

PROUDLY MADE IN THE USA



RacingSprings.com



MASTER PRODUCT CATALOG

866-799-9417

WELCOME TO PAC RACING



ABOUT US

PAC Racing Springs is the Racing and Aftermarket Division of the Peterson Spring Company. With more than 7 divisions around the world, Peterson Spring is the largest privately held Spring Company in the USA..

SERVICE COMMITMENT

We understand the demands of racing and provide a commitment to all of our customers to provide the best service possible. We continue to expand products and offer expanded onsite technical services at various racing events. We believe these interactions allow us to provide the latest product advancements and respond to additional future requirements. Because we are the manufacturer, we are able to design, build and supply parts within days if needed.

CUSTOM PRODUCTS

We believe in providing custom products for every product line. This philosophy is a premium choice to allow our customers an enhanced product or something unique to the application. Additional Private Label programs are available to many companies looking for their own brand identity and are typically for larger volume applications. We honor proprietary agreements and are dedicated to providing any aftermarket company a superior American made product at sustainable market pricing.

TECHNOLOGY

The primary focus of the Peterson Spring group is Automotive and Industrial applications; these interactions increase technical advancements for PAC Racing Spring products. We can offer enhanced technology through engineering resources and expanded experience from all of our power-train engineers. Additionally, with over 100 years of manufacturing experience we continually improve our products to exceed demanding expectation.



TESTING

Because of the extreme demands of racing, we routinely test all of our components using advanced testing technology. We have a fully accredited metallurgy lab with dedicated staff and equipment such as: SEM with EDAX, X-ray Diffraction, Micro Hardness, Impact Testing, and MTS Tensile Test machine. Additionally, we are able to test functionality and fatigue properties in our Dynamics Laboratory, which includes a single post MTS Servo Hydraulic test machine, various bench type equipment, and our High Tech Engine test lab. Whatever your application we strive to bring confidence that our products meet and exceed designed parameters.

PAC

- We are proud of our people that work at PAC Racing and in the culture we are building and growing.
- We are proud of the high quality product that we produce, right here in the USA
- We are proud to support our customers in their drive to succeed!

PRIDE



Located in the automotive capital of the world,

DETROIT, MICHIGAN,

we are working hard to build a culture of Pride, Passion and Performance.

- We are passionate about our products and processes. Continually looking for better equipment, spring designs and manufacturing processing are what make us a leader in our market.
- We are passionate about racing. We support our customers through various major sponsorships, such as the NHRA contingency programs, and getting our hands dirty on site with your team.

PASSION



We have high expectations of performance from everyone on the PAC Racing Team and are determined to provide the best possible product to our customers, whether that is the racer on the track or the next employee in the manufacturing process.

PERFORMANCE
WE EXPECT TO WIN!!



Technical Information

There are many springs available from our listings catalog and many High Performance 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 High Performance 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 of valve spring steel in both round wire and multi-arc (ovate) sections. We carefully validate the quality and cleanliness of steel from mills worldwide.

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

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

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.

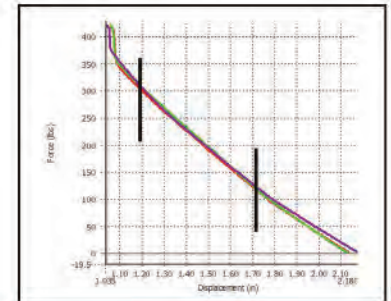
Finishing: PAC has numerous finishing options such as polishing, Nano Peening™ and identification.

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

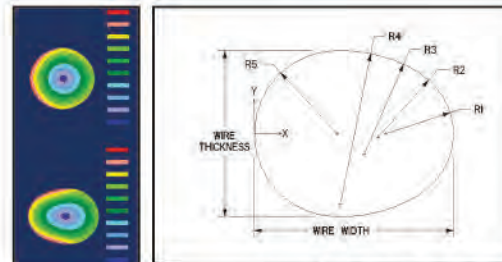
Details:

- 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.

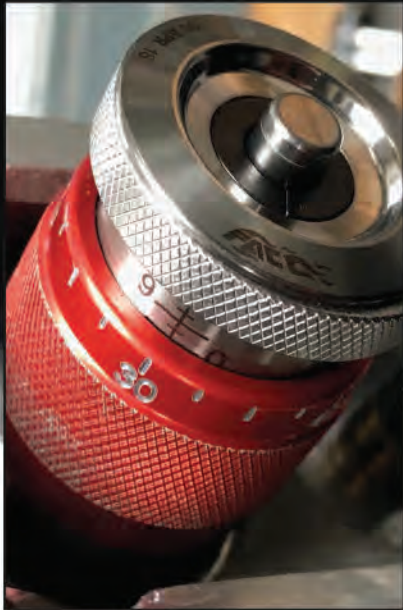


Load Testing



Ovate wire analysis





Installed Height Measurement



Actual Valve lift measurement
(valve lashed)



Solid Height Measurement

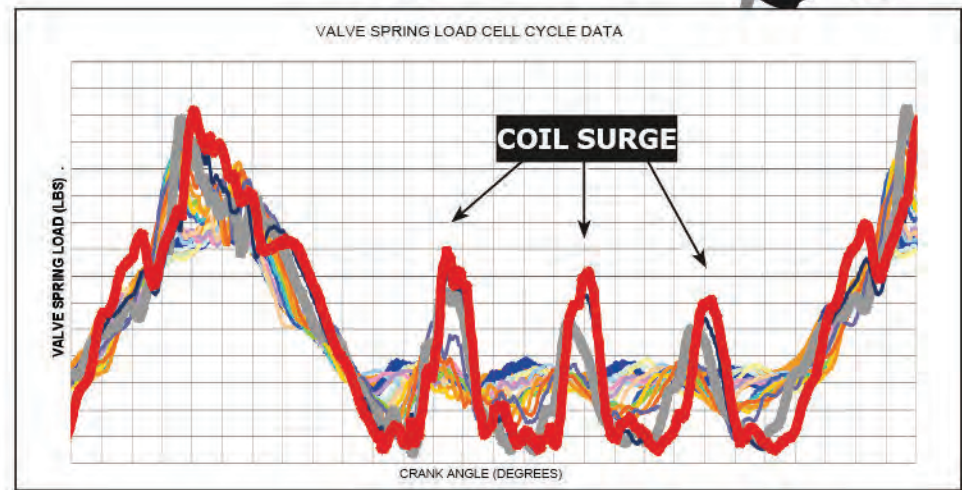


COIL BIND CALCULATION EXAMPLE

Measured Installation Height	1.980
Measured Valve Lift	-0.777
Measured Valve Spring Solid Height	-1.132
Actual Coil Bind Clearance	0.071

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.



New Products

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	Damper	OD Bottom	OD Top	ID Bottom	ID Top	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 300 Series	PAC 400 Series	PAC 500 Series	PAC 800 Series	PAC Spring Seats	
CIRCLE TRACK DUAL SPRINGS																				
PAC-1326H	1.550	1.110	NA	0.706	Yes	NA	NA	NA	NA	300 @ 2.000	828 @ 1.200	663	1.150	0.800	NA	NA	R506 R541	R606 R641 R661	S105 S106 S105X	High Load version of PAC-1326
PAC-1373L	1.426	1.002	NA	0.688	No	NA	NA	NA	NA	200 @ 2.100	803 @ 1.200	670	1.152	0.900	NA	NA	NA	R659	S137X	Small Diameter Endurance Spring Must use Special Retainer
PAC-1392	1.314	0.900	NA	0.616	No	NA	NA	NA	NA	185 @ 2.060	730 @ 1.260	681	1.196	1.300	NA	NA	R558	R658	S154	Small Diameter for Sprint Cars Under 8,500 RPM
DRAG RACE DUAL SPRINGS																				
PAC-1333	1.274	0.900	NA	0.616	NA	NA	NA	NA	NA	245 @ 1.800	750 @ 1.050	673	0.990	0.750	NA	R432	R532	R632	S128 S138	LS Solid Roller Drag Race
PAC-1334	1.300	0.900	NA	0.630	NA	NA	NA	NA	NA	255 @ 1.800	810 @ 1.050	740	0.990	0.750	NA	R432	R532	R632	S128 S138	LS Solid Roller Drag Race
PAC-1339	1.586	1.100	NA	0.763	NA	NA	NA	NA	NA	500 @ 2.200	1390 @ 1.250	937	1.100	1.040	NA	NA	R506 R541	R606 R641 R661	S107 S108	High Lift Dual Spring for Limited Installed Height
DRAG RACE TRIPLE SPRINGS																				
PAC-1369	1.750	1.240	0.879	0.630	NA	NA	NA	NA	NA	450 @ 2.550	1675 @ 1.250	942	1.180	1.300	NA	NA	R503 R565	NA	S109 S133	Mountain Motor Valve Spring
BEEHIVE SPRINGS																				
PAC-1275X	NA	NA	NA	NA	NA	1.290	1.034	0.906	0.650	140 @ 1.950	405 @ 1.300	408	1.215	0.660	R310 R311 R363	NA	R510 R511	NA	S111	LS & Drop in Beehive & Hemi SRT Exhaust Spring
PAC-1276X	NA	NA	NA	NA	NA	1.290	1.034	0.906	0.650	140 @ 1.800	420 @ 1.140	409	1.070	0.660	R310 R311 R363	NA	R510 R511	NA	S111	LS Drop in Beehive
PAC-1282X	NA	NA	NA	NA	NA	1.270	1.105	0.825	0.660	160 @ 2.350	420 @ 1.700	400	1.544	0.750	R393 R394	NA	NA	NA	NA	Godzilla Drop in Beehive
PAC-1282LX	NA	NA	NA	NA	NA	1.270	1.105	0.825	0.660	160 @ 2.250	420 @ 1.600	400	1.544	0.650	R393 R394	NA	NA	NA	NA	Godzilla Drop in Beehive Must use PAC-R394 for 2.250" Installed Height

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

	CIRCLE TRACK DUAL SPRINGS			DRAG RACE DUAL SPRINGS			DRAG RACE TRIPLE SPRINGS	BEEHIVE SPRINGS			
	PAC-1326H	PAC-1373L	PAC-1392	PAC-1333	PAC-1334	PAC-1339	PAC-1369	PAC-1275X	PAC-1276X	PAC-1282X	PAC-1282LX
Mass (g)	159	136	117	89	93	159	224	82	73	94	94
Outer Freq	29368	30043	32841	35938	40679	32791	27621	34933	35050	29312	29312
Middle Freq	NA	NA	NA	NA	NA	NA	27767	NA	NA	NA	NA
Inner Freq	28434	32323	32947	44180	38918	34688	28760	NA	NA	NA	NA
Coil Bind	1.150	1.160	1.196	0.990	0.990	1.100	1.180	1.215	1.070	1.544	1.544
3.050							8				
3.000							30				
2.950							73				
2.900							120				
2.850							167				
2.800							214				
2.750						6	262				
2.700						37	309			20	
2.650						78	356			40	
2.600						125	403			60	20
2.550						172	450			80	40
2.500	1					219	497			100	60
2.450	9					266	544			120	80
2.400	40	6				313	591			140	100
2.350	71	32				359	638			160	120
2.300	101	66	21			406	686			180	140
2.250	134	99	56			453	733	18		200	160
2.200	167	133	90	18		500	780	38		220	180
2.150	201	166	124	37	3	547	827	58	7	240	200
2.100	234	200	158	56	33	594	874	79	27	260	220
2.050	267	233	192	77	70	641	921	99	48	280	240
2.000	300	267	226	110	107	687	968	119	68	300	260
1.950	333	300	260	144	144	734	1015	140	89	320	280
1.900	366	334	294	178	181	781	1063	160	109	340	300
1.850	399	367	328	211	218	828	1110	180	130	360	320
1.800	432	401	362	245	255	875	1157	201	150	380	340
1.750	466	434	396	279	292	922	1204	221	171	400	360
1.700	499	468	430	312	329	968	1251	241	191	420	380
1.650	532	501	464	346	366	1015	1298	261	212	440	400
1.600	565	535	498	380	403	1062	1345	282	232	460	420
1.550	598	568	533	413	440	1109	1392	302	253	480	440
1.500	631	602	566	447	477	1156	1439	322	273		
1.450	664	635	601	481	514	1203	1487	343	294		
1.400	697	669	635	514	551	1249	1534	363	314		
1.350	731	702	669	548	588	1296	1581	383	335		
1.300	764	736	703	582	625	1343	1628	404	355		
1.250	797	769	737	615	662	1390	1675	424	376		
1.200	830	803	771	649	699	1437	1722	444	396		
1.150	863	836		683	736	1484			417		
1.100				716	773	1531			437		
1.050				749	810				458		
1.000				783	847						

Drag Race Springs

1200 SERIES

PAC's standard High Performance 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)				PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1224	1.625	1.175	NA	0.851	275 @ 2.000	810 @ 1.150	629	1.100	0.850	R404	R504	NA	S101 S102	Bracket racing applications
PAC-1225	1.550	1.100	NA	0.788	250 @ 2.000	765 @ 1.200	644	1.150	0.800	R405	R505 R556	NA	S103 S104	Smaller diameter
PAC-1226	1.550	1.100	NA	0.788	275 @ 2.000	805 @ 1.200	663	1.150	0.800	NA	R506 R541	R606 R641 R661	S105 S106 S139	Smaller diameter
PAC-1228	1.625	1.175	NA	0.851	280 @ 2.100	847 @ 1.150	629	1.100	0.900	R404	R504	NA	S101 S102	Bracket racing application for higher lift and RPM requirements.
PAC-1246	1.645	1.195	0.871	0.635	250 @ 2.050	801 @ 1.250	689	1.130	0.800	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications
PAC-1247	1.645	1.195	0.871	0.635	290 @ 2.070	835 @ 1.270	682	1.130	0.800	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications
PAC-1248	1.645	1.195	0.871	0.635	332 @ 2.100	950 @ 1.200	687	1.130	0.900	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications
PAC-1249	1.645	1.195	0.871	0.635	375 @ 2.200	1064 @ 1.200	689	1.130	1.000	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications
PAC-1250	1.645	1.195	0.871	0.635	440 @ 2.200	1129 @ 1.200	689	1.130	1.000	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications
PAC-1258	1.645	1.195	0.871	0.635	350 @ 2.150	1004 @ 1.200	688	1.130	0.950	R401 R402	R501 R502	R601 R602	S109	Bracket racing applications

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

1200 SERIES	PAC-1224	PAC-1225	PAC-1226	PAC-1228	PAC-1246	PAC-1247	PAC-1248	PAC-1249	PAC-1250	PAC-1258
Mass (g)	152	152	158	152	183	183	183	183	183	183
Outer Freq	28793	29368	29368	28793	27188	27188	27188	27188	27306	27188
Middle Freq	NA	NA	Damper	NA	26867	26867	26867	26867	26945	26867
Inner Freq	27275	28294	28434	27275	28392	28392	28392	28392	28421	28392
Coil Bind	1.100	1.150	1.150	1.100	1.130	1.130	1.130	1.130	1.130	1.130
2.850									3	
2.800									27	
2.750								11	61	
2.700								41	96	3
2.650								75	130	13
2.600							8	109	164	40
2.550				2		0	23	144	199	75
2.500				28		11	57	178	233	109
2.450			4	60	5	31	92	213	268	144
2.400	23	5	15	91	20	65	126	247	302	178
2.350	55	25	46	123	43	99	160	282	337	212
2.300	86	57	76	154	78	133	195	316	371	247
2.250	118	89	109	186	112	167	229	351	406	281
2.200	149	121	142	217	147	201	263	385	440	316
2.150	181	153	176	249	181	236	298	419	475	350
2.100	212	186	209	280	216	270	332	454	509	384
2.050	244	218	242	311	250	304	366	488	543	419
2.000	275	250	275	343	284	338	401	523	578	453
1.950	306	282	308	374	319	372	435	557	612	488
1.900	338	314	341	406	353	406	469	592	647	522
1.850	369	347	374	437	388	440	504	626	681	557
1.800	401	379	407	469	422	474	538	661	716	591
1.750	432	411	441	500	457	508	572	695	750	625
1.700	464	443	474	532	491	542	607	730	785	660
1.650	495	475	507	563	526	576	641	764	819	694
1.600	527	507	540	595	560	610	675	798	853	729
1.550	558	540	573	626	594	644	710	833	888	763
1.500	590	572	606	658	629	678	744	867	922	798
1.450	621	604	639	689	663	712	778	902	957	832
1.400	653	636	672	721	698	746	813	936	991	866
1.350	684	668	706	752	732	781	847	971	1026	901
1.300	716	701	739	784	767	815	881	1005	1060	935
1.250	747	733	772	815	801	849	916	1040	1095	970
1.200	779	765	805	846	835	883	950	1074	1129	1004
1.150	810	797	838	878	870	917	984	1108	1164	1038
1.100	841			909					668	

Drag Race Dual Springs

1300 SERIES

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.



