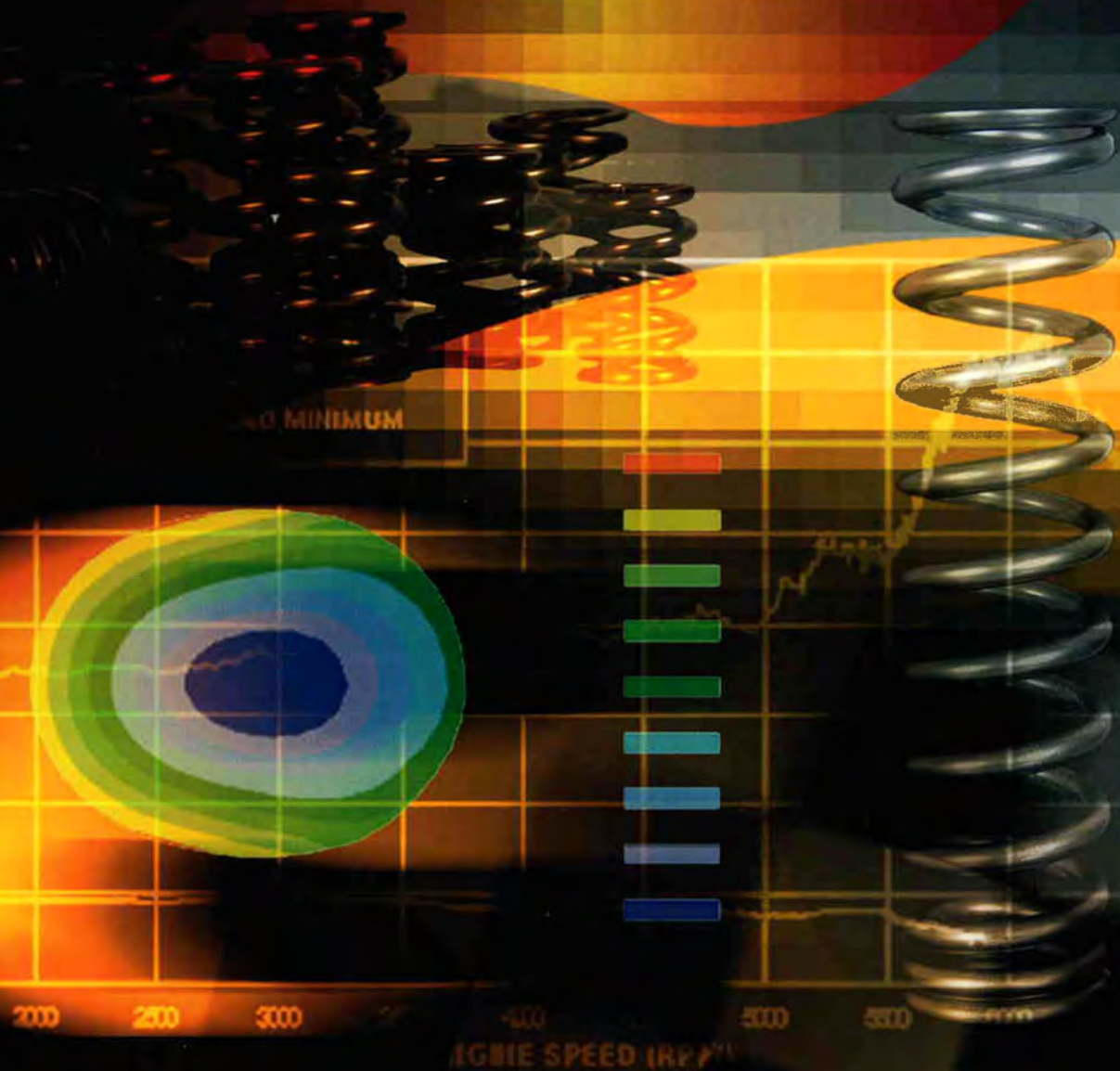


# PAC

## RACING SPRINGS

A PETERSON AMERICAN COMPANY

[www.racingsprings.com](http://www.racingsprings.com)



# PRODUCTS

## ENGINE VALVE SPRINGS



### The Edge

With PAC Racing Valve Springs, leading-edge technology gives advantages needed to consistently win. With our proprietary Pacaloy® high-tensile steel, PAC-Enhanced® processing, and Pro-PAC Performance processing, PAC Racing Springs will help you Lead the PAC.

### Relentless Development

At PAC Racing, our engineers never stop investigating new materials, new processing, and new design methods to provide our customers with the highest-performing valve springs. You work hard to win – and we work hard to help you get there.

