400	42
PAC-MX224	Yamaha	2003-2008	Rhino 660	Grizzly 660	0.970	0.730	0.546	68 @ 1.150	173 @ 0.750	0.630	263.8	41279	54189	0.400	27
PAC-MX225	Polaris	2008-2012	RZR	Sportsman 800	1.125	0.841	0.657	80 @ 1.200	197 @ 0.800	0.650	292.5	44436	35571	0.400	37
PAC-MX228	KTM	2000-2009	400-525		1.080	0.784	0.574	100 @ 1.300	260 @ 0.800	0.810	400.0	44981	41713	0.400	48
PAC-MX229	Polaris	2012	RZR-XP		0.975	0.719	0.535	85 @ 1.300	209 @ 0.900	0.790	310.0	45957	50392	0.400	37
PAC-MX236	Suzuki	2000-2013	DRZ400		0.930	0.694	0.522	55 @ 1.200	141 @ 0.850	0.683	246.0	46594	43507	0.350	28
PAC-MX241	Honda	2008-2014	CBR-1000-I	All Models	0.907	0.651	0.479	50 @ 1.350	165 @ 1.000	0.864	329.0	48305	50538	0.350	35



Ford FMOD VALVE SPRINGS

**NEW FOR
2015**

Part Number	Spring Diameters				Spring Loads				Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments		
	Large End		Small End		Installed Height (Valve Closed)		Open Load (Valve Open)					Titanium Retainers	Steel Retainers	Spring Seats	Spring Cups			
	OD	ID	OD	ID		@		@										
1200 Series Beehive Springs																		
PAC-1213	1.061	0.738	0.959	0.636	80	@	1.640	185	@	1.090	191	1.020	0.550	NA	NA	NA	NA	Ford 4.6L 2 valve spring for up 550 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1214	1.061	0.698	0.999	0.636	100	@	1.640	265	@	1.080	275	1.040	0.600	NA	NA	NA	NA	Ford 4.6L 2 valve spring for up 600 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1223	1.105	0.742	0.943	0.580	90	@	1.470	252	@	0.970	324	0.900	0.500	PAC-R512	PAC-R312	NA	NA	Ford 4.6L 4 valve spring for up 500 lift. This ovate beehive spring is a drop-in design.
PAC-1233	1.025	0.662	0.930	0.567	105	@	1.670	270	@	1.120	300	1.060	0.550	PAC-R512	PAC-R312	NA	NA	Ford 4.6L 3 valve spring for up 550 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
RPM Series																		
PAC-1217X	1.061	0.698	0.873	0.525	115	@	1.600	300	@	1.000	308	0.965	0.625	PAC-R464 PAC-R564	NA	NA	NA	Ford 5.0L Coyote valve spring for extreme RPM and valve lift. Also works on other FMOD's with PAC-R331 and PAC-R346* which adds .060" installed height.
PAC-1234X	1.021	0.698	0.848	0.525	110	@	1.500	230	@	1.000	240	0.941	0.500	PAC-R464 PAC-R564				Ford 5.0L Coyote valve spring for up 500 lift. This ovate beehive spring is a drop-in design that requires no machining and fits stock retainers and seats.
PAC-1512	1.102	0.806	NA	0.580	110	@	1.470	300	@	0.920	346	0.850	0.575	PAC-R439 PAC-R539	N/A	PAC-S132	NA	FMOD Ford Dual Nirtided Spring. Very High RPM.
PAC-1312	1.106	0.810	NA	0.574	150	@	1.700	430	@	1.000	400	0.825	0.700	PAC-R439 PAC-R539	NA	PAC-S132	NA	Ford 4V Dual Drag Race Spring. Very High Lift and RPM.
PAC-1312L	1.106	0.810	NA	0.574	110	@	1.550	330	@	1.000	400	0.825	0.550	PAC-R439 PAC-R539	NA	PAC-S132	NA	Ford 4V Dual Drag Race Spring. Very High Lift and RPM.

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PN	PAC-1213	PAC-1214	PAC-1223	PAC-1233	PAC-1217X	PAC-1234X	PAC-1512	PAC-1312	PAC-1312L
Mass (g)	45	52	45	51	40	34	53	54	54
Outer Freq	26302.0	31946	38138	33385	35241	37515	33486	37229	37229
Inner Freq	N/A	N/A	N/A	N/A	N/A	N/A	39747	42789	42789
Coil Bind	0.980	1.030	0.880	1.060	0.965	0.941	0.850	0.825	0.825
2.200									
2.150								5	
2.100	8							16	
2.050	17							27	
2.000	27	12		6				39	
1.950	36	26		21	7	2		50	
1.900	46	39		36	23	14		70	
1.850	55	53		51	38	26	4	90	7
1.800	65	67		66	53	38	14	110	18
1.750	74	81		81	69	50	24	130	30
1.700	84	94	15	96	84	62	34	150	50
1.650	94	108	32	111	100	74	48	170	70
1.600	103	122	48	126	115	86	65	190	90
1.550	113	136	64	141	130	98	82	210	110
1.500	122	150	80	156	146	110	100	230	130
1.450	132	163	96	171	161	122	117	250	150
1.400	141	177	113	186	177	134	134	270	170
1.350	151	191	129	201	192	146	151	290	190
1.300	160	205	145	216	208	158	169	310	210
1.250	170	218	161	231	223	170	186	330	230
1.200	179	232	177	246	238	182	203	350	250
1.150	189	246	194	261	254	194	221	370	270
1.100	199	260	210	276	269	206	238	390	290
1.050	208	273	226		285	218	255	410	310
1.000	218	287	242		300	230	272	430	330
0.950	227		258		315	242	290	450	350
0.900			275				307	470	370
0.850			291				324	490	390

*Beehive spring



HOT ROD SINGLE WITH DAMPER

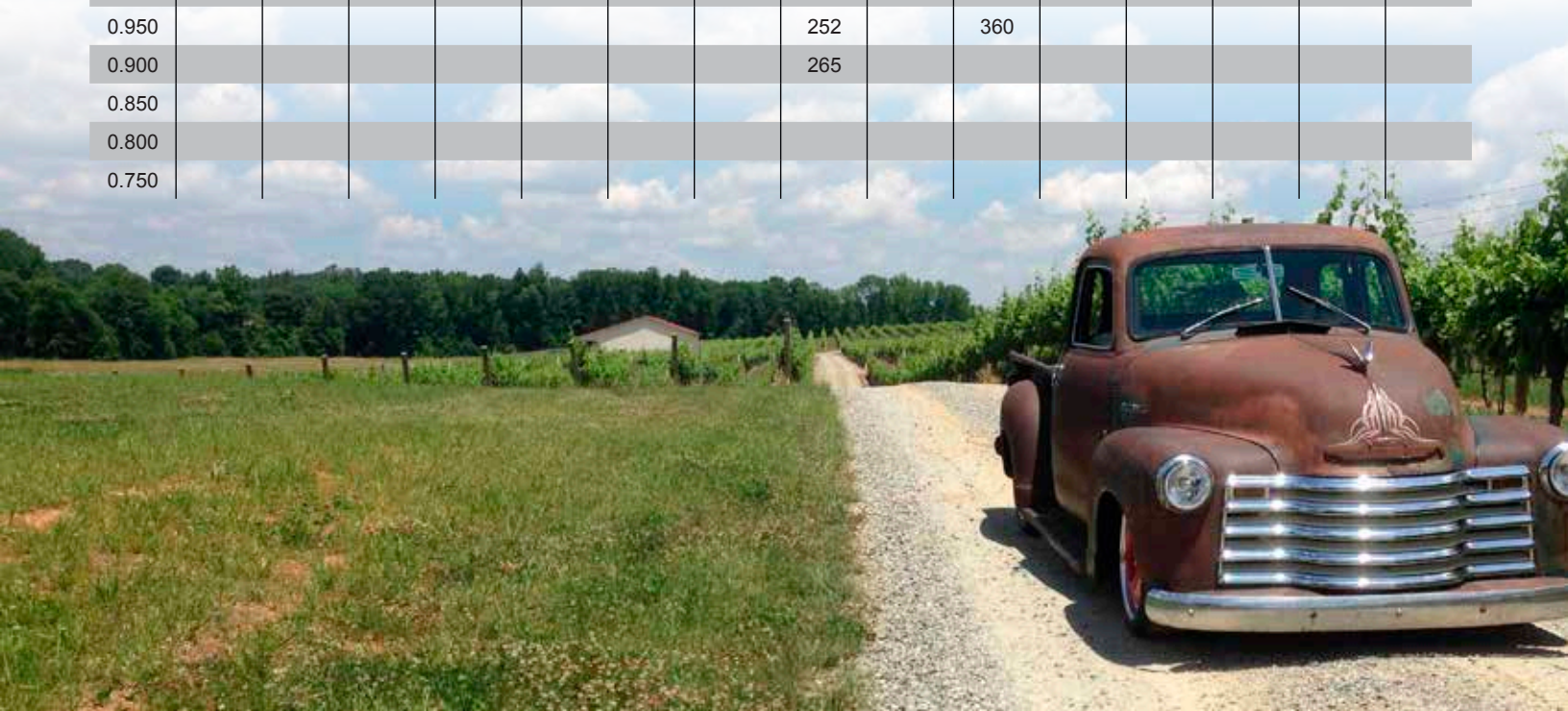
Part Number	Spring Type	Spring Diameters (inches)				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Comments and Application Recommendations
		OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				
PAC-1900	Single Std.	1.500	1.086	Y	0.996	98 @ 1.880	316 @ 1.300	376	1.115	0.600	AMC and BBC Street Replaces 99839
PAC-1902	Beehive	1.254	0.880	N	0.790	120 @ 1.940	375 @ 1.380	455	1.316	0.575	SBC Beehive Hyd roller/ Flat tappet
PAC-1909	Single Std.	1.255	0.871	Y	0.781	110 @ 1.700	311 @ 1.200	402	1.150	0.500	SBC Street and truck Replaces 99848
PAC-1911	Single Std.	1.265	0.865	Y	0.765	125 @ 1.750	388 @ 1.250	526	1.150	0.600	Single W/Damper for SBC Hyd Roller, LT1 and NMCA Replaces 99846
PAC-1913	Single Std.	1.355	0.940	Y	0.851	90 @ 1.850	300 @ 1.350	418	1.200	0.550	Hyd Flat tappet
PAC-1915	Single Std.	1.430	1.066	Y	0.976	110 @ 1.750	225 @ 1.250	230	1.125	0.600	Hyd Flat tappet
PAC-1917	Single Std.	1.437	1.037	Y	0.947	115 @ 1.700	285 @ 1.200	340	1.150	0.500	Small Block Hyd Flat tappet
PAC-1919	Single Std.	1.437	1.073	Y	1.003	115 @ 1.500	240 @ 1.030	266	0.900	0.500	Hyd Flat tappet
PAC-1921	Single Std.	1.460	1.060	Y	0.970	109 @ 1.850	293 @ 1.250	307	1.145	0.600	Hyd Flat tappet
PAC-1923	Single Std.	1.460	1.060	Y	0.970	92 @ 1.580	296 @ 1.100	425	1.050	0.500	Pontiac V-8, Ford GT40 Replaces 99840
PAC-1925	Single Std.	1.464	1.080	Y	0.990	95 @ 1.900	236 @ 1.300	235	1.190	0.600	Hyd Flat tappet
PAC-1927	Single Std.	1.476	1.062	Y	0.972	110 @ 1.800	318 @ 1.300	416	1.170	0.550	Hyd Flat tappet
PAC-1929	Single Std.	1.495	1.081	Y	0.991	101 @ 1.650	253 @ 1.220	355	1.100	0.450	Hyd Flat tappet
PAC-1931	Single Std.	1.525	1.110	Y	1.000	127 @ 1.900	311 @ 1.400	368	1.110	0.600	Hyd Flat tappet
PAC-1933	Single Std.	1.540	1.125	Y	1.016	145 @ 1.900	320 @ 1.338	311	1.200	0.600	Hyd Flat tappet