Part Number	Spring Diameters			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	OD Outer	ID Outer	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1312	1.106	0.810	0.574	150 @ 1.700	430 @ 1.000	400	0.850	0.700	R439	R539	NA	S132	FMOD 4.6L 4V
PAC-1312L	1.106	0.810	0.574	110 @ 1.550	330 @ 1.000	400	0.850	0.550	R439	R539	NA	S132	Low load version of PAC-1312
PAC-1321	1.522	1.050	0.710	400 @ 2.250	1320 @ 1.300	968	1.192	0.950	R408	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1322	1.536	1.050	0.710	425 @ 2.300	1463 @ 1.300	1038	1.215	1.000	R408	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1323	1.551	1.065	0.725	525 @ 2.350	1510 @ 1.300	938	1.200	1.050	R408	R508, R509, R544	R608, R609, R644	S110 S126	High lift aggressive applications
PAC-1324	1.625	1.175	0.851	275 @ 2.000	810 @ 1.150	629	1.100	0.850	R404	R504	NA	S101 S102	Bracket racing and high lift applications
PAC-1328	1.625	1.175	0.851	280 @ 2.100	847 @ 1.150	629	1.100	0.950	R404	R504	NA	S101 S102	Bracket racing and high lift applications
PAC-1329	1.500	1.050	0.726	345 @ 2.100	1047 @ 1.200	780	1.130	0.900	R408	R508, R509, R544	R608, R609, R644	S110 S126	Comp and Super Stock engines
PAC-1330	1.500	1.050	0.726	275 @ 2.050	938 @ 1.200	780	1.130	0.850	R408	R508, R509, R544	R608, R609, R644	S110 S126	Comp and Super Stock engines
PAC-1331	1.514	1.050	0.726	425 @ 2.200	1288 @ 1.200	863	1.160	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	High rate for aggressive valvetrains and RPM
PAC-1332	1.514	1.050	0.726	350 @ 2.100	1127 @ 1.200	863	1.160	0.900	408	R508, R509, R544	R608, R609, R644	S110 S126	Comp and Super Stock engines
PAC-1333	1.274	0.900	0.616	245 @ 1.800	750 @ 1.050	673	0.971	0.750	R432	R532	R632	S128 S138	LS Solid Roller
PAC-1334	1.300	0.900	0.630	255 @ 1.800	810 @ 1.050	740	0.973	0.750	R432	R532	R632	S128 S138	LS Solid Roller
PAC-1335	1.300	0.900	0.616	250 @ 1.800	860 @ 1.050	813	0.985	0.800	R432	R532	R632	S128 S138	High lift LS applications
PAC-1336	1.514	1.050	0.726	475 @ 2.200	1338 @ 1.200	863	1.161	1.000	R408	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1337	1.561	1.075	0.735	600 @ 2.300	1500 @ 1.300	900	1.230	1.000	R408	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1354	1.550	1.050	0.726	425 @ 2.300	1440 @ 1.300	1015	1.230	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	High rate for aggressive valvetrains and RPM
PAC-1355	1.500	1.050	0.726	420 @ 2.175	1200 @ 1.175	780	1.130	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1355H	1.500	1.050	0.726	440 @ 2.200	1220 @ 1.200	780	1.130	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1356	1.500	1.050	0.726	300 @ 2.100	1002 @ 1.200	780	1.130	0.900	R408	R508, R509, R544	R608, R609, R644	S110 S126	Comp and Super Stock engines
PAC-1357	1.500	1.050	0.726	375 @ 2.150	1116 @ 1.200	780	1.130	0.950	R408	R508, R509, R544	R608, R609, R644	S110 S126	Comp and Super Stock engines
PAC-1359	1.522	1.050	0.726	375 @ 2.200	1200 @ 1.300	895	1.190	0.900	NA	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1360	1.522	1.050	0.726	400 @ 2.250	1252 @ 1.300	895	1.190	0.950	NA	R508, R509, R544	R608, R609, R644	S110 S126	TAFC and Pro-Mod alcohol engines
PAC-1361	1.536	1.050	0.726	425 @ 2.300	1389 @ 1.300	964	1.215	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	High lift applications
PAC-1361H	1.536	1.050	0.726	491 @ 2.300	1455 @ 1.300	964	1.215	1.000	NA	R508, R509, R544	R608, R609, R644	S110 S126	A higher load version of 1361
PAC-1370	1.550	1.065	0.740	555 @ 2.350	1433 @ 1.300	836	1.230	1.050	NA	R547	NA	S110 S126	High lift applications

SPECIFICATIONS: SPRING LOADS AND HEIGHTS



1300 SERIES	PAC-1312	PAC-1312L	PAC-1321	PAC-1322	PAC-1323	PAC-1324	PAC-1328	PAC-1329	PAC-1330	PAC-1331	PAC-1332	PAC-1333	PAC-1334	PAC-1335	PAC-1336	PAC-1337	PAC-1354	PAC-1355	PAC-1355H	PAC-1356	PAC-1357	PAC-1359	PAC-1360	PAC-1361	PAC-1361H	PAC-1370	
Mass (g)	54	54	160	166	166	152	152	144	144	151	151	89	93	94	151	173	172	144	144	144	144	155	155	162	163	169	
Outer Freq	37229	37233	33105	34042	31858	28793	28793	30568	30568	32885	32885	35938	40679	40679	32885	30571	35502	30568	30568	30568	30568	33120	33120	34042	34042	31094	
Inner Freq	42789	42792	38081	38082	33561	27275	27275	35649	35649	35649	35649	44180	38918	44180	35649	33012	31490	35649	35649	35649	35649	35649	35649	35649	35649	35649	28509
Coil Bind	0.850	0.850	1.192	1.215	1.200	1.100	1.100	1.130	1.130	1.150	1.150	0.971	0.973	0.990	1.161	1.230	1.230	1.130	1.130	1.130	1.130	1.190	1.190	1.215	1.220	1.230	
2.900					22											64										95	
2.850					56											105	4		8							26	137
2.800				17	103										12	150	17		32						9	59	179
2.750			8	50	150					2					40	195	31	24	56					7	42	92	221
2.700			37	83	197					30					68	240	44	48	80		11		37	75	125	262	
2.650			67	117	244					59					97	285	70	72	104		35	53	66	109	159	304	
2.600			97	150	290					87					130	330	120	96	128		59	78	96	142	202	346	
2.550			127	183	337		2	19		123	13				173	375	171	127	167	14	83	107	133	184	250	388	
2.500			158	218	384		28	43		166	42				216	420	222	166	206	38	107	142	178	232	298	430	
2.450			206	270	431		60	77		209	70				259	465	273	205	245	62	141	180	223	280	346	471	
2.400			255	322	478	23	91	116	22	252	98				302	510	323	244	284	86	180	219	268	329	395	513	
2.350			303	373	525	55	123	155	46	296	134				346	555	374	283	323	110	219	258	312	377	443	555	
2.300			352	425	572	86	154	194	80	339	177				389	600	425	322	362	144	258	298	357	425	491	597	
2.250			400	477	619	118	186	233	119	382	220				432	645	476	361	401	183	297	338	402	473	539	639	
2.200			448	529	666	149	217	272	158	425	264	18			475	690	526	400	440	222	336	378	447	521	587	680	
2.150	5		497	581	713	181	249	311	197	468	307	37	3		518	735	577	439	479	261	375	418	491	570	636	722	
2.100	16		545	633	760	212	280	350	236	511	350	56	33	19	561	780	628	478	518	300	414	459	536	618	684	764	
2.050	27		594	685	806	244	311	389	275	554	393	77	70	47	604	825	679	517	557	339	453	499	581	666	732	806	
2.000	39		642	737	853	275	343	428	314	598	436	110	107	87	648	870	729	556	596	378	492	541	626	714	780	848	
1.950	50		691	788	900	306	374	467	353	641	479	144	144	128	691	915	780	595	635	417	531	582	670	762	828	889	
1.900	70		739	840	947	338	406	506	392	684	523	178	181	169	734	960	831	634	674	456	570	624	715	811	877	931	
1.850	90	7	787	892	994	369	437	545	431	727	566	211	218	209	777	1005	882	673	713	495	609	666	760	859	925	973	
1.800	110	18	836	944	1041	401	469	584	470	770	609	245	255	250	820	1050	932	712	752	534	648	708	805	907	973	1015	
1.750	130	30	884	996	1088	432	500	623	509	813	652	279	292	291	863	1095	983	751	791	573	687	751	849	955	1021	1057	
1.700	150	50	933	1048	1135	464	532	662	548	856	695	312	329	331	906	1140	1034	790	830	612	726	795	894	1003	1069	1099	
1.650	170	70	981	1100	1182	495	563	701	587	900	738	346	366	372	950	1185	1085	829	869	651	765	838	939	1052	1118	1140	
1.600	190	90	1029	1152	1229	527	595	740	626	943	782	380	403	413	993	1230	1136	868	908	690	804	884	984	1100	1166	1182	
1.550	210	110	1078	1204	1275	558	626	779	665	986	825	413	440	453	1036	1275	1186	907	947	729	843	932	1028	1148	1214	1224	
1.500	230	130	1126	1255	1322	590	658	818	704	1029	868	447	477	494	1079	1320	1237	946	986	768	882	982	1073	1196	1262	1266	
1.450	250	150	1175	1307	1369	621	689	857	743	1072	911	481	514	535	1122	1365	1288	985	1025	807	921	1034	1118	1244	1310	1308	
1.400	270	170	1223	1359	1416	653	721	896	782	1115	954	514	551	575	1165	1410	1339	1025	1064	846	960	1088	1163	1293	1359	1349	
1.350	290	190	1272	1411	1463	684	752	935	821	1159	997	548	588	616	1209	1455	1389	1064	1103	885	999	1145	1207	1341	1407	1391	
1.300	310	210	1320	1463	1510	716	784	974	860	1202	1041	582	625	657	1252	1500	1440	1103	1142	924	1038	1204	1252	1389	1455	1433	
1.250	330	230	1368	1515	1557	747	815	1013	899	1245	1084	615	662	697	1295	1545	1491	1142	1181	963	1077	1264	1297	1437	1503	1475	
1.200	350	250	1417	1567	1604	779	846	1052	938	1288	1127	649	699	738	1338			1181	1220	1002	1116	1329	1342				
1.150	370	270				810	878	1091	977	1331	1170	683	736	779	1381			1220	1259	1041	1155						
1.100	390	290				841	909					716	773	819													
1.050	410	310										750	810	860													
1.000	430	330										784	847	901													
0.950	450	350																									
0.900	470	370																									
0.850	490	390																									

Drag Race Triple Springs

1300 SERIES

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



PAC-1351

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)				PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1347	1.645	1.195	0.871	0.635	290 @ 2.070	835 @ 1.270	682	1.130	0.800	R401, R402	R501, R502	R601, R602	S109, S133	Bracket racing applications
PAC-1348	1.645	1.195	0.871	0.635	332 @ 2.100	950 @ 1.200	687	1.130	0.900	R401, R402	R501, R502	R601, R602	S109, S133	Bracket racing applications
PAC-1349	1.645	1.195	0.871	0.635	385 @ 2.200	1064 @ 1.200	689	1.130	1.000	R401, R402	R501, R502	R601, R602	S109, S133	Bracket racing applications
PAC-1350	1.645	1.195	0.871	0.635	440 @ 2.200	1129 @ 1.200	689	1.130	1.000	R401, R402	R501, R502	R601, R602	S109, S133	Pro Stock and Top Fuel applications
PAC-1351	1.667	1.195	0.871	0.635	450 @ 2.300	1240 @ 1.250	752	1.160	1.050	R401, R402	R501, R502	R601, R602	S109, S133	Pro Stock and Top Fuel applications
PAC-1351H	1.667	1.195	0.871	0.635	525 @ 2.300	1315 @ 1.250	752	1.160	1.050	R401, R402	R501, R502	R601, R602	S109, S133	High load version of PAC-1351
PAC-1351L	1.667	1.195	0.871	0.635	412 @ 2.300	732 @ 1.250	752	1.160	1.050	R401, R402	R501, R502	R601, R602	S109, S133	Low load version of PAC-1351
PAC-1352	1.681	1.195	0.871	0.635	480 @ 2.300	1315 @ 1.250	795	1.190	1.050	R401, R402	R501, R502	R601, R602	S109, S133	Pro Stock and Top Fuel applications
PAC-1353	1.695	1.195	0.871	0.635	500 @ 2.300	1500 @ 1.200	900	1.140	1.100	R401, R402	R501, R502	R601, R602	S109, S133	Pro Stock and Mountain Motor applications
PAC-1358	1.645	1.195	0.871	0.635	350 @ 2.150	1004 @ 1.200	688	1.130	0.950	R401, R402	R501, R502	R601, R602	S109, S133	Bracket racing applications
PAC-1364	1.681	1.195	0.871	0.635	525 @ 2.300	1365 @ 1.300	840	1.115	1.100	R401, R402	R501, R502	R601, R602	S109, S133	Pro Stock and Mountain Motor applications
PAC-1364L	1.681	1.195	0.871	0.635	500 @ 2.200	1256 @ 1.300	840	1.115	1.050	R401, R402	R501, R502	R601, R602	S109, S133	Low load version of 1364
PAC-1364M	1.681	1.195	0.871	0.635	600 @ 2.150	1399 @ 1.200	841	1.115	0.950	R401, R402	R501, R502	R601, R602	S109, S133	Mid load version of PAC-1364
PAC-1366	1.710	1.210	0.871	0.635	380 @ 2.550	1545 @ 1.250	896	1.146	1.300	NA	R503, R565	NA	S109, S133	Pro Stock and Mountain Motor applications
PAC-1366L	1.710	1.210	0.870	0.634	480 @ 2.350	1465 @ 1.250	896	1.146	1.100	NA	R503, R565	NA	S109, S133	Low load version of PAC-1366
PAC-1379	1.659	1.195	0.871	0.635	400 @ 2.200	1150 @ 1.200	750	1.100	1.000	R401, R402	R501, R502	R601, R602	S109, S133	High lift bracket racing applications
PAC-1379H	1.659	1.195	0.871	0.635	450 @ 2.200	1200 @ 1.200	750	1.100	1.000	R401, R402	R501, R502	R601, R602	S109, S133	High load version of PAC-1379
PAC-1379L	1.659	1.195	0.871	0.635	375 @ 2.150	1088 @ 1.200	750	1.100	0.950	R401, R402	R501, R502	R601, R602	S109, S133	Low load version of PAC-1379