### Manufacturing Performance

By applying advanced manufacturing techniques, PAC Racing Springs generates the absolute optimum combination of mechanical properties, surface conditions and residual stress profiles to maximize the life and speed capability of your springs. Gas nitriding, surface enhancement technologies (such as micro-polishing and nano-peening™) and multiple heat-treatment stages are precisely controlled to minimize load loss in service. Our quality engineers further ensure that each part exceeds the highest standards required in all details. You can be confident that every high-performance spring from PAC provides high-level integrity that performs consistently all the way to the winner's flag.

### Manufacturing and Design Flexibility

Whether you need valve springs for your 18,000 RPM motorcycle engine, your 10,000 RPM Cup engine, or even your racing lawn mower, PAC Racing has the technical leadership, the experience, and the track record to get you across the finish line first.

### Product Line

While most of our product line is available through major valve and cam suppliers, we also work one-on-one with engine builders, from any racing series. We can design and manufacture exactly what you need, when you need it, from one spring to millions of springs.

## SUSPENSION SPRINGS

### The PAC Suspension Spring Revolution

We studied every aspect of racing suspension springs, using the latest servo-hydraulic test machines, and state-of-the-art test methods and data analysis. We studied fatigue life, load and free-length loss, and suspension travel. Then, we did what no one else has done before: we applied high-tech valve spring processing to suspension springs. The changes were not evolutionary...they were revolutionary. Our suspension-spring customers are now in the lead in handling, chassis suspension setup, and reliability.

### What Can PAC Suspension Springs Do For You?

Our springs are designed to exceed all rule book requirements. Here's what we're providing our customers right now:

- Maintaining spring load and rate requirements – before, during, and after the race.
- Exceeding spring travel requirements (and we're always pushing for more).
- Consistent rate curves and loads from run to run, and from spring to spring. We use the same inspection equipment as race officials.
- Superior fatigue life – one less thing to worry about when you're on the track.
- Superior load-maintaining qualities.
- Custom spring designs to fit any applications.



## DESIGN

Design starts with your performance goals. We utilize state of the art computer software for mathematical, kinematic and dynamic analysis to provide spring designs that exceed your requirements. Experienced motorsports engineers utilize real world engine and chassis data to produce accurate and efficient results.

## METALLURGICAL

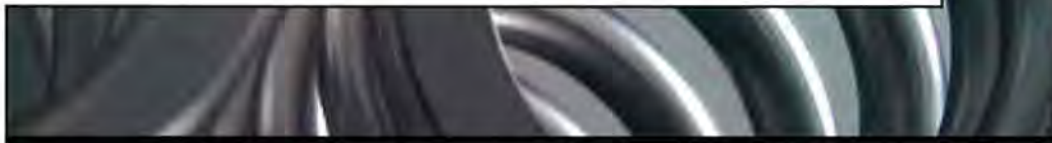
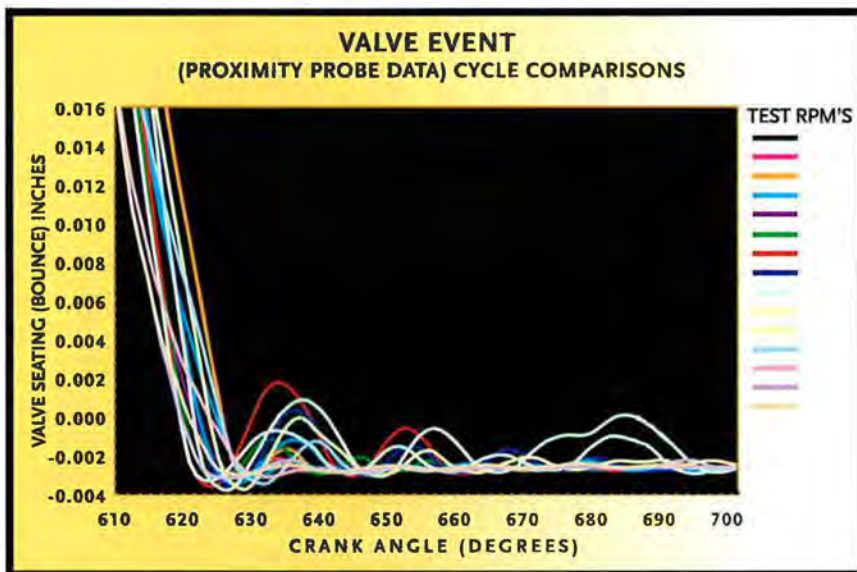
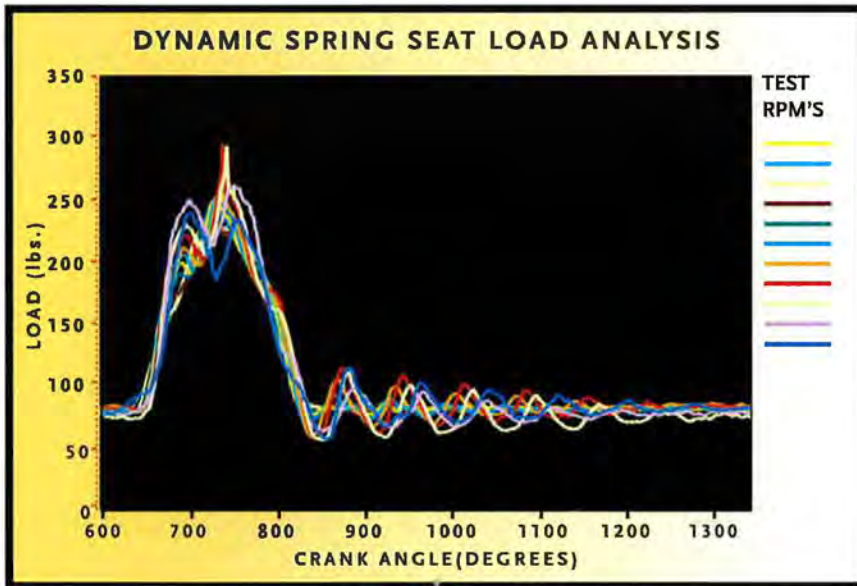
PAC metallurgists search the globe for the strongest and cleanest steels. The materials are continuously scrutinized for tensile strength properties, ductility, inclusion content and fracture toughness.