Hot Rod Series Springs are designed to offer the engine builder and hot rod enthusiast a mild upgrade and replacement for their hot rod. Most of the Hot Rod Series Springs are offered based on application or are vehicle specific. PAC Racing is proud to also offer complete packages that allow for an entire valve-train rebuild or upgrade.

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part No.	PAC-1900	PAC-1902	PAC-1909	PAC-1911	PAC-1913	PAC-1915	PAC-1917	PAC-1919	PAC-1921	PAC-1923	PAC-1925	PAC-1927	PAC-1929	PAC-1931	PAC-1933
Mass (g)	102	115	80	82	97	87	94	70	100	79	100	105	100	107	115
Freq (cpm)*	29314	30033	32641	36052	27982	23556	27271	29988	25239	34723	21472	31745	27283	27560	22821
Coil Bind	1.115	1.150	1.150	1.150	1.200	1.125	1.150	0.900	1.145	1.050	1.190	1.170	1.100	1.110	1.200
2.200						15					24			24	60
2.150		24				25			17		36			40	73
2.100	15	47				35			32		48			57	87
2.050	34	70			9	45			47		60	7		73	100
2.000	53	93			28	55	17		63		71	27		90	114
1.950	72	115	9	25	48	65	32		78		83	48		109	129
1.900	90	138	30	49	69	75	48	12	94		95	68	13	127	145
1.850	109	161	50	72	90	87	64	24	109		107	89	30	145	161
1.800	128	184	70	99	111	98	81	37	124		119	110	48	164	176
1.750	147	207	90	125	132	110	98	50	140	20	130	131	65	182	192
1.700	166	229	110	151	153	122	115	62	155	41	142	152	83	201	207
1.650	184	252	130	178	174	133	132	75	171	62	154	172	101	219	223
1.600	203	275	150	204	195	145	149	88	186	84	166	193	119	237	238
1.550	222	298	170	230	215	156	166	102	201	105	177	214	137	256	254
1.500	241	320	190	257	236	168	183	115	217	126	189	235	154	274	270
1.450	260	343	211	283	257	179	200	128	232	147	201	256	172	293	285
1.400	278	366	231	309	278	191	217	142	247	169	213	276	190	311	301
1.350	297	389	251	335	299	202	234	155	263	190	224	297	208	329	316
1.300	316	411	271	362	320	214	251	168	278	211	236	318	225	348	332
1.250	335	434	291	388	341	225	268	181	294	232	248	339	243	366	347
1.200	354	457	311	414	362	237	285	195	309	254	260	360	261	385	363
1.150	372	480	331	441		248	302	208	324	275		380	279	403	
1.100				467		260	319	221		296			296	421	
1.050								235		317					
1.000								240		339					
0.950								252		360					
0.900								265							
0.850															
0.800															
0.750															



HOT ROD DUAL SPRINGS

Part Number	Spring Type	Spring Diameters (inches)				Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Comments and Application Recommendations
		OD Outer	ID Outer	Damper	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				
PAC-1904	Dual	1.290 in.	0.950 in.	N	0.694 in.	150 Lbs.@ 1.800 in.	400 Lbs.@1.125 in.	370	1.010	0.625	LS Dual Spring
PAC-1905	Dual	1.304 in.	0.950 in.	N	0.694 in.	160 Lbs.@1.800 in.	425 Lbs.@1.125 in.	392	1.020	0.650	LS Dual Spring
PAC-1906	Dual	1.112 in.	0.900 in.	N	0.674 in.	97 Lbs.@1.516 in.	256 Lbs.@0.970 in.	291	0.850	0.550	Buick V-6 and Buick 350 Replaces 99891
PAC-1903	Dual	1.459 in.	1.075 in.	N	0.794 in.	120 Lbs.@1.875 in.	394 Lbs.@1.175 in.	391	1.050	0.700	Ford, GM and Mopar BB Hyd Roller, Solid Flat Tappet Race Replaces 99893
PAC-1908	Dual	1.465 in.	1.090 in.	N	0.807 in.	106 Lbs. @1.688 in.	306 Lbs. @1.208 in.	417	0.910	0.650	6 Cyl AMC, Buick V-8 and Other Short Installed Height Applications Replaces 99838
PAC-1912	Dual	1.464 in.	1.080 in.	Y	0.724 in.	133 Lbs.@1.900 in.	333 Lbs.@1.300 in.	333	1.200	0.600	Hyd Flat tappet
PAC-1914	Dual	1.490 in.	1.105 in.	N	0.810 in.	165 Lbs.@1.800 in.	385 Lbs.@1.200 in.	367	1.075	0.600	Hyd Roller
PAC-1916	Dual	1.538 in.	1.140 in.	Y	0.752 in.	157 Lbs.@1.850 in.	440 Lbs.@1.200 in.	436	1.090	0.650	Hyd Roller
PAC-1918	Dual	1.545 in.	1.130 in.	Y	0.737 in.	140 Lbs.@1.800 in.	457 Lbs.@1.175 in.	507	1.130	0.625	Solid Flat Tappet and Hyd Roller
PAC-1924	Dual	1.540 in.	1.140 in.	Y	0.754 in.	144 Lbs.@1.900 in.	403 Lbs.@1.300 in.	431	1.125	0.650	BB Hyd Roller Replaces 99895
PAC-1901	Dual	1.540 in.	1.140 in.	Y	0.754 in.	145 Lbs.@1.900 in.	465 Lbs.@1.250 in.	492	1.130	0.650	BB Hyd Roller, Marine and Solid Flat Tappet Replaces 99896
PAC-1934	Dual	1.550 in.	1.150 in.	Y	0.790 in.	160 Lbs.@1.880 in.	389 Lbs.@1.250 in.	363	1.140	0.650	Flat Tappet Circle Track and Street Roller
PAC-1940	Dual	1.555 in.	1.140 in.	Y	0.747 in.	194 Lbs.@1.950 in.	500 Lbs.@1.300 in.	469	1.150	0.700	Solid Flat Tappet and Hyd Roller
PAC-1944	Dual	1.620 in.	1.170 in.	N	0.846 in.	230 Lbs.@1.950 in.	710 Lbs.@1.200 in.	640	1.045	0.800	Solid Roller Drag and Circle Track
PAC-1948	Dual	1.635 in.	1.185 in.	Y	0.779 in.	250 Lbs.@1.900 in.	728 Lbs.@1.200 in.	682	1.090	0.700	Solid Roller Drag and Circle Track
PAC-1950	Dual	1.645 in.	1.195 in.	N	0.871 in.	207 Lbs.@2.050 in.	671 Lbs.@1.250 in.	580	1.130	0.800	Solid Roller Drag and Circle Track

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part Number	PAC-1904	PAC-1905	PAC-1906	PAC-1903	PAC-1908	PAC-1912	PAC-1914	PAC-1916	PAC-1918	PAC-1924	PAC-1901	PAC-1934	PAC-1940	PAC-1944	PAC-1948	PAC-1950	
Mass (g)	85	90	62	115	100	139	126	147	148	148	146	142	151	151	151	161	
Freq Outer(cpm)*	29975	29344	30144	25170	28261	21473	22606	22984	26365	22871	27123	23164	24210	30193	31692	27484	
Freq Inner(cpm)*	30890	30890	31259	26835	30642	21188	25219	27459	27945	26384	29956	21729	26361	27877	32538	26610	
Coil Bind	1.010	1.020	0.850	1.050	0.910	1.200	1.075	1.090	1.130	1.125	1.130	1.140	1.150	1.045	1.090	1.130	
2.200	8	8					34	18	21		23	15	45	82	70	60	120
2.150	21	23		12			50	37	34		36	29	62	103	102	82	149
2.100	39	42		32			66	55	48	8	58	47	80	125	134	115	178
2.050	58	62		51			83	73	70	23	79	71	98	147	166	148	207
2.000	76	82		71			100	92	92	42	101	96	116	171	198	182	236
1.950	95	101		91			116	110	113	65	122	120	135	194	230	216	265
1.900	113	121		110	18		133	128	135	89	144	145	153	217	262	250	294
1.850	132	140		130	39		150	147	157	115	166	170	171	241	294	284	323
1.800	150	160	14	149	59		166	165	179	140	187	194	189	264	326	318	352
1.750	168	180	29	169	80		183	183	201	165	209	219	207	288	358	352	381
1.700	187	199	43	189	101		200	202	222	191	230	243	225	311	390	387	410
1.650	205	219	58	208	122		216	220	244	216	252	268	244	335	422	421	439
1.600	224	238	73	228	143		233	238	266	241	274	293	262	358	454	455	468
1.550	242	258	87	247	164		250	257	288	267	295	317	280	382	486	489	497
1.500	261	278	102	267	184		266	275	310	292	317	342	298	405	518	523	526
1.450	279	297	116	286	205		283	293	331	318	338	367	316	429	550	557	555
1.400	298	317	131	306	226		300	312	353	343	360	391	334	452	582	591	584
1.350	316	337	145	326	247		316	330	375	368	381	416	353	476	614	626	613
1.300	335	356	160	345	268		333	348	397	394	403	440	371	499	646	660	642
1.250	353	376	174	365	289		350	367	419	419	425	465	389	522	678	694	671
1.200	372	395	189	384	309		366	385	441	444	446	490	407	546	710	728	700
1.150	390	415	204	404	330			403	462	470		514	425		742	762	729
1.100	409	435	218	423	351			422		495			444		774	765	
1.050	427	454	233	443	372												
1.000	446		247		393												
0.950			262		414												
0.900			276														
0.850			291														
0.800																	
0.750																	

SPRING RETAINERS

PAC offers a full line of matching retainers, seats, and cups for PAC Valve Springs. They are specifically matched with radii and diameters to optimize the performance of the valve-train.