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Drag Race

	PAC-1347	PAC-1348	PAC-1349	PAC-1350	PAC-1351	PAC-1351H	PAC-1351L	PAC-1352	PAC-1353	PAC-1358	PAC-1364	PAC-1364L	PAC-1364M	PAC-1366	PAC-1366L	PAC-1379	PAC-1379H	PAC-1379L
Mass (g)	183	183	183	183	196	196	196	205	205	183	189	189	189	207	207	187	187	187
Outer Freq	27188	27188	27188	27188	28610	28610	28616	28780	32070	27188	29649	29649	29649	29198	29190	28997	28997	28997
Middle Freq	26867	26867	26867	26867	26867	26867	26870	26867	26867	26867	28327	28327	28327	27783	27809	26945	26945	26945
Inner Freq	28392	28392	28392	28392	28392	28392	27196	28392	28392	28392	29985	29985	29985	30246	30064	28421	28421	28421
Coil Bind	1.130	1.130	1.130	1.130	1.160	1.160	1.160	1.190	1.140	1.130	1.100	1.100	1.100	1.150	1.146	1.100	1.100	1.100
3.100							16											
3.050							26							5				
3.000					5	35		5	5		2			16				
2.950					14	44		14	14		12			28				
2.900					26	74		26	26		23			66	10			
2.850				3	40	111	9	43	40		63	2	12	111	32		3	
2.800				27	74	149	36	82	55		105	12	53	156	77		13	
2.750			11	61	111	186	74	122	95		147	37	95	201	122	8	38	
2.700			41	96	149	224	112	162	140	3	189	79	137	246	167	25	75	3
2.650			75	130	187	262	149	202	185	13	231	122	179	290	211	63	113	13
2.600		8	109	164	224	299	187	241	230	40	273	164	222	335	256	100	150	37
2.550	0	23	144	199	262	337	224	281	275	75	315	206	264	380	301	138	188	75
2.500	11	57	178	233	300	375	262	321	320	109	357	248	306	425	346	175	225	112
2.450	31	92	213	268	337	412	300	361	365	144	399	290	348	470	390	213	263	150
2.400	65	126	247	302	375	450	337	401	410	178	441	332	390	514	435	250	300	187
2.350	99	160	282	337	412	487	375	440	455	212	483	374	432	559	480	288	338	225
2.300	133	195	316	371	450	525	412	480	500	247	525	416	474	604	525	325	375	262
2.250	167	229	351	406	488	563	450	520	545	281	567	458	516	649	570	363	413	300
2.200	201	263	385	440	525	600	488	560	590	316	609	500	558	694	614	400	450	338
2.150	236	298	419	475	563	638	525	599	635	350	651	542	600	738	659	438	488	375
2.100	270	332	454	509	601	676	563	639	680	384	693	584	642	783	704	475	525	413
2.050	304	366	488	543	638	713	600	679	725	419	735	626	684	828	749	513	563	450
2.000	338	401	523	578	676	751	638	719	770	453	777	668	726	873	793	550	600	488
1.950	372	435	557	612	713	788	676	758	815	488	819	710	768	918	838	588	638	525
1.900	406	469	592	647	751	826	713	798	860	522	861	752	810	962	883	625	675	563
1.850	440	504	626	681	789	864	751	838	905	557	903	794	852	1007	928	663	713	600
1.800	474	538	661	716	826	901	788	878	950	591	945	836	894	1052	972	700	750	638
1.750	508	572	695	750	864	939	826	917	995	625	987	878	936	1097	1017	738	788	675
1.700	542	607	730	785	901	976	864	957	1040	660	1029	920	978	1142	1062	775	825	713
1.650	576	641	764	819	939	1014	901	997	1085	694	1071	963	1021	1187	1107	813	863	750
1.600	610	675	798	853	977	1052	939	1037	1130	729	1113	1005	1063	1231	1152	850	900	788
1.550	644	710	833	888	1014	1089	976	1076	1175	763	1155	1047	1105	1276	1196	888	938	825
1.500	678	744	867	922	1052	1127	1014	1116	1220	798	1197	1089	1147	1321	1241	925	975	863
1.450	712	778	902	957	1090	1165	1052	1156	1265	832	1239	1131	1189	1366	1286	963	1013	900
1.400	746	813	936	991	1127	1202	1089	1196	1310	866	1281	1173	1231	1411	1331	1000	1050	938
1.350	781	847	971	1026	1165	1240	1127	1236	1355	901	1323	1215	1273	1455	1375	1038	1088	975
1.300	815	881	1005	1060	1202	1277	1164	1275	1400	935	1365	1257	1315	1500	1420	1075	1125	1013
1.250	849	916	1040	1095	1240	1315	1202	1315	1445	970	1407	1299	1357	1545		1113	1163	1051
1.200	883	950	1074	1129	1278	1353	1240	1355	1490	1004	1449	1341	1399	1590		1150	1200	1088
1.150	917	984	1108	1164		1390	1277		1535	1038	1491	1383	1441	1635		1188	1238	1126
1.100											1533	1450	567			1225	1275	1163

Circle Track Endurance 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	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 300 Series Retainers	PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1200	1.244	0.860	0.770	125 @ 1.750	350 @ 1.250	450	1.090	0.550	R349	NA	NA	R649	NA	Fits stock pocket without machining
PAC-1201	1.260	0.860	0.770	140 @ 1.750	437 @ 1.200	540	1.115	0.550	R349	NA	NA	R649	NA	Fits stock SBC pocket without machining. High Rate for aggressive cam.
PAC-1201X	1.260	0.860	0.770	150 @ 1.750	460 @ 1.200	540	1.115	0.550	R349	NA	NA	R649	NA	Extreme use & endurance over traditional PAC-1201
PAC-1202	1.244	0.860	0.624	160 @ 1.750	484 @ 1.150	540	1.100	0.575	R334	NA	NA	NA	S128 S138	Aggressive cam applications
PAC-1203	1.260	0.860	0.624	145 @ 1.800	511 @ 1.200	610	1.115	0.650	R334	NA	NA	NA	S128 S138	Aggressive cam applications
PAC-1227	1.539	1.125	0.731	200 @ 1.950	550 @ 1.250	500	1.110	0.700	R315	NA	R515	R615	S117 S118	General endurance spring for high lift flat tappet applications.
PAC-1239	1.550	1.126	0.720	220 @ 2.050	625 @ 1.300	540	1.180	0.800	R315	NA	R515	R615	S110 S126	Roller cam applications
PAC-1243	1.550	1.136	0.812	240 @ 1.900	625 @ 1.200	550	1.150	0.700	NA	R436	R536	NA	S119 S120	Short installed height for high roller cams
PAC-1244	1.570	1.120	0.780	190 @ 1.950	710 @ 1.250	743	1.055	0.800	NA	NA	R551	NA	S103 S104	High rate and frequency for roller cam applications
PAC-1245	1.550	1.136	0.812	240 @ 2.000	608 @ 1.300	526	1.200	0.700	NA	NA	R536	NA	S119 S120	Roller cam applications
PAC-1294	1.545	1.131	0.757	175 @ 1.900	442 @ 1.275	428	1.185	0.625	R315	NA	R515	R615	S117 S118	Flat tappet applications
PAC-1297	1.539	1.125	0.731	200 @ 2.000	550 @ 1.300	500	1.110	0.700	R315	NA	R515	R615	S117 S118	General purpose spring for high lift, flat tappet applications



PAC-1201



PAC-1243



PAC-1297



SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part No.	PAC-1200	PAC-1201	PAC-1201X	PAC-1202	PAC-1203	PAC-1227	PAC-1239	PAC-1243	PAC-1244	PAC-1245	PAC-1294	PAC-1297
Mass (g)	76	82	82	90	96	148	162	140	142	152	155	148
Outer Freq	35516	36938	36938	35516	36938	25510	25566	27566	32630	26459	23344	25510
Inner Freq	NA	NA	NA	30832	30832	27259	27420	29978	32965	28489	24294	27259
Coil Bind	1.075	1.130	1.130	1.075	1.115	1.130	1.180	1.150	1.035	1.200	1.180	1.130
2.500							6			1		
2.450							22			17		
2.400							40			32		11
2.350						11	65	6		56		32
2.300						32	90	22		82	7	55
2.250						55	115	47		109	27	78
2.200						78	140	75	4	135	48	101
2.150						101	166	103	41	161	68	125
2.100						125	193	130	79	187	90	150
2.050				9	9	150	220	157	116	214	111	175
2.000	12	7	12	25	22	175	247	185	153	240	132	200
1.950	35	32	38	52	53	200	274	212	190	266	154	225
1.900	57	59	65	73	83	225	301	240	227	293	175	250
1.850	80	86	94	106	114	250	328	267	264	319	196	275
1.800	103	113	122	133	145	275	355	295	301	345	218	300
1.750	125	140	150	160	175	300	382	322	339	371	239	325
1.700	148	167	178	187	206	325	409	350	376	398	260	350
1.650	170	194	206	214	236	350	436	377	413	424	282	375
1.600	193	221	235	241	267	375	463	405	450	450	303	400
1.550	215	248	263	268	297	400	490	432	487	477	325	425
1.500	238	275	291	295	328	425	517	460	524	503	340	450
1.450	260	302	319	322	358	450	544	488	561	529	367	475
1.400	283	329	348	349	389	475	571	515	599	555	389	500
1.350	305	356	376	376	419	500	598	543	636	582	410	525
1.300	328	383	404	403	450	525	625	570	673	608	431	550
1.250	350	410	432	430	480	550	652	598	710	634	453	575
1.200	373	437	460	457	511	575	679	625	747	661	474	600
1.150	395	464	489	484	541	600		653	784			625
1.100	418	491	517	511	572				821			
1.050									859			

Circle Track Dual 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)	PAC 300 Series Retainers	PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers		PAC Spring Seats
PAC-1325	1.550	1.100	NA	0.788	250 @ 2.000	765 @ 1.200	644	1.150	0.800	NA	R405	R505, R556	NA	S103, S104	Asphalt solid roller
PAC-1326	1.550	1.100	Yes	0.706	275 @ 2.000	805 @ 1.200	663	1.150	0.800	NA	NA	R506, R541	R606, R641, R661	S105, S106, S139X	For dirt Sprint Cars
PAC-1326H	1.550	1.100	Yes	0.706	300 @ 2.000	828 @ 1.200	663	1.150	0.800	NA	NA	R506, R541	R606, R641, R661	S105, S106, S139X	High load version of PAC-1326
PAC-1327	1.564	1.100	Yes	0.706	275 @ 2.000	853 @ 1.200	723	1.137	0.800	NA	NA	R506, R541	R606, R641, R661	S105, S106, S139X	Roller cam applications
PAC-1340	1.500	1.085	NA	0.790	250 @ 2.030	614 @ 1.250	467	1.195	0.780	NA	NA	R540	NA	S103, S104	Roller cam applications
PAC-1341	1.575	1.125	Yes	0.720	270 @ 2.050	766 @ 1.250	620	1.170	0.800	R315	NA	R515, R557	R615, R658	S110, S127	Sprint Cars and late model endurance applications
PAC-1342	1.574	1.150	NA	0.826	250 @ 2.050	655 @ 1.250	506	1.190	0.800	NA	NA	R537, R538	NA	S130, S131	Roller cam applications
PAC-1343	1.550	1.136	NA	0.812	240 @ 1.900	625 @ 1.200	550	1.070	0.700	NA	R436	R536	NA	S119, S120	Short installed height for high roller cams
PAC-1344	1.570	1.120	NA	0.780	190 @ 1.950	710 @ 1.250	743	1.055	0.800	NA	NA	R551	R651	S103, S104	Roller cam applications
PAC-1371	1.374	1.000	NA	0.716	150 @ 1.950	455 @ 1.250	436	1.175	0.700	R317, R348	NA	R517, R552	NA	S114, S115	Flat tappet applications with low mass, high frequency for high RPM engines.
PAC-1372	1.449	1.025	NA	0.713	250 @ 2.000	850 @ 1.150	706	1.103	0.850	NA	NA	R572	R672	S114, S115	Roller cam applications
PAC-1373	1.430	1.002	NA	0.688	250 @ 2.100	855 @ 1.200	670	1.152	0.900	NA	NA	NA	R659	S137X	Small diameter endurance spring. MUST USE SPECIAL RETAINER.
PAC-1385	1.564	1.150	Yes	0.744	250 @ 2.000	670 @ 1.200	525	1.145	0.800	NA	NA	R514, R519	R614, R619	S117, S118	High lift applications
PAC-1386	1.564	1.150	NA	0.826	245 @ 2.000	655 @ 1.200	513	1.140	0.800	NA	NA	R537, R538	NA	S130, S131	High lift roller applications
PAC-1392	1.314	0.900	NA	0.616	185 @ 2.060	730 @ 1.260	681	1.196	0.800	NA	NA	R558	R668	S154	Sprint cars under 8,500 RPM
PAC-1393	1.536	1.100	Yes	0.694	250 @ 2.000	773 @ 1.200	654	1.154	0.800	NA	NA	R506, R541	R606, R641, R661	S105, S106	Roller cam applications
PAC-1394	1.510	1.086	NA	0.762	180 @ 1.980	685 @ 1.180	631	1.105	0.800	NA	NA	R553	R668	S117, S118	Roller cam applications
PAC-1395	1.574	1.150	Yes	0.744	265 @ 2.000	705 @ 1.200	550	1.150	0.800	NA	NA	R514, R519	R614, R619	S117, S118	High lift roller applications
PAC-1396	1.574	1.150	NA	0.826	260 @ 2.000	690 @ 1.200	538	1.150	0.800	NA	NA	R537	NA	S130, S131	High lift roller applications