Industry-leading technologies like X-Ray Diffraction, SEV cleanliness evaluations and Scanning Electron Microscopes with EDAX, push metallurgical analysis to the atomic nano level. Tensile testing, metallographic analysis, microhardness measurement, and impact testing are all used to ensure that the material we use today, and the new materials of tomorrow, are better than anything else out there.

## TESTING

Race-winning valve springs means understanding exactly how springs are going to perform. At PAC Racing Springs, we can test your engine in our Tech Center and run the springs under conditions that allow us to measure every detail of your valve-train's performance. With engine testing up to 11,000 rpm and our rapid prototyping we are able to make design changes unlike any other company. If you want to ensure the best designs with the best performance, let us test your valve-train and design the best spring possible.

Before you race, we prove the durability of our designs, our materials, and our processing right in our Tech Center. We have a wide array of fatigue test machines that can simulate static and dynamic loadings, with or without oil, at temperature. We can test ANY spring we manufacture! This testing done in house ensures that on race day you have the confidence and performance you need to win.



# SPECIAL SERVICES

## RAPID PROTOTYPING AND DEVELOPMENT (PAC RPD)

PAC Racing Springs has pioneered technology that allows for a closed loop development cycle as diagrammed below.

The process incorporates testing of a customer's engine with real time online spring coiling to allow for design changes based on feedback from valvetrain performance data. The efficiency of this closed loop system allows for nearly an unlimited number of spring design iterations to optimize valvetrain performance for specific applications. The prototyping equipment is the same equipment that is used to manufacture the optimized spring for production, ensuring that the finalized design is not compromised. With this service PAC Racing Springs can offer a customized spring, designed for your valvetrain performance requirements.



### On Location Technical Support and Testing

PAC Racing Springs offers our testing experience and instrumentation for use and evaluation on location. This service is exclusively offered by PAC Racing Springs for better understanding of specific customer engine setups. PAC Racing can manufacture spring prototypes, instrument specific valve train components including high speed video and arrive on location to conduct testing. With this service we are able to test the performance of individual valve trains, make recommendations, and redesign the spring to allow for optimum spring performance. While we understand the sensitive nature of competition we offer this service as an alternative to RPD. Please contact us for further details.

### Special and Custom Springs

PAC Racing Springs has a wide range of capability through our connection to the automotive OEM market. We offer springs from wire size 0.008 inches diameter to wire size of 1.250 inches in diameter. With spring diameters ranging from 0.024 inches to 1.8 inches with free length up to eight feet long.

With our manufacturing capability also comes our highly technical processing capability. PAC Racing Springs has the research and technical expertise to provide what you need for your application.

PAC Racing Springs welcomes inquiries for any custom orders or applications. If we can't do it, a division or subsidiary in Peterson American Corporation can.

### PAC Tech Center

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