300 Series Spring Retainers

These retainers are made from 4140 chrome moly steel, primarily designed for smaller beehive springs. These retainers are heat treated, black oxide finished and processed to maintain high strength with lightweight designs.

300 Series Chrome Moly Steel

Part No.	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Notes and Applications *other applications may apply call for tech support
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 300 Series							
PAC-R310	1.035	0.640	N/A	N/A	STD 10	10.2	Retainer for 1215,1218,1219,1220 and other beehives
PAC-R311	1.035	0.640	N/A	N/A	LS (7°)	10.4	Steel Beehive LS Retainer for 1218 and more
PAC-R312	0.865	0.570	N/A	N/A	FMOD 7	7.7	Ford (FMOD)
PAC-R313	1.115	0.721	N/A	N/A	STD 10	11.6	Retainer for 1255,1295,1595
PAC-R331	0.800	0.500	N/A	N/A	FMOD 7	5.4	Ford (FMOD)
PAC-R333	0.875	0.640	N/A	N/A	STD 7	6.3	Super Stock Only
PAC-R342	0.865	0.580	N/A	N/A	6	9.2	V-Rod
PAC-R346	0.800	0.495	N/A	N/A	FMOD 7	5.5	Ford (FMOD) This is a +0.060 install height retainer
PAC-R362	1.035	0.640	N/A	N/A	FMOD 7	12.8	Retainer for 1218,1220, and others with FMOD Locks
PAC-R363	1.035	0.640	N/A	N/A	STD 7	12.8	Retainer for 1218, 1220 and others with STD 7 degree lock
Dual Spring 300 Series							
PAC-R315	1.475	1.110	0.710	N/A	STD 10	26.3	Steel retainer for Marine applications
PAC-R316	1.235	0.880	0.640	N/A	LS (7°)	19.3	Steel LS retainer for 1221,1521
PAC-R317	1.325	0.990	0.700	N/A	STD 10	17.0	Steel retainer for 1371
PAC-R334	1.200	0.850	0.600	N/A	7	17.0	Steel retainer for 1202,1203
PAC-R335	1.300	0.940	0.680	N/A	LS (7°)	20.0	Steel retainer for LS RPM Series Duals
PAC-R348	1.360	0.985	0.690	N/A	mini 8	15.1	Steel retainer for 1371 Spring
PAC-R349	1.200	0.775	N/A	N/A	STD 8	18.8	Steel retainer for 1200-1201
PAC-R355	1.225	0.920	0.650	N/A	LS (7°)	19.0	Steel retainer for 1222X LS spring

400 Series Spring Retainers

PAC-Tuff™ Retainers are made from the best 6AL-4V Titanium alloy and completely sonic tested to aerospace standards prior to being machined. These retainers are designed for standard to high durability use and are designed to be very robust.

400 Series PAC-TUFF™ 64 Titanium

Part No.	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Notes and Applications *other applications may apply call for tech support
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 400 Series							
PAC-R442	0.865	0.580	N/A	N/A	6	5.2	V-Rod
PAC-R445	0.825	0.565	N/A	N/A	6	4.8	V-Rod Destroyer
PAC-R464	0.795	0.517	N/A	N/A	FMOD	4.0	5.0 Liter Coyote Titanium retainer
Dual Spring 400 Series							
PAC-R404	1.480	1.165	0.840	N/A	STD 10	18.8	+0.050 Sportsman Drag Race/Circle Track
PAC-R405	1.450	1.090	0.780	N/A	STD 10	16.6	+0.050 Sportsman Drag Race/Circle Track
PAC-R408	1.450	1.040	0.715	N/A	STD 10	15.0	+0.050 Sportman retainer for all 1.050 ID dual drag springs
PAC-R416	1.235	0.880	0.640	N/A	LS (7°)	10.9	Titanium LS retainer for 1221,1521
PAC-R432	1.200	0.890	0.600	N/A	Mini 8	10.4	Titanium LS retainer for 1530,1335
PAC-R435	1.300	0.940	0.680	N/A	LS (7°)	11.1	Titanium retainer for LS RPM Series Duals
PAC-R439	1.075	0.800	0.575	N/A	7	7.8	Titanium Ford (FMOD) for 1512 spring
PAC-R450	1.240	0.940	0.685	N/A	Mini 8	11.7	RPM Series Dual Springs (mini 8 Locks)
PAC-R455	1.225	0.920	0.650	N/A	LS (7°)	11.1	Titanium retainer for 1222X spring
Triple Spring 400 Series							
PAC-R401	1.480	1.185	0.865	0.635	STD 10	17.9	+0.050 Sportsman Triple Spring Drag Race
PAC-R402	1.480	1.185	0.865	0.635	STD 8	18.1	+0.050 Sportsman Triple Spring Drag Race

PAC RACING SPRINGS CAN CUSTOM MANUFACTURE RETAINERS, SEATS, AND CUPS TO ANY SPECIFICATIONS. CALL FOR MORE INFORMATION.

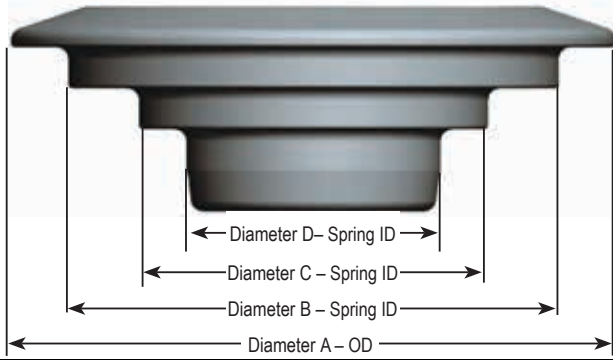
**NEW FOR
2015**

500 Series Spring Retainers

Titanium spring retainers made from Ti-17 alloy. This alloy has shown greater tensile properties over other titanium products with its high strength and deep hardening alloys. These retainers are micropolished for enhanced fatigue life and are laser engraved for PN and batch identification.

500 Series Ti-17 Titanium

Part No.	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Notes and Applications *other applications may apply call for tech support
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 500 Series							
PAC-R510	0.990	0.640	N/A	N/A	STD 10	5.7	
PAC-R511	0.990	0.640	N/A	N/A	LS (7°)	5.7	Titanium Beehive LS Retainer for 1218 and more
PAC-R512	0.865	0.570	N/A	N/A	7	5.3	Ford (FMOD)
PAC-R513	1.115	0.721	N/A	N/A	10	7.7	
Dual Spring 500 Series							
PAC-R504	1.475	1.165	0.840	N/A	STD 10	17.0	Ti retainer for 1.175 Series Dual Springs
PAC-R505	1.400	1.090	0.780	N/A	STD 10	15.0	Ti retainer for 1225,1325,1243,1561 Dual Springs
PAC-R506	1.400	1.090	0.695	N/A	STD 10	14.4	Ti retainer for 1226,1326 Dual Springs
PAC-R507	1.475	1.165	0.760	N/A	STD 10	16.5	Ti retainer for 1298, 1299 Dual springs
PAC-R508	1.365	1.040	0.715	N/A	STD 10	12.9	Ti retainer for all 1.050 ID Dual Springs
PAC-R509	1.365	1.040	0.715	N/A	STD 8	12.9	Ti retainer for all 1.050 ID Dual Springs
PAC-R514	1.475	1.140	0.735	N/A	STD 10	14.8	Ti retainer for 1385,1395 Dual springs
PAC-R515	1.475	1.110	0.710	N/A	STD 10	14.4	Ti retainer for 1227,1239,1254,1297,1509, Dual Springs
PAC-R516	1.235	0.880	0.640	N/A	LS (7°)	7.7	Ti retainer for LS Dual Springs, 1221,1521
PAC-R517	1.325	0.990	0.700	N/A	STD 10	11.8	Ti retainer for 1371 Dual Spring
PAC-R519	1.475	1.140	0.735	N/A	STD 8	14.7	Ti retainer for 1385,1395 Dual springs
PAC-R532	1.200	0.890	0.600	N/A	Mini 8	10.2	Ti retainer for 1530,1335 Dual springs
PAC-R536	1.450	1.125	0.800	N/A	STD 10	15.9	Ti retainer for 1245,1289 Dual springs
PAC-R537	1.475	1.140	0.815	N/A	STD 8	15.8	Ti retainer for 1342,1386,1396 Dual springs
PAC-R538	1.475	1.140	0.815	N/A	STD 10	17.3	Ti retainer for 1342,1386,1396 Dual springs
PAC-R539	1.075	0.800	0.575	N/A	7	7.8	Titanium Ford (FMOD) for 1512 spring
PAC-R540	1.400	1.080	0.770	N/A	STD 8	14.1	Ti retainer for 1240,1340,1540 Dual spring
PAC-R541	1.400	1.090	0.695	N/A	STD 8	13.2	Ti retainer for 1226, 1326,Dual Springs
PAC-R544	1.365	1.040	0.715	N/A	Mini 8	14.2	Ti retainer for all 1.050 ID Dual Springs (mini 8 Locks)
PAC-R547	1.450	1.060	0.735	N/A	STD 8	17.0	Ti retainer for 1370 Dual Drag Race Spring
PAC-R550	1.240	0.940	0.685	N/A	Mini 8	11.7	RPM Series Dual Springs (mini 8 Locks)
PAC-R551	1.450	1.110	0.785	N/A	STD 8	16.8	Titanium Retainer for 1244 Dual spring
PAC-R552	1.360	0.985	0.680	N/A	Mini 8	13.1	Titanium Retainer for 1371,1575 Dual spring
PAC-R553	1.440	1.070	0.750	N/A	STD 8	15.8	Titanium Retainer for 1574 Dual spring
PAC-R556	1.440	1.090	0.780	N/A	STD 8	16.3	Ti retainer for 1225,1325,1243,1561 Dual Springs
PAC-R557	1.450	1.120	0.715	N/A	STD 8	15.4	Ti retainer for 1341
PAC-R566	1.550	1.120	0.780	NA	STD 10	Call	Ti retainer for 1369 spring
Triple Spring 500 Series							
PAC-R501	1.475	1.185	0.865	0.635	STD 10	16.6	Titanium Retainer for Triple Drag Race Springs
PAC-R502	1.475	1.185	0.865	0.635	STD 8	16.6	Titanium Retainer for Triple Drag Race Springs
PAC-R503	1.490	1.215	0.865	0.635	STD 10	17.2	Titanium Retainer for 1362,1363,1366 Triple Drag Springs
PAC-R565	1.620	1.215	0.865	0.630	STD 10	21.5	Large OD Retainer for Large Triple Spring- for better edge wear
Solid Stop Retainers <i>These retainers feature a detent at the bottom of the cone to mechanically stop locks from pulling through</i>							
PAC-R520	1.325	1.040	0.715	N/A	10	16.0	Standard Duty for Sportsman Racers
PAC-R521	1.325	1.040	0.715	N/A	8	15.8	Standard Duty for Sportsman Racers
PAC-R522	1.480	1.180	0.865	0.635	10	19.4	Heavy Duty Top for abusive Top Alcohol Engines-Triple
PAC-R523	1.480	1.180	0.865	0.635	8	19.4	Heavy Duty Top for abusive Top Alcohol Engines-Triple
PAC-R524	1.380	1.040	0.715	N/A	10	16.7	Heavy Duty Top for abusive Top Alcohol Engines-Dual
PAC-R525	1.380	1.040	0.715	N/A	8	16.7	Heavy Duty Top for abusive Top Alcohol Engines-Dual
PAC-R526	1.365	1.040	0.715	N/A	TF7	17.8	This is for use in Top Fuel 7 Degree - Dual Spring
PAC-R527	1.480	1.180	0.865	0.630	TF7	21.0	This is for use in Top Fuel 7 Degree - Triple Spring