SPECIFICATIONS: SPRING LOADS AND HEIGHTS



Part No.	PAC-1325	PAC-1326	PAC-1326H	PAC-1327	PAC-1340	PAC-1341	PAC-1342	PAC-1343	PAC-1344	PAC-1371	PAC-1372	PAC-1373	PAC-1385	PAC-1386	PAC-1392	PAC-1393	PAC-1394	PAC-1395	PAC-1396
Mass (g)	151	158	159	164	142	170	157	140	142	119	130	136	156	149	117	154	139	159	152
Outer Freq	29368	29368	29368	30723	25500	26129	24906	27566	32630	27294	33021	30043	26113	26113	32841	28047	28580	26431	26431
Inner Freq	28294	28434	28434	28434	26412	27420	26443	29978	32965	29226	33706	32323	28374	28095	32947	32325	32458	28374	28095
Coil Bind	1.150	1.150	1.150	1.137	1.180	1.150	1.190	1.150	1.035	1.190	1.103	1.160	1.140	1.150	1.196	1.154	1.105	1.150	1.150
2.550					7		7												
2.500			1		31		22						10	10				12	12
2.450		4	9	4	54	40	47					20	25	25		1		29	29
2.400	5	15	40	13	77	67	73					49	42	40		20		47	45
2.350	25	46	71	24	101	98	98	6			14	82	67	66		39		73	72
2.300	57	76	101	57	124	128	123	22		7	38	116	92	91	21	59	2	100	99
2.250	89	109	134	94	147	158	149	47		21	74	149	119	117	56	86	20	127	126
2.200	121	142	167	130	171	189	174	75	4	41	109	183	145	142	90	119	41	155	152
2.150	153	176	201	166	194	219	199	103	41	63	144	216	171	168	124	152	73	182	179
2.100	186	209	234	202	217	250	225	130	79	85	179	250	197	194	158	184	104	210	206
2.050	218	242	267	239	241	280	250	157	116	106	215	283	224	219	192	217	136	237	233
2.000	250	275	300	275	264	310	275	185	153	128	250	317	250	245	226	250	167	265	260
1.950	282	308	333	311	287	341	301	212	190	150	285	350	276	271	260	283	199	292	287
1.900	314	341	366	347	311	371	326	240	227	172	321	384	302	296	294	316	230	320	314
1.850	347	374	399	384	334	401	351	267	264	194	356	417	329	322	328	348	262	347	341
1.800	379	407	432	420	357	432	377	295	301	215	391	451	355	347	362	381	294	375	367
1.750	411	441	466	456	381	462	402	322	339	237	426	484	381	373	396	414	325	402	394
1.700	443	474	499	492	404	493	427	350	376	259	462	518	407	399	430	447	357	430	421
1.650	475	507	532	529	427	523	452	377	413	281	497	551	434	424	464	480	388	457	448
1.600	507	540	565	565	451	553	478	405	450	303	532	585	460	450	498	512	420	485	475
1.550	540	573	598	601	474	584	503	432	487	324	568	618	486	476	532	545	451	512	502
1.500	572	606	631	637	497	614	528	460	524	346	603	652	512	501	566	578	483	540	525
1.450	604	639	664	674	521	644	554	488	561	368	638	685	539	527	601	611	515	567	556
1.400	636	672	697	710	544	675	579	515	599	390	674	719	565	552	635	644	546	595	582
1.350	668	706	731	746	567	705	604	543	636	411	709	752	591	578	669	677	578	622	609
1.300	701	739	764	782	591	736	630	570	673	433	744	786	617	604	703	709	609	650	636
1.250	733	772	797	819	614	766	655	598	710	455	779	819	644	629	737	742	641	677	663
1.200	765	805	830	855	637	796	680	625	747	477	815	853	670	655	771	775	672	705	690
1.150	797	838	863					653	784		850	887	696	681			704	732	717
1.100									821		885								
1.050									859										

Circle Track Endurance Springs

1500 SERIES

The 1500 Series springs are nitrided 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	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1529	1.284	0.900	0.630	180 @ 1.900	600 @ 1.150	560	1.090	0.750	R432	R532	R632	S128, S138	LS high performance, high endurance circle track spring with high frequency for high RPM
PAC-1530	1.284	0.900	0.616	160 @ 2.000	580 @ 1.250	560	1.180	0.750	R432	R532	R632	S128, S138	LS high performance, high endurance circle track spring with high frequency for high RPM
PAC-1541	1.510	1.086	0.790	240 @ 2.030	625 @ 1.250	494	1.175	0.780	NA	R540	NA	S103, S104	High endurance nitrided spring for high lift, aggressive applications
PAC-1561	1.514	1.100	0.804	250 @ 2.000	636 @ 1.200	483	1.155	0.800	R405	R505	NA	S119, S120	High endurance nitrided spring for high lift, aggressive applications
PAC-1575	1.409	0.995	0.699	150 @ 2.000	645 @ 1.150	582	1.100	0.850	NA	R552	NA	S114, S115	High endurance nitrided spring for high lift, aggressive applications
PAC-1590	1.474	1.050	0.754	250 @ 2.050	670 @ 1.250	525	1.190	0.800	NA	R508, R509, R544	R608, R609, R644	S110, S126	High endurance nitrided spring for high lift, aggressive applications

Specialty & Class Specific Springs

Part Number	Spring Diameters			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	OD Outer (in)	ID Outer (in)	ID Inner (in)	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 300 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers	PAC Spring Seats	
PAC-1210X	1.245	0.891	NA	87 @ 1.700	212 @ 1.270	290	1.150	0.430	NA	NA	NA	NA	GM 602 crate motor "cheater" spring. Meets specs with more RPM and endurance.
PAC-1212X	1.355	0.910	NA	125 @ 1.750	315 @ 1.250	380	1.180	0.550	NA	NA	NA	NA	GM 604 crate motor "cheater" spring. Meets specs with more RPM and endurance.
PAC-1216	1.260	0.906	0.876	115 @ 1.800	350 @ 1.300	470	1.048	0.500	NA	NA	NA	NA	Race saver "cheater" spring. Matches dimensions with longer fatigue life.
PAC-1280X	1.077 / 1.282	0.655 / 0.860	NA	92 @ 1.800	285 @ 1.300	386	1.181	0.500	NA	NA	NA	NA	GM 604 crate motor "Blue Beehive" spring. Meets specs with more RPM and endurance.
*PAC-1409X	1.055 / 1.250	0.650 / 0.845	NA	175 @ 1.800	425 @ 1.250	436	1.115	0.550	R333	NA	R633	NA	Stock Eliminator and Drag Racing applications only
*PAC-1413X	0.999 / 1.083	0.636 / 0.720	NA	120 @ 1.715	280 @ 1.290	377	1.219	0.425	NA	NA	NA	NA	Ford 5.4L GT500 and Cobra Jet high lift intake spring.
*PAC-1414X	0.999 / 1.083	0.636 / 0.720	NA	120 @ 1.575	280 @ 1.150	377	1.075	0.425	NA	NA	NA	NA	Ford 5.4L GT500 and Cobra Jet high lift exhaust spring.
*PAC-1427	1.104 / 1.454	0.650 / 1.000	NA	200 @ 1.850	500 @ 1.250	500	1.185	0.625	R310 R333	R510	R643	S112 S113	Big block stock eliminator applications. Variable rates for aggressive camshafts.

*These springs are very highly stressed. Not designed for street use.



PAC-1210X



PAC-1280X



PAC-1212X



PAC-1427

SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part No.	CIRCLE TRACK						SPECIALTY & CLASS SPECIFIC								
	PAC-1529	PAC-1530	PAC-1541	PAC-1561	PAC-1575	PAC-1590	PAC-1210X	PAC-1212X	PAC-1216	PAC-1280X	PAC-1409X	PAC-1413X	PAC-1414X	PAC-1427	
Mass (g)	99	111	143	141	125	141	65	100	74	70	60	53	47	80	
Outer Freq	32185	29735	26332	26618	29026	28458	31555	30844	35885	34702	40554	44470	44470	35022	
Inner Freq	34200	32947	25326	27568	30604	26721	NA	NA	NA	NA	NA	NA	NA	NA	
Coil Bind	1.085	1.180	1.175	1.160	1.100	1.195	1.150	1.180	1.048	1.181	1.115	1.219	1.075	1.190	
2.500				11		15									
2.450			33	33		40									
2.400			57	57		66									
2.350			82	81		92									
2.300		5	107	105		119									
2.250		22	131	129	11	145									
2.200	15	44	156	153	34	171								25	
2.150	40	72	181	178	63	197					16			50	
2.100	68	100	205	202	92	224					39			75	
2.050	96	128	230	226	121	250		11	2		61			100	
2.000	124	156	255	250	150	276		30	24	15	84	13		125	
1.950	152	184	279	274	179	302	14	49	45	34	107	32		150	
1.900	180	211	304	298	208	329	29	68	69	53	130	50		175	
1.850	208	239	329	322	237	355	43	87	93	73	152	69	16	200	
1.800	236	267	354	346	266	381	58	106	117	92	175	88	35	225	
1.750	264	295	378	371	296	407	72	125	141	111	198	107	54	250	
1.700	292	323	403	395	325	434	87	144	165	131	220	126	73	275	
1.650	320	351	428	419	354	460	102	163	189	150	243	144	92	300	
1.600	348	379	452	443	383	486	116	182	213	169	266	163	111	325	
1.550	376	407	477	467	412	512	131	201	238	189	289	182	129	350	
1.500	404	434	502	491	441	539	145	220	262	208	311	201	148	375	
1.450	432	462	526	515	470	565	160	239	286	227	334	220	167	400	
1.400	460	490	551	539	499	591	174	258	310	246	357	239	186	425	
1.350	488	518	576	564	529	617	189	277	334	266	380	257	205	450	
1.300	516	546	600	588	558	644	203	296	358	285	402	276	224	475	
1.250	544	574	625	612	616	670	218	315	382	304	425	295	242	500	
1.200	572	602	650	636	645	696	232	334	406	324	447	314	261	525	
1.150	600			660	674		247		430		470		280		
1.100	628								454				299		
1.050													318		

RPM Series

The RPM Series product line combines all of the latest enhancements from circle track and drag racing developments for optimal and reliable street performance.

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)	PAC 300 Series Retainers	PAC 400 Series Retainers	PAC 500 Series Retainers	PAC 600 Series Retainers		PAC Spring Seats
PAC-1204X	1.290	0.950	NA	0.694	145 @ 1.800	385 @ 1.150	369	1.000	0.700	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1205X	1.304	0.950	NA	0.694	155 @ 1.800	410 @ 1.150	392	1.000	0.700	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1206X	1.290	0.950	NA	0.680	145 @ 1.800	411 @ 1.150	409	1.000	0.700	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1207X	1.304	0.950	NA	0.680	155 @ 1.800	436 @ 1.150	433	1.000	0.700	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1208X	1.324	0.950	NA	0.694	160 @ 1.800	482 @ 1.100	460	1.000	0.750	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1209X	1.324	0.950	NA	0.680	160 @ 1.800	510 @ 1.100	500	1.000	0.750	R335	R435, R450	R550	R635, R650	S129, S135, S136	LS Engine
PAC-1222X	1.280	0.925	NA	0.655	180 @ 1.800	480 @ 1.100	425	1.055	0.700	R355	R455	NA	R655	S121	LS spring for aftermarket heads.
PAC-1236X	1.310	0.925	NA	0.665	156 @ 1.800	495 @ 1.150	520	1.080	0.650	R355	R455	NA	R655	S121	LS spring for aftermarket heads
PAC-1237X	1.274	0.900	NA	0.630	200 @ 1.800	585 @ 1.100	550	1.045	0.700	NA	R432	R532	R632	S128, S138	LS spring for drag racing, street strip. High rate and high frequency.
PAC-1238X	1.274	0.900	NA	0.630	250 @ 1.800	700 @ 1.050	600	0.985	0.750	NA	R432	R532	R632	S128, S138	LS spring for drag racing, street strip. High rate and high frequency.

Beehive Single Springs

Part Number	Spring Diameters		Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components				Comments
	Large End OD Outer (in)	Small End ID Outer (in)	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 300 Series Retainers	PAC 400 Series Retainers	PAC 500 Series Retainers	PAC Spring Seats	
PAC-1211X	1.034 / 1.290	0.650 / 0.906	130 @ 1.800	370 @ 1.175	385	1.100	0.625	R310, R311, R363	NA	R510, R511	S111	LS Engine
PAC-1214X	1.071 / 0.708	0.999 / 0.636	120 @ 1.680	285 @ 1.080	275	1.013	0.600	NA	NA	NA	NA	Ford 4.6L 2V drop in design without machining. Fits stock retainers and seats. Higher load than a 1214 for performance use.
PAC-1217X	0.873 / 1.061	0.525 / 0.698	115 @ 1.600	300 @ 1.000	308	0.975	0.600	R331, R346	R464	NA	NA	Ford 5.0L Coyote drop in for more RPM and lift. Also works on other FMODs with R331 & R346, adding 0.060" installed height.
PAC-1218X	1.055 / 1.290	0.650 / 0.885	140 @ 1.800	328 @ 1.200	313	1.115	0.600	R310, R311, R363	NA	R510, R511	S111	Fits stock LS1 retainers and seats. Drop in design with more load than a 1218 for performance use.
PAC-1219X	1.072 / 1.307	0.650 / 0.885	145 @ 1.800	358 @ 1.175	340	1.115	0.625	R310, R311, R363	NA	R510, R511	S111	Fits stock LS1 retainers and seats. Drop in design with more load, rate, and frequency than a 1219 for performance use.
PAC-1220X	1.095 / 1.445	0.650 / 1.000	160 @ 1.900	400 @ 1.250	370	1.165	0.650	R310, R311, R363	NA	R510, R511	S112, S113	BBC spring for flat tappet and hydraulic roller applications with more load than a 1220 for performance use.
PAC-1223X	0.943 / 1.105	0.580 / 0.742	100 @ 1.470	262 @ 0.970	324	0.880	0.500	R312, R342	R442, R445	R512	NA	Ford 4.6L 4V drop in design without machining. Fits stock retainers and seats. Also fits V-Rod motorcycles. Higher load than a 1223 for performance use.
PAC-1230X	0.999 / 1.083	0.636 / 0.720	120 @ 1.715	280 @ 1.165	291	1.089	0.550	NA	NA	NA	NA	Ford 5.4L GT500 and Cobra Jet high lift intake spring. Fits stock retainers and seats.
PAC-1231X	0.999 / 1.083	0.636 / 0.720	120 @ 1.575	280 @ 1.025	291	0.952	0.550	NA	NA	NA	NA	Ford 5.4L GT500 and Cobra Jet high lift exhaust spring. Fits stock retainers and seats.
PAC-1232X	1.095 / 1.345	0.650 / 0.900	175 @ 2.050	450 @ 1.400	423	1.346	0.650	R310, R311, R374	NA	R510, R511	S111	Hemi 6.4L drop-in spring.
PAC-1234X	0.848 / 1.021	0.525 / 0.698	92 @ 1.575	218 @ 1.050	240	0.941	0.575	R364	R464	NA	NA	Ford 5.0L Coyote drop-in design.
PAC-1255X	1.186 / 1.445	0.731 / 0.990	175 @ 1.950	440 @ 1.300	408	1.220	0.700	R313	NA	R513	S112, S113	High performance spring for street and strip use
PAC-1281X	0.849 / 1.031	0.527 / 0.709	80 @ 1.811	215 @ 1.260	245	1.208	0.551	R364	R464	NA	NA	Ford Gen 3 Coyote 5.0L spring for more RPM and endurance
PAC-1295X	1.185 / 1.589	0.731 / 1.135	175 @ 2.000	410 @ 1.250	313	1.170	0.750	R313	NA	R513	S116	High performance version of 1295 with additional processing for street and strip use