Ask about Custom and Private Label Retainers

SPRING RETAINERS

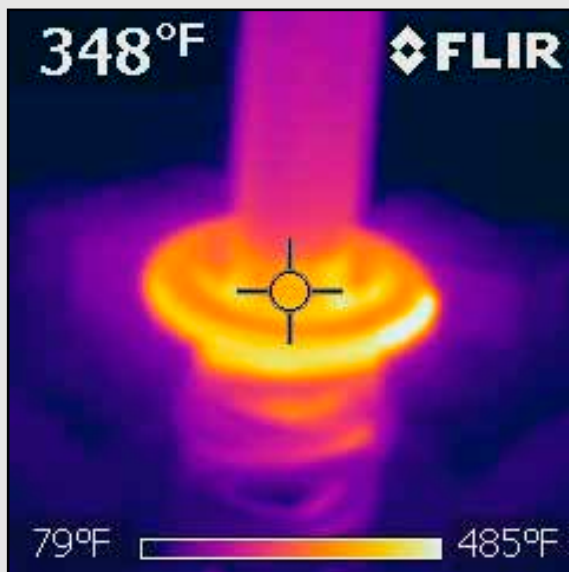
600 Series Spring Retainers

PACALOY® BILLET TOOL STEEL RETAINERS – These are the latest developments from PAC Racing Springs. These retainers feature ultra lightweight designs from valve spring type alloys. Sophisticated processing such as micropolishing and Nano Peen™ technology are used to enhance the retainer life. The high hardness of the steel has higher wear resistance properties.

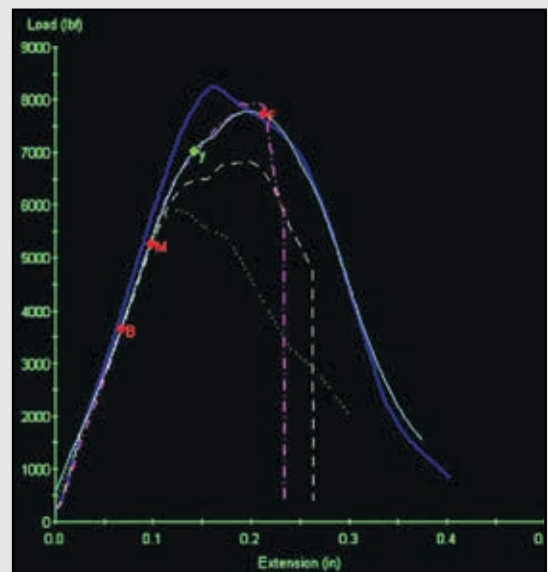
600 Series Tool Steel

Part No.	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Notes and Applications *other applications may apply call for tech support
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 600 Series <i>Some require special spring seats for proper installation</i>							
PAC-R633	0.875	0.640	N/A	N/A	7	6.0	Ultra Light Weight Steel for Super Stock 1409 Spring
PAC-R643	0.950	0.640	N/A	N/A	Mini 8	8.4	Ultra Light Weight Steel for Super Stock 1427 Spring
PAC-R649	1.200	0.775	N/A	N/A	STD 8	14.8	Light Weight Vrsion Steel Retainer for 1200-1201
PAC-R654	1.125	0.715	N/A	N/A	Mini 8	13.0	Ultra Light Weight Steel for PAC-1295, 1295X, 1595 Spring
Dual Spring 600 Series <i>Some require special spring seats for proper installation</i>							
PAC-R606	1.400	1.090	0.695	N/A	STD 10	16.6	Tool Steel retainer for 1226,1326 Dual Springs
PAC-R608	1.350	1.040	0.715	N/A	STD 10	15.7	Tool Steel retainer for all 1.050 ID Dual Springs
PAC-R609	1.350	1.040	0.715	N/A	STD 8	15.9	Tool Steel retainer for all 1.050 ID Dual Springs
PAC-R614	1.450	1.140	0.735	N/A	STD 10	18.8	Tool Steel retainer for 1385,1395 Dual springs
PAC-R615	1.475	1.110	0.710	N/A	STD 10	21.8	Tool Steel retainer for 1227,1239,1254,1297,1509, Duals
PAC-R616	1.235	0.880	0.640	N/A	LS (7°)	12.6	Tool Steel retainer for LS Dual Springs, 1221,1521
PAC-R619	1.450	1.140	0.735	N/A	STD 8	17.8	Tool Steel retainer for 1385,1395 Dual springs
PAC-R632	1.250	0.890	0.600	N/A	mini 8	Call	Tool Steel retainer for 1530,1335 Dual springs
PAC-R635	1.200	0.940	0.685	N/A	LS (7°)	13.4	Light Weight Steel Version of R335 LS RPM Dual Spring
PAC-R641	1.400	1.090	0.695	N/A	STD 8	17.5	Tool Steel retainer for 1226, 1326,Dual Springs
PAC-R644	1.400	1.040	0.715	N/A	mini 8	Call	Mini 8 Tool Steel retainer for all 1.050 ID Dual Springs
PAC-R649	1.200	0.775	N/A	N/A	STD 8	14.8	Tool Steel retainer 1200-1201 spring
PAC-R650	1.250	0.940	0.685	N/A	mini 8	15.9	RPM Series Dual Springs (mini 8 Locks)
PAC-R651	1.450	1.110	0.785	N/A	STD 8	Call	Tool steel retainer for PAC-1244 and 1344 Dual spring
PAC-R655	1.225	0.920	0.650	N/A	LS (7°)	Call	Tool Steel retainer for 1222X spring
PAC-R658	1.450	1.120	0.715	N/A	mini 8	Call	Tool Steel Pro Series Race for 1341 spring (DLC Option)
PAC-R659	1.380	0.990	0.675	N/A	mini 8	21.0	Tool Steel Pro Series Race for 1373 spring (DLC Option)
PAC-R660	1.400	0.990	0.585	N/A	mini 8	Call	Tool Steel Pro Drag Race for 1376 spring (DLC Option)
PAC-R661	1.430	1.095	0.695	N/A	mini 8	22.0	Tool Steel Pro Series for 1326 spring (DLC Option)
Triple Spring 600 Series <i>Some require special spring seats for proper installation</i>							
PAC-R601	1.450	1.185	0.865	0.635	10	19.1	Tool Steel Retainer for Triple Drag Race Springs
PAC-R602	1.440	1.185	0.865	0.635	8	19.3	Tool Steel Retainer for Triple Drag Race Springs

RETAINER TECHNOLOGY RESEARCH & DEVELOPMENT



Infrared camera used for DLC testing



Pull testing retainers chart

700 Series Spring Retainers

PREMIUM COMPONENTS FOR "R" Series Valve Springs

700 Series Steel Retainers are made from "Space Plane" alloy. This alloy is used on the most sophisticated defense air craft, which demonstrates its toughness. This alloy was previously unavailable to the public.

PAC Racing Combines this extra premium alloy with vacuum hardening processing, cryogenics, and our nano peening to add strength and maximize weight savings.

"X" Series Spring Seats Are Made from an extremely tough "tool steel" material that is harder and more robust than traditional 4140 or 8620 chrome moly steel. With nearly 20% improvement in hardness and 40% in strength use these as the absolute extreme in spring seats to reduce wear and breakage.

700 Series Retainers	Fits Spring PN	OD Dim "A"	ID of Outer Spring Dim "B"	ID of Inner Spring Dim "C"	Inner Step Thickness	Lock Angle	Weight (Grams)	Pull Thru Load	Matching Seats	Matching Step Seats
PAC-R761	PAC-1326R	1.480	1.090	0.695	0.060	Mini 8	Call	Call	PAC-S105X PAC-S106X	PAC-S139X
PAC-R758	PAC-1341R	1.480	1.115	0.710	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R759	PAC-1373R	1.360	0.990	0.675	0.060	Mini 8	18.9	Call	PAC-S137X PAC-S140X	
PAC-R767	PAC-1387R	1.480	1.140	0.735	0.060	Mini 8	Call	Call	PAC-S117X PAC-S118X	PAC-S124X
PAC-R768	PAC-1374R	1.450	1.075	0.750	0.060	Mini 8	Call	Call	PAC-S117X PAC-S118X	PAC-S124X
PAC-R769	PAC-1375R	1.360	0.985	0.690	0.060	Mini 8	Call	Call	PAC-S114X PAC-S115X	
PAC-R770	PAC-1389R	1.360	1.040	0.745	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R771	PAC-1390R	1.360	1.040	0.745	0.060	Mini 8	Call	Call	PAC-S110X PAC-S127X***	PAC-S122X
PAC-R772	PAC-1391R	1.380	1.090	0.685	0.060	Mini 8	Call	Call	PAC-S105X PAC-S106X	

VALVE LOCKS

LASH CAP RECESS LOCKS

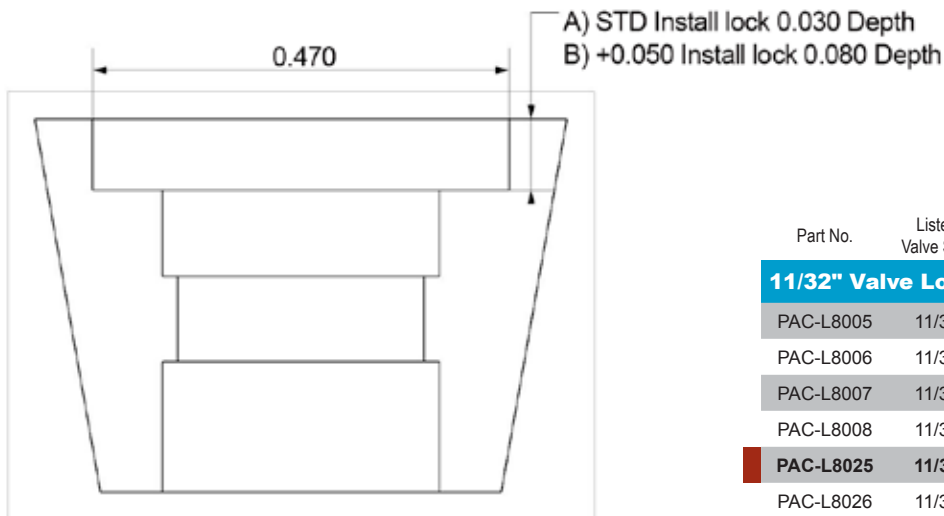
We have added several lock part numbers that feature a machined recess for lash caps. The available locks with these feature are highlighted blue.