Hot Rod Springs

Part Number	Spring Diameters (inches)			Spring Loads		Spring Rate	Max Coil Bind	Max Lift	PAC 300 Series Retainers	PAC Spring Seats	Comments	
	OD Outer	ID Outer	ID Inner	Installed Height (Valve Closed)	Open Load (Valve Open)							
Single Springs												
PAC-1900	1.500	1.086	0.996	98 @ 1.880	316 @ 1.300	376	1.100	0.600	R378	S112, S113	AMC and BBC applications	
PAC-1902	1.295 / 1.450	0.859 / 1.014	NA	120 @ 1.940	375 @ 1.380	455	1.316	0.575	R382	S103, S104	SBC beehive spring for hydraulic roller and flat tappet applications	
PAC-1921	1.460	1.060	0.970	109 @ 1.850	293 @ 1.250	307	1.145	0.600	R379	S112, S113	Hydraulic flat tappet applications	
PAC-1933	1.540	1.125	1.016	145 @ 1.900	320 @ 1.338	311	1.200	0.600	R377	S112, S113	Hydraulic flat tappet applications	
Dual Springs												
PAC-1901	1.540	1.140	0.754	145 @ 1.900	465 @ 1.250	492	1.130	0.650	R387	S110, S126	Big block hydraulic roller, marine, and solid flat tappet applications	
PAC-1903	1.459	1.075	0.794	120 @ 1.875	394 @ 1.175	391	1.060	0.700	R391	S103, S104	Ford, GM, and Mopar big block hydraulic roller, solid flat tappet racing applications	
PAC-1904	1.290	0.950	0.694	150 @ 1.800	400 @ 1.125	370	1.010	0.625	R335	S129, S135	LS Engine	
PAC-1905	1.304	0.950	0.694	160 @ 1.800	425 @ 1.125	392	1.020	0.650	R335	S129, S135	LS Engine	
PAC-1906	1.112	0.900	0.674	97 @ 1.516	256 @ 0.970	291	0.850	0.550	R392	S138	Buick V6 and Buick 350 applications	
PAC-1908	1.465	1.090	0.807	106 @ 1.688	306 @ 1.208	417	0.910	0.650	R389	S119, S120	6cyl AMC, Buick V8 and other short installed height applications	
PAC-1914	1.490	1.105	0.810	165 @ 1.800	385 @ 1.200	367	1.100	0.600	R388	S119, S120	Hydraulic flat tappet applications	
PAC-1916	1.538	1.140	0.752	157 @ 1.850	440 @ 1.200	436	1.135	0.650	R387	S117, S118	Hydraulic flat tappet applications	
PAC-1918	1.545	1.130	0.737	140 @ 1.800	457 @ 1.175	507	1.130	0.625	R387	S114, S115	Solid flat tappet and hydraulic roller applications	
PAC-1924	1.540	1.140	0.754	144 @ 1.900	403 @ 1.300	431	1.125	0.650	R387	S117, S118	Big block hydraulic roller applications	
PAC-1940	1.555	1.140	0.747	194 @ 1.950	500 @ 1.300	469	1.120	0.700	R387	S117, S118	Solid flat tappet and hydraulic roller applications	
PAC-1950	1.645	1.195	0.871	207 @ 2.050	671 @ 1.250	580	1.115	0.800	R383	S101, S102	Solid roller drag and circle track applications	



SPECIFICATIONS: SPRING LOADS AND HEIGHTS

Part Number	SINGLE				DUAL											
	PAC-1900	PAC-1902	PAC-1921	PAC-1933	PAC-1903	PAC-1904	PAC-1905	PAC-1906	PAC-1908	PAC-1912	PAC-1914	PAC-1916	PAC-1918	PAC-1924	PAC-1940	PAC-1950
Mass (g)	102	115	100	115	115	85	90	62	100	139	126	147	148	148	151	161
Outer Freq	29314	30033	25239	22821	25170	29975	29344	30144	28261	21473	22606	22984	26365	22871	24210	27484
Inner Freq	NA	NA	NA	NA	26835	30890	30890	31259	30642	21188	25219	27459	27945	26384	26361	26610
Coil Bind	1.115	1.316	1.145	1.200	1.050	1.010	1.020	0.850	0.910	1.200	1.075	1.090	1.130	1.125	1.150	1.130
2.200			1	60		8	8			34	18	21		23	82	120
2.150		24	17	73	12	21	23			50	37	34		36	103	149
2.100	15	47	32	87	32	39	42			66	55	48	8	58	125	178
2.050	34	70	47	100	51	58	62			83	73	70	23	79	147	207
2.000	53	93	63	114	71	76	82			100	92	92	42	101	171	236
1.950	72	115	78	129	91	95	101			116	110	113	65	122	194	265
1.900	90	138	94	145	110	113	121		18	133	128	135	89	144	217	294
1.850	109	161	109	161	130	132	140		39	150	147	157	115	166	241	323
1.800	128	184	124	176	149	150	160	14	59	166	165	179	140	187	264	352
1.750	147	207	140	192	169	168	180	29	80	183	183	201	165	209	288	381
1.700	166	229	155	207	189	187	199	43	101	200	202	222	191	230	311	410
1.650	184	252	171	223	208	205	219	58	122	216	220	244	216	252	335	439
1.600	203	275	186	238	228	224	238	73	143	233	238	266	241	274	358	468
1.550	222	298	201	254	247	242	258	87	164	250	257	288	267	295	382	497
1.500	241	320	217	270	267	261	278	102	184	266	275	310	292	317	405	526
1.450	260	343	232	285	286	279	297	116	205	283	293	331	318	338	429	555
1.400	278	366	247	301	306	298	317	131	226	300	312	353	343	360	452	584
1.350	297	389	263	316	326	316	337	145	247	316	330	375	368	381	476	613
1.300	316	411	278	332	345	335	356	160	268	333	348	397	394	403	499	642
1.250	335	434	294	347	365	353	376	174	289	350	367	419	419	425	522	671
1.200	354	457	309	363	384	372	395	189	309	366	385	441	444	446	546	700
1.150	372	480	324		404	390	415	204	330		403	462	470			729
1.100					423	409	435	218	351		422		495			
1.050					443	427	454	233	372							
1.000						446		247	393							
0.950								262	414							
0.900								276								
0.850								291								

Diesel Valve Springs

Part Number	Spring Diameters (inches)			Spring Loads				Spring Rate	Max Coil Bind	Max Lift	300 Series Retainers	Seats	Comments
	OD Outer	ID Outer	ID Inner	Installed Height (Valve Closed)		Open Load (Valve Open)							
PAC-D100	1.025	0.730	NA	105 @ 1.350	215 @ 0.900	250	0.825	0.450	R313	NA	Cummins 5.9/6.4L 24V		
PAC-D200	1.010	0.647	NA	120 @ 1.830	300 @ 1.265	320	1.190	0.565	R362	NA	Ford Powerstroke 6.0/6.4L		
PAC-D300	1.000	0.650	NA	100 @ 1.680	290 @ 1.080	320	0.990	0.600	R362	S121	GM Duramax 6.6L		

 New Products



SPECIFICATIONS: SPRING LOADS AND HEIGHTS

PART NO.	PAC-D100	PAC-D200	PAC-D300
Mass (g)	33	60	51
Freq (cpm)*	38522	35339	35037
Coil Bind	0.825	1.190	0.990
2.200		2	
2.150		18	
2.100		34	
2.050		50	
2.000		66	
1.950		82	15
1.900		98	30
1.850		114	46
1.800		130	62
1.750	2	145	78
1.700	15	161	94
1.650	28	177	110
1.600	40	193	125
1.550	53	209	141
1.500	65	225	157
1.450	78	241	173
1.400	90	257	189
1.350	103	273	205
1.300	115	289	220
1.250	128	305	236
1.200	140	321	252
1.150	153		268
1.100	165		284
1.050	178		300
1.000	190		315
0.950	203		
0.900	215		
0.850	228		

Diesel Spring Kits

Kit Number	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Valve Spring Included	Retainers Included	Seats Included	Locks Included	Seals Included	Comments
	Installed Height (Valve Closed)	Open Load (Valve Open)									
PAC-KS60	100 @ 1.680	290 @ 1.080	320	0.990	0.600	D300	Yes	Yes	Yes	Yes	GM Duramax Engine Kit, 6.6L
PAC-KS65	105 @ 1.350	215 @ 1.900	250	0.825	0.450	D100	Yes	NA	Yes	Yes	Cummins 24V Engine Kit, 5.9L
PAC-KS66	105 @ 1.350	215 @ 1.900	250	0.825	0.450	D100	Yes	NA	Yes	Yes	Cummins 24V Engine Kit, 6.1L
PAC-KS70	120 @ 1.830	300 @ 1.265	320	1.190	0.565	D200	Yes	NA	Yes	Yes	Ford Powerstroke Engine Kit, 6.0/6.4L

Ovate Beehive Springs

1200 Series

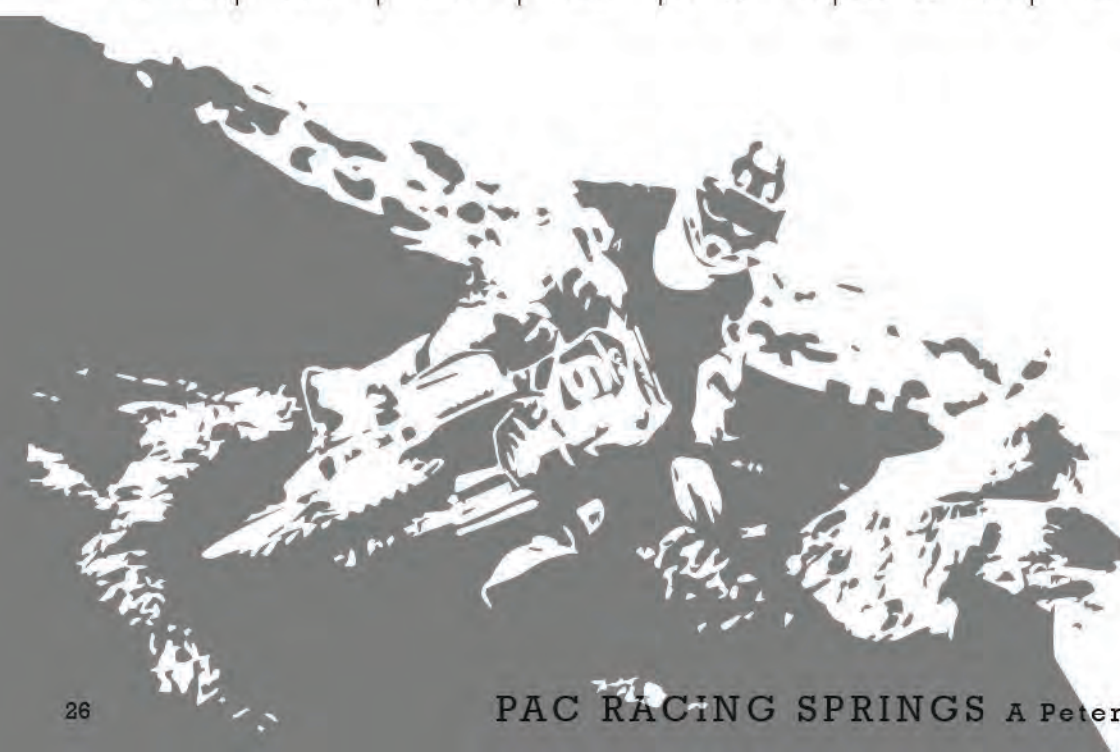
Part Number	Spring Diameters		Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Recommended Matching Components			Comments
	OD Outer (in) <i>Top / bottom</i>	ID Outer (in) <i>Top / bottom</i>	Installed Height (Valve Closed)	Open Load (Valve Open)				PAC 300 Series Retainers	PAC 400 Series Retainers	PAC Spring Seats	
PAC-1213	0.959 / 1.061	0.636 / 0.738	80 @ 1.640	185 @ 1.090	191	1.020	0.550	NA	NA	NA	Ford 4.6L 2V drop in design without machining. Fits stock retainers and seats.
PAC-1214	0.999 / 1.061	0.636 / 0.698	110 @ 1.640	265 @ 1.080	275	1.040	0.600	NA	NA	NA	Ford 4.6L 2V drop in design without machining. Fits stock retainers and seats.
PAC-1215	1.055 / 1.290	0.650 / 0.885	105 @ 1.800	293 @ 1.200	313	1.140	0.600	R310, R311, R363	NA	S111	Fits stock LS1 retainers and seats. Drop in design with more load.
PAC-1218	1.055 / 1.290	0.650 / 0.885	130 @ 1.800	318 @ 1.200	313	1.115	0.600	R310, R311, R363	NA	S111	Fits stock LS1 retainers and seats. Drop in design with more load.
PAC-1219	1.072 / 1.307	0.650 / 0.885	135 @ 1.800	348 @ 1.175	340	1.115	0.625	R310, R311, R363	NA	S111	Fits stock LS1 retainers and seats. Drop in design with more load, rate, and frequency for aggressive cams.
PAC-1220	1.095 / 1.445	0.650 / 1.000	155 @ 1.880	377 @ 1.280	370	1.210	0.600	R310, R311, R363	NA	S112, S113	BBC spring for flat tappet and hydraulic roller applications.
PAC-1223	0.943 / 1.105	0.580 / 0.742	90 @ 1.470	252 @ 0.970	324	0.880	0.500	R312, R342	R442, R445	NA	Ford 4.6L 4V drop in design without machining. Fits stock retainers and seats. Also fits V-Rod motorcycles.
PAC-1233	0.930 / 1.025	0.567 / 0.662	105 @ 1.670	270 @ 1.120	300	1.060	0.550	R312	NA	NA	Ford 4.6L 3V drop in design without machining. This spring requires PAC retainers.
PAC-1235	1.035 / 1.210	0.630 / 0.805	135 @ 1.800	350 @ 1.200	358	1.130	0.600	NA	NA	NA	Chrysler Hemi replacement for 03-07 5.7L, 05-10 6.1L. Requires OD damper replacement modifications.
PAC-1283	1.085 / 1.250	0.680 / 0.845	110 @ 1.750	328 @ 1.150	363	1.080	0.600	R310, R311, R363	NA	NA	Viper SRT-10 drop-in spring that fits stock retainers and seats.
PAC-1286	1.055 / 1.405	0.650 / 1.000	125 @ 1.750	295 @ 1.150	283	1.060	0.600	R310, R311, R363	NA	S112, S113	For many small block engines as well as a variety of hydraulic or flat tappet applications.