TO ORDER USE:

PAC-LR xxxx instead of the standard Part Number **PAC-Lxxxx**

Reference:

- LR = Lash Recess
- L= STD Lock no Recess
- STD installed height has recess of 0.030
- +0.050 installed height has recess of 0.080 depth



Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
3/8" Valve Locks						
PAC-L8090	3/8	STD 10	10°	Square	STD	Titanium
PAC-L8091	3/8	STD 10	10°	Square	+0.050	Titanium
PAC-L8092	3/8	STD 10	10°	Square	STD	Steel
PAC-L8093	3/8	STD 10	10°	Square	+0.050	Steel
PAC-L8094	3/8	STD 8	8°	Square	STD	Titanium
PAC-L8095	3/8	STD 8	8°	Square	+0.050	Titanium
PAC-L8096	3/8	STD 8	8°	Square	STD	Steel
PAC-L8097	3/8	STD 8	8°	Square	+0.050	Steel
PAC-L8127	3/8	Mini 8	8°	Square	STD	Steel
PAC-L8128	3/8	Mini 8	8°	Square	+0.050	Steel

Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
11/32" Valve Locks						
PAC-L8005	11/32	STD 10	10°	Square	0.000	Titanium
PAC-L8006	11/32	STD 10	10°	Radius	0.000	Titanium
PAC-L8007	11/32	STD 10	10°	Square	+0.050	Titanium
PAC-L8008	11/32	STD 10	10°	Radius	+0.050	Titanium
PAC-L8025	11/32	STD 10	10°	Square	0.000	Steel
PAC-L8026	11/32	STD 10	10°	Radius	0.000	Steel
PAC-L8027	11/32	STD 10	10°	Square	+0.050	Steel
PAC-L8028	11/32	STD 10	10°	Radius	+0.050	Steel
PAC-L8015	11/32	STD 8	8°	Square	0.000	Titanium
PAC-L8016	11/32	STD 8	8°	Radius	0.000	Titanium
PAC-L8017	11/32	STD 8	8°	Square	+0.050	Titanium
PAC-L8018	11/32	STD 8	8°	Radius	+0.050	Titanium
PAC-L8119	11/32	Mini 8	8°	Radius	STD	Titanium
PAC-L8121	11/32	Mini 8	8°	Square	STD	Titanium
PAC-L8035	11/32	STD 8	8°	Square	0.000	Steel
PAC-L8036	11/32	STD 8	8°	Radius	0.000	Steel
PAC-L8037	11/32	STD 8	8°	Square	+0.050	Steel
PAC-L8038	11/32	STD 8	8°	Radius	+0.050	Steel
PAC-L8131	11/32	Mini 8	8°	Radius	STD	Steel
PAC-L8132	11/32	Mini 8	8°	Radius	+0.050	Steel
PAC-L8133	11/32	Mini 8	8°	Square	STD	Steel
PAC-L8134	11/32	Mini 8	8°	Square	+0.050	Steel
PAC-L8146	11/32	STD 7°	7°	Square	STD	Steel
PAC-L8147	11/32	STD 7°	7°	Square	+0.050	Steel
PAC-L8154	11/32	STD 7°	7°	Radius	STD	Steel
PAC-L8155	11/32	STD 7°	7°	Radius	+0.050	Steel

AVAILABLE IN LASH CAP RECESS USE P/N PAC-LRxxxx

NEW FOR 2015

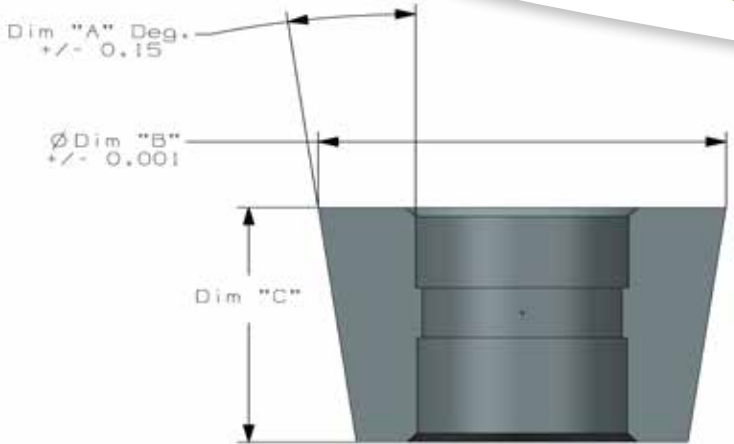
Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
5/16" Valve Locks						
PAC-L8045	5/16	STD 10	10°	Square	0.000	Titanium
PAC-L8046	5/16	STD 10	10°	Radius	0.000	Titanium
PAC-L8047	5/16	STD 10	10°	Square	+0.050	Titanium
PAC-L8048	5/16	STD 10	10°	Radius	+0.050	Titanium
PAC-L8064	5/16	STD 10	10°	Square	0.000	Steel
PAC-L8065	5/16	STD 10	10°	Radius	0.000	Steel
PAC-L8066	5/16	STD 10	10°	Square	+0.050	Steel
PAC-L8067	5/16	STD 10	10°	Radius	+0.050	Steel
PAC-L8055	5/16	STD 8	8°	Square	0.000	Titanium
PAC-L8056	5/16	STD 8	8°	Radius	0.000	Titanium
PAC-L8057	5/16	STD 8	8°	Square	+0.050	Titanium
PAC-L8058	5/16	STD 8	8°	Radius	+0.050	Titanium
PAC-L8123	5/16	Mini 8	8°	Radius	STD	Titanium
PAC-L8124	5/16	Mini 8	8°	Radius	(+) 0.050	Titanium
PAC-L8125	5/16	Mini 8	8°	Square	STD	Titanium
PAC-L8073	5/16	STD 8	8°	Square	0.000	Steel
PAC-L8074	5/16	STD 8	8°	Radius	0.000	Steel
PAC-L8075	5/16	STD 8	8°	Square	+0.050	Steel
PAC-L8076	5/16	STD 8	8°	Radius	+0.050	Steel
PAC-L8135	5/16	Mini 8	8°	Radius	STD	Steel
PAC-L8136	5/16	Mini 8	8°	Radius	+0.050	Steel
PAC-L8137	5/16	Mini 8	8°	Square	STD	Steel
PAC-L8138	5/16	Mini 8	8°	Square	+0.050	Steel
PAC-L8148	5/16	STD 7°	7°	Square	STD	Steel
PAC-L8149	5/16	STD 7°	7°	Square	+0.050	Steel
PAC-L8150	5/16	STD 7°	7°	Radius	STD	Steel
PAC-L8151	5/16	STD 7°	7°	Radius	+0.050	Steel

7mm Valve Locks						
PAC-L8078	7 mm	STD 10	10°	Radius	STD	Titanium
PAC-L8079	7mm	STD 10	10°	Radius	+0.050	Titanium
PAC-L8080	7mm	STD 10	10°	Radius	STD	Steel
PAC-L8081	7mm	STD 10	10°	Radius	+0.050	Steel
PAC-L8082	7mm	STD 8	8°	Radius	STD	Titanium
PAC-L8083	7mm	STD 8	8°	Radius	+0.050	Titanium
PAC-L8084	7mm	STD 8	8°	Radius	STD	Steel
PAC-L8085	7mm	STD 8	8°	Radius	+0.050	Steel
PAC-L8129	7mm	Mini 8	8°	Radius	STD	Titanium
PAC-L8130	7mm	Mini 8	8°	Radius	+0.050	Titanium
PAC-L8086	7mm	FMOD 7	7°	Triple Radius	STD	Steel OE
PAC-L8087	7mm	FMOD 7	7°	Radius	STD	Steel

LS ENGINE VALVE LOCKS

Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
PAC-L8117	8mm	Mini 8	8°	Radius	STD	Titanium
PAC-L8118	8mm	Mini 8	8°	Radius	+0.050	Titanium
PAC-L8141	8mm	Mini 8	8°	Radius	STD	Steel
PAC-L8142	8mm	Mini 8	8°	Radius	+0.050	Steel
PAC-L8113	8mm	LS-1	7°	Radius	STD	Steel
PAC-L8114	8mm	LS-1	7°	Radius	+0.050	Steel
PAC-L8116	8mm	LS-1	7°	Radius	-0.050	Steel
PAC-L8152	8mm	STD 7	7°	Radius	STD	Steel
PAC-L8153	8mm	STD 7	7°	Radius	+0.050	Steel
PAC-L8159	8mm	STD 10	10°	Radius	STD	Steel
PAC-L8160	8mm	STD 10	10°	Radius	+0.050	Steel
PAC-L8161	5/16	LS-1	7°	Radius	STD	Steel

AVAILABLE IN LASH CAP RECESS USE P/N PAC-LRxxxx



VALVE LOCK STANDARDS

Lock Type	Dim. A (Angle)	Dim. B (Cone Top)	Dim. C (Lock Height)
STD 10	10.00°	0.6100	0.400
STD 8	8.00°	0.6000	0.400
Mini 8	8.00°	0.5200	0.380
LS-1	7.00°	0.4700	0.300
STD 7°	7.00°	0.4950	0.360

PAC-T950 LOCK AND RETAINER CONE IDENTIFICATION TOOL KIT

PAC Racing Springs has developed this tool for Racers and Engine builders to correctly identify lock angles and correct cones for the various locks and retainers. This tool has a combined lock standards guide and assorted lock standards to alleviate choosing the wrong locks with matching retainers.

This tool simply works by choosing the lock standard cone (laser marked and identified) and placing it on the easy to grip handle and inserting into current or new retainers. Use this tool if you don't know what angle you need and alleviate lost part number headaches. This information will help identify the correct parts and allow

PAC Racing Associates to get you the correct parts

The PAC-T950 Kit comes with the following parts:

- PAC-T951 Aluminum Knurled Anodized Handle
- PAC-T953 STD 7 Degree Street Lock Cone (LT-1)
- PAC-T954 STD 8 Degree Cone (Also known as Super 7)
- PAC-T955 Mini 8 Degree Cone (Top Lock Design)
- PAC-T956 STD 10 Degree Cone
- PAC-T958 LS Based 7 degree Cone
- PAC-T959 Top Fuel 7 degree Cone

Bolts to use with the handle
Allen Wrench to secure lock standards to handle

LASH CAPS

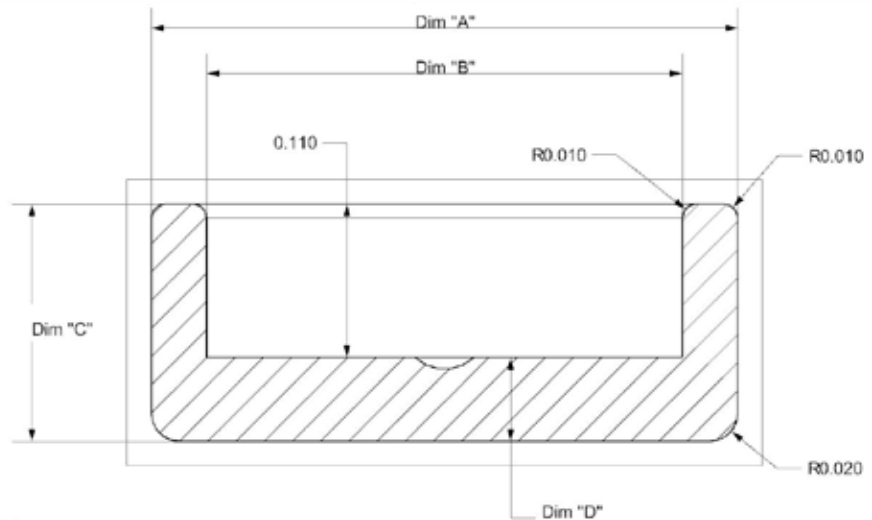
PAC RACING HAS EXPANDED ITS PRODUCT OFFERING TO INCLUDE LASH CAPS!

We offer two grades of materials that meet and exceed your expectations and budget. Both series of lash caps feature precise machining and finishing.

Premium grade steel is a complete hardened 8620 grade steel that comes with a black oxide coating

Super high strength steel is a proprietary alloy that will withstand extreme abuse.

IF YOU DON'T SEE WHAT YOU'RE LOOKING FOR CONTACT US AND WE WILL BUILD IT FOR YOU!



Part Number	Diameters (in.)				Stem Size
	Diameter A	Diameter B	Dim "C"	Dim "D"	
Premium Steel					
PAC-LC1001	0.386	0.2755-0.2765	0.170	0.060	7mm
PAC-LC1002	0.386	0.3097-0.3107	0.170	0.060	Small 5/16
PAC-LC1003	0.386	0.3097-0.3107	0.180	0.070	Small 5/16
PAC-LC1004	0.386	0.3097-0.3107	0.190	0.080	Small 5/16
PAC-LC1005	0.386	0.3107-0.3117	0.170	0.060	Mild Fit 5/16
PAC-LC1006	0.386	0.3107-0.3117	0.180	0.070	Mild Fit 5/16
PAC-LC1007	0.386	0.3107-0.3117	0.190	0.080	Mild Fit 5/16
PAC-LC1008	0.386	0.3117-0.3127	0.170	0.060	True 5/16
PAC-LC1009	0.386	0.3117-0.3127	0.180	0.070	True 5/16
PAC-LC1010	0.386	0.3117-0.3127	0.190	0.080	True 5/16
PAC-LC1011	0.420	0.3407-0.3417	0.170	0.060	11/32
PAC-LC1012	0.420	0.3407-0.3417	0.180	0.070	11/32
PAC-LC1013	0.420	0.3407-0.3417	0.190	0.080	11/32
Super High Strength Steel					
PAC-LC2001	0.386	0.2755-0.2760	0.170	0.060	7mm
PAC-LC2002	0.386	0.3097-0.3103	0.170	0.060	Small 5/16
PAC-LC2003	0.386	0.3097-0.3103	0.180	0.070	Small 5/16
PAC-LC2004	0.386	0.3097-0.3103	0.190	0.080	Small 5/16
PAC-LC2005	0.386	0.3107-0.3113	0.170	0.060	Mild Fit 5/16
PAC-LC2006	0.386	0.3107-0.3113	0.180	0.070	Mild Fit 5/16
PAC-LC2007	0.386	0.3107-0.3113	0.190	0.080	Mild Fit 5/16
PAC-LC2008	0.386	0.3117-0.3123	0.170	0.060	True 5/16
PAC-LC2009	0.386	0.3117-0.3123	0.180	0.070	True 5/16
PAC-LC2010	0.386	0.3117-0.3123	0.190	0.080	True 5/16
PAC-LC2011	0.420	0.3407-0.3413	0.170	0.060	11/32
PAC-LC2012	0.420	0.3407-0.3413	0.180	0.070	11/32
PAC-LC2013	0.420	0.3407-0.3413	0.190	0.080	11/32

SPRING CUPS, SEATS, AND SHIMS

NEW FOR 2015

CHROME MOLY SPRING CUPS

(0.060 THICKNESS)

Part No.	Diameters (in.)		
	Diameter A (OD)	Diameter B (Spring ID)	Diameter C (ID)
PAC-C201	1.570	1.475	0.640
PAC-C202	1.625	1.525	0.640
PAC-C203	1.670	1.550	0.640
PAC-C204	1.670	1.575	0.640
PAC-C205	1.740	1.650	0.640
PAC-C206	1.740	1.675	0.640
PAC-C207	1.780	1.695	0.640
PAC-C208	1.825	1.725	0.640
PAC-C209	1.740	1.650	0.570
PAC-C210	1.740	1.675	0.570
PAC-C211	1.780	1.695	0.570
PAC-C212	1.825	1.725	0.570
PAC-C213X	1.550	1.475	0.570

Tool Steel Cups also available, to order add a "-X" to the Chrome Moly Cup number.

CHROME MOLY SPRING SEATS

(0.060 THICKNESS)

Part No.	Diameters (in.)			
	Diameter A (OD)	Diameter B (Spring ID)	Diameter C (ID)	Dim "E" Thickness
PAC-S101	1.550	0.855	0.575	0.060
PAC-S102	1.550	0.855	0.635	0.060
PAC-S103	1.550	0.770	0.575	0.060
PAC-S104	1.550	0.770	0.635	0.060
PAC-S105	1.550	0.700	0.575	0.060
PAC-S106	1.550	0.700	0.635	0.060
PAC-S107	1.625	0.760	0.635	0.060
PAC-S108	1.625	0.760	0.575	0.060
PAC-S109	1.650	0.630	0.570	0.060
PAC-S110	1.500	0.715	0.570	0.060
PAC-S111	1.270	0.870	0.570	0.060
PAC-S112	1.450	0.980	0.570	0.060
PAC-S113	1.450	0.980	0.630	0.060
PAC-S114	1.450	0.700	0.570	0.060
PAC-S115	1.450	0.700	0.630	0.060
PAC-S116	1.550	1.120	0.630	0.060
PAC-S117	1.550	0.730	0.575	0.060
PAC-S118	1.550	0.730	0.630	0.060
PAC-S119	1.550	0.800	0.575	0.060
PAC-S120	1.550	0.800	0.630	0.060
PAC-S121	1.270	0.640	0.520	0.060
PAC-S126	1.500	0.715	0.630	0.060
PAC-S127	1.500	0.715	0.630**	0.030
PAC-S128	1.270	0.600	0.520	0.060
PAC-S129	1.270	0.680	0.520	0.060
PAC-S130	1.550	0.820	0.575	0.060
PAC-S131	1.550	0.820	0.630	0.060
PAC-S132	1.100	0.580	0.510**	0.030
PAC-S133	1.650	0.630	0.570**	0.030
PAC-S134	1.500	0.715	0.570**	0.030
PAC-S135	1.270	0.680	0.570	0.060
PAC-S136	1.270	0.680	0.510**	0.030
PAC-S137X	1.400	0.685	0.570	0.030
PAC-S138	1.270	0.615	0.575	0.060
PAC-S140X	1.400	0.685	0.570	0.060

AVAILABLE IN TOOL STEEL!

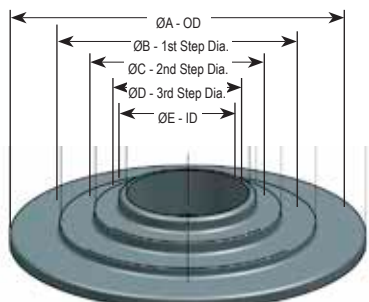
** 0.030 thick seats. These are a great way to get more installed height.

Tool Steel Seats also available, to order add a "-X" to the Chrome Moly Seat Part number.

STEP SEATS For Use w/600 Series Retainers

Part No.	Diameters (in.)				
	Diameter A (OD)	Diameter B (1st Step Dia.)	Diameter C (2nd Step Dia.)	Diameter D (3rd Step Dia.)	Diameter E (ID)
PAC-S122	1.500	1.040	0.715	N/A	0.570
PAC-S123	1.650	1.185	0.865	0.635	0.570
PAC-S124	1.550	1.140	0.730	N/A	0.570
PAC-S125	1.270	0.880	0.640	N/A	0.520
PAC-S139X	1.500	1.100	0.710	N/A	0.570

Note: PAC-S122, PAC-S124, and PAC-S125 have only (2) steps.



Step Seat

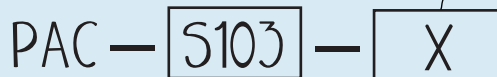
SPRING SHIMS

Hardened spring shims are critical to achieving the correct spring installed height. PAC has several sizes to choose to set it correctly.