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
Mass (g)	45	52	75	75	67	97	45	51	73	73	78	90
Freq (cpm)*	26302	31946	29277	29277	31258	27047	38138	33317	31793	33960	29337	25501
Coil Bind	0.964	1.030	1.093	1.096	1.100	1.210	0.850	1.060	1.100	1.080	1.080	1.165
2.500												
2.450												9
2.400						15						25
2.350						28						40
2.300				4		41						56
2.250				15		54						72
2.200				22		67						87
2.150	2		14	40	16	80			10		12	103
2.100	8		27	53	33	92			28		26	119
2.050	16		40	66	50	105			45	1	40	134
2.000	23	12	53	79	67	118		6	63	19	54	150
1.950	30	26	66	92	84	132		21	81	37	68	166
1.900	38	40	79	105	101	147		36	99	56	83	181
1.850	46	53	92	118	118	161		51	117	74	97	197
1.800	54	67	106	131	135	176		66	135	92	111	213
1.750	63	81	119	145	152	191	8	81	153	110	125	228
1.700	72	95	132	158	169	208	22	96	171	128	139	244
1.650	81	108	145	172	186	224	36	111	189	146	153	260
1.600	90	122	159	187	203	241	51	126	207	165	168	275
1.550	99	136	174	202	220	259	66	141	225	183	182	291
1.500	108	150	189	218	237	278	80	156	243	201	196	307
1.450	117	163	206	234	254	298	95	171	260	219	210	322
1.400	126	177	222	251	271	318	110	186	278	237	224	338
1.350	135	191	239	267	288	339	125	201	296	255	238	354
1.300	144	205	257	283	305	361	140	216	314	274	253	369
1.250	153	218	275	300	322	384	155	231	332	292	267	385
1.200	163	232	294	318	339	415	172	246	350	310	281	401
1.150	173	246	313	337	356		188	261	368	328	295	416
1.100	184	260	456	354	373		206	276	386	346	309	
1.050	195	273					223					
1.000	208						241					
0.950							261					
0.900							281					

Motorcycle Singles & Duals

Part Number	OD Outer (in)	ID Outer (in)	ID Inner (in)	Installed Loads (lbs/in)	Open Loads (lbs/in)	Spring Rate (lb/in)	Max Bind (in)	Max Lift (in)	Comments
Single Springs									
PAC-MX108	0.756	0.560	NA	32 @ 1.060	75 @ 0.680	113	0.625	0.380	Yamaha 2003-2012 YZF450I, E Single Valve Spring
PAC-MX111	0.800	0.560	NA	35 @ 1.317	128 @ 0.920	234	0.835	0.397	Kawasaki 2004-2012 KXF250 Single Valve Spring
PAC-MX115	0.934	0.650	NA	52 @ 1.416	179 @ 1.031	339	0.960	0.385	Honda 2002-2012 CRF450E Single Valve Spring
PAC-MX116	0.934	0.650	NA	42 @ 1.337	170 @ 0.902	294	0.850	0.435	Honda 2002-2012 CRF450I Single Valve Spring
PAC-MX118	1.000	0.730	NA	37 @ 1.160	134 @ 0.760	243	0.741	0.400	Suzuki 2008-2012 RMZ450I Single Valve Spring
PAC-MX119	1.055	0.515	NA	85 @ 1.250	195 @ 0.850	275	0.780	0.400	Yamaha 2008-2012 Rhino 700 Single Beehive Valve Spring
PAC-MX126	0.856	0.600	NA	46 @ 1.370	143 @ 0.992	257	0.935	0.378	Yamaha 2008-2012 Hyabusa E Single Valve Spring
PAC-MX131	0.875	0.625	NA	52 @ 1.300	120 @ 1.000	227	0.830	0.300	KTM 2011-2012 250SXF-I,E Single Valve Spring
PAC-MX138	0.840	0.570	NA	42 @ 1.300	160 @ 0.950	337	0.858	0.350	Yamaha 2008-2014 R6-I,E Single Valve Spring
Dual Springs									
PAC-MX219	1.010	0.740	0.580	80 @ 1.250	181 @ 0.850	252	0.760	0.400	Kawasaki 2004-2012 Teryx 750 Dual Valve Spring
PAC-MX222	0.963	0.707	0.523	70 @ 1.400	200 @ 1.000	325	0.900	0.400	Suzuki 1999-2007 Hyabusa I Dual Valve Spring



Spring Kits



Kit Number	Spring Loads		Spring Rate	Max Coil Bind	Max Lift	Valve Spring Included	Retainers Included	Seats Included	Locks Included	Seals Included	Comments	
	Installed Height (Valve Closed)	Open Load (Valve Open)										
RPM Series - Dual Spring Kits												
PAC-KS23	145 @ 1.800	385 @ 1.150	369	1.000	0.700	1204X	R335	S129	L8113	Yes	LS Engine Kit	
PAC-KS24	155 @ 1.800	410 @ 1.150	392	1.000	0.700	1205X	R335	S129	L8113	Yes	LS Engine Kit	
PAC-KS25	145 @ 1.800	385 @ 1.150	369	1.000	0.700	1204X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS26	155 @ 1.800	410 @ 1.150	392	1.000	0.700	1205X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS31	145 @ 1.800	411 @ 1.150	409	1.000	0.700	1206X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS32	155 @ 1.800	436 @ 1.150	433	1.000	0.700	1207X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS33	160 @ 1.800	482 @ 1.100	460	1.000	0.750	1208X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS34	160 @ 1.800	510 @ 1.100	500	1.000	0.750	1209X	R435	S129	L8113	Yes	LS Engine Kit	
PAC-KS35	145 @ 1.800	411 @ 1.500	409	1.000	0.700	1206X	R435	S135	L8113	No	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides)	
PAC-KS36	155 @ 1.800	436 @ 1.500	433	1.000	0.700	1207X	R435	S135	L8113	No	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides)	
PAC-KS37	160 @ 1.800	482 @ 1.100	460	1.000	0.750	1208X	R435	S135	L8113	No	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides)	
PAC-KS38	160 @ 1.800	510 @ 1.100	500	1.000	0.750	1209X	R435	S135	L8113	No	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides)	
PAC-KS46	145 @ 1.800	385 @ 1.150	369	1.000	0.700	1204X	R435	S135	L8161	No	LS Engine Kit, Aftermarket Cylinder Heads for 5/16" valves (w/ Larger Valve Guides)	
PAC-KS50	180 @ 1.800	480 @ 1.100	425	1.055	0.700	1222X	R455	S141	L8161	No	LS Engine Kit, Aftermarket Cylinder Heads for 5/16" valves (w/ Larger Valve Guides)	
RPM Series - Beehive Spring Kits												
PAC-KS21	140 @ 1.800	328 @ 1.175	318	1.140	0.600	1218X	R311	S111	L8113	Yes	LS Engine Kit, PAC-1218X RPM Beehive Spring Kit w/ Chrome Moly Retainer	
PAC-KS22	145 @ 1.800	358 @ 1.200	340	1.100	0.625	1219X	R311	S111	L8113	Yes	LS Engine Kit, PAC-1219X RPM Beehive Spring Kit w/ Chrome Moly Retainer	
PAC-KS45	92 @ 1.575	218 @ 1.050	240	0.941	0.575	1234X	R464	NA	NA	No	RPM Series Ford Coyote Spring Kit. Uses factory seats and locks (not included)	
Hot Rod Series - Dual Spring Kits												
PAC-KS06	150 @ 1.800	400 @ 1.125	370	1.010	0.625	1904	R435	S135	L8113	Yes	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides) w/ Ti Retainers	
PAC-KS07	160 @ 1.800	425 @ 1.125	392	1.020	0.650	1905	R435	S135	L8113	Yes	LS Engine Kit, Aftermarket Cylinder Heads (w/ Larger Valve Guides) w/ Ti Retainers	
PAC-KS11	150 @ 1.800	400 @ 1.125	370	1.010	0.625	1904	R335	S129	OE	Yes	LS Engine Kit, Dual Spring w/ Chrome Moly Retainer	
PAC-KS12	160 @ 1.800	425 @ 1.125	392	1.020	0.650	1905	R335	S129	OE	Yes	LS Engine Kit, Dual Spring w/ Chrome Moly Retainer	
PAC-KS15	150 @ 1.800	400 @ 1.125	370	1.010	0.625	1904	R335	S129	L8113	Yes	LS Engine Kit, Dual Spring w/ Chrome Moly Retainer	
PAC-KS16	160 @ 1.800	425 @ 1.125	392	1.020	0.650	1905	R335	S129	L8113	Yes	LS Engine Kit, Dual Spring w/ Chrome Moly Retainer	
PAC-KS17	150 @ 1.800	400 @ 1.125	370	1.010	0.625	1904	R435	S129	L8113	Yes	LS Engine Kit, Dual Spring w/ Ti Retainers	
PAC-KS18	160 @ 1.800	425 @ 1.125	392	1.020	0.650	1905	R435	S129	L8113	Yes	LS Engine Kit, Dual Spring w/ Ti Retainers	
Hot Rod Series - Beehive Spring Kits												
PAC-KS04	155 @ 1.880	377 @ 1.280	370	1.210	.0600	1220	R362	S112	L8086	Yes	Harley Twin Cam EVO Kit - 3 groove locks with 7mm valve (4 pc set)	
PAC-KS05	155 @ 1.880	377 @ 1.280	370	1.210	.0600	1220	R363	S112	L8148	Yes	Harley Twin Cam - 5/16 Valve Square Groove (4 pc set)	
PAC-KS13	135 @ 1.800	348 @ 1.175	340	1.100	0.625	1219	R311	S111	L8113	Yes	LS Engine Kit, PAC-1219 Beehive Spring Kit w/ Chrome Moly Retainer	
PAC-KS14	130 @ 1.800	318 @ 1.200	313	1.140	0.600	1218	R311	S111	L8113	Yes	LS Engine Kit, PAC-1218 Beehive Spring Kit w/ Chrome Moly Retainer	

SPRING RETAINERS



300 Series Steel Retainers

Standard chrome moly steel retainers manufactured with precise CNC machinery and heat treated to withstand wear and abrasion. Available in beehive and dual spring versions for budget minded performance without sacrificing quality.



400 Series Titanium Retainers

Sportsman series titanium using aerospace grade 6AL4V titanium manufactured to exacting standards. Designed to have enhanced strength, while retaining a budget minded price.



500 Series Titanium Retainers

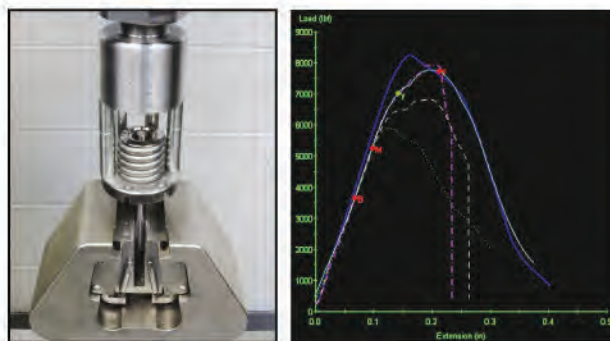
Pro grade ultra-high strength and lightweight 500 series retainers are optimized for thickness and strength using Ti-17 material. Stringent material certifications and ultimate strength testing ensure peak performance.



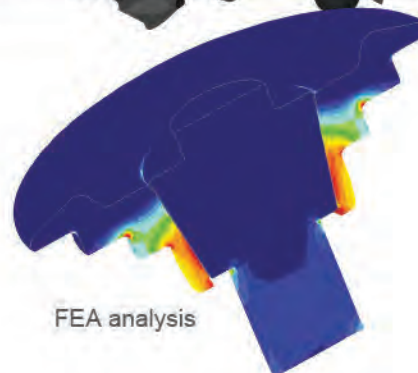
600 Series Tool Steel Retainers

Offer superior abrasion resistance using a proprietary alloy with metallurgic processing enhancements to improve fatigue strength while reducing weight. Retainers come with a reduced step and need to be combined with a matching seat where applicable.

Retainer Technology Research & Development



Retainer pull-through testing



FEA analysis

LOCKS



Valve Locks

We have standardized the spring retainer "cone style" to improve specifying the fitment into a matching PAC Racing retainer. Available in popular valve sizes with and without lash cap recess in titanium and steel. Custom versions available upon request.



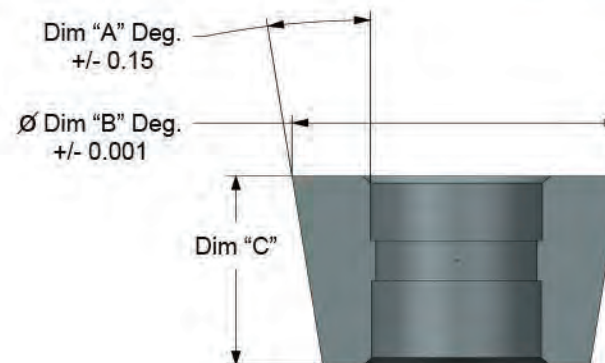
Valve Lock Standards

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
FMOD A	7.00°	0.4200	0.300
FMOD B	7.00°	0.3430	0.275



Seats & Shims

Available in standard, heat treated chrome moly steel and tool steel options (as an "X" suffix), various sizes are available to match valve guides and valve springs. Tool steel options have improved wear and durability characteristics over traditional spring seats.



300 SERIES Spring Retainers

These retainers are made from 4140 chrome moly steel. 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)	Comments
	Diameter A	Diameter B	Diameter C			
Beehive 300 Series						
PAC-R310	1.035	0.640	NA	STD 10	10.2	Fits 1211, 1215, 1218, 1219, 1220 and 1286
PAC-R311	1.035	0.640	NA	LS 7	10.4	Fits 1211, 1215, 1218, 1219, 1220 and 1286
PAC-R312	0.865	0.570	NA	FMOD A	7.7	Fits 1223 and 1233
PAC-R313	1.115	0.721	NA	STD 10	11.6	Fits 1255 and 1295
PAC-R331	0.800	0.500	NA	FMOD A	5.4	Fits 1217, 1234 and 1281
PAC-R333	0.875	0.640	NA	STD 7	6.3	Fits 1409 - for drag race use only
PAC-R342	0.865	0.580	NA	6	9.2	Fits v-rod (non destroyer)
PAC-R346	0.800	0.495	NA	FMOD A	5.5	+0.060 version of 331
PAC-R362	1.035	0.640	NA	FMOD A	12.8	Fits 1211, 1215, 1218, 1219, 1220 and 1286
PAC-R363	1.035	0.640	NA	STD 7	12.8	Fits 1211, 1215, 1218, 1219, 1220 and 1286
PAC-R364	0.795	0.517	NA	FMOD B	5.1	Fits 1217, 1234 and 1281
PAC-R373	1.050	0.725	NA	HEMI 7	11.7	6.4L Hemi, fits 1255 and 1295
PAC-R374	1.050	0.650	NA	HEMI 7	10.7	6.4L Hemi, fits 1232
PAC-R393	0.975	0.640	NA	Godzilla 7	10.9	Stock height reatier
PAC-R394	0.975	0.640	NA	Godzilla 7	11.1	Same as R393 with -0.100 installed height
Dual Spring 300 Series						
PAC-R315	1.475	1.110	0.710	STD 10	26.3	Fits 1227, 1239, 1297, 1341 and 1509
PAC-R316	1.235	0.880	0.640	LS 7	19.3	Fits 1221
PAC-R317	1.325	0.990	0.700	STD 10	17.0	Fits 1371 and 1575
PAC-R334	1.200	0.850	0.600	STD 7	17.0	Fits 1202 and 1203
PAC-R335	1.240	0.940	0.680	LS 7	20.0	Fits most LS RPM duals
PAC-R348	1.360	0.985	0.690	MINI 8	15.1	Fits 1371
PAC-R349	1.200	0.775	NA	STD 8	18.8	Fits 1200 and 1201
PAC-R355	1.225	0.920	0.650	LS 7	19.0	Fits 1222
PAC-R383	1.495	1.167	0.866	STD 10	33.0	Fits 1950
PAC-R387	1.450	1.122	0.735	STD 10	29.0	Fits 1901, 1916, 1918, 1924 and 1940
PAC-R388	1.440	1.097	0.802	STD 10	29.0	Fits 1914
PAC-R389	1.400	1.067	0.802	STD 10	29.0	Fits 1908
PAC-R391	1.400	1.067	0.785	STD 10	28.0	Fits 1903
PAC-R392	1.200	0.892	0.669	STD 10	17.0	Fits 1903
Single Spring 300 Series						
PAC-R377	1.480	1.102	1.000	STD 10	32.0	Fits 1933
PAC-R378	1.460	1.072	0.963	STD 10	30.0	Fits 1900
PAC-R382	1.235	0.857	0.755	STD 10	17.0	Fits 1902

400 SERIES

Spring Retainers

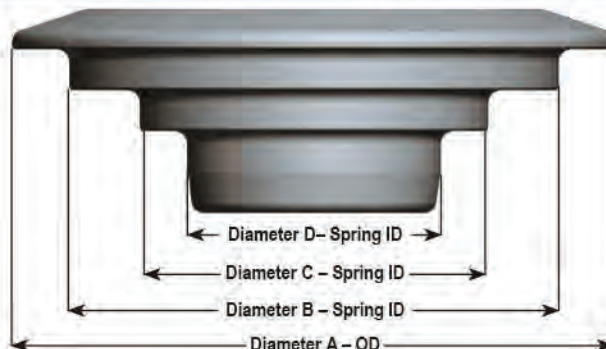
These retainers are made from the best 6AL-4V Titanium alloy and completely sonic tested to aerospace standards prior to being machined. These retainers are designed for standard to high durability use and are designed to be very robust.



PAC-R401

400 Series Ti-64 Titanium

Part No.	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Comments
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 400 Series							
PAC-R442	0.865	0.580	NA	NA	6	5.2	Fits v-rod (non destroyer)
PAC-R445	0.825	0.565	NA	NA	6	4.8	Fits v-rod destroyer
PAC-R464	0.795	0.517	N/A	N/A	FMOD B	4.0	Fits 1217, 1234 and 1281
Dual Spring 400 Series							
PAC-R404	1.480	1.165	0.840	NA	STD 10	18.8	Fits 1.625 dual springs
PAC-R405	1.450	1.090	0.780	NA	STD 10	16.6	Fits, 1225, 1243, 1325, 1343 and 1561
PAC-R408	1.450	1.040	0.715	NA	STD 10	15.0	Fits most dual drag race springs
PAC-R416	1.235	0.880	0.640	NA	LS 7	10.9	Fits 1221
PAC-R432	1.200	0.890	0.600	NA	MINI 8	10.4	Fits 1335, 1529 and 1530
PAC-R435	1.300	0.940	0.680	NA	LS 7	11.1	Fits most LS Duals
PAC-R436	1.450	1.125	0.800	NA	STD 10	17.6	Fits 1243, 1245, 1289 and 1343
PAC-R439	1.075	0.800	0.575	NA	FMOD A	7.8	Fits 1312 and 1312L
PAC-R450	1.240	0.940	0.685	NA	MINI 8	11.7	Fits most LS Duals
PAC-R455	1.225	0.920	0.650	NA	LS 7	11.1	Fits 1222, 1236
Triple Spring 400 Series							
PAC-R401	1.480	1.185	0.865	0.635	STD 10	17.9	Fits most triples
PAC-R402	1.480	1.185	0.865	0.635	STD 8	18.1	Fits most triples



500 Series Spring Retainers

These Retainers are made from Ti-17 alloy. Ti-17 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 laser engraved.



PAC-R502

500 Series Ti-17 Titanium							
Part Number	Retainer Dimensions (in.)				Lock Angle (deg.)	Weight (grams)	Comments
	Diameter A	Diameter B	Diameter C	Diameter D			
Beehive 500 Series							
PAC-R510	0.990	0.640	NA	NA	STD 10	5.7	
PAC-R511	0.990	0.640	NA	NA	LS 7	5.7	Fits 1211, 1215, 1218, 1219, 1220 and 1286
PAC-R512	0.865	0.570	NA	NA	FMOD A	5.3	Fits 1223 and 1233
PAC-R513	1.115	0.721	NA	NA	STD 10	7.7	Fits 1255 and 1295
Dual Springs 500 Series							
PAC-R504	1.475	1.165	0.840	NA	STD 10	17.0	Fits 1.625 dual springs
PAC-R505	1.400	1.090	0.780	NA	STD 10	15.0	Fits 1225, 1243, 1325, 1343 and 1561
PAC-R506	1.400	1.090	0.695	NA	STD 10	14.4	Fits 1226, 1326, 1326H, and 1393
PAC-R508	1.365	1.040	0.715	NA	STD 10	12.9	Fits most drag race duals
PAC-R509	1.365	1.040	0.715	NA	STD 8	12.9	Fits most drag race duals
PAC-R514	1.475	1.140	0.735	NA	STD 10	14.8	Fits 1385 and 1395
PAC-R515	1.475	1.110	0.710	NA	STD 10	14.4	Fits 1227, 1239, 1297, 1341 and 1509
PAC-R517	1.325	0.990	0.700	NA	STD 10	11.8	Fits 1371 and 1575
PAC-R519	1.475	1.140	0.735	NA	STD 8	14.7	Fits 1385 and 1395
PAC-R532	1.200	0.890	0.600	NA	MINI 8	10.2	
PAC-R536	1.450	1.125	0.800	NA	STD 10	15.9	Fits 1243, 1245, 1289 and 1343
PAC-R537	1.475	1.140	0.815	NA	STD 8	15.8	Fits 1342, 1386 and 1396
PAC-R538	1.475	1.140	0.815	NA	STD 10	17.3	Fits 1342, 1386 and 1396
PAC-R540	1.400	1.080	0.770	NA	STD 8	14.1	Fits 1340, 1541 and 1572
PAC-R541	1.400	1.090	0.695	NA	STD 8	13.2	Fits 1226, 1326, 1326H, AND 1393
PAC-R544	1.365	1.040	0.715	NA	MINI 8	14.2	Fits most drag race duals
PAC-R547	1.450	1.060	0.735	NA	STD 8	17.0	Fits 1323 and 1370
PAC-R550	1.240	0.940	0.685	NA	MINI 8	11.7	Fits most ls duals
PAC-R551	1.450	1.110	0.785	NA	STD 8	16.8	Fits 1244 and 1344
PAC-R552	1.360	0.985	0.680	NA	MINI 8	13.1	Fits 1371 and 1575
PAC-R553	1.440	1.070	0.750	NA	STD 8	15.8	Fits 1574
PAC-R556	1.440	1.090	0.780	NA	STD 8	16.3	Fits, 1225, 1243, 1325, 1343 and 1561
PAC-R557	1.450	1.120	0.715	NA	STD 8	15.4	Fits 1227, 1239, 1297, 1341 and 1509
PAC-R558	1.200	0.880	0.615	NA	STD 10	9.3	Fits 1392
PAC-R559	1.360	0.990	0.068	NA	STD 8	20.5	Fits 1373
PAC-R572	1.240	1.020	0.710	NA	STD 10	12.2	Fits 1372
Triple Springs 500 Series							
PAC-R501	1.475	1.185	0.865	NA	STD 10	16.6	Fits most triple springs
PAC-R502	1.475	1.185	0.865	NA	STD 10	16.6	Fits most triple springs
PAC-R503	1.490	1.215	0.865	NA	STD 8	17.2	Fits 1366
PAC-R565	1.620	1.215	0.865	NA	STD 10	21.5	Large OD for better edge wear
Solid Stop Retainers							
<i>These retainers feature a dent at the bottom of the cone to mechanically stop locks from pulling through</i>							
PAC-R522	1.480	1.180	0.865	NA	STD 8	19.4	Fits most triple springs
PAC-R523	1.480	1.180	0.865	NA	STD	19.4	Fits most triple springs
PAC-R524	1.380	1.040	0.715	NA	STD	16.7	Fits most drag race duals
PAC-R525	1.380	1.040	0.715	NA	STD	16.7	Fits most drag race duals

Tool Steel Retainers Series



PAC-R601

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)	Comments
	Diameter A	Diameter B	Diameter C			
Beehive 600 Series <i>Some require special spring seats for proper installation</i>						
PAC-R633	0.875	0.640	NA	STD 7	6.0	Fits 1409 and all .650 ID beehives- for drage race use only
PAC-R643	0.950	0.640	NA	MINI 8	8.4	Fits 1427 (for drag race use only)
PAC-R654	1.125	0.715	NA	MINI 8	13.0	Fits 1295
Dual Spring 600 Series <i>Some require special spring seats for proper installation</i>						
PAC-R606	1.400	1.090	0.695	STD 10	16.6	Fits 1226, 1326, 1326H, AND 1393
PAC-R608	1.350	1.040	0.715	STD 10	15.7	Fits most drag race duals
PAC-R609	1.350	1.040	0.715	STD 8	15.9	Fits most drag race duals
PAC-R614	1.450	1.140	0.735	STD 10	18.8	Fits 1385 and 1395
PAC-R615	1.475	1.110	0.710	STD 10	21.8	Fits 1227, 1239, 1297, 1341 and 1509
PAC-R616	1.235	0.880	0.640	LS 7	12.6	Fits 1221
PAC-R619	1.450	1.140	0.735	STD 8	17.8	Fits 1385 and 1395
PAC-R632	1.250	0.890	0.600	MINI 8	11.7	Fits 1335, 1529 and 1530
PAC-R635	1.200	0.940	0.685	LS 7	13.4	Fits most LS duals
PAC-R641	1.400	1.090	0.695	STD 8	17.5	Fits 1226, 1326, 1326H, AND 1393
PAC-R644	1.400	1.040	0.715	MINI 8	22.0	Fits most drag race duals
PAC-R649	1.200	0.775	NA	STD 8	14.8	Fits 1200 and 1201
PAC-R650	1.250	0.940	0.685	MINI 8	15.9	Fits most LS duals
PAC-R651	1.450	1.110	0.785	STD 8	13.5	Fits 1244 and 1344
PAC-R655	1.225	0.920	0.650	LS 7	16.3	Fits 1222, 1236
PAC-R658	1.200	0.880	0.615	Mini 8	16.3	Fits PAC-1392
PAC-R659	1.380	0.990	0.675	MINI 8	21.0	Fits 1373
PAC-R660	1.575	1.120	0.715	Mini 8	24.0	Fits PAC-1341
PAC-R661	1.430	1.095	0.695	MINI 8	22.0	Fits 1226, 1326, 1326H, AND 1393
PAC-R672	1.240	1.020	0.710	Mini 8	18.8	Fits PAC-1372

700 Series Dual Springs

PAC-R758	1.145	0.880	0.610	MINI 8	13.2	Fits 1392
PAC-R768	1.360	1.076	0.752	MINI 8	20.1	Fits 1394

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 orange.