Part No.	Outside Diameter (in)	Inside Diameter (in)	Thickness (in)
PAC-S181	1.040	0.615	0.015
PAC-S182	1.040	0.615	0.020
PAC-S183	1.040	0.615	0.030
PAC-S184	1.500	0.570	0.050
PAC-S185	1.500	0.570	0.030
PAC-S186	1.500	0.570	0.020
PAC-S187	1.500	0.570	0.015
PAC-S188	1.250	0.570	0.050
PAC-S189	1.250	0.570	0.030
PAC-S190	1.250	0.570	0.020
PAC-S191	1.250	0.570	0.015
PAC-S192	1.500	0.645	0.050
PAC-S193	1.500	0.645	0.030
PAC-S194	1.500	0.645	0.020
PAC-S195	1.500	0.645	0.015
PAC-S196	1.620	0.645	0.050
PAC-S197	1.620	0.645	0.030
PAC-S198	1.620	0.645	0.020
PAC-S199	1.620	0.645	0.015

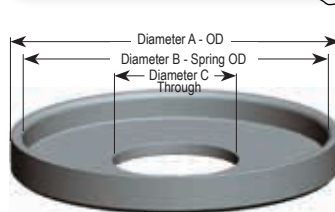
X SERIES TOOL STEEL

HOW TO ORDER:

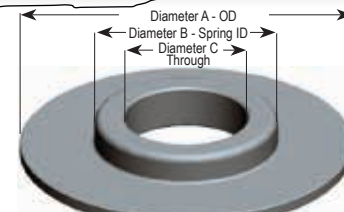


→ Adds tool steel option

→ Chrome Moly Standard Seats



Chrome Moly Spring Cup



Chrome Moly Spring Seat

The following kits contain 16 pcs each of 0.015, 0.020, 0.030 and 0.050 thick shims for precise adjustment of the spring installed height.

Part No.	Description	ID
PAC-KS91	1.620 Dia shim kit -(64 pcs total)	0.645
PAC-KS92	1.500 Dia shim kit -(64 pcs total)	0.645
PAC-KS93	1.250 Dia shim kit -(64 pcs total)	0.570
PAC-KS94	1.500 Dia shim kit -(64 pcs total)	0.570

VALVETRAIN TOOLS

DIGITAL GRAM SCALE

This small, inexpensive scale is extremely useful for weighing springs, retainers, locks or any of your valvetrain components. This scale is used regularly by PAC engineers.

- 1000 gram capacity
- Easy one-button calibration
- Stainless steel platform
- Backlit LCD display
- Powered by 2 AAA batteries (included)
- Auto-off timeout feature to save battery life



PAC-T940

CHECKING SPRINGS

PAC-T910

These lightweight springs are used for valvetrain mock-up 0.860 OD x 3.0 long.



These springs are easily compressed by hand for ease of valvetrain setup and checking.

CALIBRATION SPRINGS



PAC-T900

Specially designed springs for calibrating spring testers. These springs come complete with data sheets showing various loads at heights to check the accuracy of spring testers.



Certificate of calibration included

SPRING INSTALLED HEIGHT GAGE

- Stainless steel construction for extremely long life
- Non-magnetic to avoid pulling shims when using
- Increased accuracy and precision with finer pitch threads
- Several models to choose from



PAC-T902

PAC-T901

PAC-T903

PAC-T904

Part Number	Height Range	ID	Per Turn	Use	Color
PAC-T901	1.400 to 2.000	0.760	0.050	Beehive springs	Blue
PAC-T902	1.800 to 2.500	1.200	0.050	Pro Series & Drag Race	Red
PAC-T903	1.400 to 1.900	1.200	0.050	Engine Builders	Orange
PAC-T904	1.400 to 2.000	0.975	0.050	LS Dual Springs	Purple



SPRING CHAMFER TOOL

PAC-T920

Shank Diameter 3/8"
 Outside Diameter 1.750"
 Chamfer 100-200 springs before needing to be coated again.



TAPE MEASURE

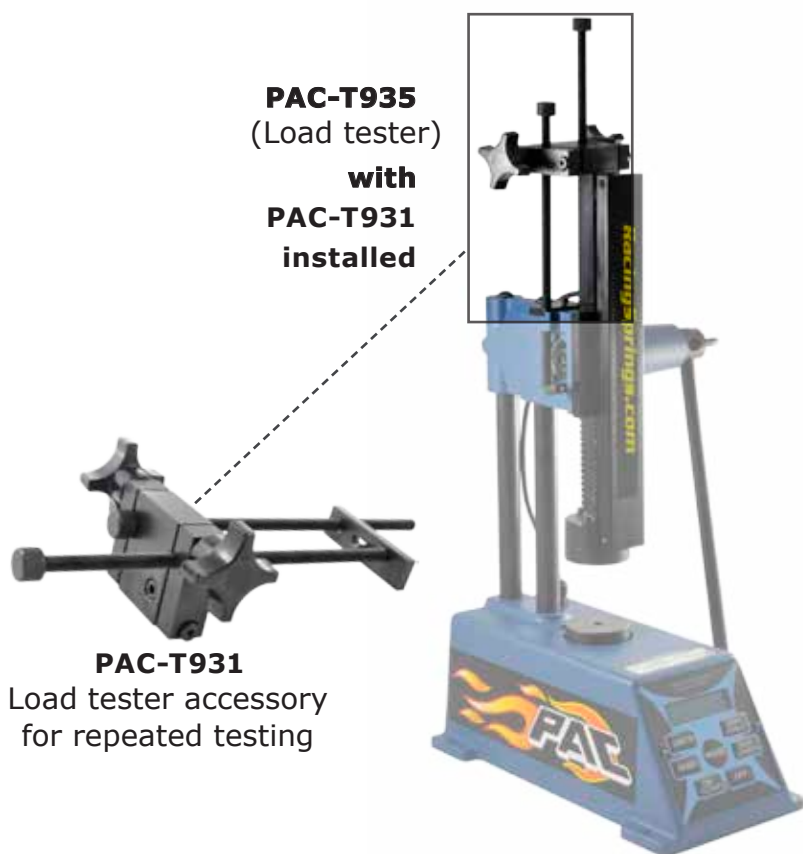
PAC-T941

SPRING TESTING EQUIPMENT

Our testers offer a full functioning digital load test capability. They utilize an electronic force transducer rather than an un-reliable spring scale, which changes with temperature. They have a two line backlit LCD display of force and length. Also included is a base deflection compensation module for accurate NIST capable readings. These units have rugged cast aluminum base and steel frame for mounting to any work bench. Height measurement uses a well engineered, hand operated rack and pinion mechanism, that allowing for ease of deflection measurement. Machines also come with the ability to lock the spring at a set height and mechanical overrides to prevent overload damage.

- Compression testing of force and length
- Tracking or peak modes (2,000 samples / sec)
- Load cell and frame deflection compensation
- Mechanical and software overload protection
- Built-in shunt calibration verification
- Digital calibration and linearization
- Standard 5" range
- Standard 5" stroke
- 2" Ø platform
- Up to 0.001" length resolution
- NIST traceable calibration
- Backlit digital LED display of force and length
- Wipe-clean embossed key faceplate
- Push-button force and length zeroing

Part No.	Load Capacity
PAC-T930	750
PAC-T935	1,500
PAC-T931	Accessory for use with both load testers. Use this for repeated testing and batch sorting multiple springs.
PAC-T936	Use this to accurately check and constantly measure solid heights and bind heights.



THROTTLE ACCESSORIES

THROTTLE SPRINGS

Part Number	Free Length	Tension
PAC-3001	2.500	Light
PAC-3002	2.500	Medium
PAC-3003	2.500	Heavy
PAC-3004	3.750	Light
PAC-3005	3.750	Medium
PAC-3006	3.750	Heavy
PAC-3007	5.000	Light
PAC-3008	5.000	Medium



PAC throttle springs are designed and produced with extreme emphasis on safety. The ends of the springs are designed with larger radii so that stresses remain low and any danger of a broken spring is virtually eliminated. Don't trust a cheap hardware store spring when safety is concerned! PAC Racing Springs offer a variety of springs that are sure to fit any application.



Showroom kits for display!
Point of sale for Hotrod Shops

CALL FOR DETAILS



PAC-TK01

THROTTLE ACCESSORIES

THROTTLE SPRING BRACKETS

Billet Throttle Brackets now available with springs and hardware for use in multiple applications. Use these Billet Aluminum throttle brackets with black anodize and all the hardware to bolt these up to your carb. These are some of the nicest brackets we have seen and come paired with performance throttle springs to keep your foot under enough control. While they might not add Horsepower they sure do bring awesomeness to under your hood.



PAC-TK01



Part Number	Carb Type Series	Cable Type	Color
PAC-TK01	4500	Steel construction	Chrome
PAC-TK02	4500	GM Cable	Black
PAC-TK03	4500	Lokar Cable	Black
PAC-TK04	4500	Morse Cable	Black
PAC-TK05	4500	Ford Cable	Black
PAC-TK06	4500	Mopar Cable	Black
PAC-TK07	4500	Bracket and Throttle return	Black
PAC-TK08	Edelbrock	GM Cable	Black
PAC-TK09	Edelbrock	Lokar Cable	Black
PAC-TK10	Edelbrock	Morse Cable	Black
PAC-TK11	Edelbrock	Ford Cable	Black
PAC-TK12	Edelbrock	Mopar Cable	Black
PAC-TK13	4150 and Edelbrock	Bracket and Throttle return	Black

PAC RACING SPRINGS CUSTOM SPRINGS

There are many springs available from our listings catalog and many HP cam and valve companies. However, with the multitude of engines that are available and the different valvetrain configurations possible, it becomes very difficult to find the correct spring. PAC racing springs custom design and manufacturing services can produce a proprietary spring tailored specifically for your application.



PAC Racing spring is not limited to just valve springs. We have produced many HP racing clutch, throttle, oil pump and suspension springs. PAC is a leader in piston pin retaining ring production.

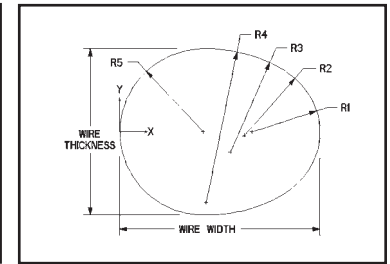
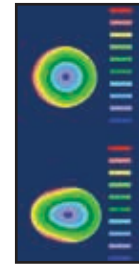
PAC Racing Springs has a wide range of capabilities through our connection to the automotive OEM market. We offer springs with wire diameters from 0.008 to 1.250 inches. Spring diameters can range from 0.024 to 18 inches with free lengths up to 8 feet long. Numerous processing methods and variations of peening, heat treating, nitriding and finishing work make PAC the leader in custom springs.

SPRING WIRE



PAC Racing Springs has many material options for wire chemistry and shape. We utilize all of the latest grades from Kobe steel in both round wire and multi-arc (ovate) sections.

PAC has many standard ovate sections readily available and custom sections can be produced from FEA analyzed sections.



Ovate wire analysis

SPRING DESIGN

There is a vast number of ways to produce springs with characteristics that improve engine performance. The best way to start is with the custom design form or call PAC Racing Springs. Engineers at PAC will review the data and design unique and exact solutions for your spring requirements.

OPTIONS...OPTIONS...OPTIONS...

There are many options that PAC Racing can provide for custom springs beyond the design and wire:

Processing: The manufacturing process is designed to match with the life, stress and cost compromises.

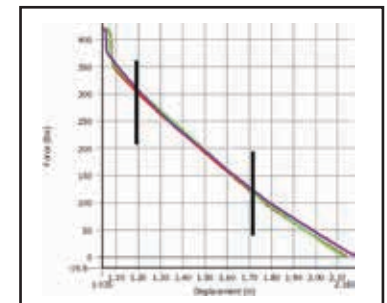
Finishing: PAC has numerous finishing options such as polishing, Nano Peening® and identification.

Packaging: Many packaging options from individual to bulk and engine sets.

Details:

- ID / OD chamfering
- Tip conditioning
- Tolerances – Coil bind height, loads, diameters, etc.
- Documentation for wire, spring and assembly characteristics

Spring Loads: The loads of the springs can be tailored to specific applications high load versions (-H) and low load versions (-L) are available for various PN's. Call PAC for more details.

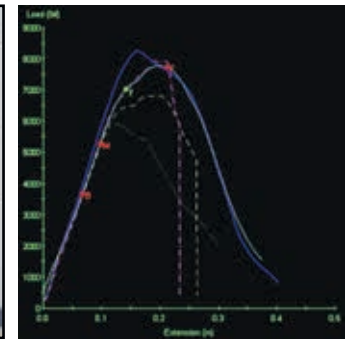


Load Testing

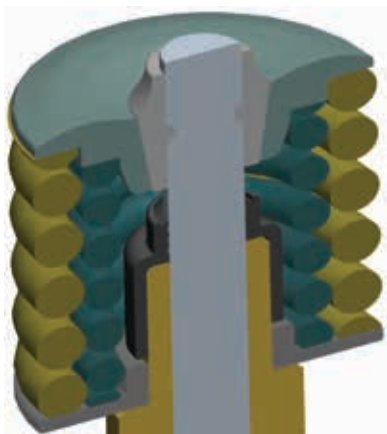


INSTALLED HEIGHT

With high rate springs that are used in today's engines, the installed height accuracy is more critical than ever. For example, a 0.015 difference in height on a 800 lb/in rate spring will have 12 lbs. of spring force variation. Measuring and setting the height to within 0.005 inches with PAC gages and shims will insure a smoother running valvetrain.

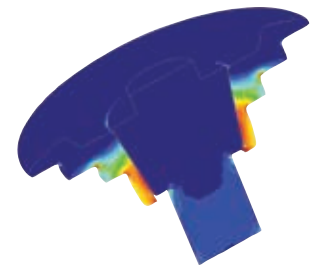


Retainer pull-through testing



COIL BIND CALCULATION EXAMPLE

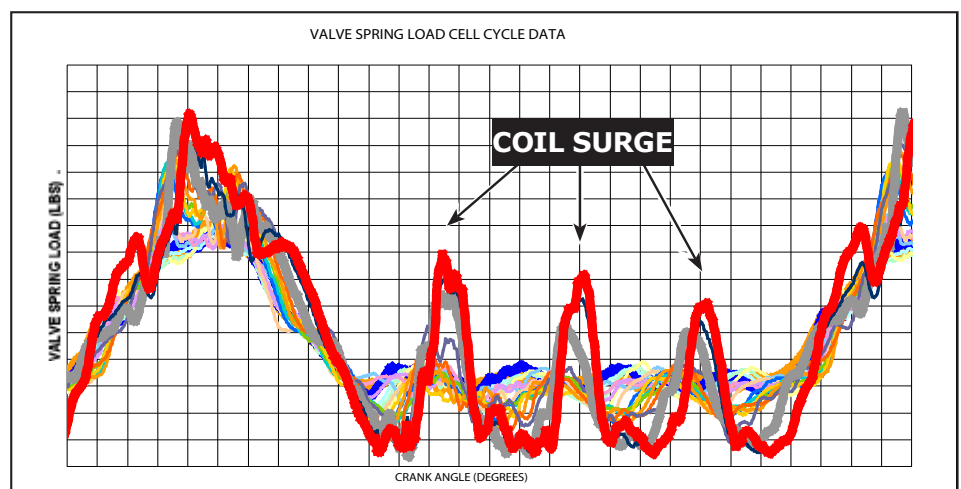
Installed height	1.950
Valve Lift (minus lash)	-0.785
Spring Coil Bind Height	<u>-1.105</u>
CLEARANCE	0.060



FEA analysis

COIL BIND CLEARANCE

This number is a valvetrain tuning parameter. Higher-revving engines generally run closer to bind to reduce valve spring surging. The close running of the spring coils to each other will inherently reduce the spring surging. The chart below illustrates the spring load from a load cell under the spring. The large fluctuations of load are from coil surging. This can reach very high loads and go to zero in the worst case. Valvetrain damage will result. This clearance relies heavily on the quality of valvetrain parts, measurement equipment and engine builder skill to be able to run close tolerances without going past bind.



SPRING DESIGN

Racing valve spring design is extremely complicated when the harmonics of high-speed valvetrain operations are applied. PAC has various valvetrain software analysis packages developed in-house to optimize the spring to suit high-speed operation.

One of the most successful methods is our Rapid Prototype Development (RPD) process of utilizing our in-house Spintron® with our coiling machines to produce a spring that provides superior dynamic valvetrain stability with actual on-engine hardware. This can be validated with high-speed video (see website for samples), load cells and other instrumentation.

TESTING...TESTING...TESTING...

PAC Racing Springs has the most elaborate testing facility complete with a full metallurgical lab. Capabilities include electron microscope, XRD, metallography, tensile testing, fatigue, RBF, EDAX, impact as well as various forms of fatigue testing are used.



S.E.M.



Tensile Tester



XRD Tester

PAC APPAREL

Show off your favorite spring makers with our exclusive PAC Racing wearables! We have T-shirts, long sleeved Tees, sweatshirts, hoodies and hats available in many sizes. Contact us for large apparel orders or custom screenprinting & embroidery questions. High quality, heavyweight cotton blends.



PAC T-Shirts & Long Sleeved Tees
Sizes S-3X



PAC Flat Bill Hats PAC Structured Hats



PAC Women's T-Shirts
Sizes S-3X



Special Edition
Limited Supply



PAC Beanie
One-size

CUSTOM VALVE SPRING DESIGN REQUEST FORM

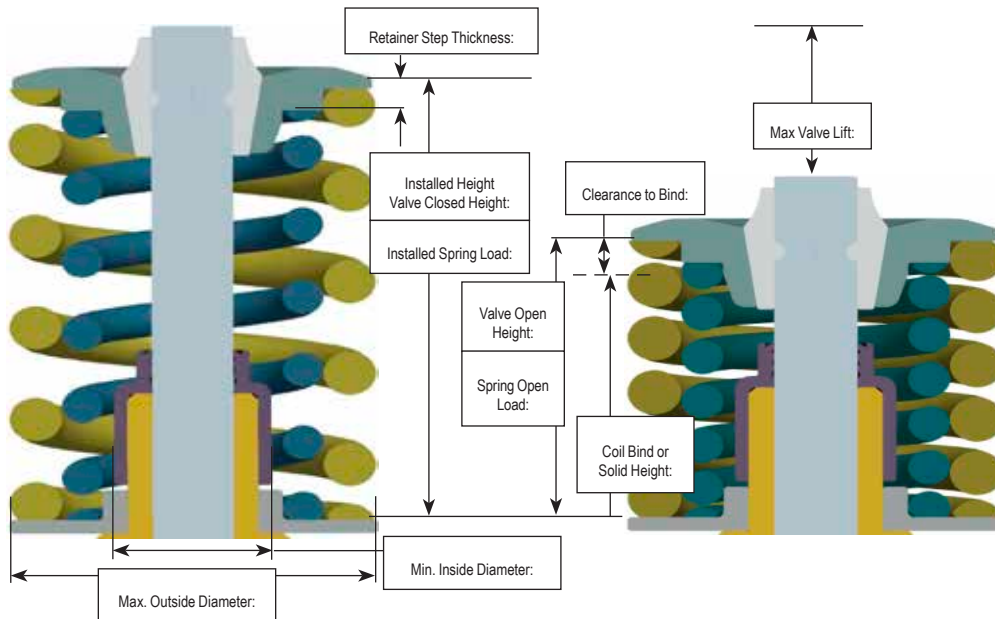


NAME _____
 COMPANY NAME _____
 ADDRESS _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP CODE _____
 COUNTRY _____
 PHONE NUMBER _____
 FAX NUMBER _____
 EMAIL ADDRESS _____
 WEBSITE _____

PAC Racing Springs
 21200 Telegraph Road
 Southfield, MI 48033
 1-866-799-9417

This is PAC's starting point to provide you the absolute best valve spring tailored completely to your engine application. Please fill this out as completely as possible. This information will be used by our engineering staff to design a spring that will provide a spring that will control the valve to the requested RPM while reducing operating stresses as much as possible. Please feel free to contact our staff for any assistance with this. All information provided will be held in the strictest confidence and will be completely proprietary to your company.

BASIC SPRING LAYOUT



This diagram is very general but the basic load, height and operating envelopes can be defined for most engine configurations

Other Requirements	
Chamfering	
Identification	
Tip Conditioning	
Load Tolerance	
Solid Height Tolerance	

What is the application: (Street, Drag, Oval, etc.)? _____
 What is the expected RPM Range? _____
 What is the expected life of the spring: (Race, Season, Cycles, etc.)? _____
 What type of springs is desired: (Single, Dual, Triple, Beehive, etc.)? _____
 Does this spring need to fit an existing retainer or seat? _____
 What is the current spring used for this application? _____
 What are the problems / issues with the current springs used? _____
 Any other comments: _____

Valvetrain Information: (if not proprietary)

Engine / type _____ Rocker arm ratio _____
 Cam lift / profile * _____ Rocker arm mass / stiffness _____
 Tappet mass _____ Retainer mass _____
 Pushrod mass _____ Valve stem lock mass _____

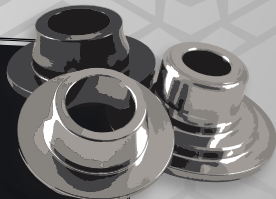
*We can accept many forms of lift / profile data – contact PAC Racing Springs for more detailed information.

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