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
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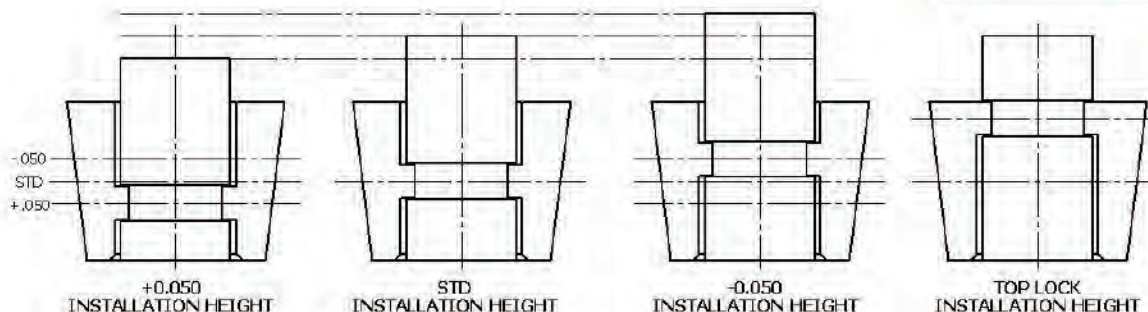
11/32" Valve Locks

PAC-L8005	11/32	STD 10	10	SQUARE	-0.050	TITANIUM
PAC-L8006	11/32	STD 10	10	RADIUS	-0.050	TITANIUM
PAC-L8007	11/32	STD 10	10	SQUARE	STD	TITANIUM
PAC-L8008	11/32	STD 10	10	RADIUS	STD	TITANIUM
PAC-L8015	11/32	STD 8	8	SQUARE	STD	TITANIUM
PAC-L8016	11/32	STD 8	8	RADIUS	STD	TITANIUM
PAC-L8017	11/32	STD 8	8	SQUARE	+0.050	TITANIUM
PAC-L8018	11/32	STD 8	8	RADIUS	+0.050	TITANIUM
PAC-L8025	11/32	STD 10	10	SQUARE	-0.050	STEEL
PAC-L8026	11/32	STD 10	10	RADIUS	-0.050	STEEL
PAC-L8027	11/32	STD 10	10	SQUARE	STD	STEEL
PAC-L8028	11/32	STD 10	10	RADIUS	STD	STEEL
PAC-L8035	11/32	STD 8	8	SQUARE	STD	STEEL
PAC-L8036	11/32	STD 8	8	RADIUS	STD	STEEL
PAC-L8037	11/32	STD 8	8	SQUARE	+0.050	STEEL
PAC-L8038	11/32	STD 8	8	RADIUS	+0.050	STEEL
PAC-L8119	11/32	MINI 8	8	RADIUS	STD	TITANIUM
PAC-L8121	11/32	MINI 8	8	SQUARE	STD	TITANIUM
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
PAC-LR8025	11/32	STD 10	10	SQUARE	-0.050	STEEL
PAC-LR8027	11/32	STD 10	10	SQUARE	STD	STEEL
PAC-LR8028	11/32	STD 10	10	RADIUS	STD	STEEL

Part No.	Valve Size	Description & Application Details	Type	Lock Angle (deg)	Valve Groove Type	Installation Height	Material
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3/8" Valve Locks

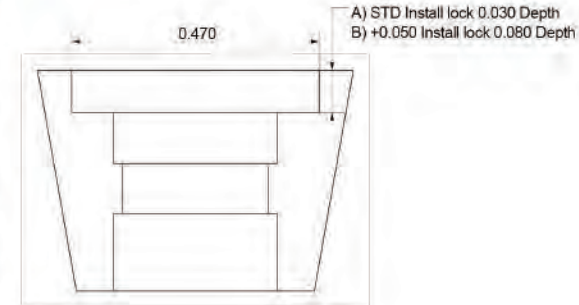
PAC-L8090	3/8	Titanium STD 10 3/8" Valve Lock	STD 10	10	SQUARE	-0.050	TITANIUM
PAC-L8091	3/8	Titanium STD 10 3/8" Valve Lock	STD 10	10	SQUARE	STD	TITANIUM
PAC-L8092	3/8	Steel STD 10 3/8" Valve Lock	STD 10	10	SQUARE	STD	STEEL
PAC-L8093	3/8	Steel STD 10 3/8" Valve Lock	STD 10	10	SQUARE	+0.050	STEEL
PAC-L8094	3/8	Titanium STD 8 3/8" Valve Lock	STD 8	8	SQUARE	STD	TITANIUM
PAC-L8095	3/8	Titanium STD 8 3/8" Valve Lock	STD 8	8	SQUARE	+0.050	TITANIUM
PAC-L8096	3/8	Steel STD 8 3/8" Valve Lock	STD 8	8	SQUARE	+0.050	STEEL
PAC-L8097	3/8	Steel STD 8 3/8" Valve Lock	STD 8	8	SQUARE	+0.100	STEEL
PAC-L8127	3/8	Steel Mini 8 3/8" Valve Lock	MINI 8	8	SQUARE	STD	STEEL
PAC-L8128	3/8	Steel Mini 8 3/8" Valve Lock	MINI 8	8	SQUARE	+0.050	STEEL



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	-0.050	TITANIUM
PAC-L8046	5/16"	STD 10	10	RADIUS	-0.050	TITANIUM
PAC-L8047	5/16"	STD 10	10	SQUARE	STD	TITANIUM
PAC-L8048	5/16"	STD 10	10	RADIUS	STD	TITANIUM
PAC-L8055	5/16"	STD 8	8	SQUARE	STD	TITANIUM
PAC-L8056	5/16"	STD 8	8	RADIUS	STD	TITANIUM
PAC-L8057	5/16"	STD 8	8	SQUARE	+0.050	TITANIUM
PAC-L8058	5/16"	STD 8	8	RADIUS	+0.050	TITANIUM
PAC-L8064	5/16"	STD 10	10	SQUARE	-0.050	STEEL
PAC-L8065	5/16"	STD 10	10	RADIUS	-0.050	STEEL
PAC-L8066	5/16"	STD 10	10	SQUARE	STD	STEEL
PAC-L8067	5/16"	STD 10	10	RADIUS	STD	STEEL
PAC-L8073	5/16"	STD 8	8	SQUARE	STD	STEEL
PAC-L8074	5/16"	STD 8	8	RADIUS	STD	STEEL
PAC-L8075	5/16"	STD 8	8	SQUARE	+0.050	STEEL
PAC-L8076	5/16"	STD 8	8	RADIUS	+0.050	STEEL
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	+0.050	TITANIUM
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-L8139	5/16"	MINI 8	8	RADIUS	TOP LOCK	TITANIUM
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
PAC-L8161	5/16"	LS-1	7	RADIUS	STD	STEEL
PAC-L8162	5/16"	LS-1	7	RADIUS	+0.050	STEEL
PAC-LR8064	5/16"	STD 10	10	SQUARE	-0.050	STEEL
PAC-LR8065	5/16"	STD 10	10	RADIUS	-0.050	STEEL
PAC-LR8066	5/16"	STD 10	10	SQUARE	STD	STEEL
PAC-LR8067	5/16"	STD 10	10	RADIUS	STD	STEEL

Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
6mm Valve Locks						
PAC-L8089	6mm	FMOD B	7	TRIPLE RADIUS	STD	STEEL (OE)
7mm Valve Locks						
PAC-L8078	7mm	STD 10	10	RADIUS	-0.100	TITANIUM
PAC-L8079	7mm	STD 10	10	RADIUS	-0.050	TITANIUM
PAC-L8080	7mm	STD 10	10	RADIUS	-0.100	STEEL
PAC-L8081	7mm	STD 10	10	RADIUS	-0.050	STEEL
PAC-L8082	7mm	STD 8	8	RADIUS	-0.050	TITANIUM
PAC-L8083	7mm	STD 8	8	RADIUS	STD	TITANIUM
PAC-L8084	7mm	STD 8	8	RADIUS	-0.050	STEEL
PAC-L8085	7mm	STD 8	8	RADIUS	STD	STEEL
PAC-L8086	7mm	FMOD A	7	TRIPLE RADIUS	STD	STEEL (OE)
PAC-L8087	7mm	FMOD A	7	RADIUS	TOP LOCK	STEEL
PAC-L8088	7mm	FMOD A	7	RADIUS	+0.050	STEEL
PAC-L8129	7mm	MINI 8	8	RADIUS	-0.050	TITANIUM
PAC-L8130	7mm	MINI 8	8	RADIUS	STD	TITANIUM
PAC-L8140	7mm	MINI 8	8	RADIUS	TOP LOCK	TITANIUM

Part No.	Listed Valve Size	Type	Lock Angle	Valve Groove Type	Installation Height	Material
8mm Valve Locks						
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-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-L8143	8mm	MINI 8	8	RADIUS	-0.050	STEEL
PAC-L8144	8mm	MINI 8	8	RADIUS	TOP LOCK	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	-0.050	STEEL
PAC-L8160	8mm	STD 10	10	RADIUS	STD	STEEL
PAC-L8163	8mm	STD 8	8	RADIUS	STD	STEEL
PAC-L8164	8mm	STD 8	8	RADIUS	+0.050	STEEL

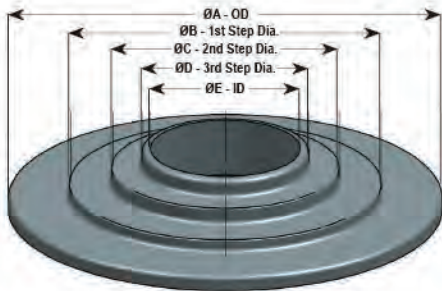


Seats • Shims • Shim Kits

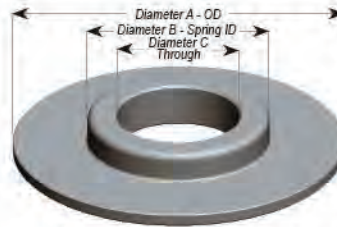
Chrome Moly Spring Seats

Step Seats

Part No.	Diameters (in.)				
	Diameter A (OD)	Diameter B (1st Step Dia.)	Diameter C (2nd Step Dia.)	Diameter D (3rd Step Dia.)	Diameter E (Thru Hole ID)
PAC-S122	1.500	1.040	0.714	NA	0.570
PAC-S122X	1.500	1.040	0.714	NA	0.570
PAC-S123	1.650	1.185	0.865	0.635	0.570
PAC-S123X	1.650	1.185	0.865	0.635	0.570
PAC-S124	1.550	1.140	0.730	NA	0.570
PAC-S124X	1.550	1.140	0.730	NA	0.570
PAC-S125	1.270	0.880	0.640	NA	0.520
PAC-S125X	1.270	0.880	0.640	NA	0.520
PAC-S139X	1.500	1.100	0.710	NA	0.570
PAC-S150X	1.495	1.090	0.700	NA	0.035



Step Seat



Chrome Moly Spring Seat



PAC-S101



PAC-S102



PAC-S109

Part No.	Diameters (in.)			
	Diameter A (OD)	Diameter B (Spring ID)	Diameter C (ID)	Dim "E" Thickness
0.060 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	1.100	0.580	0.510	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-S135	1.270	0.680	0.570	0.060
PAC-S138	1.270	0.615	0.575	0.060
PAC-S141	1.271	0.640	0.515	0.060
0.030 THICKNESS				
PAC-S132	1.500	0.715	0.630	0.030
PAC-S133	1.650	0.630	0.570	0.030
PAC-S134	1.500	0.715	0.570	0.030
PAC-S136	1.270	0.680	0.510	0.030

Spring Shims

Hardened spring shims are critical to achieving the correct spring installed height.

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

PAC-S196

PAC-S190

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.

Spring Shim Kits

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	0.015 Shim	0.020 Shim	0.030 Shim	0.050 Shim	Inside Diameter (in)
PAC-KS91	1.620 Dia Shim Kit- (64 pcs total)	S199	S198	S197	S196	0.645
PAC-KS92	1.500 Dia Shim Kit- (64 pcs total)	S195	S194	S193	S192	0.645
PAC-KS93	1.250 Dia Shim Kit- (64 pcs total)	S191	S190	S189	S188	0.570
PAC-KS94	1.500 Dia Shim Kit- (64 pcs total)	S187	S186	S185	S184	0.570

Valvetrain Tools



Calibration Springs

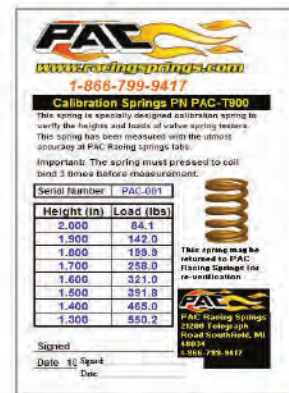
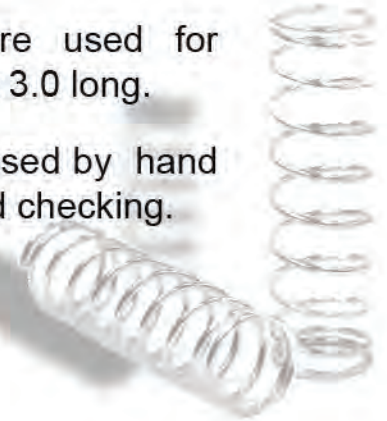
Specially designed springs for calibrating spring testers. These springs come complete with data sheets showing various loads at heights to check the accuracy of spring testers.

Checking Springs

PAC-Tg10

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

These springs can be compressed by hand for ease of valvetrain setup and checking.



Certificate of calibration included

PAC-T900

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



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

Custom Valve Spring Design Request Form

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.

Name _____
 Company Name _____
 Address _____
 Address _____
 City _____
 State _____
 Zip Code _____
 Country _____
 Phone Number _____
 Fax Number _____
 Email Address _____
 Website _____

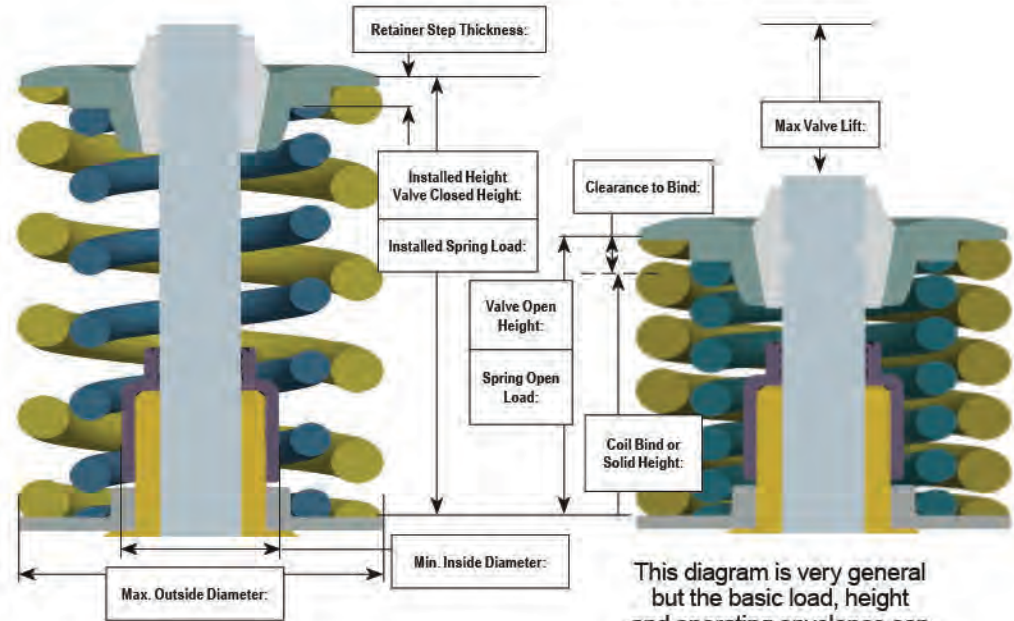
What is the application: (Street, Drag, Oval, etc.)? _____
 What is the expected RPM Range? _____
 What is the expected life of the spring: (Race, Season, Cycles, etc.)? _____
 What type of springs is desired: (Single, Dual, Triple, Beehive, etc.)? _____
 Does this spring need to fit an existing retainer 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.

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	



PAC RACING SPRINGS
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PDRA, and Contingency Connection



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